



Rialtas na hÉireann  
Government of Ireland

# National Risk Assessment 2021/2022

## Overview of Strategic Risks





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## Foreword

The experience of the past number of years has really brought home the importance of work to identify and prepare for risk. As a process to promote an open and inclusive discussion to identify the major strategic risks facing the country, the National Risk Assessment is a central part of this work. Since it was first published in 2014 it has, at an early stage, identified strategic risks facing the country including Brexit, housing and pandemics.



Very few parts of our lives in Ireland have been left untouched by the COVID-19 pandemic. Our society and our expectations for the economy have been altered by the pathway of the pandemic, and most significantly it has come with great costs to health and life. Though the continuing national vaccination programme and advances in our understanding of the virus are driving substantial progress, the future trajectory is uncertain and the pandemic continues to represent a real risk.

In developing this National Risk Assessment, much consideration has been given to the pandemic - the new risks it has created, how it has magnified existing issues, and how it is impacting our thinking about preparing for and dealing with major risks. Given the importance of Ireland's relationship with the United Kingdom, Brexit is also having a significant impact on our risk landscape. At the same time, we have to maintain focus on the range of other social, economic and environmental risks that can arise – and make sure our systems have the capacity to deal with them.

New risks included in this seventh National Risk Assessment include economic scarring, digital exclusion, and the rise of a multi-polar world. The combination of the pandemic and Brexit has exacerbated previously identified risks including social cohesion, skills shortages and the supply and affordability of housing. Major risks, in particular climate change, are taking on even greater importance.

The scale and significance of the climate challenge and the risks presented by biodiversity loss were emphasised throughout the public consultation process. The consultation also highlighted the integrated and compounding nature of risks. As has been so clearly shown by the pandemic, risks are rarely confined to discrete areas and a holistic approach to risk is essential.

Another major learning from the pandemic is the importance of having resilient systems to manage major risks. We are committed to putting the resources and policies in place to build on our resilience and make sure that Ireland has the capacity to deal with challenges – now and in the future.

The National Risk Assessment plays an important role in how we identify and prepare for these challenges. It promotes awareness and robust discussion of the most pressing risks facing the country. For departments and agencies, it provides a context within which action can be taken to mitigate the complex and varied risks identified. Being vigilant of the risks facing our country helps us all to take more proactive and informed measures to deal with them.

**Micheál Martin T.D.**  
**Taoiseach**

**December 2021**

# 1. Introduction

## 1.1. About the National Risk Assessment

The National Risk Assessment (NRA) provides an opportunity to identify and discuss significant risks that may arise for Ireland over the short, medium and long term. Since its inception in 2014, it has provided a systematic overview of national-level risks and has drawn attention, at an early stage, to the importance of phenomena such as Brexit, housing shortages as well as pandemics.

The NRA process has a particular focus on strategic or structural risks. These risks can

occur over different time horizons and have very different impacts in terms of immediacy, reach and costs. They can also be within varying degrees of national control. What is common is they present potentially significant risks to Ireland. In this way, the NRA contributes to a more rigorous process to identify these risks to inform policy.

The NRA process has been designed to ensure wide ranging consideration of the risks that Ireland may face, avoid the potential for ‘group think’ and enable consultation and inputs across the range of stakeholders. An overview of the process is set out in Box 1.

Box 1: Overview of the NRA process

The NRA was introduced following the financial crisis of 2008/09. The process has been designed to safeguard against ‘group think,’ to be inclusive and ensure that the full range of strategic risks facing the country are identified and considered.

Each year, a Steering Group, chaired by the Department of the Taoiseach and comprising representatives from all Government departments and relevant agencies works together to draw up a draft list of strategic risks. A comprehensive literature review is carried out to ensure an appropriate evidence-based analysis of the identified risks is drafted.

The Draft National Risk Assessment is then published for public consultation. This consultation period promotes inclusive engagement from the public to make certain that all viewpoints are collected and analysed, that no strategic risks are omitted and that the risks identified in the draft are sufficiently covered.

In addition, there are usually other opportunities for the engagement of stakeholders to stimulate a robust and extensive debate of the draft list of risks, sometimes through a dedicated seminar.

This final National Risk Assessment is then published by Government giving a comprehensive view of strategic risks facing the country based on engagement with Government departments and agencies, relevant stakeholders and the public. Copies of previous National Risk Assessments can be found on [www.gov.ie](http://www.gov.ie)

The NRA process is not intended to replace the detailed risk management and preparedness carried out by departments and agencies. It is important to stress that major strategic risks which pose a threat to

Ireland are dealt with in a host of ways by different public and private organisations, as well as in some cases at EU or international level. In this context, some examples of the specific risk management measures



conducted by departments and agencies are provided in Box 2.

Box 2: Risk identification and management by departments and agencies

Detailed risk management carried out includes the extensive work of the Department of Finance, the Central Bank of Ireland and the Irish Fiscal Advisory Council in relation to financial and macro-prudential risks.

It also includes the work of the Government Task Force on Emergency Planning, supported by the Office of Emergency Planning, which produces a National Risk Assessment centred on risks relating to potential civil emergencies at national level. This is conducted in the context of the Strategic Emergency Management National Structures and Framework and Ireland's reporting commitments under the EU Civil Protection Mechanism.

All departments and agencies also carry out their own risk assessment processes as part of their own strategic planning and management responsibilities.

This National Risk Assessment aims to provide a high-level overview of strategic risks, and facilitate public and stakeholder engagement about these.

### Categorising risks

Risks by their nature are not confined to neat categories. However, to ensure a comprehensive approach to identifying and documenting risk, it is helpful to provide a structure for the NRA process. In this context, the categories of risk are based on the approach used by the World Economic Forum in their 'Global Risks Report'; these are Geopolitical, Economic, Social, Environmental and Technological. The list of strategic risks for Ireland is at Table 1 below and section 1.2 provides a more detailed overview of these. The order in which the categories and subcategories are presented or the level of detail provided does not imply any rank order or assessment regarding the relative scale or importance of the risks.

Additionally, within this overall framework, it is important to emphasise the cross cutting and integrated nature of risks - whereby developments in one risk category impact on others - and it is important to

consider policy responses in this regard. For example, labour shortages in the construction sector impact the delivery of housing. The cyber-attack on Ireland's health service in May 2021 at the same time as the country was working to manage the consequences of COVID-19 clearly illustrates the cumulative nature of risks. Nowhere is the integrated nature of risk more apparent than with climate change. For example, initiatives to increase housing supply have to take account of the possible impacts that changes to land use in one area can have on water systems and flooding - as was evident in both the Shannon Basin and central Dublin over the last two decades. Similarly, failing to upgrade public transport systems and infrastructures can increase reliance on cars with associated impacts on carbon emissions and costs.

The overlapping and compounding nature of the risks identified through this process is underlined throughout the Assessment.

A further consideration is that the sources of many of the most extreme risks are not domestic in nature or are outside purely national control. As such, the identification and management of them must, in part, be conducted through international alliances and processes. Ireland’s membership of the EU, multilateral organisations and wider international relations are important in this regard.

#### National Risk Assessment – A consultative and iterative process

As outlined above, a key aim of the process is to safeguard against ‘group think’ in identifying strategic risks to the country. For the process to be robust and comprehensive, it is important that all views - including dissenting and minority ones - feed into the NRA.

In this context, the NRA involves a public consultation process to assess whether the risks identified accurately represent the major risks facing the country, whether there are any significant risks that should be

added and to ensure inclusive engagement from all corners of society. As part of this, the Draft List of Risks and the accompanying assessment was published on 23 July 2021 for public consultation and laid before the Oireachtas. The consultation ran until 8 September and involved an online survey and the opportunity to provide written submissions.<sup>1</sup> The findings of this consultation have been analysed and, where appropriate, the NRA has been updated to reflect this feedback.

The participants in the consultation process were broadly in agreement that the overall areas identified do represent the main strategic risks facing the country - though there a number of observations around the nature and scale of the particular risks. Contributions received during the consultation ranged from general comment to detailed analysis with reference to other documents. Most of it was additive in nature.

<sup>1</sup> 51 organisations, public representatives and individuals completed the survey and/or made formal submissions. A full overview of the consultation process and a summary of the views provided is at Annex 1

### Though feedback was received across a wide range of areas, it largely centred on 5 key themes:

- The increasing and existential risk posed by climate change in Ireland and globally and the paramount importance of addressing this risk.
- The changing nature of work in terms of skills requirements, the role of technology, financial and occupational security, and opportunities – particularly for younger workers.
- Related to the changing nature of work, developments impacting social cohesion and economic equity, particularly the cost of housing, access to secure and reliable work opportunities, the impact of technology, social media and the rights of minorities.
- International relations and impacts for Ireland, particularly with relation to the pandemic, Brexit and changing political and economic dynamics.
- The accelerating impact of the pandemic across nearly all risk categories and the importance of ensuring that society is better prepared for major risks – particularly in terms of strengthening the capacity of the public sector in this regard.

The NRA has also been updated to reflect major developments nationally and internationally since its publication in July; including a number of major international reports on the necessity of a stronger global response to address climate change, the implementation of the vaccination programme and the reopening of many aspects of the economy and society, developments

in relation to Brexit, changes to the international tax system and the issues arising from pressures on global supply chains. A new risk has been included on inflation and the previously listed risk on changes to the international tax and financial system has been incorporated into a reconfigured risk - 'Public finances and the financial system'.

**Table 1: Strategic risks – 2021/2022**

<p><b>Geopolitical Risks</b></p>	<p>Rise of a multipolar world                      Future direction of the European Union                      Ireland's relationship, post-Brexit, with the United Kingdom                      Armed conflict, terrorism and hybrid threats</p>
<p><b>Economic Risks</b></p>	<p>Economic scarring                      Public finances and the financial system                      Labour shortages, supply chain and capacity constraints                      Inflation                      Vulnerabilities arising from Ireland's enterprise mix                      Changes to international trading relationships                      Disruption to a secure and sustainable energy supply</p>
<p><b>Social Risks</b></p>	<p>Social cohesion                      Housing and sustainable development                      Migration and integration                      Demographic change                      Digital exclusion</p>
<p><b>Environmental Risks</b></p>	<p>Climate change                      Biodiversity loss                      Extreme weather events and other natural disasters                      Pandemics                      Antimicrobial resistance</p>
<p><b>Technological Risks</b></p>	<p>Food safety                      Data flows, storage and security                      Disruptive technology                      Cybersecurity                      Nuclear contamination</p>

## Capturing the impact of COVID-19

The period since the NRA was last published in 2019 has been particularly turbulent with a number of major risks coming to pass, which have had and will continue to have significant repercussions. The COVID-19 pandemic is the most significant and wide ranging of these, not least in terms of the costs to health and life. Brexit and the cybersecurity attack on the health service are also two major risks that have materialised. In addition, significant risks such as skills shortages persist and must also be considered. This is at the same time as major risks, in particular climate change, are taking on an even greater importance.

Previously, the NRA has been an annual exercise but COVID-19 impacted this cycle in 2020. While the pandemic continues to cause major disruption, upheaval, and in some cases, tragedy, we have evolved our approach to managing the pandemic based largely on the benefits of the vaccine programme and further knowledge of the nature of the virus. It is therefore, an appropriate time to think strategically about the changes brought about by the pandemic, how it has magnified existing risks and the new risks it has introduced into our lives, as well as how a process such as the NRA can help us to better prepare for and deal with major risks.

Geopolitically, the pandemic has tested alliances and multilateral allegiances as individual countries have sought, above all, to safeguard their own citizens. A key COVID-19 impact has been the exposure of vulnerabilities in global supply chains and the risk of dependency on other countries. Whether this results in a weakened multilateralism, changed patterns of globalisation and a starker multipolar world remains to be seen. Other major geopolitical risks are those arising from Brexit and the possibility of hybrid threats which impact on, inter alia,

digital infrastructure.

Economically, the pandemic has impacted global growth through the necessity for lockdowns and restrictions although growth projections for Ireland have improved in recent months.

However, there are major risks outstanding. The first is the ongoing risk of a resurgence of COVID-19 or related variants that may require further restrictions. The second is that the pandemic may carry significant legacy risks, in particular economic scarring on individuals or firms. Combined with Brexit, the ongoing experience of the pandemic has demonstrated the absolute importance of strong international transport and freight links. These sectors have been severely impacted by the pandemic and their recovery is important to support wider economic and social development. Other major risks for Ireland come in the form of developments in the international financial system, and the working through of Brexit which will continue to have major frictional effects on trade.

Every person and community have been affected by the pandemic in one way or another. Many of the social risks documented in previous plans still hold true but have been accentuated. Notwithstanding the very strong demonstration of community during the pandemic, social cohesion will be tested as we struggle with high levels of unemployment within certain cohorts or sectors and housing shortages and these issues will bear particularly on younger people. COVID-19 has underlined the necessity of countries embracing digitalisation in a comprehensive way but this also gives rise to associated vulnerabilities such as disinformation and cyber-threats.

Environmentally, the great challenge remains the integrated impacts of climate

change and the associated extreme weather events that arise as well as the risk of biodiversity loss. The ongoing viability of built and natural environments will be challenged. Two of the ways in which Ireland can help to mitigate these impacts is to reduce carbon emissions and by more compact urban growth underpinned by sustainable modes of transport. Such adaptations will require considerable planning and the management of resources.

In terms of technological risks, COVID-19 has shown how fundamentally we rely on digital connectivity and the associated data-flows between nations and regions. Although these are often taken for granted like other infrastructures, their secure and reliable continuity is at some risk. Other risks in this category remain, such as cybersecurity. Experience has shown how impactful the materialisation of such risks in this area can be.

A principal aim of the NRA is to foster debate about these and other major risks facing our country and stimulate discussion about how Ireland should orientate toward them. The experience of COVID-19 should make every organisation, and not just Government, question how they approach risk and ask whether more could be done.

#### Risk assessment – lessons from COVID-19

Internationally, there are two emerging lessons for risk governance processes arising out of the experiences of confronting COVID-19. The first arises from systemic risks which have an impact on entire economies or societies rather than being contained within a discrete policy area. COVID-19 is not a purely medical issue relating to the health of individuals. It cascaded beyond the health domain and impacted on entire economies and societies and glob-

al relations more generally. As we have seen with the cyberattack on the health services in 2021, there is a cascade effect in other systems and services. A greater understanding of these kinds of cascade effects and how to mitigate them is required.

Precisely because the impact of these risks is systemic, they and their consequences are hard to predict. This is one of the reasons why policymakers are emphasising the idea of resilience, which is the second major learning from the pandemic. Resilience has been defined as a capacity to cope with challenges and undergo transformations in a sustainably fair manner. It is a response to coping with and managing the vulnerabilities in many countries as revealed by the pandemic, from a shortage of vital medical equipment to the fragility of supply chains. The European Commission has recommended that resilience be a new compass for EU policies so that all member states are better prepared to deal with unexpected shocks or crises in the future.

To ensure that the concept of resilience becomes embedded, the Commission considers that appropriate monitoring tools are required and has proposed 'resilience dashboards' that would highlight existing vulnerabilities and resilience capacities. The Commission is proposing that these would focus on multiple dimensions of resilience and their interlinkages and would be developed across four dimensions: social and economic; green; digital; and geopolitical. They are not intended as league tables to rank member states in one way or another but to indicate where medium-term corrective actions could be undertaken. Initial work to develop resilience dashboards is underway.<sup>2</sup>

These are worthwhile suggestions and

<sup>2</sup> Resilience Dashboards, Work in Progress, 2021, European Commission

the NRA process will continue to track them and respond appropriately. This is in keeping with the NRA's aim to engage in a broad-based discussion about major strategic risks to Ireland and consider a broad range of voices in order to achieve better outcomes for the country.

There will be scope in the months ahead for more detailed and deeper reflection on lessons from the experience including how risk assessment and adaptation, building resilience against future risks, and managing cross-cutting/cascading risks, can be taken forward as well as feed into broader strategic foresight work.

## 1.2 Overview of strategic risks

### Geopolitical risks

Although the geopolitical risks facing Ireland mostly fall within the same categories as the 2019 National Risk Assessment, they have shifted and evolved in the intervening period driven by a range of factors but most notably by the pandemic and Brexit.

The degree of global interconnectedness, emphasised by the pandemic, has likely affirmed the rise of a multipolar world as evidenced by trade tensions between the US and China and the EU. Geopolitically, COVID-19 has inspired a more assertive nationalism as countries seek to safeguard their populations. The pandemic has highlighted Ireland's dependence on access to global supply chains. The EU itself remains vulnerable to these geopolitical forces and has identified a clear need to strengthen its resilience and to support the green and digital transitions in this regard. Therefore, the future direction of the EU remains a key issue for Ireland.

Ireland's relationship, post-Brexit, with the United Kingdom is dealt with in this sec-

tion. Brexit has introduced a destabilising element into the politics, economy and social cohesion of Northern Ireland and so instability in the region remains a risk. There is also discussion of the impact of Brexit on Ireland's trade with the UK and how this may evolve in the future.

The potential for armed conflict or terror attack also remains a risk, with the resulting significant public safety and security impacts. This year, the assessment considers the increasing risk presented by hybrid threats, including in relation to cybersecurity, which has intensified over the recent period.

### Economic risks

Though the risks facing the economy are not entirely a function of the pandemic, there is little question that COVID-19 is having an impact on the economy and has heightened economic risks overall.

One of the most significant risks arising from COVID-19 is long-term economic scarring. Despite the unprecedented measures allocated by Government to support individuals and businesses, totalling over €38 billion across 2020 and 2021, recent forecasts are that unemployment will remain above the pre-pandemic level of 5% until at least 2023. There is also a risk that a number of businesses, particularly in sectors most impacted by the restrictions, including hospitality and retail, will not recover sufficiently and may have to cease trading.

In addition, the measures required to respond to the pandemic have greatly increased our overall level of public indebtedness with a corresponding risk for the sustainability of our public finances. Vulnerabilities in global financial markets have been building, and along with other developments in financial markets, this may

impact the costs of borrowing and increase overall instability.

At the same time as overall unemployment remains high, shortages of skills in certain areas and sectors, in particular digital, construction and logistics, are constraining growth. Domestic capacity issues and the issues around the global supply chain and the availability of certain goods as we emerge from the pandemic are exacerbating a range of issues in relation to housing and infrastructure.

The combination of expansionary monetary policies, global supply chain issues, domestic capacity constraints, and skills shortages is also giving rise to inflationary pressures with knock-on impacts for households, the development of infrastructure and the provision of public services. As measured by the harmonised index annual inflation reached 5.1% in October, the largest annual change in prices since April 2007.

Risks also arise from the relatively high degree of concentration in a small number of sectors and markets and, in particular, a reliance on the multinational sector for exports which leaves Ireland vulnerable to broader global shifts, and company/sector specific shocks and decisions. Trade with our main trading partners in the EU and the US is largely holding steady. However, indications are that Brexit is impacting trade with the UK. It remains to be seen how much of this is a short run effect and/or influenced by the pandemic but it does point to an increased risk for businesses trading with or through the UK.

Disruptions to the supply or wholesale price of energy could have significant economic, social or competitive impacts, and our geographic position renders us particularly vulnerable to such disruptions. Further

pressures arise from the expected closure of domestic power stations that make up approximately 25% of conventional electricity generation capacity over the period to 2025. We are also experiencing increasing demands from a growing population and economy – including energy intensive activities such as data centres. Eirgrid has signalled a risk that in the absence of significant work to address these issues, there is the potential for a shortfall in energy over the next five winters.

#### Social risks

Social cohesion, migration and integration remain as key social risks in this year's assessment. Issues concerning the cohesion and inclusiveness of society identified in this section include: unemployment, trust in government and media, and the effects of the pandemic on various social groups and age cohorts.

The supply and affordability of housing persists as a significant risk in the NRA with a range of economic, social and environmental implications and compounded by the impact of the pandemic on activity in the construction and housing sector. Housing availability and affordability remain risks which could negatively impact across all of society, impacting people's life choices, community cohesion and our overall competitiveness. A principal concern is ensuring that appropriate housing is built in suitable locations, at the appropriate scale and densities.

The change in the demographic profile of our population in the coming decades remains a challenge as it relates to the provision of social care, public services and health services.

A new risk arises from COVID-19 accelerating the path toward digitalisation and

ensuring that society is adequately prepared for this. There is an acknowledgment of the need for an inclusive approach to digital transformation to bridge digital divides, and of the risk of the rapid dissemination of mis/disinformation online. This section also touches on the necessity of a flexible education system to support digitalisation, social inclusion, as well as the need for public investment in research and development to ensure Ireland's reputation as a competitive research centre.

#### Environmental risks

Climate change and biodiversity loss continue to be major risks in this category. Like many of the risks covered by the NRA, the integrated nature of these risks makes them challenging to quantify. However, it is well understood that the costs of inaction far exceed those of the necessary remedial action – in terms of risks to human health, economic development, infrastructure, and ecosystems, as well as risks to food, water and energy security and population displacement/mass migration. Recent international reports indicate that these interlocking risks are even more significant than previously thought and demand a stronger global response and within a shorter timeframe.

Additionally, and directly related to the climate change risk, natural disasters and extreme weather events remain a risk to Ireland. This may take the form of storms, flooding, coastal inundation and erosion, extreme temperatures and prolonged periods of drought. In addition, Irish biodiversity is highly vulnerable to the impacts of climate change and has a low adaptive capacity compared to other vulnerable sectors.

Antimicrobial resistance and major pandemics have been re-categorised as Environmental risks. The risks arising from a major pandemic, as has occurred in the COVID-19

outbreak, show the impact of a pandemic globally and locally. The pandemic has impacted across every risk category, changed life greatly for the population, affected livelihoods and most significantly has come with great costs to health and life. The next pandemic cannot be predicted with any certainty. However, the lessons learned from battling COVID-19 will contribute to managing it when it occurs.

Antimicrobial resistance is an increasing concern globally, with the extensive use, misuse, and overuse of antimicrobials in human health raising levels of resistance in a wide range of pathogens in all countries and in patients of all age groups. In the animal population, the rate of development and spread of antimicrobial resistance has also increased. Additionally, risks around food safety continue to be relevant, as in previous years, with significant health, trade, and reputational implications should a food contamination scare or incident occur.

#### Technological risks

COVID-19 is showing how strongly societies rely on digital infrastructure, and resultant data flows, to maintain connectivity. Cross-border transfers of data have become an intrinsic part of how modern economies and societies function, and the secure and reliable transfer of data is necessary for organisations and the public. Global data transfers are increasingly being called into question as a result of the competing imperatives between different countries' data protection arrangements. It is important that this is resolved in terms of providing certainty for businesses and citizens across jurisdictions.

The risk of failures in cybersecurity, as demonstrated from the cyberattack on the health services, highlights the impact on disruption to critical information infrastruc-



ture, and the effects of data fraud or theft. The necessity to address this risk rises as the extent to which society relies on digital technology increases. With Ireland positioning itself as a digital leader, with a growing adoption of online services, the impact of an attack or incident on the provision of services, and on the reputation of organisations is significant.

Disruptive technology trends continue to advance. These advances create a range of opportunities; however, they also give rise to risks that need to be considered including the potential for automation to displace or reshape existing jobs and sectors. Irrespective of the sector, research indicates that the risk of automation is particularly concentrated in roles held by people with medium and lower levels of education. Continuing education remains necessary across all sectors and roles but specific sectors of employment and activity are more subject to automation and the impacts of machine learning technologies than others. The risks therefore, if our education and skills system and enterprise policy do not respond appropriately and in time, are substantial.

In relation to nuclear contamination, while the probability for Ireland is low, the risks to public health and well-being, as well as negative economic impacts are clear, and awareness and planning are important in this regard.

## 2. Geopolitical Risks

## 2.1. Rise of a multipolar world

COVID-19 is testing international cooperation, and the multilateral, rules-based system that underpins it; a system that has been crucial to the maintenance of peace and prosperity since the Second World War. Disillusionment with multilateralism was already on the rise in some parts of the world pre-COVID-19, but this trend has been accelerated by the pandemic.

Notwithstanding unilateral moves by many governments, seen as necessary to protect public health, COVID-19 has highlighted the degree of global interdependence and the rise of a multipolar world in which no bloc can presume hegemony. Inevitably the existence of such blocs and the assertion of their interests can cause difficulties, as seen in recent times in increasing trade tensions between the US and China in areas such as microprocessor manufacturing, and between Russia and the EU over energy markets. It has also brought into relief different models of government and competing ideologies underpinned by various processes of dis/misinformation.

The EU has played a leading role in defending the multilateral system as it has come under increasing pressure in recent years, as a result of divisions within the UN Security Council, an increased tendency towards unilateral action by some major and regional powers, divergences on key policy issues, and funding shortages across multilateral institutions.

It is important not to overstate the extent to which multilateralism has frayed. In response to COVID-19, the EU agreed to the historic creation of a €750 billion recovery fund and has continued to export vaccines beyond its own borders. There are considerable efforts underway to secure

multilateral agreement on a response to the tax challenges of digitalisation and to cooperate more extensively on mitigating climate change and promoting sustainability through the Intergovernmental Panel on Climate Change, the UN Climate Change Conference (COP26) and the UN Convention on Biological Diversity.

US re-engagement at multilateral level in 2021 has marked a significant change in direction, notably with respect to the Paris Climate Agreement and the UN Human Rights Council, the decision to lift sanctions on the International Criminal Court and re-engagement with the World Health Organisation (WHO), which has played a key role in coordinating the global response to the pandemic. While insufficient, there has been significant international support for the Covax global vaccine-sharing initiative, and some limited progress on vaccine technology transfer to less developed countries.

At the same time, there are significant shifts in security and defence alliances which are impacting international relations. The withdrawal by US and NATO forces from Afghanistan have come at the same time as US foreign policy is increasingly focused on the Asia-Pacific region, while Europe remains more focused on its immediate neighbourhood both to the East and to the South. Following sustained decades of growth, the Chinese economy is being reshaped again and its own Belt and Road programme may be reconfigured to reflect this. The ability for richer nations to maintain a strong economic position may also be impacted by demographic and social changes.

As a small, trading economy Ireland depends on and has prospered from openness and the international rules-based system. Ireland has been a consistent supporter

of reforms to strengthen multilateral organisations and ensure that they can more effectively fulfil their mandates. Similarly, Ireland strongly supports the EU playing a more robust, united and strategic role within the multilateral system. A risk for Ireland is that political competitive pressures drive blocs to pursue self-sufficiency, particularly in economic and security terms. Barriers to trade and trade disputes make most countries poorer, but larger nations with bigger internal markets are better placed to weather such difficulties. There is strong support within the EU for the idea that strategic strength is built best through smart, ambitious and strategic global partnering, including with the US and China, but not limited to those. However, this is not the universal view within the EU and Ireland and like-minded partners need to consistently advocate for maintaining an open trading system.

The nature and purpose of trade agreements is changing also with the emphasis shifting more towards raising standards than reducing barriers – for instance in the field of human rights or environmental standards. The challenge here is to ensure that the EU continues to have the political cohesion required to reach agreements internally, retaining its status as a leading standard-setter (see section 2.2 below).

A period of relative instability may arise based on some of the factors outlined above.

## 2.2. Future direction of the European Union

Ireland's political and economic strategic interests are intrinsically linked to the EU. We have prospered as a result of membership and as the single market has expanded creating a level playing field with common rules, Ireland has capitalised on its oppor-

tunities. The response to the pandemic has also demonstrated the benefits of collective action in response to a common threat, including unprecedented measures such as vaccine procurement and joint borrowing for the EU recovery fund.

The EU is not immune to the geopolitical forces outlined above. Other global powers are combining geopolitical, economic and other interests to increase their influence in the world. The European Commission has identified resilience as a new compass for European policies to enable the Union to withstand shocks, as COVID-19 has shown up a number of vulnerabilities. This relates not just to vital medical equipment but also to critical raw materials. This has led to what has been dubbed a 'mission' of pursuing open strategic autonomy to secure Europe's competitiveness and global leadership in the future and to strengthen its resilience. Supporting the green and digital transitions have become core EU policy priorities in this regard.

Furthermore, the withdrawal of the UK from the EU changes its political complexion. Ireland, in concert with others, now has to intensify efforts to ensure that the EU retains its overall open trading ethos, building resilience through diversifying trusted trading partners, rather than through increased protectionism. Preserving openness, promoting equity and protecting Europe from the unfair or disproportionate assertion of others' interests is a difficult balance to strike.

In addition, with the departure of the UK, Ireland is the only fully common law member state, and our position on justice and home affairs matters is now more of an outlier. As the law in this area develops, it may be more challenging for Ireland to ensure that our perspective is taken on board, and that the law is developed in a manner that

does not conflict with obligations related to the Common Travel Area with the UK, or our close bilateral cooperation with the UK on justice and home affairs issues.

A Conference on the Future of Europe is underway across the EU to reflect on and promote debate on the challenges facing Europe and to provide guidance on future priorities, with broad participation of member states, elected representatives, civil society and direct input from citizens. It will be important to chart a way forward that builds on the EU's existing strengths, such as its strong rule-based order, while ensuring the EU is well placed to support member states and their citizens face emerging challenges.

### **2.3. Ireland's relationship, post-Brexit, with the United Kingdom**

The UK's withdrawal from the EU has introduced profound shifts in the relationship between Ireland and the United Kingdom. The longer-term results of the referendum on UK withdrawal have fomented strains within the UK's system of devolved government. Repatriating EU powers has also led to differences about where decision-making powers should be sited and given rise to tensions between the UK Government and the devolved administrations. This is visible in the differences in public health regulations for COVID-19 across England, Wales and Scotland.

There are signs that the Scottish electorate may be asked to vote on independence from the UK again. The Scottish pro-independence parties increased their majority following the 2021 Scottish Parliament elections. However, the pathway to a second referendum on independence remains uncertain, adding to ongoing debate about

the state of the Union across the UK. Burgeoning political movements for greater autonomy in Wales and a stated policy to even out regional differences in England add a further degree of uncertainty.

Brexit introduced a destabilising element into the politics of Northern Ireland at a time when the political parties were finding it difficult to reach consensus. The Northern Ireland Executive had been in abeyance for nearly three years when it was reformed in January 2020. There is a risk that the impacts of Brexit on trade and identity, amongst other issues, may be to the foreground in the next Assembly elections, currently due to take place in May 2022. Negotiations concerning Brexit took account of the particular circumstances of Northern Ireland. Paramount for the Government has been protecting the Good Friday Agreement (GFA), ensuring that there is no hard border on the island of Ireland, and protecting the integrity of the EU Single Market – and Ireland's place in it.

The EU-UK Trade and Cooperation Agreement (TCA), together with the Withdrawal Agreement, including the Protocol on Ireland/Northern Ireland, provide the framework for the future relationship between the EU and the UK. With the finalisation of the agreements, Ireland's key Brexit objectives have largely been achieved. The TCA provides for tariff-free, quota-free trade and for sectoral cooperation in a number of important areas such as policing and judicial cooperation, fisheries and energy. Effective implementation of the TCA is now a priority and Ireland, as part of the EU, will play our full part in realising the full potential of the TCA for citizens and businesses.

An integral part of the EU-UK Withdrawal Agreement, the Protocol, was designed to meet the Government's objectives and

was agreed jointly by both the EU and the UK. Under the Protocol, Northern Ireland remains part of the UK's customs territory, while continuing to participate in the EU Single Market for goods. It is therefore subject to provisions of EU law necessary to protect the integrity and operation of the Single Market in goods. The Protocol fully recognises the constitutional position of Northern Ireland in accordance with the GFA. It also provides for a vote in the Northern Ireland Assembly to take place four years after it has come into operation (2024) – and recurrently thereafter – on whether certain elements of the Protocol should continue to apply. If no vote takes place, all of the Protocol continues to apply as before.

The new arrangement means that some checks are required on goods moving from Great Britain to Northern Ireland. The implementation, and symbolism, of this has led to some opposition, particularly on the part of Unionist political parties who see it as a diminution of the Union. While some businesses have expressed practical concerns with regard to certain aspects of the Protocol's implementation, it is clear that most businesses want the Protocol to work well and recognise the significant opportunities the Protocol presents for Northern Ireland as the only place in the world whose goods have free and full access to both the EU single market and the rest of the UK internal market.

In October 2021, the EU published a substantial suite of proposals in response to the difficulties being experienced in Northern Ireland because of Brexit, and in particular to facilitate the movement of goods from Great Britain to Northern Ireland within the framework of the Protocol. The risk remains that an unsettled Unionism and the UK Government may for political reasons may

wish to keep issues around implementation of the Protocol open. Resolving outstanding issues associated with the Protocol's implementation will require constructive engagement on the part of the UK.

Post-Brexit, the UK has the capacity to set its own standards in a range of areas such as manufactured goods, agri-food, services, transport networks and energy markets. This may lead to regulatory divergence from the EU. This may pose competition and supply chain challenges for Ireland over time. This is made more complex by the ongoing supply chain disruptions wrought by the pandemic. Further considerations in relation to Brexit and any impacts on trade are covered in section 3.6 below.

The Government continues to encourage constructive efforts to deliver stability in Northern Ireland, particularly through the institutions established under the GFA, and by working through the established EU-UK governance arrangements under the Protocol. More generally, Government has recognised that there is a need to strengthen bilateral relations with the UK following its departure from the EU. The Programme for Government contains a series of commitments to give effect to this.

## **2.4. Armed conflict, terrorism and hybrid threats**

The risks arising from terrorist incidents and armed conflicts, as highlighted in previous Assessments, remain. Armed conflicts across Europe and the wider world could have significant repercussions for Ireland and the EU, including potential impacts on energy supplies, communication infrastructure, transport routes or the environment. Armed conflict in any part of the world can lead to higher risk of terrorism in general and by extension in Ireland.

On the island of Ireland, the GFA has delivered a stable peace process that commands overwhelming cross community support. Nonetheless, certain groups, albeit with very limited levels of support in their own communities, remain intent on disrupting the significant progress which has been achieved and continue to commit acts of violence. The political disruption caused by Brexit could play a role here and will have to be carefully watched.

Ireland and its citizens could be negatively affected by terrorist incidents, depending on the location and scale of such incidents and their wider impact. Such an attack here could have significant impact in terms of public safety and security in the short term, and there could possibly be longer-term reputational damage to Ireland as a safe and secure place to live and work in, and to visit.

One consequence of a more assertive multipolar politics (see section 2.1) is a readiness to pursue aggressive actions through non-conventional means particularly through attacks on digital infrastructure. Malicious cyber activities are among the most frequently employed elements in hybrid campaigns. Hybrid threats involve the coordinated use of conventional and unconventional methods by state and non-state actors to achieve their strategic objectives. These are often designed to be ambiguous and difficult to detect. They can combine disinformation, malicious cyber incidents, covert influence activities, and the leveraging of economic dependencies. These are in addition to more traditional security threats such as attacks on critical infrastructure and espionage. Given our concentration of digital industries, such threats present specific risks for Ireland. Another threat which may impact on Ireland includes aviation security, given Ireland's geographic positioning as well as the continuing threat to urban pop-

ulations from the use of vehicles as instruments of terror.

There is growing awareness and coordination within the EU in response to the increasing risks presented by hybrid threats. This has intensified over the past year, as uncertainty arising from the COVID-19 pandemic has provided new opportunities for actors to develop and deploy sophisticated disinformation and hybrid campaigns targeting the EU. Should such activities target Ireland, they could present a risk to the State's democratic institutions and Government decision-making processes, exploit and exacerbate divisions in society, and undermine our relations with the EU and with other countries. They could also seek to target Ireland as a means to destabilise the EU. Reinforcing coordination across Government and with EU and like-minded partners, and keeping pace with the evolving risks is critical to improve awareness and to effectively counter and respond effectively to hybrid threats.

# 3. Economic Risks



### 3.1. Economic scarring

The economy has made a rapid recovery following the reopening of the economy in the summer of 2021. Modified Domestic Demand (MDD) is projected to increase by 5.2%, followed by 6.5% next year.<sup>1</sup> These projections are predicated on the pandemic being contained at levels that do not jeopardise the capacity of the healthcare system.

A number of economic shocks related to the pandemic, including disruption to supply chains, labour market shortages in some sectors and a pick-up in inflation have the potential to slow the recovery if they persist. A particular challenge arises in preventing long term economic scarring where the life chances of individuals are impaired and businesses are irretrievably damaged.

#### Sectoral level challenges

The Government has taken extensive and unprecedented measures to mitigate the damage to people and the economy arising from the pandemic. Across 2020 and 2021, approximately €38 billion has been allocated for COVID-19 related spending programmes. The Economic Recovery Plan commits to further expenditure on labour market and enterprise supports, including just under €1 billion additional funding under the National Recovery and Resilience Plan. These measures have enabled many firms to retain staff and remain operational.

However, many individuals, firms and economic sectors have been severely impacted by the pandemic and despite the reopening of many aspects of the economy, many of the sectors most heavily impacted such as hospitality, retail and construction, continue to rely on emergency supports.

<sup>1</sup> Economic and Fiscal Outlook, Budget 2022, Department of Finance

These sectors account for a high share of employment, are largely comprised of Irish owned SMEs<sup>2</sup> and are regionally distributed across the country. They also tend to be contact-intensive and so are more impacted by public health restrictions. In many cases these businesses are also more exposed to some of the changes in behaviours and consumption patterns caused by COVID-19, such as the increased move to online retail.<sup>3</sup>

There is a clear risk that some businesses, particularly in the most heavily impacted sectors, will not recover sufficiently and may have to cease trading with an associated increase in unemployment. These risks are compounded by ongoing issues affecting international trade and travel including pressures on the global supply chain and Brexit.

It is important that the emergency supports are withdrawn to protect the sustainability of the public finances and normalise the economy. As broad based COVID-19 supports are tapered out, future business supports should be targeted at those businesses that are viable in the medium term but challenged in the short term.<sup>4</sup> There will also be businesses that need to restructure in order to recover.

Though widespread insolvencies have been so far avoided, in its May 2021 Financial Stability Review, the ECB flags Ireland as a high-risk country in terms of potential insolvencies and the impact of these on the wider economy.<sup>5</sup> Analysis by the National

<sup>2</sup> SMEs in Ireland account for 99.8% of all active enterprises and employ over 1 million staff

<sup>3</sup> Shining a light on sectoral spending behaviours through the most recent phases of the pandemic, February 2021, Central Bank

<sup>4</sup> Ibid. and Governor Makhoul Opening Remarks, Webinar - Enterprise Financing and Investment in Ireland, 2021, Central Bank of Ireland

<sup>5</sup> Financial Stability Review, May 2021, European Central Bank

Competitiveness & Productivity Council also finds that levels of insolvent liquidation are likely to rise above pre-pandemic levels and highlights the importance of an efficient and accessible insolvency regime in this context.<sup>6</sup>

Over the medium to longer term, the experience of COVID-19 combined with Brexit may impact risk appetites in terms of establishing or expanding a business, with knock on implications for employment and rates of entrepreneurship.

Emerging evidence suggests that scarring effects may be lower than previously considered. However, a definitive assessment can only be undertaken with the passage of time and as set out above, it is likely that some sectors have suffered significant scarring which will require targeted support in the short term. In the Irish context, it is essential that training, activation and enterprise supports are appropriately targeted to minimise any permanent losses in the productive capacity of the economy. In addition, investment in innovation and digitalisation could help to overcome adverse productivity shocks more quickly.<sup>7</sup>

#### Labour market challenges

The labour market has borne the brunt of the economic impacts of the pandemic and it is likely that its recovery will take longer than the recovery in wider economic activity. Despite significant reductions in the numbers receiving the Pandemic Unemployment Payment (PUP), frictions have emerged in parts of the labour market, with evidence of mismatch between the demand and the supply of labour in certain sectors (see section 3.3). The average unemployment rate is forecast to average around

7.3% in 2021 and 7.2% in 2022 before declining to 5.9% in 2023, as the impacts of the pandemic moderate over time.<sup>8</sup> The expectation that unemployment will remain above the pre-pandemic rate of 5% until at least 2023 indicates there will be some level of scarring.

Furthermore, analysis by SOLAS demonstrates that the impact was not evenly distributed across the labour market.<sup>9</sup> Employment fell for those in part-time roles, with lower levels of education and in operative and elementary roles (e.g. such as cleaners, waiters, and security guards). In contrast, employment for those with third-level qualifications increased, as did the number of persons in roles such as managers and associate professionals.

The labour market impact is particularly pronounced for workers aged under 25, which despite overall improvements lags headline unemployment. Youth unemployment was 10.9% in November 2021; more than double the overall unemployment rate of 5.2%.<sup>10</sup> The COVID-19 adjusted rate, which accounts for the emergency supports for workers affected by the pandemic, reached 69.6% for younger workers in May 2020 while the corresponding rate for the overall labour market was 29.8% in that same month. The higher youth unemployment rates reflect their higher exposure to jobs in public-facing sectors which have been more severely impacted. As the economy has reopened, workers aged 25 and over have moved from the PUP scheme into employment faster, with younger and female workers remaining in receipt of PUP for longer periods.<sup>11</sup>

<sup>6</sup> Ireland's Competitiveness Challenge 2021, National Competitiveness & Productivity Council

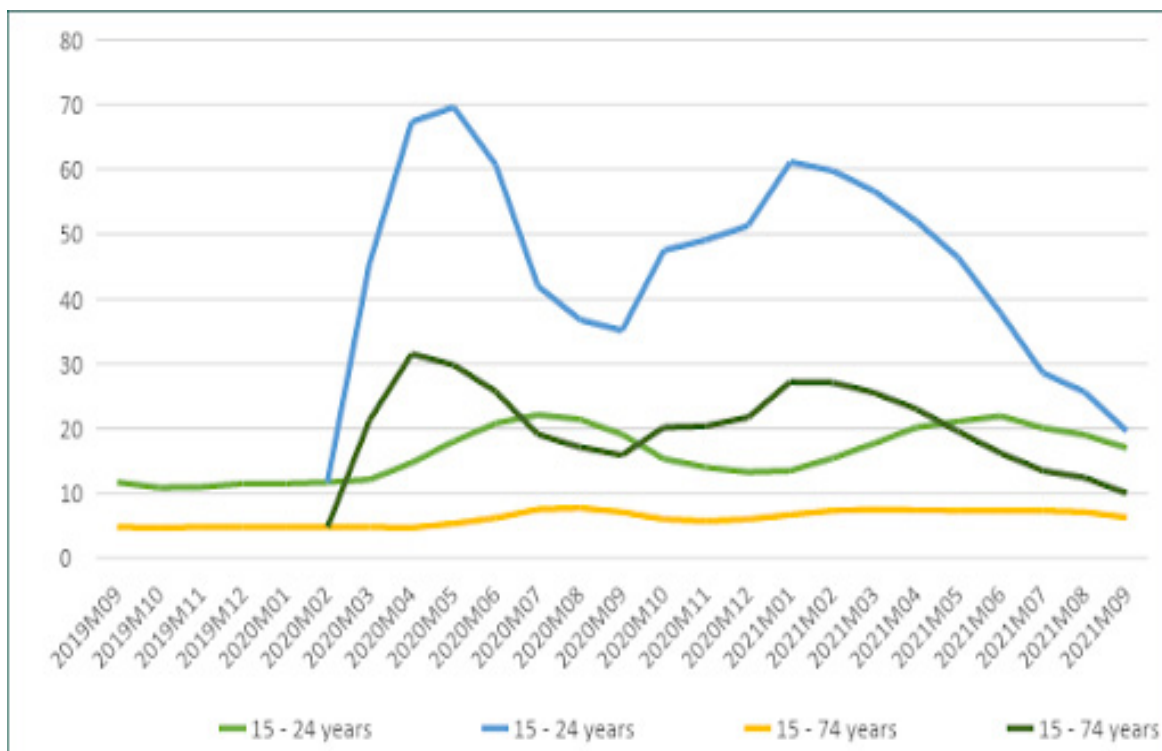
<sup>7</sup> World Economic Outlook, 2021, IMF

<sup>8</sup> Quarterly Bulletin 4, October 2021, Central Bank

<sup>9</sup> National Skills Bulletin 2021, October 2021, SOLAS

<sup>10</sup> November - Monthly Unemployment Release, December 2021, CSO

<sup>11</sup> COVID-19 Income Supports – An analysis of recipients, March 2020 to May 2021, CSO

**Chart 1: COVID-adjusted and standard ILO unemployment rates; age group**

Source: CSO, Monthly unemployment

Persistent high rates of unemployment or increasingly precarious employment options for younger cohorts has a wide range of implications including for social cohesion (see section 4.1). It's important to recognise that many people are experiencing their second major global crisis in a decade. Already exposed to the consequences of the financial crisis, rising inequality, disruption from industrial transformation and environmental degradation, this generation faces serious challenges to their economic prospects in the years ahead.

Reflecting the strong rebound in the economy, the number of people on PUP had declined to approximately 77,800 as of the end of October. However, 53,000 of these had been in receipt of PUP for a year or more, with associated impacts on their opportunity to accumulate experience and

undertake training.<sup>12</sup> There is also a risk that the participation rate may decline due to discouragement after lengthy periods of inactivity.<sup>13</sup>

While the reduction in PUP numbers is positive, a large share of former PUP recipients has moved into Employment Wage Subsidy Scheme (EWSS) supported employment. And as of October 2021, an estimated 318,000 people were in EWSS supported employment payment.<sup>14</sup> As detailed earlier, a number of sectors continue to be particularly reliant on the State, especially the hospitality and food services sector. The ongoing importance of EWSS to subsidise employment in these sectors raises ques-

<sup>12</sup> Persons receiving Pandemic Unemployment Payment, November 2021, CSO

<sup>13</sup> Quarterly Bulletin, Quarter 2, 2021, Central Bank of Ireland

<sup>14</sup> Live Register – October 2021, November 2021, CSO

tions about the ultimate viability of those jobs and indicates that a recalibration may happen once EWSS is withdrawn and job losses are crystallised.

### 3.2. Public finances and the financial system

The legacy of the financial crisis of 2008-09 burdened many economies with large debt levels, which have been further increased to fund the response to the pandemic. Should inflation pressures drive monetary authorities to increase interest rates this will raise the cost of servicing those debts.

Ireland's debt has increased significantly, as the Government has used its balance sheet to absorb the pandemic-induced shock

to economic activity. At the end of 2021, gross public debt is estimated to be €236.7 billion, the equivalent of 106.2% of modified national income. This makes Ireland among the most indebted in the EU. A number of structural factors have helped to limit the burden of this debt including relatively low interest rates and an elongated maturity profile. However, once the ECB withdraws its programme of exceptional monetary support in response to the pandemic, refinancing of Ireland's debt will potentially be at higher interest rates. The funding environment is expected to remain favourable over the medium term, reflecting sustained support from monetary authorities.<sup>15</sup> However, Ireland's elevated debt represents a

<sup>15</sup> Global economic outlook: Will faster economic growth bring higher price inflation?, March 2021, IHS Markit

#### Box 3: Update on international tax changes

In July 2021, the OECD/G20 Inclusive Framework on Base Erosion and Profit Shifting (BEPS) set out the key aspects of the two pillar solution to address tax challenges arising from digitalisation. Pillar One proposes a re-allocation of a proportion of tax to the market jurisdiction, while Pillar Two will apply a global minimum effective tax rate.

On 8 October 2021, Ireland was among the 136 member jurisdictions of the Inclusive Framework that reached agreement on both Pillars, including the proposed global minimum effective tax rate of 15% for multinational enterprises with a global revenue of greater than €750m annually. Ireland will continue to offer a 12.5% rate for the 160,000 businesses out of scope of the agreement who employ approximately 1.8 million people. These businesses will continue to be taxed at 12.5% corporation tax.

Ireland has fully engaged in the OECD BEPS process since its outset in 2013, and has continually reformed our tax system throughout this period to ensure that it is in line with new international norms. Ireland joined the agreement in recognition that the way in which global business and business models have evolved and the taxation system must evolve with it.

There is likely to be a cost to Ireland in joining this agreement in terms of reduced corporation tax receipts which has been estimated at up to €2bn annually.

However, staying out of such an international agreement would have had higher risks to the economy, and we should benefit from the long-term certainty and stability which this agreement will deliver.

challenge over the longer term, increasing the State's vulnerability to future shocks.

There is also a risk that some revenue streams accruing to the State may decline, particularly in the area of corporation tax which, if not compensated for, would put further pressure on the exchequer (see Box 3 on previous page). Additionally, the State will face higher expenditure demands over the coming years in order to mitigate issues relating to a range of concerns, including housing, health, infrastructure, and climate change.

The emergence of financial instability in the wider international economy continues to present a source of risk to Ireland as a small, open and globalised economy. While the impact of the shock on companies and households has been mitigated by government supports, the full extent of borrower distress will only become apparent as these supports start to unwind and creditor flexibility begins to normalise. An unexpected increase in borrower distress could also weigh on lenders' risk appetite, with adverse implications for credit supply.

Vulnerabilities in global financial markets have been building, amid higher levels of sovereign and corporate indebtedness. Accommodative global financial conditions,<sup>16</sup> while necessary to cushion the economic impact of the pandemic shock, have been accompanied by increased risk-taking in financial markets. Amid a global search for yield, valuations in certain market segments appear stretched and could be vulnerable to changes in expectations around global growth or the path for interest rates. Recent developments in China suggest that at least some asset markets are already at risk.

There is also a significant degree of uncer-

<sup>16</sup> Global Financial Stability Report, April 2021, IMF

tainty regarding the future structure of the domestic banking system. The planned exit of two retail banks from the Irish banking sector will likely increase structural vulnerabilities and may have near-term consequences for the supply of credit to the real economy. This may exacerbate the already elevated cost of credit to Irish consumers and SMEs. While there is evidence of increasing involvement of non-banks in the provision of credit to the private sector, this form of financing remains relatively untested across the full economic cycle.

Climate change is also a significant source of long-term risk to the financial system, both due to its physical manifestations and the potential implications of the transition to a low-carbon economy. Significant effort is required by the financial system to make meaningful progress in identifying, assessing and managing climate related risks and adapting its financial products to address same.<sup>17</sup>

### 3.3. Labour shortages, supply chain and capacity constraints

#### Labour Supply and Shortages

At the same time as higher rates of overall unemployment present a challenge as outlined in section 3.1 above, there is growing evidence of skills shortages in certain areas with a consequent risk for the economy and the delivery of essential services.

Real-time data shows that new and total job postings on employment websites are around 50% and 35% above their pre-pandemic levels respectively.<sup>18</sup> In some sectors there is evidence of difficulty getting workers to return as the emergency supports

<sup>17</sup> ECB economy-wide climate stress test, ECB Occasional Paper Series No 281 / September 2021 September, ECB

<sup>18</sup> Economic Insights – Summer 2021, July 2021, Department of Finance

are withdrawn and provisional analysis has found significant moves within and across sectors – almost 25% of former PUP recipients moved to work with a new employer in a different sector.

In their Global Competitiveness Report 2020, the World Economic Forum highlights that talent shortages have become more pronounced internationally, particularly in relation to digital and related skills.<sup>19</sup> Data on the Irish jobs market shows similar shortages with over half of recruitment firms surveyed in both 2019 and 2020 reporting difficulties in filling IT and engineering roles. In the same survey, 27% reported challenges in filling construction roles in 2020; a close to four-fold increase on 2019.<sup>20</sup>

Persistent shortages have also been identified in healthcare and logistics, both in Ireland and abroad. The lack of available logistics workers globally, particularly HGV drivers, is having a severe impact on supply chains. This is compounding issues around increased demand and pressures on materials as economies reopen. Given the composition of our enterprise base, identified national priorities in increasing housing supply, retrofitting and investing in infrastructure and the high degree of mobility of construction, logistics, engineering and IT talent – it is important that measures are put in place to address these shortages and mitigate the potential for wage inflation (see section 3.4). An education and training system that is sufficiently adaptable and resourced is central in this regard.

The emerging skills needs are also impacted by recent declines in inward migration, which has been trending downwards since

<sup>19</sup> Global Competitiveness Report: How Countries are Performing on the Road to Recovery, 2020, World Economic Forum

<sup>20</sup> Difficult to Fill Vacancies Survey, 2019 and Difficult to Fill Vacancies Survey, 2020, SOLAS

2018 but was accelerated by the pandemic. Net migration reached a peak of 34,000 in 2018 following a rebound after the financial crisis. It had fallen to 28,900 in 2020 before more than halving to 11,200 in the year to April 2021 as international travel was shut down in response to the pandemic.<sup>21</sup>

As a relatively high cost economy, Ireland faces stiff competition for international talent, particularly in areas such as construction, transport and health where there is high global demand. This is especially challenging as Brexit and COVID-19 have impacted the competition for labour across Europe. An important element of having the right skills and talent available is ensuring attractive locations to live and work. Addressing the risks associated with the delivery of affordable housing (see section 4.2) and access to quality healthcare and childcare are important in this context.

Finally, as outlined in section 4.4, the age profile of the population is growing older. The old-age dependency rate is forecast to go from 4 persons of working age for every person aged 65 and over now, to 2 to 1 by 2050. As the older population increases there will also be increased demand for healthcare and elder care workers, which will be competing with the economy's other skills within the context of shrinking share of the population active in the labour force. This is likely to have significant implications for the long-term productivity and growth potential of the economy as we approach the middle of the century.

#### Capacity and supply chain constraints

Closely linked to the issue of skills shortages, is the risk that capacity and supply constraints will limit the delivery of housing and critical infrastructures and further inhibit

<sup>21</sup> Population and Migration Estimates, April 2021, August 2021, CSO

the potential for economic growth.

These constraints are driven by a number of factors including the need to increase capacity within the public sector to manage large infrastructure projects effectively.<sup>22</sup> There is also scope to enable greater certainty regarding processes and timelines in relation to the planning and legal system. These issues tend to lead to longer timelines, greater uncertainty and relatedly an upward pressure on costs. This creates risks for the public in terms of achieving value for money from exchequer spending and for enterprise in terms of enhancing Ireland's competitiveness. It is important the measures outlined in the NDP and Housing for All are delivered as part of the response to these issues. A further issue arises where infrastructures, such as the energy grid and broadband, are not sufficiently developed to meet growing demand (see sections 3.7 and 4.5 respectively).

These issues are compounded by the combined effect of the pandemic, Brexit, geopolitical tensions and demand changes which are putting pressure on costs and on the supply of certain materials. In many cases, the pandemic lockdowns saw production lines shut down or slowed. While reopening has seen the bounce back of suppressed demand, output is likely to lag due to long lead-in times necessary to restart complex production lines as well as labour shortages. At the same time, international shipping costs have also risen sharply due to shortages of containers and labour and for consumer goods there has been a major shift to online versus in-store retail leading to significant logistics and distribution impacts. Though there is a general consensus that the broad supply issues will be resolved

over the coming months, as a small open economy on the edge of Europe, Ireland is often at the end of global supply chains and therefore more exposed to disruptions in supply than most. This risk is further compounded by Brexit.

### 3.4. Inflation

The supply challenges, brought about in large part by economies reopening after COVID-19 and the rapid changes in consumption patterns seen during the pandemic, are translating into rising prices. Irish inflation was below EU averages coming into the pandemic; however, since the beginning of 2021 there has been a strong growth in inflation. As measured by the harmonised index annual inflation reached 5.1% in October, the largest annual change in prices since April 2007.<sup>23</sup>

This trend is comparable to other advanced economies; however, Ireland's inflation has been rising faster than the EU average since March this year. The Irish HICP grew by 2.4 index points between March and September 2021 compared to increases of 1.96 in the Euro Area. The US and UK are experiencing faster inflation, increasing by 4.5 and 2.4 index points respectively over a similar period. The Department of Finance projects that inflation will moderate somewhat in 2022, as supply-side pressures dissipate, with headline HICP forecast to be 2.2%.<sup>24</sup>

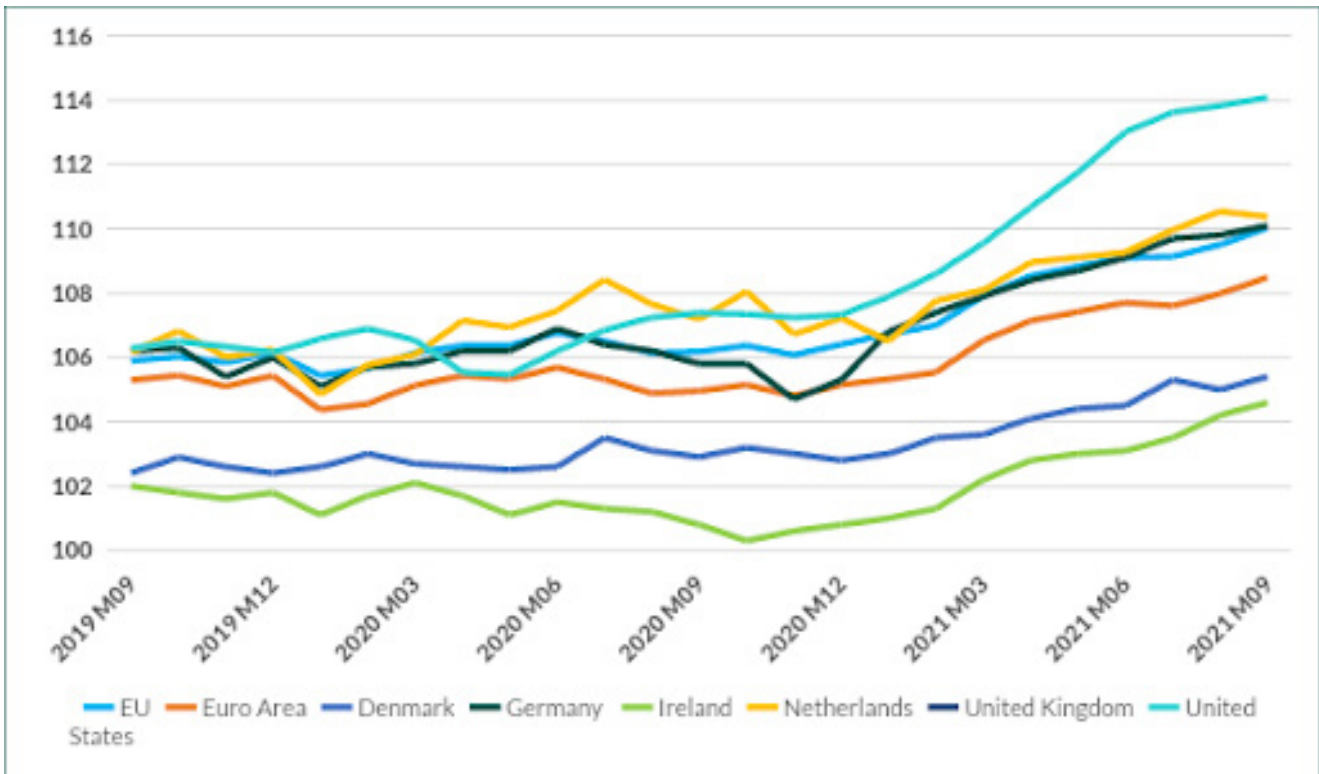
Many international economic commentators expect that much of the inflation being experienced today can be explained by base effects, largely related to the impact of the pandemic on supply chains and production. In many cases these will be resolved as supply and demand rebalance.<sup>25</sup>

<sup>22</sup> National Development Plan 2021-2030, 2021, prepared by the Department of Public Expenditure and Reform and Supporting Excellence: Capital Project and Programme Delivery Capability Review, 2021, Ernst & Young

<sup>23</sup> As measured by the EU Harmonised Index of Consumer Prices (HICP), Consumer Price Index, November 2021, CSO

<sup>24</sup> Economic and Fiscal Outlook, Budget 2022, Department of Finance

<sup>25</sup> Autumn 2021 Economic Forecast, November 2021, European Commission

**Chart 2: Consumer price indices – comparator jurisdictions**

Source: EuroStat, Harmonised Consumer Price Index. Base 2015=100

That said, they may persist in certain sectors because of long production lead-in times and the need to rebuild inventories. For example, there is a critical global shortage of semi-conductors which are essential for much of the modern economy and which is expected to take several years to resolve. Notably the cost of construction materials, especially timber and steel, have seen dramatic price increases and the SCSI's Tender Price Index shows that national construction tender prices increased by 7% in the first half of 2021.<sup>26</sup> Continued price inflation in the construction sector, combined with labour shortages and international competition for talent and resources, could impact on the ability to deliver on the full scale of capital investment ambitions under the NDP.

<sup>26</sup> SCSI Tender Price Index, October 2021, Society of Chartered Surveyors of Ireland

Conversely, implementation of the NDP and the injection of €165 billion in capital investment over the rest of the decade, though necessary to support Ireland's long-term growth and climate goals, will add to inflationary pressures if not managed carefully.

Energy costs have also risen precipitously on the back of increased demand and rising oil prices. Further source of higher than anticipated inflation may arise from a faster than expected unwinding of the excess savings built up during the pandemic. This is at the same time as labour shortages outlined in section 3.3 may place further upward wage pressures in certain sectors or roles.

If inflation pressures persist or grow worse, there is a risk of the economy over-heating in the medium term. Compounding Ireland's



situation is the dualist nature of the economy (see section 3.5). While the largely foreign-owned trading sectors of the economy are experiencing robust growth, much of the domestic facing economy continues to rely on State supports such as EWSS and faces significant challenges sourcing workers. This means some businesses have more capacity to absorb inflation but others do not, so even if the inflation is short-lived, the damage to some parts of the economy may still be extensive.

Internationally, there may be pressure to tighten monetary policies to mitigate higher inflation. If slow monetary tightening fails to rein in inflation, a rise in interest rates in 2022 may be necessary. In its latest risk outlook report, the Economist Intelligence Unit raised concerns about the potential impact of a sudden/sharp change in interest rates and identified a particular risk around the US stock market in this regard – which would have implications for the wider global economy.<sup>27</sup>

Inflationary pressures also present very significant and particular risks to people's capacity to maintain living standards – particularly those on lower incomes and/or reliant on state supports. It is important that developments in relation to inflation are factored into policy measures in this regard.

### 3.5. Vulnerabilities arising from Ireland's enterprise mix

It is well established that Ireland's base of more than 1,600 multinationals plays a major role in the economy.<sup>28</sup> Ireland is internationally recognised for its strengths in a number of key sectors including the life

sciences, digital technologies and business services. The majority of leading companies in those sectors have operations here and together these sectors account for more than 60% of Ireland's merchandise and services exports.<sup>29</sup> This profile is a testament to Ireland's competitive strengths, attractiveness as a location of choice for mobile investment and continued ability to adapt to new technologies and emerging business models. However, it does give rise to a number of well acknowledged risks and issues that have to be factored into national enterprise and fiscal policy.

A recent OECD report, commissioned by IDA Ireland, outlined that the lack of diversification among Ireland's FDI base, in terms of sector, geography and region could expose the economy to risks related to macroeconomic trends in trade and investment and to policy changes in partner countries.<sup>30</sup> In addition, just 10 companies account for about 50% of corporation tax receipts, such that relocation decisions or similar taken by a single entity or developments in relation to international tax systems could pose a significant challenge (see Box 3 left). Further considerations arise regarding the regional distribution of companies as well as impacts on the cost of living, availability of housing (see section 4.2) and competition for talent (see section 3.3).

These risks notwithstanding, Ireland's multinational sector demonstrated remarkable resilience in the face of the pandemic, with a number of sectors including pharma and digital technologies experiencing record exports. Similarly, the internationally traded food and drinks sector performed well overall with exports declining by just 2% in

<sup>27</sup> EIU Risk Outlook 2022, October 2021, Economist Intelligence Unit

<sup>28</sup> IDA Ireland Announces Results for 2020, 2021, IDA Ireland

<sup>29</sup> Statistical Yearbook of Ireland 2019, 2020, CSO

<sup>30</sup> FDI Qualities Assessment of Ireland, 2020, OECD

2020 to €13 billion.<sup>31</sup> However, the experience across the domestically trading and SME sectors has been very different. While the gross value added of foreign-owned sectors expanded by 18% in 2020, value added from Irish-owned firms contracted by 9.5%.<sup>32</sup> And though, as the Stability Programme Update 2021 outlines, these figures mask a wide range of differences across firms - within both the domestic and foreign-owned sectors - they demonstrate that broadly speaking the pandemic has been particularly severe for SMEs and has widened the gap that already existed between the indigenous and multinational sectors in Ireland.<sup>33</sup>

This has heightened the importance of strengthening the SME sector and addressing a number of previously identified challenges.<sup>34</sup> These include a relative lack of productivity growth among established SMEs, scope to increase levels of entrepreneurship and new business start-ups - particularly outside urban centres, and low engagement by SMEs in international trade with only c.15,000 out of a possible 250,000 SMEs trading across borders.

Work is ongoing to address these issues; however, there is a significant risk that individual SMEs, which do manage to withstand the impacts of the pandemic, will be understandably focused on the immediate questions of survival and recovery. Combined with the impacts of Brexit and pandemic related challenges in global supply chains there is a risk that these issues may not be addressed over the short to medium term.

<sup>31</sup> Export Performance & Prospects 2020 / 2021 Report, 2021, Bord Bia

<sup>32</sup> Stability Programme Update, 2021, Department of Finance

<sup>33</sup> Ibid.

<sup>34</sup> Productivity in Ireland 2019, 2021, CSO and SME and Entrepreneurship Policy in Ireland, 2019, OECD

### 3.6. Changes to international trading relationships

As a small open economy and one of the most globalised countries in the world,<sup>35</sup> Ireland is particularly sensitive to changes in the international trading environment.

These developments can have very varying impacts across different sectors and the economy more widely – and as such demand differing responses. This is clearly demonstrated by 2020 data where despite the pandemic causing widespread disruption, Ireland experienced record exports of €391.4bn driven in large part by the pandemic related growth in pharmaceutical and ICT exports.<sup>36</sup> At the same time, other sectors such as tourism, hospitality, transport and retail experienced major declines. These sectors account for significant employment and tend to be regionally dispersed and so developments affecting these sectors can have an outsized impact on the domestic economy, particularly at a local level.

Notwithstanding the strong ICT and pharmaceutical exports, there is a risk that the pandemic could result in more permanent shifts away from patterns of trade and globalisation, intensifying previous trade tensions and trends, with adverse implications for a small, open economy such as Ireland. It is likely that protectionist tendencies driven by the recent shift towards strategic autonomy and near- or on-shoring, especially, will persist at least in the short term.<sup>37</sup> It will be important for Ireland, the EU and international institutions to maintain efforts to preserve and promote balanced international trade.

Though it remains challenging to predict how

<sup>35</sup> In 2019, Ireland was ranked 31 in the world for export trade in goods and 7 for exports trade in services. Trade Profiles 2020, World Trade Organisation

<sup>36</sup> Summary of Ireland's Trade Performance, 2021, DETE

<sup>37</sup> The New Age of Protectionism, 2021, Foreign Affairs

and when the global economy will stabilise following the impacts of the pandemic, many analysts predict a return to global growth in 2021 and international trade has already recovered to pre-pandemic levels. The IMF forecasts global growth of 6% in 2021, moderating to 4.4% in 2022.<sup>38</sup> Ireland's main trading partners are the EU, the US and the UK.<sup>39</sup> Recent economic forecasts are that the EU and the US economies will return to growth this year and, notwithstanding the impacts of the pandemic, it is likely that overall trade with these economies will remain strong.<sup>40</sup>

These forecasts are predicated, inter alia, on the effective rollout of the vaccine programme and so there is a risk to global, and by extension Irish, growth rates should this not occur. The current issues around global supply chain bottlenecks, shortages of transportation workers and price pressures on materials are also impacting global trade with an associated risk for growth rates (sections 3.2, 3.3 and 3.4 above). There is also a risk that these issues may lead monetary authorities to increase interest rates with associated impacts on costs of finance – and possible implications for stock markets.<sup>41</sup>

A number of other risks also arise, in particular, developments in the area of international tax reform may impact the level and type of trade carried out by multinationals based in Ireland (see Box 3 above). In addition, Ireland's trade is highly concen-

38 World Economic Outlook: Managing Divergent Recoveries, 2021, IMF

39 These markets accounted for 30%, 22% and 13% of exports and 23%, 18% and 12% of imports respectively in 2019. Statistical Yearbook of Ireland 2019, 2020, CSO

40 Summary of Economic Projections, September 2021, The Federal Reserve and Autumn 2021 Economic Forecast, November 2021, European Commission

41 The Economist Intelligence Unit identifies a particular risk around the US stock market in this regard. EIU Risk Outlook 2022, October 2021, Economist Intelligence Unit

trated with a small number of, albeit large, economies. While it remains important to continue to build on these strong relationships, there is scope for diversification and increasing trade with other jurisdictions, thereby reducing downside risk of developments in specific markets. Further considerations relate to overall competitiveness and productivity to ensure Ireland is a location of choice for internationally mobile investment across all sectors.

Though the EU-UK Trade and Cooperation Agreement (TCA) avoided the introduction of tariffs, Brexit has resulted in significant changes to trading processes and regulatory procedures when moving goods to, from, or through Great Britain – with associated considerations for costs and time to market. While not exclusively attributable to Brexit, there have been changes in trade flows to and from Ireland, with a significant reduction in flows to and from Great Britain and a sharp increase in flows directly to EU ports. There have also been changes to trade between Ireland and Northern Ireland.<sup>42</sup> It is too early to draw conclusions on this, but clearly some readjusting of supply chains is taking place. This is to be expected in the context of Brexit.

The UK is introducing further import controls on EU imports to Great Britain on 1 January and 1 July 2022. These new controls are expected to impact on exporters of goods from Ireland to Great Britain, particularly exporters of agri-food goods. A range of Government supports, including training and grants, are available to assist affected businesses. Similarly, the current global supply chain issues, particularly in Great Britain, will influence trade at least in the short to

42 Exports to Great Britain grew by 26% in the first seven months of the year and imports fell by 32% versus the same period in 2020. For the same period exports to Northern Ireland grew by 45% and imports increased by 60%. Goods Exports and Imports July 2021, September 2021, CSO

medium term. Further geopolitical considerations in relation to Brexit and trade are covered in section 2.3 above.

Given the geographic proximity, shared language and business culture similarities, and until 2021, a shared membership of the EU, the UK has historically been a preferred first destination for indigenous companies looking to expand into international trade and markets. There is a risk that the changed trading relationship and ongoing uncertainties will affect the trajectory of Irish based companies in expanding into international markets.

### 3.7. Disruption to a secure and sustainable energy supply

The increased pressure on global resources is demonstrated by recent developments in Europe regarding gas supplies which combined with lower than expected renewable generation, more extreme temperatures and increased demand as economies reopen has led to significant price volatility – translating into increased prices for household and commercial customers. This is adding to inflationary pressures (see section 3.4) and may lead to increased levels of fuel poverty.

Due to our geographic location and our current high reliance on imports to meet the majority of our energy needs, Ireland is highly vulnerable to the impact of any such disruptions in the supply or cost of energy. In addition, there are increasing energy demands from a growing population and economy, including energy intensive activities such as data centres, with overall demand for electricity expected to increase 28% over the next decade.<sup>43</sup> As part of measures to meet our climate change obligations, Ireland is also working to electrify parts of the

transport and heat sectors which will further increase reliance on the electricity network.

Although, a large proportion of our energy needs are met through imports, energy production from renewable in Ireland is increasing. In 2020, 43% of electricity needs were met from renewable sources.<sup>44</sup> This reduces our reliance on imports and contributes to achieving our renewable energy targets as set out in the National Energy and Climate Plan and supports delivery of the ambitions set out in the Climate Action Plans.

It is important to acknowledge that the current state of technology for renewable electricity means that production can vary requiring back-up from conventional generation such as gas-fired power stations. Effective energy management across all sources and improved infrastructures and technologies to utilise energy from renewable sources are essential to mitigate this issue. The Single Electricity Market on the island of Ireland plays an important role in this regard.<sup>45</sup> It is important to build on this and continue to diversify our sources of supply by further developing energy interconnection to neighbouring markets.

In this context, the majority of natural gas currently consumed in Ireland is imported from a single source in Scotland. By 2030, with the continued reduction in production from the Corrib Gas Field, Ireland's dependence on natural gas imports from Moffat is expected to increase to over 90%. Notwithstanding the increased use of renewables and energy efficiencies achieved over this time, this reliance on a single source creates a significant risk for security of supply.

Further pressures on the security of electric-

<sup>43</sup> All-Island Generation Capacity Statement, 2021-2030, 2021, EirGrid Group

<sup>44</sup> Electricity consumption from renewables 2020, 2021, Eirgrid

<sup>45</sup> The continued operation of the SEM is provided for under the Protocol on Ireland / Northern Ireland.

ity supply arise from the expected closure of domestic power stations over the period to 2025 as part of the decarbonisation of Ireland's energy production. These plants make up approximately 25% of conventional electricity generation capacity and it is important that adequate capacity from alternative sources is secured. There is a need for extensive investment in replacement generation capacity and grid infrastructure to ensure adequate transmission capacity and to support ambitious renewable energy targets, with significant cost and delivery challenges. Implementation of the related initiatives through the NDP will be important in this context.

In the short to medium term there are significant challenges in the security of electricity supply. Eirgrid has signalled a risk that in the absence of significant work to address these issues there is the potential for a shortfall in energy over the next five winters. They highlight particular concerns about this coming winter and are engaging with high energy users, including data centres, as part of ongoing work to address any such shortfalls.

It is vital that Ireland ensures an affordable, sustainable and diverse energy supply that meets demands across all parts of society and the economy, provides certainty and supports our objectives to reduce carbon emissions. Measures to promote energy efficiency such as retrofitting, and to maximise the alignment of demand with energy from renewable sources also play a role in supporting energy security.

# 4. Social Risks

## 4.1. Social cohesion

Societies struggle in the aftermath of economic contractions as more people have to cope with being displaced from the labour market. Loss of regular paid work increases isolation, weakens communities and overall consumer demand. From a situation of near full employment in 2019, the unemployment rate is forecast to average 7.3% in 2021 and 7.2% in 2022 before declining to 5.9% in 2023, as the impacts of the pandemic moderate over time.<sup>1</sup>

It is widely accepted that younger people have been impacted greatly during the pandemic, particularly in relation to labour market impacts and access to the full educational experience. As outlined in an OECD report *Youth and COVID-19: Response, recovery and resilience*<sup>2</sup>, the pandemic has also posed considerable risks to mental health. Today's youth and future generations will likely shoulder much of the long-term economic and social consequences of the pandemic, and their present well-being may also be affected by short-term economic and equity considerations. The profound and damaging effects that COVID-19 has had on the older age cohort are also widely acknowledged and are addressed in section 4.4 below.

In terms of the effect of younger workers, in November 2021, the overall COVID-19 adjusted unemployment rate was 6.9%. However, at 10.2% the rate for those aged under 25 was almost 50% higher; notwithstanding that many in this age group would be in full-time education.<sup>3</sup> The differential

is largely explained by the fact that many of the sectors in which young people typically find employment – hospitality and retail – have experienced the most severe and longest restrictions/closures. On average, a third of those in their early 20s work in retail, hospitality, arts or leisure jobs, compared to a fifth of workers aged 40-60.<sup>4</sup>

More recently, employment in these sectors is growing as the economy reopens – to the extent that many businesses here and in other jurisdictions are citing challenges in filling positions.<sup>5</sup> It remains to be seen if these shortages will persist and/or the pandemic has had a permanent impact on the desirability of working in certain roles/sectors. However, as outlined in section 3.1 above, it is clear that younger workers have been disproportionately affected by the pandemic. Additionally, despite the overall increase in available jobs, recent data indicates that the move from support schemes into employment is slower for younger age cohorts.<sup>6</sup> It is important that this does not translate into persistent high rates of youth unemployment with associated challenges for longer term social and economic outcomes.

As illustrated by previous economic shocks, younger people graduating in times of crisis will find it more difficult to find secure and reliable jobs and income, which is likely to delay their path to financial independence and wider social security.

<sup>1</sup> Quarterly Bulletin 4, October 2021, Central Bank

<sup>2</sup> Youth and COVID-19: Response, recovery and resilience, 2020, OECD

<sup>3</sup> November - Monthly Unemployment Release, December 2021, CSO

<sup>4</sup> Poverty, Income Inequality and Living Standards in Ireland, 2021, ESRI

<sup>5</sup> Recruitment Challenges: A Survey of Tourism Businesses, 2021, Fáilte Ireland

<sup>6</sup> Live Register August 2021 and COVID-19 Income Support Payment Measures, September 2021, CSO and COVID-19 Income Supports – An analysis of recipients, March 2020 to May 2021, CSO

These impacts are often associated with the rise of precarious work which in broad terms involves temporary contracts or casual work, limited entitlements and protections, and relatively low pay. Research by the ESRI with the Human Rights and Equality Commission (IHREC) has found that in 2019, one third of workers aged under 25 had a temporary contract, compared to 6% of 25-64 year olds.<sup>7</sup> Ethnic minority groups are similarly over-represented in roles that would be deemed ‘precarious’. Related to the discussion on migration and integration in section 4.3 below, the ESRI has found that as a means of integration, employment can be less positive for inclusion where it involves poorly rostered hours, low pay and bad conditions.<sup>8</sup> Temporary contracts etc. can suit some people at certain times.

However, in addition to the individual level impacts in terms of low pay, and a lack of security, there can be damaging impacts at the population level. The European Parliament has proposed that precarious employment be included as part of the measures for monitoring the social and economic dimensions of resilience by the EU.<sup>9</sup> Initial work to develop resilience dashboards is underway.<sup>10</sup>

Prior to COVID-19, a notable trend had been that globally, youth satisfaction with democracy was in decline – not only in absolute terms, but also relative to how older generations felt at the same stages in life.<sup>11</sup> This is not a life-cycle effect where-

<sup>7</sup> Monitoring Decent Work in Ireland, June 2021, ESRI and IHREC

<sup>8</sup> Monitoring Report on Integration, December 2020, ESRI

<sup>9</sup> Towards a more resilient Europe post-coronavirus Options to enhance the EU's resilience to structural risks, 2021, European Parliamentary Research Service

<sup>10</sup> Resilience Dashboards, Work in Progress, 2021, European Commission

<sup>11</sup> Youth and Satisfaction with Democracy, 2020, University of Cambridge, Centre for the Future of Democracy

by people may start off critical but moderate positions with age. In developed democracies, rising wealth inequality and youth unemployment have left younger generations struggling with higher rental costs early in life, delayed life chances, greater difficulties accumulating savings, higher debt burdens, a lower chance of securing housing, accessing healthcare, greater challenges in starting a family, and greater dependence upon the support of parents and relatives. Added to these are relatively high levels of anxiety about climate change among younger people and a heightened awareness of racial and gender injustices.<sup>12</sup> Obviously, the economic consequences of COVID-19, particularly with regard to younger generations, could intensify these trends and may erode trust.

Economic recovery and growth, including appropriate regional social recovery, post-pandemic must be a shared process involving all regions, communities and cohorts across society. Supporting sustainable, inclusive and long-term economic growth, will be required to enable a recovery that is just, fair and leaves nobody behind.

#### Trust in government and media

Broad trends indicate that, globally, the pandemic has put trust in government and the media to the test and may have heightened issues of trust that existed prior to the pandemic.

Existential crises about the impacts of climate change and more precarious labour markets as well as anti-establishment sentiment are further contributing to risks around the erosion of social cohesion and trust in institutions. These issues may be further intensified by the role of social media in public debate. Conversely, there is potential for an increasing

<sup>12</sup> Youth perceptions of climate change: A narrative synthesis, 2020, WIREs Climate Change. The 2019 Youth Assembly on climate also identified a number of recommendations which demonstrate this awareness



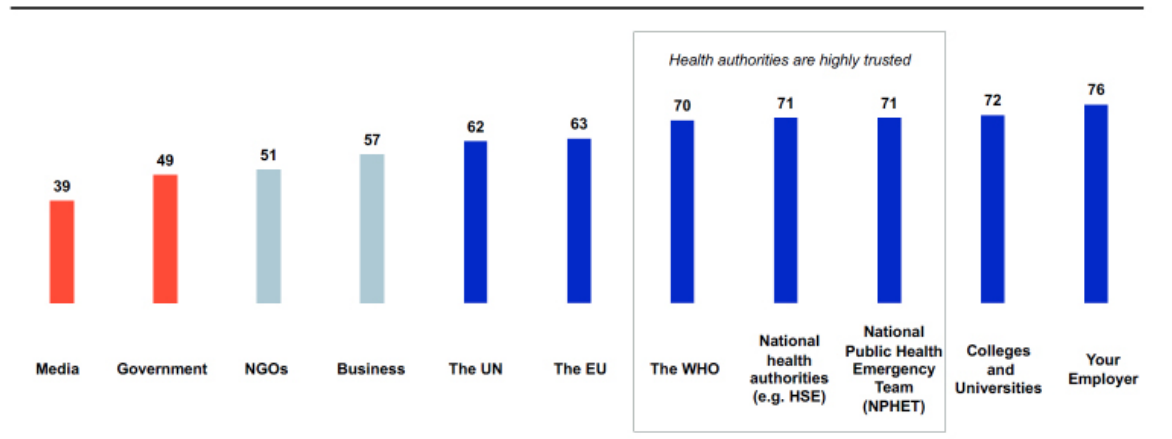
sense of isolation and exclusion for those who may not have the necessary resources or skills in terms of access to social media and services delivered online. The risks arising around digital exclusion and mis- or disinformation are discussed in section 4.5 below.

In a 2017 report, the OECD noted a decline of people’s trust in institutions in the aftermath of the global financial crisis. This finding is supported by research by Eurofound which also found increasing concern about the potential rise in income inequalities, as well as the polarisation of society following the financial crisis. Notwithstanding the high level of take-up in Ireland, the international experience in relation to COVID-19 vaccine hesitancy may point to a further set of risks about trust. Lower public

trust in institutions limits the capacity of governments to implement their policies, and has been linked to increasing dissatisfaction with democracy. According to the OECD report, at 28% Ireland was below the OECD average of 33% in terms of the population of working-age that felt they have a say in what the government does.

The factors outlined in this section might lead to an easy assumption that social cohesion will weaken and that public trust is on the wane in Ireland. However, it is not clear that this is the case. Recent survey work carried out by Edelman shows that trust in government has increased in recent years from 35% in 2018 to 49% in February 2021. As shown in Chart 3, trust in public health authorities is appreciably higher and they are among Ireland’s most trusted institutions.

**Chart 3: Trust in global and national health authorities are among Ireland’s most trusted institutions**



Source: Edelman Trust Barometer, 2021. Country Report-Trust in Ireland (% trust)

There are contrasting reports on the levels of trust in media with only 39% of those surveyed by Edelman reporting that they trust media overall. However, research by Reuters and the Broadcasting Authority of Ireland points to relatively high levels of

trust in the news media by international standards; with 53% of respondents expressing positive levels of trust in Ireland as against 45% in the EU, and 37% in both the UK and North America. Trust in established news brands is particularly high with 78% saying they trust RTÉ, the public service

broadcaster. However, only 19% report trusting social media as a news source.<sup>13</sup>

An analysis of the European Social Survey data by University College Dublin researchers has however, noted moderate levels of trust in politicians, political parties and parliament. In this, the Irish population lies in the middle of a broader European ranking. Furthermore, there appears to be a strong association between higher levels of education attained and greater trust in these and other institutions.<sup>14</sup> A stronger participatory framework may aid in increasing levels of trust in governance structures. Ireland has relatively strong community development sectors and there is evidence that these organisations help to develop bonds of trust between communities and individuals.

## 4.2. Housing and sustainable development

Shortages in the supply of housing had been identified as a risk in previous iterations of the NRA. As a recent report from the ESRI in conjunction with the IHRC outlines “adequate housing allows all members of society to not only survive but thrive and achieve their full potential, whilst leading to a more just, inclusive and sustainable society”.<sup>15</sup>

Though it is well accepted that the shortage of housing and the upward pressure on rents creates a significant risk for all people, it is a particular challenge for single parents, homeless people, people with disabilities, people with mental health difficulties and people in low-paid and precarious employment.

<sup>13</sup> Digital News Report - Ireland, 2021, BAI / Reuters

<sup>14</sup> Trust in Politics, Politicians and Institutions, PublicPolicy.ie, January 2020

<sup>15</sup> Monitoring Adequate Housing in Ireland, September 2021, ERSI / IHREC

Although progress has been made in recent years on the number of dwellings being made available overall, the public health restrictions for COVID-19 have impacted housing completions. Severe public health restrictions, with some exceptions, were placed on construction activity in the first quarter of 2021 which explains the relatively low level of expected output. However, the most recent data on housing commencements indicates a rebound in the number of new houses and apartments to be delivered in the coming years.<sup>16</sup> In 2020, just under 21,000 housing units were finished. It is expected that the figure for 2021 will be close to 22,000 increasing to 27,000 and 31,000 in 2022 and 2023.<sup>17</sup>

Forecasts for delivery have to be set against the overall level of demand for housing and meeting the backlog in pent-up demand which the ESRI estimates to be 33,000 residential units per annum.<sup>18</sup> Housing for All aims to support the provision of an average of 33,000 new homes annually from 2021 to 2030 and promote the availability of affordable, quality housing including through the more efficient use of existing stock.

It is estimated that the pandemic has given rise to an increase in household savings of €21 billion.<sup>19</sup> As a portion of these savings will likely be used on house purchases and combined with existing pent-up demand, the current gap between demand and supply of new dwellings will yield significant inflationary pressures. Notwithstanding the moderating effect of the Central

<sup>16</sup> Construction Activity Statistics, November 2021, Department of Housing, Local Government and Heritage

<sup>17</sup> Quarterly Bulletin 4, October 2021, Central Bank

<sup>18</sup> Regional Demographics and Structural Housing Demand at a County Level, December 2020, ESRI

<sup>19</sup> Quarterly Bulletin 4, October 2021, Central Bank and Institutional Sector Accounts (Financial and Non-Financial) 2020, November 2021, CSO

Bank's macro-prudential rules, house prices will continue to rise in the short to medium-term before the gap between demand and supply can be reduced. The gap between the price of new housing built to Nearly Zero Emission Building standards and second-hand homes is also increasing.

Additionally, industry figures have noted that construction material prices have risen due to worldwide and local shortages, Brexit, COVID-19 and spikes in demand and some suppliers warn of price increases ranging from 5% to as much as 20%.<sup>20</sup> CSO figures have shown the average price of building and construction materials increased 13% in the year to September 2021 (see section 3.4).<sup>21</sup> There are also growing difficulties arising from the retention of land around urban areas, opposition to the planning and delivery of housing and other infrastructure, as well as the increased willingness of the courts to intervene in planning matters through judicial reviews.

The profile of tenures is changing, albeit slowly given the longevity of housing as a social good. The proportion of the population renting is now at its highest level in many decades. About 1 in 5 permanent households are now renting, either socially or privately and the percentage of urban homes owned outright is falling.<sup>22</sup> Notwithstanding that rental prices are relatively inelastic, in the absence of a sufficient increase in the supply of rental properties, rents will rise. This has been the case between 2013-2019 where rents increased

by 6.3%, on average, each year.<sup>23</sup> Rents have continued to increase, growing 7% nationally in the year to June 2021; with growth outside Dublin of 10.4% significantly outpacing increases in Dublin of 4.4%.<sup>24</sup> Escalating rents have led to a phenomenon where some commentators speak of a 'locked-out' generation; unable to access the means to purchase a house and spending more of their income in monthly rent than they would on a monthly mortgage.<sup>25</sup> Furthermore, high levels of rent and a lack of access to affordable and high-quality housing impact Ireland's overall competitiveness and attractiveness as a place to live and work. Both housing costs and its supply in the right locations are key factors in our broader competitiveness in a European context.

There is evidence too that rental pressures are impacting homelessness. Homelessness has significant human, social and financial costs. In addition to the increased number of rough sleepers recorded in recent years, many families and individuals have been living for long periods of time in emergency accommodation with considerable impacts on family life and economic opportunity. Despite continued reductions in homelessness since 2019, there is evidence in recent months that the pace of this has slowed and even increased marginally in recent months.

One of the principal issues pertaining to housing is ensuring that appropriate housing is built in suitable locations. The National Planning Framework (NPF) sets out a strategy of compact growth whereby 50% of all new homes will be provided within the footprint of Ireland's five major

<sup>20</sup> Builders facing double-figure raw material price hikes, 27 April 2021, The Irish Times

<sup>21</sup> Wholesale Price Index, September 2021, CSO

<sup>22</sup> Census of Population 2016 - Profile 1 Housing in Ireland, 2017, Central Statistics Office and Tenure and Households in Ireland 2016-2019, 2020, Central Statistics Office. Approximately 30% of all occupied dwellings in the State are now rented

<sup>23</sup> Housing Affordability in Ireland: Economic Brief, 2020, European Commission

<sup>24</sup> Quarter 2 2021 Rent Index, RTB, 2021, Residential Tenancies Board

<sup>25</sup> The Irish Equity Home Loan, Discussion Report, 2020, Property Industry Ireland – Ibec

cities and their suburbs and that 30% will be provided within the footprint of other major towns. This objective aims to prevent a wider dispersion of homes at the edge of our cities and towns which cascades into higher private transport (and particularly fossil fuel based) dependence and makes it more difficult to provide appropriate mass public transport and reduce transport-based carbon emissions. The Framework also aims to ensure the development and preservation of socially and economically vibrant towns and villages, with appropriate spatial measures for those in rural areas. Achieving compact growth would aid the development of these locations and reduce emissions by making single occupancy car journeys less of a necessity. Achieving this compact growth will require strategic investment in key enabling infrastructure and such investment will require exchequer support.

The NPF extends far beyond this vision of compact growth and is the overarching spatial strategy to guide Ireland's planning up to 2030. It has been accompanied by a National Development Plan which sets out the investment priorities to underpin the NPF. Overall funding of €165 billion has been allocated up to 2030 to support, inter alia, delivery of the Housing for All plan.

### 4.3. Migration and integration

Migration remains one of the most contentious and contested issues in political debates across many countries in recent years. Some of the issues regarding trust in institutions and mis/disinformation noted in the previous sections have been exploited to make these debates more divisive.

Globally, ongoing challenges regarding development and equity are being exacerbated by climate change, civil and cross border conflict and the pandemic and these

in turn are influencing patterns of migration. Human-induced climate change and economic responses to these changes will force millions of people into extreme poverty and impact migration patterns and the political processes arising from this may increase these pressures.<sup>26</sup> Policies and debates around migration and integration tend to be heavily influenced by these types of developments.

Ireland's location in Europe means that to date it has not felt significant inward migration pressures. However, this should not induce complacency or naivety about the effects that immigration and integration can generate. In terms of internal integration risks, Ireland has become a much more multi-ethnic society in slightly over a generation; a transformation reflected in both urban and rural communities and increased minority visibility across society.

Census 2002 was the first to include a question on nationality, and Census 2016 showed a 139% increase in the number of people without Irish nationality, that 17.3% of the population was born outside the State<sup>27</sup>, and 11.6% of the population do not hold Irish nationality.<sup>28</sup> This brings a corresponding requirement to be cognisant of the associated cultural changes in society, for example the capacity to access Government communications and services in languages other than English and Irish.

The ESRI's Monitoring Report on Integration 2020 states that integration not only allows immigrants to contribute to the economic, social, cultural and political life of their host country, but is also important for

<sup>26</sup> Climate change is the defining crisis of our time and it particularly impacts the displaced, 2020, UNHCR

<sup>27</sup> This figure includes people of Irish nationality who were born outside the State, including in Northern Ireland

<sup>28</sup> Census 2016 Summary Results – Part 1, Dublin: 2017, CSO

social cohesion and inclusive growth.<sup>29</sup> The COVID-19 pandemic has tended to worsen existing disadvantage experienced by migrants and ethnic minorities resident in and working in Ireland. The ESRI's December 2020 report, COVID-19 and non-Irish nationals in Ireland, notes that non-Irish nationals are over-represented in sectors most affected by COVID-19 public health restrictions.

Analysis carried out as part of the same report, also found that ethnic minorities and non-Irish nationals are overrepresented in COVID-19 cases compared to their proportion in the population. However, in general terms this did not translate into deaths from COVID-19, which is likely to be linked to their younger age profile.<sup>30</sup>

The pandemic focused attention in particular on the inadequacies of the direct provision system for people seeking asylum. Lower qualities of housing and accommodation amongst this group presented them with higher risk of infection and illness.<sup>31</sup> The Government's White Paper on Direct Provision will address this by changing the accommodation model and providing other supports to International Protection applicants. The Department of Justice is also working to reduce processing times for International Protection applications. The effective implementation of these planned reforms will be vital to ensure that applicants can be aided to integrate with independence into the community.

Ireland has, in recent decades, depended on immigrants to alleviate shortages in the tightest sectors of the labour market, including at various points in time for

example in the hospitality, health, social care, digital and IT sectors. Across this time period, families have joined individuals who migrated here and families have been formed, increasing the embeddedness of the social networks and economic opportunities that all new communities develop. While the medium to long term effects of COVID-19 on the labour market are not yet fully known, what is clear is that it would be a risk to certain sectors of our economy if migrants did not continue to choose to live and work in Ireland.<sup>32</sup> Some constraints around visa and work permit allocation remain and this may impact Ireland's ability to readily identify and address labour shortages.

Brexit has introduced new potential risks around immigration including the potential for increases in illegal movement of third country nationals into Ireland from the UK as well as legal divergence possibilities in relation to asylum matters. Arguably, this may lead to an increase in applications for international protection. There may also be labour market implications as Brexit evolves whereby EEA nationals choose to work in Ireland rather than the UK, post-Brexit. Notwithstanding the issues outlined, the increase in the immigrant population in Ireland has occurred in a relatively short timeframe compared to other EU countries.

Failing to maintain an ongoing level of social cohesion and a mitigation of inequalities especially as second and third generation migrant communities emerge, represents a significant risk of negative consequences. Divisions being heightened between groups of people along lines of gender, ethnicity and educational status can be fomented by disparate political factions. There is a risk

<sup>29</sup> Monitoring Report on Integration, 2020, ESRI

<sup>30</sup> COVID-19 and Non-Irish Nationals in Ireland, 2020, ESRI

<sup>31</sup> Direct Provision, Rights and Everyday Life for Asylum Seekers in Ireland during COVID-19, Murphy, F., 2021

<sup>32</sup> Population and Migration Estimates, April 2021, August 2021, CSO

that as Ireland recovers from the pandemic, potential legacy impacts such as economic scarring discussed under 3.1 above, will negatively impact integration. It is crucial that we continue to support migrants and others to participate fully in Irish society and foster the integration of ethnic minorities.

#### 4.4. Demographic change

Ireland's demographic profile is set to change significantly over the coming decades. The population aged 65 and over is projected to grow at a higher rate than the population aged 20 to 64, i.e. the working age population over the projection period. Put another way, while there are currently around four persons of working age for each person aged 65 and over, by 2050, the figure will be just over two – with significant consequences for the funding of pensions, provision of social services and the public finances overall.<sup>33</sup>

Though Ireland has a comparatively young population relative to other European countries, it faces the same longer-term ageing related challenges, in healthcare and social services provision and most particularly the sustainability of and coverage for pensions. The Irish pension system faces a number of very serious demographic, adequacy and sustainability challenges. The task of financing increasing pension spending will fall to a smaller share of the working population and substantially increase the pressure on the Social Insurance Fund. In addition, Ireland has a very low level of private pension coverage, with approximately only 35% of the private sector employed population covered by a supplementary pension. This suggests that a high percentage of the working population is not saving enough, or is not saving

at all, for retirement, reflecting a significant risk.

In addition to the private pension challenge, Ireland's ageing demographics have implications for the economy and the evolution of the public finances. As the population ages, we have more complex care needs, including higher usage of health, social care and social services. Annual ageing-related costs are expected to increase by 10.2% of Gross National Income (GNI) by 2070.<sup>34</sup> Although projections for GNI this far out are difficult to calculate, expenditure on State Pensions, the biggest component of older age-related expenditure, is projected to increase by 9.2% by 2070, while expenditure on healthcare and long-term care is projected to increase by 2.3% and 3.1% of GNI respectively.<sup>35</sup> Relatedly, the projected expenditure on early-years and adolescent education is expected to decrease by 0.2% of GNI over the projection period.

In the more immediate term, many in the older adult population have been adversely affected by the COVID-19 pandemic. The burden of COVID-19 illness and mortality has been borne by people over 65 years with mortality rates averaging 20% of those infected in those aged 80 years or older.<sup>36</sup>

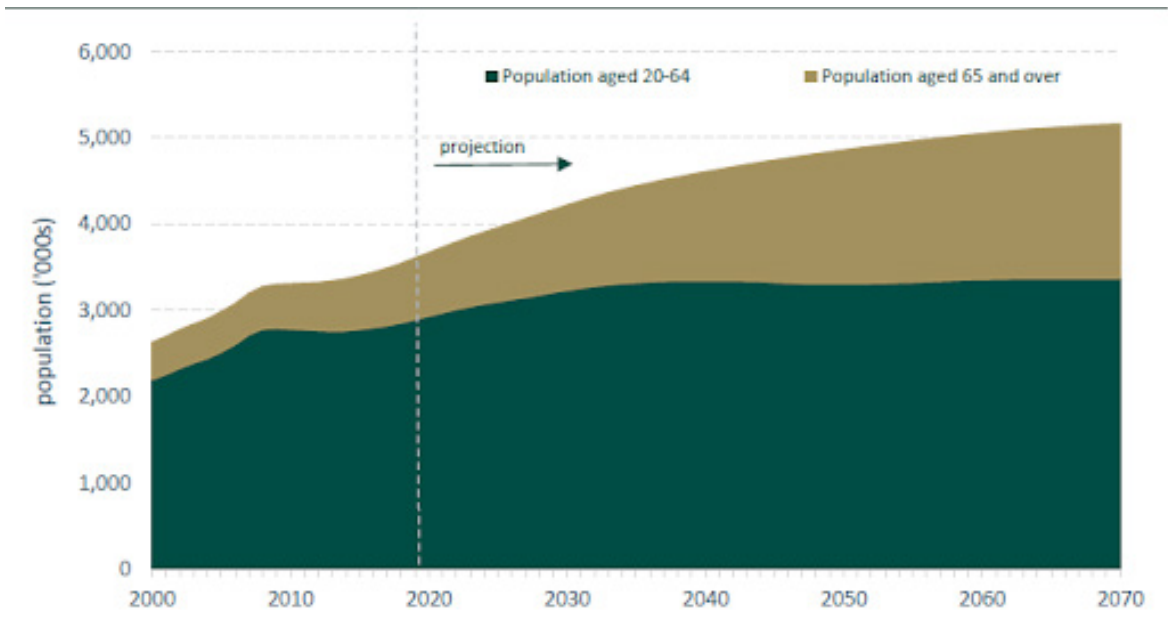
International data emerging has highlighted high rates of post COVID-19 complications in the older age group and perhaps in higher numbers amongst women across age groups. There is a need for a structured response to identify older post COVID-19 survivors and support them with rehabilitation and coordinated access to services based on an evidence-based approach.

<sup>34</sup> Population, Ageing and the Public Finances in Ireland, September 2021, Department of Finance

<sup>35</sup> Population, Ageing and the Public Finances in Ireland, September 2021, Department of Finance

<sup>36</sup> COVID-19 Deaths and Cases, Series 35, November 2021, CSO

<sup>33</sup> Stability Programme Update, 2021, Department of Finance

**Chart 4: Projection - Population aged 20 and over by age group, 000s**

Source: Population, Ageing and the Public Finances in Ireland, September 2021, Department of Finance

In addition to the impacts on those that contract COVID-19, prolonged cocooning in older people is leading to what is now being called a 'deconditioning pandemic'.<sup>37</sup> Restrictions and cocooning have greatly reduced opportunities for social participation. Increased loneliness and social isolation have negative consequences for the physical and mental wellbeing of older adults with many reporting limited levels of physical activity and low levels of life satisfaction.<sup>38</sup>

The pandemic has also exposed fragilities in the delivery of older persons' services. The need to move as much care as possible away from congregated settings is emphasised by the national and international experience of the pandemic. The COVID-19

Nursing Homes Expert Panel Report<sup>39</sup> highlights a number of the issues and risks associated with current services, particularly the configuration of nursing homes services. It noted in particular the change over time of the public-private mix, where the previous 80% of public delivery of nursing home care service has now evolved into 80% private delivery. HIQA's recent publication, *The Need for Regulatory Reform*, similarly highlights the risk concerned with the ongoing consolidation of the market.<sup>40</sup> A further consideration is the availability of appropriately skilled care workers and related services – both within care homes and in-home settings. This is a global challenge and has been greatly exacerbated by the pandemic.

The moderating pace of population growth also presents a challenge as additional labour supply becomes scarcer, with labour

<sup>37</sup> The impact of COVID-19 pandemic and societal restrictions on service delivery, May 2021, HSE

<sup>38</sup> Altered lives in a time of crisis: The impact of the COVID-19 pandemic on the lives of older adults in Ireland, 2021, tilda

<sup>39</sup> COVID-19 Nursing Homes Expert Panel: Final Report, 2020, HSE

<sup>40</sup> *The Need for Regulatory Reform*, 2021, HIQA

productivity becoming the main source of improved living standards. In the absence of the immigration of people of working age in much larger numbers, the increased age dependency ratio will impact on areas such as education, child income supports, health and social care, long-term care, housing provision and pension provision. Each of these will be an area of concern but as referenced above, pensions, health and social care will likely be the most significant.

Over and above the share of the population of working age, there is a risk of limiting participation in the labour market if there is a lack of perspective on meeting the needs of different groups of citizens. For example, a lack of affordable childcare options acts as a significant constraint on participation in the labour force by women, single parents or the lower earner in a household. Equally, people who wish to continue to work past retirement age may be inhibited from doing so through intergenerational tensions already making themselves visible and the perception that they are hoarding jobs. At the same time as there is an aging population as a proportion of the overall population with associated impacts for pensions, social and healthcare, demographic changes also point to increased demands for further and higher training and education places over the immediate decade ahead. Notwithstanding the progress made in recent budgets in increasing investment in higher education as well as other developments such as a new Human Capital Initiative, it is important to ensure adequate levels of funding for the sector are maintained, and that an appropriate, sustainable model of funding is in place.

## 4.5. Digital exclusion

### Drive towards digitalisation

When the COVID-19 pandemic led to restrictions and lockdowns, much of the world moved online. Remote working, online learning and e-commerce have surged. This was an accelerated digital transformation that had been underway for decades. There is a growing importance of digital technologies and communications infrastructures in our daily lives which necessitates an inclusive digital transformation, with coordinated and comprehensive strategies that build competence and enhanced skills for a post-COVID-19 era.<sup>41</sup>

Ireland is investing heavily in its National Broadband Plan to ensure universal connectivity and this is a work in progress. Many organisations such as schools and companies will seek to be increasingly digitalised. Government must also play its part in putting more services online and offering its citizens greater convenience in terms of accessibility.

As important as the 'hard' infrastructure is, it is equally important that people have the capabilities needed to avail of opportunities online. There are groups who remain poorly engaged with digital technologies, in particular, those who are older, have lower levels of education, lower incomes, and live in rural areas; as well as smaller businesses and farms. Digital inclusion is a priority and if left unaddressed represents a risk to the Irish society and economy.<sup>42</sup> The Economic Recovery Plan has digitalisation as a cross-cutting horizontal theme, recognising the need to support and drive enhanced digital take-up across all sectors of the economy, public services, and society

<sup>41</sup> Digital Transformation in the Age of COVID-19: Building Resilience and Bridging Divides, 2020, OECD

<sup>42</sup> Digital Inclusion in Ireland, 2021, NESC



to position us to maximise the benefits and opportunities of the future digital economy. Similarly, the National Recovery and Resilience Plan prioritises accelerating and expanding digital reforms and transformation.<sup>43</sup>

The pandemic has acted as a catalyst for digital adoption in many sectors and it is unlikely that economies and societies will return to ‘pre-COVID-19’ patterns. Faced with a future where jobs, education, health, government services and even social interactions may be more dependent on digital technologies than before, failing to ensure widespread and trustworthy digital access and effective use risks deepening inequalities, and may hinder countries’ efforts to emerge stronger from the pandemic. An inclusive approach to digital transformation will be vital.

Data-intensive technologies offer greater choice and personalisation, but also pose risks to safety, privacy and security, and the potential for information and data to be exploited. In 2019, over 80% of OECD countries reported artificial intelligence and big data analytics as the biggest challenges to privacy and personal data protection, followed closely by the internet of things and biometrics.<sup>44</sup> The risks associated with trust in the media and the integrity of democratic processes have already been identified above but it must be again noted how vital it is that policies developed in the drive towards digitalisation are cognisant of privacy, data protection and enforcement and accountability. Related risks regarding data flows and cybersecurity are discussed in sections 6.1 and 6.3 below.

<sup>43</sup> National Recovery and Resilience Plan 2021, Department of Public Expenditure and Reform

<sup>44</sup> Digital Economy Outlook 2020, OECD

### Digital literacy

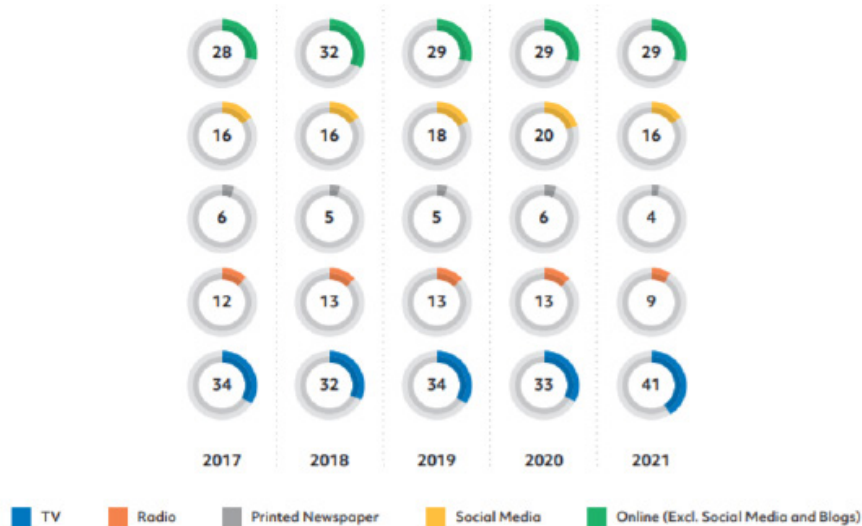
Social media, as a means of helping billions of people around the globe connect and communicate, have become essential tools. However, while social media platforms offer users many benefits, the difficulties in oversight of users and their data as well as their direct reach with individuals and others has led to a substantial risk of spreading disinformation or misinformation.<sup>45</sup>

This can have an effect on different levels from individuals to institutions and can heighten divisions and already growing levels of public distrust. There remains a considerable concern about the targeting of individuals on social media platforms with advertisements and sponsored news stories to influence beliefs, opinions and possibly voting intentions.<sup>46</sup> Arguably, more serious is the promotion of dangerous views and disinformation which can result in harm to particular groups and/or undermine free and fair elections. A driver of this risk is that large numbers of citizens now get their news from social media platforms. This can lead to a polarisation of extreme views and instigate broader social unrest.

<sup>45</sup> Furthermore, the platforms through which people communicate often engage users on the basis of specific terms and conditions, the implications of which are outside the knowledge of these users.

<sup>46</sup> For example, see *Regulating Election Finance*, an independent report produced for the UK Committee on Standards in Public Life, July 2021, gov.uk

**Chart 5: Main sources of news by year 2017 - 2021, Ireland %**



Source: Digital News Report - 2021, Reuters and the Broadcasting Authority of Ireland

In the Irish context, a recent study carried shows that the number of people citing social media as their main source of news has dropped four percentage points to 16% from 20% last year (Chart 5) - this may be a function of the pandemic and the impact that it has had on peoples’ consumption of and interaction with all forms of media.<sup>1</sup>

However, Ireland remains vulnerable to this risk, as was seen, for example, during the referendum in May 2018 on the Thirty-sixth Amendment of the Constitution Bill 2018, whereby it was found that online ads from untraceable groups were used to “mislead voters, discredit political figures and groups, mimic official or neutral information sources, gather voter data and share disturbing images.”<sup>2</sup>

Studies have shown that false informa-

tion spreads “farther, faster, deeper and more broadly” due to its sensationalist and emotive nature.<sup>3</sup> Partial and incomplete information can be spread through headlines written to be sensationalist and the generation of mistrust often accompanies this practice. A 2020 Eurobarometer report found that 22% of people surveyed in Ireland have come across false news every day or almost every day and 26% do at least once a week.<sup>50</sup> Online misinformation and disinformation pose a risk to citizens when it comes to, for example, the adherence to public health measures, the uptake of vaccinations and the integrity of any referendum or electoral process. Given the pace of technological change and the rapid dissemination of disinformation and misinformation online, it is vital to have comprehensive policy responses and adjust policy objectives in light of its evolution.

47 Digital News Report - Ireland, 2021, Reuters and the Broadcasting Authority of Ireland

48 Policy proposals for regulating online advertising, 2018, Transparent Referendum Initiative

49 Disinformation in the digital age: The need to regulate, 28 November 2019, IIEA

50 Attitudes towards the impact of digitalisation on daily lives, 2020, Eurobarometer / EC

Countering these risks will in part rest upon people having the capacity to distinguish the well-grounded information from the baseless. This is a competency which educational syllabi at all levels should help instil. It is also essential that this is underpinned by effective regulation. This would help to engender greater trust amongst people and their own communities and increase overall transparency.

#### Education and skills – keeping pace with digitalisation

An adequately resourced and flexible education and training system is crucial for Ireland to keep pace with digitalisation.

This is essential to ensure that people at all stages of life have the skills to engage with and use digital technologies in their daily lives. Otherwise there is a risk that people will not be able to access the services and information they need with associated impacts for social cohesion. In this context, it is important that digital skills and technologies are considered in relation to online services, particularly public services – and that appropriate provisions are made to ensure people can access them. Digital skills are also increasingly important across a wide range of roles and across all sectors. It is important that people have the level of digital literacy needed to participate in the labour force. It is also essential that the education system has the capacity to develop the high level digital and technological skills needed to drive innovation.

The National Strategy to Improve Literacy and Numeracy among Children and Young People refers to the importance of developing and enhancing digital literacy skills throughout the continuum of education. Digital skills are a key competency developed from the earliest levels of education

that can then be further developed and enhanced in further education and higher education. It is important that this is complemented by programmes to promote digital skills amongst adults – including through lifelong learning as well as initiatives to strengthen digital skills within organisations and across sectors. The community, education and enterprise sectors all play an important role here.

Skills are the global currency of 21st century economies, and many countries are placing a major focus on talent development and investment in education and training – digital skills are a critical part of this. Ireland's higher education institutions have played an important role in differentiating Ireland's skills base in an international context. It is important that adequate levels of funding for the sector are maintained, and that an appropriate, sustainable model of funding is in place. This is particularly important given the demographic growth and strong demand for further and higher training and education places forecast over the immediate decade ahead outlined in section 4.4 above, the infrastructure pressures associated with such growth, and the need to maintain and build on the quality of the sector.

Supports for research and innovation ensures countries are enabled to prepare for future disruptions. However, public investment in research and innovation in Ireland, including in areas that relate to digital, is below the EU average and other OECD advanced economies.<sup>51</sup> The complexity of some emerging technologies exceeds the research capacities of higher educational institutions and in many cases, even the largest private sector companies. This necessitates a

<sup>51</sup> The Research and Development Budget 2019-2020: Government budget allocations for R&D, 2020, Department of Enterprise, Trade and Employment

spectrum of public-private and international research partnerships. Ireland would risk losing the benefit of being a competitive research centre and of not maximising its talent and knowledge, if we do not maintain a consistent and coherent approach to our investment and ensure that we prioritise this investment.

# 5. Environmental Risks

## 5.1. Climate change

It is widely acknowledged that the rapid change to the global climate, driven by human activity, is having diverse and wide-ranging impacts on the environment, societies, and economies. This is evidenced by the severe weather experienced in Europe, North America and around the Mediterranean coast in recent years with associated risks to lives, infrastructure and the natural environment. Changes in Ireland's climate are in line with these global trends and extreme weather events domestically in recent years have demonstrated the risks to Irish society and the economy.

Projections are that these global changes will continue and intensify into the future. A recent report from the Intergovernmental Panel on Climate Change (IPCC) finds that unless there are immediate, rapid and large-scale reductions in greenhouse gas (GHG) emissions, limiting warming to close to 1.5°C or even 2°C will be beyond reach.<sup>1</sup> Even if rapid and ambitious global GHG reductions are implemented, there is broad consensus that many of the effects of climate change are locked in with significant impacts including damage to natural habitats and biodiversity and extreme weather events (see sections 5.2 and 5.3). From a health perspective, many of the factors which contribute to the climate crisis - such as heat energy inefficiency, intensive agriculture, air travel and lifestyles powered by fossil fuels - are also risk factors for future pandemics (see section 5.4).<sup>2</sup> Increased global cooperation to mitigate climate change and support adaptation measures is essential to address the challenge and limit

1 Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate, August 2021, IPCC

2 Fifth Annual Report - Countdown on health and climate change, 2020, The Lancet

the devastating impacts

The recent IPCC report provides a comprehensive overview of the risks that will impact regions and particular landscapes and habitats in the coming twenty years.<sup>3</sup> For Ireland, this includes how warming and rising seas will alter our coastlines, increased intensity of rainfall will lead to greater chances of river flooding on low ground, more frequent droughts, greater risk of water stress for established crops as well as increased heat stress on urban-dwelling vulnerable populations.<sup>4</sup> Long term patterns associated with climate change such as the reduction in the Greenland ice sheet may have enormous implications for Ireland. One possible consequence of increased meltwater from Greenland entering the North Atlantic is the collapse of the Gulf Stream System, which could, inter alia, transform winters in Ireland from mild and wet to frigid.<sup>5</sup> Globally, and in Ireland, sea level rises have already been observed and are projected to continue increasing flood and erosion risk to coastal and other communities.

From a distributional perspective, the UN Refugee Agency outlines how the impacts of the climate crisis “are unevenly weighted against the world’s most vulnerable people,” especially displaced or stateless people.<sup>6</sup> The Agency cites that weather-related hazards displaced 24.9 million people internally across 140 countries in 2019 and that without demonstrable climate action,

3 Sixth Assessment Report of the Working Group of the IPCC, August 2021, IPCC

4 The Status of Ireland's Climate- 2020, August 2021, EPA / Met Eireann / MaREI

5 The Gulf Stream System is the common term for the Atlantic Meridional Overturning Circulation. Observation-based early-warning signals for a collapse of the Atlantic Meridional Overturning Circulation, August 2021, Boers, N., Nature Climate Change

6 Climate change is the defining crisis of our time and it particularly impacts the displaced, 2020, UNHCR

climate-related disasters could double the number of people requiring humanitarian assistance to over 200 million each year by 2050, with significant social, economic and geopolitical impacts. While on a far smaller scale, within Ireland some communities will be more directly and severely affected by climate change than others exacerbating issues around social cohesion and economic equity. Those on lower and fixed incomes and those living in coastal and floodplain areas are already feeling the impact.

Failing to act to mitigate climate change and to establish adaptation measures risks severe consequences including for human health, economic development, infrastructure, air and water quality and biodiversity, as well as risks to food, water and energy security and population displacement/un-sustainable levels of migration.

It is crucial that Ireland works to decarbonise the economy and makes the required investment in infrastructure and in supporting communities to adapt and prepare for the impacts of climate change. As part of this, it is important to address the effects that the transition to a carbon neutral society may have on certain sectors to minimise the risk to jobs and to regional and social cohesion.

#### The pathway to decarbonising the economy

Delivery on our emissions and renewables targets is critical to decarbonising the economy. Our emissions reduction targets have been put on a statutory footing. The Climate Action and Low Carbon Development Acts 2015 to 2021 commit Ireland to achieving by no later than 2050, the transition to a climate resilient, biodiversity rich, environmentally sustainable and climate neutral economy and to reduce emissions by 51% below 2018 levels by 2030.

Latest data from the Environmental Protection Agency (EPA) show that emissions decreased by 3.6% in 2020, largely due to the shutting down of large parts of the economy and travel as a result of the pandemic. This indicates the scale of transformation required to deliver our emissions reduction commitments and to avoid a rebound in emissions as the economy recovers from the pandemic.<sup>7</sup>

EPA data shows that three sectors, agriculture, transport and energy generation, account for about 70% of Ireland's 2020 GHG emissions<sup>8</sup> and action must be taken across the board to reduce emissions. We need to plan our approach towards carbon neutrality for the agricultural sector in a manner that recognises the economic and social role of the sector. Furthermore, we must invest in innovative economic opportunities including the bioeconomy as well in as the development of a circular economy to support the optimum use and re-use of resources. Ireland will adopt its first Carbon Budget Programme in 2022 and this will form the basis for ongoing sets of actions underpinned by the annual Climate Action Plans.

The Climate Action Plan 2021 commits to delivering up to 80% renewable electricity by 2030; up from 43% in 2020 and effectively tripling Ireland's renewable electricity generating capacity.<sup>9</sup> This is a time when demand for electricity generally is increasing (see section 3.7). Maximising the potential of our renewable energy resources, energy efficiency measures and electricity interconnectors is core to ensuring a secure, sustainable and regionally suitable energy

<sup>7</sup> Greenhouse Gas Emissions – Key Messages, October 2021, EPA

<sup>8</sup> Ireland's Greenhouse Gas Emissions Projections 2020-2040, 2021, EPA

<sup>9</sup> Electricity consumption from renewables 2020, 2021, Eirgrid

supply.

There are environmental, social and moral imperatives to act and meet these targets. As outlined above, the levels of threat posed by climate change is such that we must move beyond reduction and into active measures to promote biodiversity and better human systems. There are also potential costs to the exchequer if we fail to achieve compliance with our EU GHG emissions and renewable energy targets as well as reputational costs in terms of Ireland's commitment to tackle climate action and support delivery of the Sustainable Development Goals.

Failure to rapidly move to a carbon-neutral economic model will have far reaching negative impacts on the economy and the public finances; it will undermine the long-term, sustainable competitiveness of the economy; and it will lock Ireland into an increasingly redundant fossil-fuel based economic model.

There is a necessity for continued realistic and frank discussion about what investments will be needed to meet EU 2030 targets and ensure that Ireland is on a verifiable and just pathway to decarbonisation. Societal willingness to tackle the longer-term risks of climate change could present a challenge if not targeted and supported correctly, as significant upfront investment and behavioural change is required, change and investment that is unlikely to yield benefits for some decades. For example, re-wetting bogs and peat soils and required changes to our forestry sector have begun but the impact of this, in terms of avoided emissions and carbon sequestration will not be seen for some years. In addition, as we transition to a climate-neutral society, there is a risk that certain sectors, communities or regions may be particularly impacted as has been seen from the phasing out of the large-scale harvesting of peat. It is important that appropriate measures are taken to

address these issues and support a Just Transition.<sup>10</sup>

While being mindful of a Just Transition and the need to protect people from the potential impacts of transitional policies, there remains an economic risk if Ireland fails to price the cost of carbon into our economic model. Appropriate long-term signals to all societal cohorts must be provided to support behavioural change.

The cross-cutting nature of climate change demands a whole of government response. There is a risk that failing to implement a coherent strategy across Government will undermine the effectiveness of mitigation and adaptation measures. A further risk is the availability of the necessary skills and resources – this includes engineering and construction skills.<sup>11</sup> Our further and technical educational systems need to incorporate these and related skills. The enterprise and research sectors also play a critical role in the transition to a climate neutral society.

## 5.2. Biodiversity loss

A 2019 report from the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services outlined the impact of humans on nature and noted that nearly one million species are at risk of becoming extinct within decades and that unless rapid action is taken, current attempts to preserve the earth's resources will likely fail.<sup>12</sup>

The World Wildlife Fund noted in a 2018 report that the earth is losing biodiversity at a rate seen only in mass extinctions. In 2019, research by the National Parks and

<sup>10</sup> Annual Review 2020, 2021, Climate Change Advisory Council

<sup>11</sup> Ibid.

<sup>12</sup> Summary for policymakers of the global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services, 2019, IPBES



Wildlife Service showed significant threats to Ireland’s biodiversity and that 85% of Irish habitats designated under EU law are assessed as being in inadequate or bad conservation status.<sup>13</sup> In addition, Irish biodiversity is highly vulnerable to the impacts of climate change and, already compromised by a range of other pressures, has a low adaptive capacity compared to other vulnerable sectors. The most impacting pressure on biodiversity comes from agricultural practices and land use changes.

The National Biodiversity Action Plan identifies actions to combat these threats and the need for increased funding for biodiversity is addressed in the National Development Plan.<sup>14</sup> The All-Ireland Pollinator Plan 2021-2025 is a multi-agency and local authority and farming practice framework which is trying to create habitats and ecosystems where pollinators can survive and thrive.<sup>15</sup> Ireland is a party to the UN Convention on Biological Diversity and is committed to producing strategic action plans to meet the Convention’s targets.

In May 2020, the European Commission launched its EU Biodiversity Strategy 2030 which aims to put Europe’s biodiversity on the path to recovery for the benefit of people, climate and the planet. Ireland has supported this ambitious strategy, which combines actions on conservation and protection, including the expansion of the protected area network in the EU and the preparation of national restoration plans.

The risks of not delivering on these commitments are stark and far-reaching, and include loss of habitats and consequent

pollinator decline, with one third of Irish bee species threatened with extinction. More than half of global economic output alone is dependent upon a safe, viable and sustainable natural world.<sup>16</sup> More than three quarters of global food crop types rely on animal pollination. Measures to conserve fish stocks and protect coastal wetlands alone would generate close to €100 billion across the EU in additional profits and reduced flood damage losses.<sup>17</sup> Therefore, failing to protect biodiversity may result in economic loss due to reduced crop yields and fish catches and increased susceptibility to flooding, as well as severely impacting on people’s quality of lives.

### 5.3. Extreme weather events and other natural disasters

In recent years there has been an increase in the number of severe weather events in Ireland, particularly those leading to flooding, coastal inundation and erosion, severe cold/snow events and longer periods of drought. These have major impacts on the local environment and economy, and in particular on the people living and working in the affected areas.

As outlined in section 5.1, the rise in the number and intensity of extreme weather events is attributable to human-induced climate change. This is modelled to escalate in frequency and severity in the coming time. A failure to address the root causes of climate change both domestically and globally will lead to increased occurrences and severity of these events and associated risks. It is also essential that sufficient adaptation measures are taken to reduce the impacts of extreme weather, including

<sup>13</sup> Biodiversity Ireland Indicators, 2019, National Biodiversity Data Centre

<sup>14</sup> National Biodiversity Plan 2017-2021, National Parks and Wildlife Service

<sup>15</sup> All-Ireland Pollinator Plan 2021-2025, 2021, National Biodiversity Data Centre / Heritage Council

<sup>16</sup> New Nature Economy Report, 2020, World Economic Forum

<sup>17</sup> Economic impact of biodiversity, May 2020, European Commission

strengthening flood defences and improving water management systems.

Storm events are experienced in Ireland typically four or five times each year, with the southwest, west and northwest regions of the country most often affected and with considerable variability in their effect from year to year.<sup>18</sup> Those living in rural settings are seeing the signs of increased vulnerabilities including more intense flooding and the effects of severe winds. Along with damage caused directly by the strong winds, storms can give rise to considerable damage in coastal regions caused by high waves, or by storm surges combined with high tides leading to more extensive flooding. In urban areas, with combined wastewater systems, this can bring an attendant risk of increased stormwater flows and sewer infiltration.<sup>19</sup> Given the proximity of large numbers of people in Ireland to these environments, the risks to people and their livelihoods are clear.

Ireland has experienced a number of significant flooding events in recent years and it is projected that the number of heavy rainfall days per year may increase. This carries a risk of an increase in the frequency in flooding incidents. The Government Task Force on Emergency Planning outlines a reasonable worst-case scenario as that of a flood of the magnitude of the 2015/16 Shannon river flood, when one third of river-level gauges recorded their highest readings ever and the area experienced a sustained duration of flooding. A related issue is that the instrumentation needed to make assessments across the country is insufficient with the risk that responses to increased water-levels are too slow and/or inadequate.

<sup>18</sup> National Risk Assessment 2020, 2021, Office of Emergency Planning

<sup>19</sup> Evaluation of combined sewer overflow assessment methods: case study of Cork City, Ireland, 2017, Morgan et al., Water and Environment Journal

The EPA and Met Éireann have identified a number of forms of measurement which would be needed to make a more accurate assessment.

Prolonged periods of drought such as that of summer 2018 may have significant impacts on the supply and quality of water and on food production. Marine environments may also be impacted by climatic effects such as increasing sea temperatures, acidification and increasing CO<sub>2</sub> levels in seawater with consequent effects on marine ecosystems – impacting on fisheries and coastal communities. Consideration must also be given to the impact of adaptation in these environments. Estuarine landscapes and saltmarsh habitats are two examples that are vulnerable from the effects of erosion control mechanisms. Ireland's geology means that it is less vulnerable to large scale natural disasters such as disruptive earthquakes, tsunamis and volcanic eruption. However, there is the potential that events elsewhere could cause adverse effects. For example, a large volcanic eruption of Katla in Iceland which could cause disruption to social and economic life in Ireland.

The Office of Public Works has highlighted that coastal erosion presents a significant risk to Ireland's coastline. Approximately 74,000 hectares of land are at risk of being lost to the sea, and one third of the nineteen coastal local authorities have land zoned for housing, commercial and industrial use in areas of contemporary coastal erosion. The highest rates of coastal erosion typically occur along the east and south east coast. The OPW estimates that 80% of the damages associated with a 1 metre rise in sea level are expected by the year 2050, with the balance of the damages up to the year 2100. Remediation or a longer-term strategy of coastal retreat may be necessary – particularly given the high population

densities and volume of essential infrastructures on or near parts of the coastline.

Citizens are particularly financially exposed to extreme weather events, most notably flooding, as they are displaced from their homes and may find it more difficult to acquire insurance for their premises and belongings due to increased indemnity risk. Extreme weather and climate change also impact infrastructures and the delivery of critical services. This can include disruptions to the availability of clean water and electricity as well as inhibited access to the transport and telecommunications networks. High level risk assessments have identified energy and water utilities as particularly vulnerable to changes in the frequency of extreme weather events.<sup>20</sup> It is important that sufficient steps are taken to identify and address these risks as part of broader adaptation measures.<sup>21</sup>

Flooding can also lead to reductions in land value and consequently, increased economic vulnerability of the affected areas – with potential ramifications for social cohesion and development. Moreover, the costs associated with recovery and rehabilitation may divert the capital needed to maintain the normal levels of production and services.<sup>22</sup> As outlined above, changes to the frequency of storm flows, higher winds and flooding patterns also impact animal and plant biodiversity, as well as crop and aquaculture systems. It is important that sufficient measures are taken to support these

<sup>20</sup> A GIS-based framework for high-level climate risk assessment of critical infrastructure, 2020, Hawchar et al., Climate Risk Management and National circumstances relevant to adaptation actions – Ireland, 2021, European Climate Adaptation Platform Climate-ADAPT

<sup>21</sup> A systems framework for national assessment of climate risks to infrastructure, 2018, Dawson et al., Philosophical Transactions of the Royal Society

<sup>22</sup> Flood Management in Ireland, 2018, European Association of Remote Sensing Companies

systems to cope with these impacts.<sup>23</sup>

## 5.4. Pandemics

Recent experience of COVID-19 has emphasised that in addition to the potential to cause death and illness on a significant scale, pandemics risk dramatic disruption to social and economic activity. Advance planning and preparedness are critical to help mitigate the impact of any future pandemic.

The emergence of new rapidly spreading pathogens is infrequent. However, the rate of spread for respiratory pathogens is faster than for other categories and most previous pandemics have been associated with the influenza virus.<sup>24</sup> In recent decades, newly emerging variants of the influenza viruses and other infectious diseases have spread across the globe faster than would have been the case historically.

While the timing and precise cause of the next pandemic cannot be predicted with any certainty, events which may contribute to future pandemics includes human effects on the climate, encroachment on wildlife habitats or the mutation of drug-resistant virus or bacterium (section 5.5). It is increasingly likely that any new and emerging infectious disease will spread rapidly throughout the global population because of the speed and reach of human mobility, increasing volumes of trade and tourism, and climate-associated changes in the geographic distributions of disease vectors (e.g. mosquitoes). Rapid international travel is now a major driving force for the spread of diseases into previously non-endemic settings.

<sup>23</sup> The Status of Ireland's Climate, 2020, August 2021, EPA / Met Éireann / MaREI

<sup>24</sup> How health systems approached respiratory viral pandemics over time: a systematic review, 2020, BMJ Global Health

At the time of writing, the COVID-19 pandemic represents a continuing risk with considerable uncertainty about how long this situation will persist. While the national vaccination programme has made substantial progress and has allowed for some easing of public health restrictions, the future trajectory is unknown. The virus (in variant forms) is likely to remain in circulation in future years. New variants continue to emerge, and challenges in producing sufficient quantities of vaccines and equitably distributing them across the world means that COVID-19 remains a global challenge.

Ongoing monitoring and management of the virus will be required at a national and international level for some time. Ireland's response throughout the COVID-19 pandemic has been guided by national and international expertise and has evolved in light of emerging evidence. This will continue to be the case over the coming months as a clearer understanding of the medium to longer term impact of COVID-19 emerges.

Pandemics like that of COVID-19 have an enormous impact if left to spread unchecked across the globe. The COVID-19 pandemic has resulted in significant mortality and illness, has had severe consequences for economic and social activities and has impacted on general wellbeing, both individual and societal.<sup>25</sup> The extent of impact was unknown to most in Ireland before the pandemic began and has demonstrated first-hand the risk posed by pandemics. While new pathogens generally emerge every few years, and often at the interface between humans, animals and the environment, there is no way of predicting the nature and scale of impact. However, the experience and learnings from COVID-19

will assist in enhancing and strengthening future preparedness and mitigation plans.

While understandably the focus remains on managing COVID-19, it is important to consider how Ireland's emergency planning and protocols can be strengthened in relation to the management and prevention of future pandemics. Work is already underway on strengthening and building capacity across our public health infrastructure and workforce. We must also ensure sustainable public laboratory capacity and investment in increased capacity across a range of key specialities. COVID-19 has also demonstrated the need for a whole of Government response to pandemic management to ensure that threats to public health and disruption of services and society are minimised and this should be a central consideration for future preparedness planning. In this regard and given the clear interdependency between human health, animal health and the shared environment, further enhanced engagement between departments on such matters should be advanced – in line with the One Health approach discussed under section 5.5 below. Though it does not necessarily hold across all pathogens, the experience of COVID-19 and the link between chronic conditions and worse outcomes, has reemphasised the importance of a greater focus on the social determinants of good health.

The COVID-19 pandemic has also demonstrated the importance of global cooperation across many aspects, from data and information sharing to management of supply chains. The International Health Regulations 2005, together with the EU's Decision no.1082/2013/EC on serious cross-border threats to health, provide the legal framework for the management of a broad range of serious and potentially international public health risks and events.

<sup>25</sup> A Profile of COVID-19 in Ireland - Using Census 2016 Household Data to Analyse COVID-19 Cases, 2021, Central Statistics Office.

Through these, Ireland is represented on the EU Health Security Committee. The Department of Health and the Health Services Executive also maintain close contact with other regional and international health bodies, including the European Centre for Disease Prevention and Control (ECDC), the European Medicines Agency (EMA) and WHO. These linkages are used to monitor, predict and mitigate the spread and impact of pandemic influenza or other infectious diseases occurring globally, which may eventually arrive in Ireland.

There is an increased international focus on strengthening health emergency preparedness in the context of the COVID-19 pandemic. The European Commission's plan Building a European Health Union sets out the aim to strengthen the EU's health security framework and to reinforce crisis preparedness and response roles of key EU agencies.<sup>26</sup> This will be achieved through, inter alia, the upgrading of Decision no.1082/2013/EC to a regulation; strengthening the mandates of the ECDC, the EMA and the establishment of the new European Health Emergency Preparedness and Response Authority (HERA). HERA has already commenced work focused on strengthening disease surveillance systems.<sup>27</sup> The EU has also endorsed the goal of working towards an international pandemic treaty. A series of reviews initiated by WHO have recommended a Framework Convention on Pandemic Preparedness and Response. This may lead to a revision of the legally binding International Health Regulations, which would have domestic implications.

As the pandemic is ongoing at the time of writing, the final impacts on people, the economy, and society remain to be established.

<sup>26</sup> Building a European Health Union: Reinforcing the EU's resilience for cross-border health threats, November 2020, European Commission

<sup>27</sup> HERA Basics, 2021, Inserim Transfert

## 5.5. Antimicrobial resistance

Antimicrobials are treatments such as antibiotics used to prevent and treat diseases in humans, animals, plants and crops. These treatments have had a transformative effect on global health and well-being. However, increasing levels of antimicrobial resistance (AMR) in micro-organisms that cause infection and disease – through adaptation and natural selection – is threatening this progress.

AMR means that increasingly the antimicrobials used to treat infections are no longer effective; limiting the treatment options available and making the most common infections more difficult to treat. This increases risks to human health and in particular longer-term community health.

The global growth in AMR is being driven by a range of factors including overuse, lack of access to adequate sanitation, as well as poor infection and disease prevention and control practices in health-care facilities and on farms. There are concerns about the possible role the ambient environment plays in the spread of AMR, for example, through water contamination and agricultural run-off. A greater understanding of the role played by environmental factors is needed.

This rise in AMR is considered to be one of the greatest risks to human and animal health in the world, with WHO declaring AMR as one of the top 10 global public health threats facing humanity.<sup>28</sup> The risks presented by AMR are compounded by there being relatively few new antimicrobials, diagnostic tools or alternatives to antimicrobials for the treatment and control of infectious diseases under development.

<sup>28</sup> Antimicrobial Resistance Factsheet, 2020, World Health Organisation, 2020

In recognition of the significant and global nature of the threat, the UN established the Interagency Coordination Group on Antimicrobial Resistance in 2016. In their 2019 report, the group clearly set out the scale of the issue and potential risks of not tackling rising AMR<sup>29</sup>, including:

- A conservative estimate of 700,000 deaths globally per year from drug-resistant diseases, a figure that could rise to 10 million per annum by 2050.
- The same report cites that c.2.4 million people could die in high-income countries between 2015 and 2050 without a sustained effort to contain antimicrobial resistance. Across the OECD, resistance to second and third-line antibiotics, which present the final line of defence to prevent infections, is expected to be 70% higher in 2030, compared to AMR rates in 2005.<sup>30</sup>
- Economic impacts comparable to the shock of the 2008-2009 global financial crisis in terms of significantly increased health care costs, impacts on food and animal feed production, trade and livelihoods, and increased poverty and inequality.
- In addition, the availability and use of antimicrobials is vital in protecting animal health and welfare, as well as plants and crops. If antimicrobials lose their efficacy there will be a lack of suitable treatments that farmers can avail of. This will impact on animal well-being, farm productivity and the food supply.

Recent data shows that in 2016, Ireland ranked 9th highest of 25 EU/ EEA member states for antibacterial consumption in

<sup>29</sup> No Time to Wait: Securing the Future from Drug-Resistant Infections, Report to the Secretary-General of the United Nations, 2018, Interagency Coordination Group on Antimicrobial Resistance

<sup>30</sup> Stemming the superbug tide: Just a few dollars more, 2019, OECD

humans and there has been an increasing trend in antimicrobial use over the preceding decade.<sup>31</sup> Also in 2016, Ireland ranked 17th highest of 30 EU/EEA member states for antimicrobial use in animals.

The One Health concept has been developed to tackle AMR globally and advocates a multi-sectoral, whole of society response.<sup>32</sup> This approach forms the basis of Ireland's One Health National Action Plan on Antimicrobial Resistance; the second of which, iNAP2 runs to 2025.

A further risk to dealing with AMR is that governments and health systems are necessarily focused on the pandemic and this may constrain the required focus on AMR. Given that the natural responses of microbes to the use of antimicrobials is resistance, they need to be used as prudently as possible to retain their efficacy.

## 5.6. Food safety

Food safety and animal health are essential to public health and are critical factors in ensuring market access for Irish food products. Our food safety and production standards, which include a favourable animal health and welfare status, are important to consumer confidence in Irish food and drink products both at home and abroad.

A food scare associated with an Irish food product (or animal feeding-stuff) or the outbreak of a major disease in farmed animals in Ireland (such as foot-and-mouth disease) could have adverse consequences on the international trade of Irish food, and international movement of live animals. These

<sup>31</sup> One Health Report on Antimicrobial Use and Antimicrobial Resistance, 2017, Department of Health and the Department of Agriculture, Food and the Marine

<sup>32</sup> The One Health concept is based on the Global action plan on antimicrobial resistance, 2015, World Health Organisation, and A European One Health Action Plan against Antimicrobial Resistance, 2017, European Commission

risks are ever-present and require continued vigilance and robust official control systems to safeguard the food-chain and to ensure confidence in Irish food products.

Any such adverse incident could lead to immediate exclusion from certain markets, and it could take a considerable period of time to recover consumer confidence and market share. Given the vital importance of the agri-food sector, and its high dependence on exports, this would lead to significant implications for the Irish economy, particularly in rural areas.

Further considerations may arise in relation to climate change (section 5.1), including how various adaptation and mitigation measures may impact food production systems. While the impacts of climate change on global food production and food security are well known, the potential effects of climate change and climate action on food safety and on animal health and welfare also need due consideration. It is important that a holistic approach is taken to any changes in food production systems and that Ireland's food safety and control system takes accounts of relevant developments in this area.

The agri-food sector is highly export dependent and Ireland's strong reputation as a provider of high quality, safe and reliable food is centrally important to Ireland's competitive offering. Despite the challenges in relation to the pandemic, the value of food and drinks exports in 2020 declined by just 2% to €13 billion.<sup>33</sup> Therefore, safeguarding the food supply chain and the health and welfare of food-producing animals is of critical importance and failing to do so could pose a significant threat to the Irish economy.

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<sup>33</sup> Export Performance & Prospects 2020 / 2021 Report, 2021, Bord Bia

# 6. Technological Risks

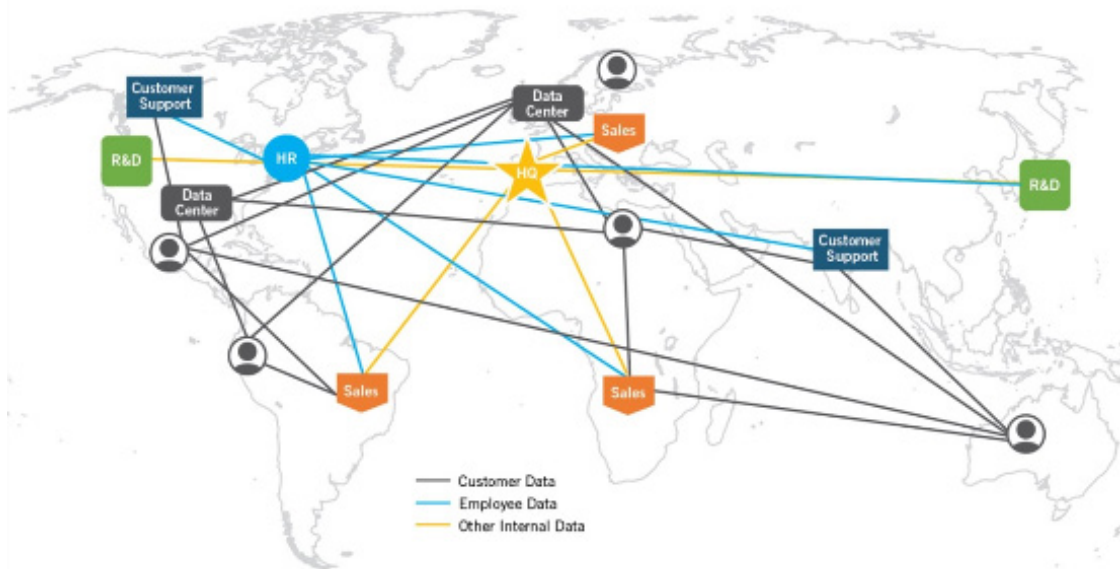


## 6.1. Data flows, storage and security

COVID-19 has shown how strongly societies rely on digital infrastructure to maintain connectivity. A less noted aspect of this connectivity is how secure and reliable data flows are essential to it. Cross-border transfers of data have become an intrinsic part

of how modern economies and societies function as illustrated below in the example below of a typical corporate headquarters located in Europe.

**Figure 1: The data transfers for a (generic) EU-headquartered manufacturing/transport firm with global operations**



Source: How to Build Back Better the Transatlantic Data Relationship, 2021, Information Technology and Innovation Foundation

The flow of data traffic has increased tenfold over the last decade and is vital to diverse areas from remote medical diagnosis and gaming to transport and logistics and HR data processed abroad.<sup>1</sup> The scale of these data flows is set to increase exponentially. The European Commission’s 2021 Strategic Foresight Report suggests that the number of connected devices globally may increase from 30.4 billion in 2020 to 200 billion in 2030.<sup>2</sup> That hyperconnectivity is

expected to have outcomes such as new products, services and work patterns, but it also brings increased risk of cyberattacks and network outages and increased requirements around reliable and secure international transfers. The Report also highlights the dependence of the EU’s digital sovereignty on the capacity to store, extract and process data – functions which are currently generally operated by non-EU providers, this creates strategic dependencies and risks for cybersecurity, data protection, access and security. The risks associated with cybersecurity are outlined in detail in section 6.3 below.

1 Crossing Borders, World Development Report, 2021, World Bank

2 Strategic Foresight Report – The EU’s capacity and freedom to act, September 2021, European Commission

Transatlantic data flows are the largest in the world. Recent estimates put their total value at nearly \$295 billion. Governments also rely on these flows for various regulatory and law-enforcement purposes. These flows will only become more important as companies rely on the availability of information in real time to improve their products and services.<sup>3</sup>

One of the principal risks to data flows arises from the Court of Justice of the European Union's Schrems II judgement. This ruling invalidated the Privacy Shield framework that had regulated transatlantic exchanges of personal data for commercial and other purposes. In the same judgement, the Court upheld Standard Contractual Clauses (SCCs) as a mechanism for businesses to transfer personal data to third countries; including the US. These can place a significant burden on organisations, particularly SMEs, to ensure the SCCs are implemented throughout their supply chain and comply with the protections provided by the GDPR.

The European Commission and the European Data Protection Board have issued guidance to support organisations in administering SCCs. However, in order to support greater certainty about transatlantic data transfers, it is important the work on an enhanced EU-US Privacy Shield framework is advanced. Both the European Commission and the US administration have pledged to intensify negotiations in this regard.

## 6.2. Disruptive technology

Advances in science, technology and business models are driving and enabling major changes in how goods and services are produced and delivered, how we work and how we go about our daily lives. These advances

create opportunities for existing sectors and companies to be more productive and grow, for new jobs and specialisms as well as for the emergence of entirely new sectors. Indeed, much of our national economic policy is about making sure Irish based enterprise is well placed to drive and take advantage of these opportunities, including through the €500 million Disruptive Technologies Innovation Fund, and the €10 million Climate Enterprise Action Fund as well as the recently published AI – Here for Good: National AI Strategy.<sup>4</sup> This overall approach has broadly served Ireland well to date and Ireland has a strong track record in generating high-growth firms; a key driver of employment, innovation, and productivity growth in the economy.<sup>5</sup>

However, the pace of technological change and advances does give rise to a range of risks that need to be considered. These include the potential for automation to displace existing jobs or dramatically impact how these jobs are carried out. A 2018 study by PWC estimates that automation has the potential to displace circa 20% of jobs by the mid-2020s rising to 31% by the mid-2030s.<sup>6</sup> The increased use of artificial intelligence, big data and machine learning are major drivers of this trend. Research by the OECD similarly forecasts that two in every five jobs in Ireland face a significant risk of automation in the next two decades.<sup>7</sup>

The PWC study and research by IGEES<sup>8</sup> forecast that the sectors most impacted by automation will be agriculture, manufactur-

<sup>3</sup> Data protectionism: the growing menace to global business, 13 May 2018, Financial Times

<sup>4</sup> AI – Here for Good: AI National Strategy, 2021, Department of Enterprise, Trade and Employment

<sup>5</sup> SME and Entrepreneurship Policy in Ireland, 2019, OECD

<sup>6</sup> How will automation impact jobs?, 2018, PWC

<sup>7</sup> Job Creation and Local Economic Development 2018, Preparing for the Future of Work, 2018, OECD

<sup>8</sup> Automation and Occupations: A Comparative Analysis of the Impact of Automation on Occupations in Ireland, 2018, IGEES

ing, retail and construction driven in part by the relatively high share of routine tasks involved in these sectors. Jobs in sectors that traditionally rely on greater face to face contact, subject matter expertise, judgement and context such as education and health are considered to be the least at risk from automation. Though this largely remains the case, the pandemic has accelerated the adoption of digital solutions in these sectors which may in turn lead to increased levels of automation. The pandemic has also highlighted long-term risks to retail sector from online sales, with potentially significant impacts on employment and the future of cities and towns.

Irrespective of the sector, the risk of automation is particularly concentrated in roles held by people with medium and lower levels of education.<sup>9</sup> Though it is generally considered that these sectors and roles will not be automated out of existence, it is essential that the impact of automation and the importance of digital and communications skills are fully considered in the development of education and enterprise policy. As automation occurs policies will be required to help affected workers manage transitions to new jobs, possibly through training and reskilling.<sup>10</sup> There are also important considerations in relation to policy objectives around balanced regional development and the transition to a climate neutral society.

In relation to disruptive technologies, other issues arising include:

- Ensuring that the necessary infrastructures and skills are available including high quality broadband so that citizens and enterprise can avail of opportunities presented.

- Further exacerbating the digital divide, that is individuals being excluded from an increasingly digital society because of socio-economic reasons or low digital skills. The 'digitally disengaged' risk further isolation as communication and social interaction continue to move online, and Government services, internet banking, and online shopping increasingly been completed online.<sup>11</sup>
- Ensuring that the regulatory and policy environment is responsive and fit for purpose such that it encourages and promotes innovation, keeps pace with change and provides protections for citizens. And that it is resourced with the expertise, tools and capability to meet the challenges of new and emergent threats.

The risks discussed about around digital exclusion and digital skills (section 4.5), data flows (section 6.1) and cybersecurity (section 6.3) are particularly pertinent in these regards.

### 6.3. Cybersecurity

Cybersecurity, the protection of IT systems, data services and communication networks, is vitally important to the economy and society. Almost all aspects of our lives have a digital dimension, and over the time since March 2020, in response to COVID-19, there has been an increase in the use of digital and cloud technologies in both the public and private sectors.

The ubiquity of connected devices has brought truly massive benefits to our society. However, it also opens up various new and unpredictable threat vectors, and a wide range of significant risks for major

<sup>9</sup> Automation, skills use and training: OECD Social, Employment and Migration Working Papers, No. 202, 2018, OECD

<sup>10</sup> What happened to jobs at risk of automation, policy brief on the future of work, 2021, OECD

<sup>11</sup> Bridging the Gap - Ireland's Digital Divide, 2020, Accenture

national infrastructure including energy, transport, telecoms, health and financial systems. Breakdowns in cybersecurity have the potential to be very disruptive and expensive but also to undermine trust and confidence in our digital systems.

As outlined in section 6.1, the European Commission's 2021 Strategic Foresight Report highlights the risk to the EU's digital sovereignty which occurs from the data produced in the EU being stored and processed in cloud storage operated by non-EU providers, leaving it subject to third country jurisdictions.<sup>12</sup> This creates a range of strategic dependencies and risks that have to be managed including in relation to cybersecurity.

With Ireland positioning itself as a technological society with a growing use of online services, the impact of an attack or incident on the provision of services, and on the reputation of businesses and the public service is significant. Globally, the past year has seen an increased number of identity frauds, payment frauds, ransomware attacks, and crude attacks on insecure cloud services. In the latter half of 2020, there was more complex attacks targeting supply chains, major cloud environments, remote working applications, security product providers, and even critical infrastructure services.<sup>13</sup> Here in Ireland, the major ransomware cyberattacks against the health services caused their IT systems to be temporarily shut down in May 2021, followed by a lengthy process of restoring and bringing systems back online. The attack impacted on all national and local systems involved in all core HSE services, impacting the provision of services to patients and causing concern in the public that their medical

information may be illegally released.

The risk of further attacks continues, attacks which could have serious effects on the economy and on the cohesion of society in general. The potential impact on the provision of services has the potential to lead to civil unrest in addition to significant disruption for citizens, while prolonged or repeated incidents risk creating a backlash against digitisation, with further economic consequences and reputational damage to businesses and the public service. Related to this is the risk of cyber-activism where civil unrest or protest is expressed through disruptive practices on public bodies or critical infrastructure such as energy.

On an individual level, there has been an increase in the number of phishing, trojan and malware attacks, particularly through mobile phones including scam SMS messages, emails and calls. Media coverage of the attacks has raised public knowledge of the risk however it is unlikely to have completely eliminated it. As digital plays an increasing part of everyday life and to ensure trust in online services, it is important that people are aware of the overall risk associated with cyber-scams and have the skills to deal with these (see section 4.5).

The risk of cyberattacks highlights the need for action at organisational and state level to prevent such attacks, including maintaining robust digital infrastructure and raising public awareness. The National Cyber Security Strategy 2019 emphasises the need to improve the protection of government ICT and other critical national infrastructure and expanding education, research and training in the area. The revised NDP commits significant resources in this regard including for the delivery of a Shared Government Data Centre. This will form a critical piece of the State's data storage and security infrastructure.

<sup>12</sup> Strategic Foresight Report – The EU's capacity and freedom to act, September 2021, European Commission

<sup>13</sup> A new approach to cybersecurity, 2021, KPMG

In order to protect national interests, mitigate risks, and enhance the security of internet users, there is also a need for continued cyber diplomacy between countries. This is achieved through ongoing engagement via the EU and the UN with a focus on governance and application of international law in cyberspace, including protecting the free and open Internet, reducing cyber-crime, building capacity including to tackle the global digital divide, enhancing international stability, and protecting the digital economy.

#### 6.4. Nuclear contamination

The risk of contamination in Ireland as a result of nuclear accident is broadly considered to be low. However, it is a risk that has to fully recognised and considered, most significantly in relation to the potential harm to public health and well-being. Such an event could have a major public health impact (e.g. fatalities, injuries, and latent cancer fatalities) plus innumerable associated societal and financial costs to these health effects.

There is also the potential for negative economic impacts, particularly in relation to the agriculture and food sector where there is a significant risk of consumer resistance and reputational damage if there were even trace levels of radioactivity in the food supply. The Office of Emergency Planning and the EPA report that the worst-case scenario is a nuclear incident in the UK or north-western Europe.<sup>14</sup> Analysis by the ESRI puts the economic impact of such an incident at anywhere between €4 billion (even where there is no actual contamina-

tion in Ireland) and €115 billion.<sup>15</sup>

Though the risk of such an event is considered to be low, the nature of the risk demands significant cross-border cooperation with the UK and with European states in relation to the monitoring and sharing of radiological data. Given the potentially devastating impacts of nuclear detonation or accidents, continued international engagement regarding nuclear safety, nuclear disarmament and non-proliferation remains essential.

<sup>14</sup> A National Risk Assessment for Ireland 2020, 2021, Office of Emergency Planning and Potential radiological impact on Ireland of postulated severe accidents at Sellafield, 2016, Environmental Protection Agency

<sup>15</sup> The Potential Economic Impact of a Nuclear Incident – An Irish Case Study, 2016, ESRI

## Annex 1.

### Overview of the public consultation process and feedback

The National Risk Assessment is developed by the Department of the Taoiseach in consultation with a steering group involving all government departments and relevant agencies. The NRA process is designed to ensure broad consideration of the risks that Ireland may face. This year's NRA included a public consultation process, and a wider discussion was conducted to ensure the process is comprehensive and inclusive of all viewpoints.

The Draft List of Risks and the accompanying assessment was published on 23 July 2021 for public consultation and laid before the Oireachtas. The consultation process ran until 8 September 2021 and involved an online survey and the opportunity to provide written submissions. In total, 51 organisations, public representatives or individuals completed the survey and/or made formal submissions. The organisations and public representatives that provided feedback are listed in Annex 2.

The feedback provided by the consultation has been analysed and, where appropriate, integrated into the National Risk Assessment. A key message across all of the feedback received is the high degree of interconnectedness within and across risk categories. A summary of the feedback received on risks through the survey is below. Copies of the submissions received are available here: <https://assets.gov.ie/206203/cb3612f0-466a-4fb1-9da5-5892938548d1.pdf>

#### Survey: Summary of feedback on risks

##### Geopolitical risks

Many of the responses under this heading consider Brexit to be a significant risk. Issues raised in this regard include impacts for trade and the operation of the Single Market, fisheries and agriculture policy, security and defence cooperation, and Ireland's position within the EU.

A number raise concerns regarding the future relationship with the UK and the implementation of the Northern Ireland protocol with associated political, security, social and economic implications for the island of Ireland and UK and Irish cooperation on a range of matters including health and climate. The potential for political instability within the UK is considered by some to be a risk. While not directly related to Brexit, one respondent outlines that the slow pace of the EU enlargement process risks turning the states involved away from the EU and towards rival actors, impacting political stability.

A number of responses also raise concerns in the broad area of political stability; these include an anxiety about the loss of a rules-based system leading to greater insecurity, and issues arising from increased political extremism and nativist nationalism in Europe. A number cite concerns about how such developments could present a risk to the multilateral and state democratic institutions and could exacerbate social and cultural divisions in society.

Displacement of people as well as geopolitical unrest related to climate change and biodiversity loss were identified as risks. Such displacement can add to tensions and competition for resources in specific regions and between nations more generally.

The possible role of state and non-state actors in cybersecurity attacks is identified as a concern that

should be seen as a geopolitical risk as well as a technological one. Hybrid attacks were also identified as an area of concern. The possibility of attacks on the physical infrastructure, including undersea cabling, that supports the internet and digital was also identified as a risk, particularly given Ireland's relatively large maritime domain.

A further response cites changes in US foreign policy and how these changes may impact Europe. Other concerns identified under this heading include government capacity to identify and respond effectively to risks, global economic inequity, and internal state conflicts.

Many of the issues raised by respondents under this question related to the risks identified in the draft assessment. In a number of cases, the feedback provided additional context, detail and/or perspective. Contributions received under this question were integrated, as appropriate, into the following sub-sections of the report:

- Rise of a multi-polar world
- Future direction of the EU
- Ireland's relationship, post-Brexit, with the UK
- Vulnerabilities arising from Ireland's enterprise mix
- Social cohesion
- Migration and integration
- Climate change

#### Economic risks

Many of the respondents identify significant risks arising from Brexit and the pandemic. These include economy wide impacts including the potential for inflation and supply chain issues, as well as impacts for certain regions, age-groups and sectors including tourism and hospitality. A number raise specific concerns about youth unemployment and impacts on regional/rural economies – compounding existing challenges. Vulnerabilities in the Euro area, the international trading environment, and broader monetary policy are also identified as risks.

A number of responses identify issues regarding the public finances. These include the sustainability of pension provisions over the longer term and a risk that investment in public services, particularly health and housing, will be inadequate. One respondent points to a possible risk that the economy will not expand sufficiently in the medium to long term to allow debts - both public and private - to be serviced. At the same time, they cite the risks of fossil fuelled economic growth and outline the challenge of sustainable economic growth.

Some respondents discuss risks in relation to the financial and banking system. These include uncertainties about the resilience of the domestic banking sector and the impact of changes to international taxation arrangements. One respondent also raises a concern regarding private debt, financial exclusion and access to mainstream and affordable financial products. Risks relating to individual debt and access to finance are not addressed in the final National Risk Assessment. Other finance related risks referenced include currency fluctuations and possible transparency issues presented by cryptocurrencies.

Issues regarding the quality of work, precarious employment and income inequality are identified as risks by a number of respondents; particularly in the context of the pandemic and Brexit. A number

cite the importance of training and apprenticeships across the workforce as well as of ensuring that sectors including tourism, retail and community care offer career paths.

A number of responses raise issues regarding infrastructure; particularly energy, transport and water infrastructure. Public sector capacity to deliver large scale infrastructure programmes is also raised, as are concerns in relation to the planning system. Specific energy concerns raised include escalating costs and data centres as high energy users. One respondent considers that infrastructure should be covered as a standalone risk. This approach has not been taken in this report, however, infrastructure issues are raised in a number of the risk areas including climate change, housing, and capacity constraints.

Failing to adapt the economy to address climate change was raised in various forms by a number of respondents. This included companies not changing their business models as required, insufficient community engagement, and the link between economic growth and carbon emissions. Measures to increase energy efficiency, reduce overall energy demand and improve energy management are put forward by one respondent as playing an important role here. One respondent outlines a concern about the impact of climate policy for agriculture. Relatedly, and perhaps conversely, a further response discusses the risk to the international reputation of the agri-food sector of not taking sufficient action to address climate and environmental issues.

A number consider that quality of life issues may undermine Ireland's attractiveness as a location for high skilled migrants. A related concern outlined is the need to increase language skills in Ireland. Somewhat related to this are the risks associated to the funding model of higher and further education post pandemic. Other economic risks cited include a loss in competitiveness, escalating costs and SMEs not adapting to digitalisation.

Many of the issues raised by respondents under this question related to the risks identified in the draft assessment. In a number of cases, the feedback provided additional context, detail and/or perspective. Contributions received under this question were integrated, as appropriate, into the following sub-sections of the report:

- Economic scarring
- Public finances and the financial system
- Labour shortages, supply chain and capacity constraints
- Inflation
- Changes to international trading relationships
- Disruption to a secure and sustainable energy supply
- Ireland's relationship, post Brexit, with the United Kingdom
- Social cohesion
- Housing and sustainable development
- Demographic change
- Digital exclusion
- Climate change
- Biodiversity loss

### Social risks

The integration and cohesion of people who live in Ireland were cited as central concerns and many



referenced social and economic inequity as particular risks in this regard. A number of responses discuss the risks arising from the uneven impacts of the pandemic and the potential to compound existing issues, particularly amongst already marginalised groups. The risks arising from the impacts of the pandemic on young people in terms of mental health, social inclusion and employment opportunities are also cited by a number of respondents.

The need to respond to demographic challenges and planning for a greater share of the population being older and the capacity to meet public expenditure expectations are concerns raised by one respondent. This is echoed across responses from others too. A number raise concerns regarding the shortage of affordable housing, low paid and precarious employment, lack of access to services and possible risks arising including for mental health, social isolation, and digital exclusion. This was particularly emphasised in the case of rural areas where a lack of digital and transport infrastructure makes it difficult for people to access other services, such as healthcare, education and training, and social activities.

An ongoing social risk mentioned by a respondent is an under-current of negative attitudes to people based on their race or ethnic origin. Other respondents were concerned by the rise of ultra-right-wing political movements and of extreme political views and the potential for this to lead to instability and higher levels of racism and for this to be exploited by third parties.

A number of the respondents outline concerns in relation to disinformation and its effects on social cohesion with one respondent stating that it “diminishes the quality of democracy by sapping trust in democratic institutions, distorting electoral processes, fostering incivility and increase polarisation”. Related issues regarding the erosion of trust in institutions and government and the need for transparent political, media and civil society ecosystems were raised in a number of responses. These were raised as issues at all levels from local to national and international, with one respondent citing a need to include local communities in measures to tackle climate change and others outlining the importance of local government and community engagement in fostering cohesion and in addressing economic and social disparities.

Many of the issues raised by respondents under this question related to the risks identified in the draft assessment. In a number of cases, the feedback provided additional context, detail and/or perspective.

Contributions received under this question were integrated, as appropriate, into the following sub-sections of the report:

- Social cohesion
- Housing and sustainable development
- Migration and integration
- Demographic change
- Digital exclusion
- Rise of a multi-polar world
- Public finances and the financial system
- Climate change

#### Environmental risks

Respondents' contributions under this heading were varied and often detailed. A number raise concerns regarding the impacts of climate change on infrastructures and utilities. Water infrastructure,

availability and quality is raised in a number of responses, with one identifying the risk of declining sea water quality and how it impacts on tourism. A diverse and stable energy supply remains an identified risk and as high energy users, data centres are raised as a concern.

In relation to climate change, a number of responses consider that the report should more clearly outline the significant health and economic risks in the near and long term. This includes a range of specific risks such as heat stroke, increased flood risk, and crop failure. Similarly, a number of the responses propose that the report provides more detail on the risks presented by biodiversity loss and to the risks presented by coastal erosion and flooding. These cover a broad range of significant risks including to natural habitats, wildlife, food supply and water quality as well as to infrastructures and housing.

Relatedly, a number of respondents cite risks where poor planning and development could undermine efforts to address flooding, increase renewable energy, and preserve biodiversity etc. A common theme across the feedback is the interrelated nature of environmental and climate issues.

Many outline a requirement for a coherent and comprehensive framework to address these risks and to take account of economic and social factors, as well as the needs of future generations. Related to this, a number identify risks regarding the transition to carbon neutrality leaving certain sectors or communities behind. A number raise the issue of fuel poverty and inadequate housing in both rural and urban areas in relation to the need for a just transition. There is also discussion of the need to increase understanding of the close connection between environmental degradation and human health crises, such as pandemics. In relation to health, the same respondent identifies risks in relation to addiction – this issue is not addressed in the current National Risk Assessment. Radon is also mentioned as a risk but this issue is not addressed in the current National Risk Assessment.

In relation to extreme weather events and natural disasters, a number point to the increasing risk presented by wildfires and the need to strengthen Ireland's capacity to respond to natural disasters – leveraging the assets and experience of the EU Civil Protection Mechanism is also part of a respondent's contribution in this regard. One respondent also cites a need to build resilience in internal food markets in the event of disruptions to the international food supply.

Many of the issues raised by respondents under this question related to the risks identified in the draft assessment. In a number of cases, the feedback provided additional context, detail and/or perspective.

Contributions received under this question were integrated, as appropriate, into the following sub-sections of the report:

- Climate change
- Biodiversity loss
- Extreme weather events and other natural disasters
- Housing and sustainable development
- Food safety
- Pandemics
- Ireland's relationship, post Brexit, with the United Kingdom

### Technological risks

The majority of responses focused on risks associated with a variety of technological innovations and the increasing role of digital in daily life. Particular issues raised include privacy concerns around the greater use of artificial intelligence and facial recognition and the importance of ethics, regulation and standards in relation to the technologies. The use of both facial recognition and CRISPR technologies were referenced in this regard. Another respondent cites concerns in relation to cryptocurrencies.

A number of respondents outlined the significant economic and operational risks associated with cybersecurity incidents and their impacts on peoples' daily lives. One respondent also points to a potential for civil unrest or backlash against digitalisation in the event of prolonged or repeated cybersecurity incidents – including cyberattacks and scams targeting individuals.

A further issue identified is the risk of the 'digitally disengaged' being isolated as social interaction and access to services is increasingly online. This broad issue of digital and equity in terms the required skills and resources was raised by a number of respondents. One respondent points to the experience of the COVID-19 pandemic and the shift to remote learning as shining a "light on the potential of digital technologies to exacerbate existing inequalities". The lack of broadband in rural Ireland is also highlighted. A related issue identified is that a proportion of the population is likely to remain 'digitally disengaged' and it is important that there are ways to serve these people appropriately.

Further digital issues raised include the relatively high energy usage associated with digital, particularly data centres. Other issues include global shortages of certain minerals used in IT, the potential to overly focus on the digital sector at the cost of 'real world' skills and creativity, and the need for whole-of-government approach in delivering a national digital strategy.

One respondent raises a series of issues regarding access to and control of technologies. These include countries/regions restricting the use of certain technologies with associated impacts for access. They raise a further concern that Ireland's relatively small population could mean that technologies/products developed using machine learning may not be adequately adapted to the Irish market. Finally, a respondent references nuclear contamination and how the nature of the risk demands significant cross-border cooperation with the UK and with European states in relation to the monitoring and sharing of radiological data.

Many of the issues raised by respondents under this question related to the risks identified in the draft assessment. In a number of cases, the feedback provided additional context, detail and/or perspective.

Contributions received under this question were integrated, as appropriate, into the following sub-sections of the report:

- Cybersecurity
- Nuclear contamination
- Armed conflict, terrorism and hybrid threats
- Labour shortages, supply chain and capacity constraints
- Disruption to a secure and sustainable energy supply
- Social cohesion
- Digital exclusion
- Pandemics



## Annex 2.

### Organisations and public representatives that provided feedback

1. American Chamber of Commerce Ireland
2. Apartment Owners' Network
3. Archways
4. Chambers Ireland
5. Citizens Information Board
6. Coastwatch Ireland
7. Congress – the Irish Congress of Trade Unions
8. Dublin City University
9. Environmental Protection Agency
10. European Health Futures Forum
11. European Movement Ireland
12. Feasta - foundation for the economics of sustainability
13. Ibec
14. ICMSA
15. Irish National Organisation for the Unemployed
16. Irish Rural Link
17. Irish Small and Medium Enterprise Association
18. Irish Water
19. Kilkenny South Sudanese Community Association
20. Cllr. Seamus Morris
21. Cllr. Joe Sheridan
22. Muintir na Tíre
23. Road Safety Authority
24. RASDA: Responding to Anticipated Systemic Disruption Alliance
25. Skillnet Ireland
26. Social Justice Ireland
27. The Wheel
28. Western Development Commission
29. Wicklow Public Participation Network
30. Wind Energy Ireland