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Department of the Taoiseach

Draft National Risk Assessment 2017

Overview of Strategic Risks

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Foreword

National Risk Assessment 2017 – Overview of Strategic Risks

The National Risk Assessment has been developed by the Department of the Taoiseach as an annual process to identify the significant strategic risks facing the country.

One of the criticisms about the run-up to the financial crisis was that the Irish public policy system wasn't sufficiently open to discordant voices and unpalatable facts.

These strategic discussions can be difficult to have in the modern world, driven by short media cycles and confrontational politics.

This risk assessment process provides an opportunity to take a step back from the day to day concerns, and to provide a vehicle for consideration of longer-term risks to national well-being.

Given developments over the past year, Brexit is, of necessity, an overarching theme with potentially far reaching impacts affecting nearly all parts of national life.

However, we need to be careful as a country not to lose sight of other significant strategic risks facing the country.

This Draft National Risk Assessment 2017 sets out the strategic risks for public consultation. It is important that we can have a mature debate about these challenges and their implications for the country.

I encourage everyone, both within the Dáil and the general public, to engage with this process and contribute to the debate about the future of our country.

Leo Varadkar T.D.
Taoiseach

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Introduction

Overview of the National Risk Assessment Process

This is the fourth year that the National Risk Assessment (NRA) has been undertaken and published by the Government as a process to identify the strategic risks that Ireland faces over the short, medium and long term. The process was initiated in 2013 when the Government announced it would publish annually a National Risk Assessment (NRA) for debate in the Dáil, and the first report was published in 2014.

The National Risk Assessment is also intended to stimulate and facilitate debate on these broad risks to future national well-being. As such, it supports our efforts to avoid a repeat of past failures, when we did not identify risks in good time to avoid or mitigate them.

Since its inception, the process has highlighted a number of important strategic risks. Indeed, a number of risks identified early in this process have come to pass or become increasingly prominent in the intervening years, including:

- *Withdrawal of the UK from the European Union, uncertainty regarding the UK's relationship with the EU and devolution in the UK*: the first National Risk Assessment in 2014 was one of the earliest official acknowledgements of the risks arising from a potential Brexit. This analysis was developed in the 2015 and 2016 assessments, which highlighted the principal risks, including those relating to trade and the economy and the impact on Northern Ireland;
- *Risks to and changes within the EU*: risks to the EU and to its legitimacy, including from migration, international public and political dissatisfaction, the push for EU integration, and terrorism have been highlighted in each assessment since 2014;
- *Changing global influence and a move away from the rule-based international order*: risks arising from significant political and economic power shifts, as well as changes to global governance, have been highlighted since 2014;
- *Housing supply issues*: the first National Risk Assessment in 2014 highlighted the potential implications arising from constrained housing supply, while the 2015 and 2016 assessments noted the ongoing risks from misalignment in the housing market;

- *Cyber security*: since 2014, each assessment has noted the risks to Ireland's cyber infrastructure as technology becomes increasingly sophisticated, including in the public sector.

This exercise is not intended to replicate or displace the detailed risk management that is already conducted within government departments and agencies, or the work of the Government Task Force (GTF) on Emergency Planning and the Office of Emergency Planning (OEP), which produce a *National Risk Assessment for Ireland* centred on risks relating to potential civil emergencies at national level.[1] Rather, it aims to provide a systematic overview of strategic risks facing the country.

As in previous years, the Department of the Taoiseach has prepared this preliminary analysis of high-level risks facing Ireland in collaboration with government departments and agencies.

The risks are categorised across five different headings: geopolitical, economic, social, environmental and technological.[2] This draft is now being published for consultation in order to facilitate a broader conversation about the risks we face and how they can best be addressed.

In 2016, Publicpolicy.ie undertook to reflect on risk management practices in Ireland and to examine how certain other countries address risk management issues.[3] In respect of the National Risk Assessment, the report concluded that responsibility should remain with the Department of the Taoiseach, and that the NRA should bring together the work of separate existing structures within a coherent framework. The report also recommended that greater attention be given to broader socio-economic and geopolitical sources of risk. This draft National Risk Assessment takes on board some of the issues identified in the Publicpolicy.ie report.

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[1] See overview of the GTF's Draft National Risk Assessment for Ireland 2017 at Annex 2.

[2] This categorisation is derived from the various iterations of the World Economic Forum's *Global Risk Report*, which can be found at: weforum.org/reports?filter[type]=Risks%20Reports.

[3] Publicpolicy.ie (2016) *Never Again? – Averting Another Crisis: Strengthening Ireland's National Risk Management Strategy* (Dublin: Publicpolicy.ie).

Public consultation and next steps

One of the original impetuses behind the National Risk Assessment process was to avoid the possibility of 'group think' when identifying strategic risks to the country. Each iteration of the NRA has involved an open public consultation to gauge whether there are any significant risks that have been overlooked or underplayed.

In this regard, an **Open Policy Debate** was held in the Department of the Taoiseach on 24 April 2017, which was attended by senior representatives from across government departments and agencies, and representatives from a wide range of public bodies, universities, think-tanks, NGOs and other civil society groups. The purpose of the seminar was to discuss and debate a draft list of risks identified during initial consultation with government departments and agencies.

By way of introduction and orientation of the discussion, the audience heard a presentation on the work undertaken by the World Economic Forum in relation to global risks. Since its inception in 2006, the World Economic Forum's *Global Risk Report* has increasingly moved from looking at the likelihood and impact of individual risks to examining the interconnections between and the underlying drivers of risk. A summary of the presentation is at Annex 1.

The list of strategic risks for Ireland in 2017 (included on page 5) and this draft takes into account many of the points raised during the debate, which included three open panel discussions covering all categories of risk. A summary of these points is also at Annex 1.

Request for submissions

Following the Open Policy Debate held in April, the Department of the Taoiseach refined the draft list of strategic risks facing Ireland and has prepared this preliminary assessment, drawing on inputs from government departments and agencies.

This draft National Risk Assessment 2017 is being published and laid before the Houses of the Oireachtas as the basis for a public consultation exercise. There are three questions on which we would particularly welcome further views:

1. **Have the correct strategic risks been identified or are there other significant risks that should be included?**
2. **Should any particular risks be prioritised in light of their significance?**
3. **Are any of the risks listed not significant enough to warrant inclusion?**

Observations on the draft National Risk Assessment 2017, including responses to the questions above, can be submitted to nra@taoiseach.gov.ie by Tuesday 18th July 2017.

For this process to be robust and comprehensive, it is important that all voices – including discordant or minority ones – are heard. A more rigorous debate will support our ability to identify and quantify the risks we face and our ability to make the right choices for the future.

In parallel with this consultation, work will continue within government departments to further strengthen the quality of Ireland's risk governance mechanisms and to ensure that appropriate mitigation frameworks are in place. As outlined in last year's National Risk Assessment, this includes the work of the Government Task Force on Emergency Planning, supported by the Office of Emergency Planning, the work of the Department of Finance and the Central Bank of Ireland in relation to financial and macro-prudential risks, and the Steering Group representing government departments and agencies, which oversees preparation of the NRA.

Table of Risks 2017

	Strategic Geopolitical Risks
GEOPOLITICAL	Departure of the UK from the EU
	Instability in Northern Ireland and changes to constitutional makeup of the UK
	Future direction and stability of the EU
	Changing distribution of global influence and move away from a rules-based system
	Terrorist incidents and armed conflicts
	Strategic Economic Risks
ECONOMIC	Changes to international trading environment
	Impact of Brexit on vulnerable sectors of economy
	Vulnerabilities in the euro area and monetary policy uncertainties
	Loss of competitiveness
	Vulnerabilities in the banking system
	Overreliance on multinational corporations and unfavourable international tax changes
	Strategic Social Risks
SOCIAL	Human capital and skills needs
	Failure to respond to demographic changes
	Expenditure expectations
	Social cohesion and political stability
	Migration and integration
	Increases in chronic diseases
	Strategic Environmental Risks
ENVIRONMENTAL	Climate change
	Ensuring an affordable, sustainable and diverse energy supply
	Under-investment in infrastructure
	Under-supply of housing
	Food safety
	Strategic Technological Risks
TECHNOLOGICAL	Disruption to critical information infrastructure and networks
	Data fraud and theft
	Disruptive technology trends
	Nuclear contamination
	Major pandemics
	Anti-microbial resistance

Overview of strategic risks for Ireland in 2017: what has changed since 2016

In this section, we aim to provide a short overview of the key strategic risks confronting Ireland and to identify the ways in which these risks have evolved and changed since the last National Risk Assessment. For ease of consideration and discussion these are broken down into five categories, as set out in the table on page 5.

It is worth recalling that, as identified in the World Economic Forum's *Global Risks Report 2017*, risks can be interconnected and, if they come to pass, can interact with each other in both predictable and unpredictable ways. In some ways, the classification of risks into one category or another can be seen as somewhat limited and limiting, given the potential for negative events to cause or amplify the materialisation of other risks. Environmental or health risks, for example, can have severe economic or social consequences. A serious terrorist incident could have implications for revenue from tourism.

Therefore, it is important that all risks be considered not just individually, but as part of the same multi-faceted environment and taken in the round rather than in isolation.

Geopolitical risks

As a small, open economy, Ireland is more vulnerable than many to changes in the regional and global environment, including shocks. While Ireland's overall well-being has improved since the National Risk Assessment process first began in 2014, including having a considerably stronger economy and public finances, ongoing, vigilant horizon-scanning is important to identify risks at as early and actionable a stage as possible.

Since the last iteration of the National Risk Assessment, risks arising from external sources have intensified. The withdrawal of the UK from the EU will likely have serious political and economic consequences. The policy approach to tax and trade of the US administration may also pose challenges.

More widely, geopolitical instability is perceived to have increased, with the changing distribution of global influence and move away from a rules-based system noted as a risk in this year's National Risk Assessment.

The withdrawal of the UK from the European Union: 'Brexit'

The 2014 National Risk Assessment was one of the first official acknowledgements of risks arising from a potential withdrawal of the UK from the European Union. Since last year's National Risk Assessment was published, the UK formally notified the European Council on 29 March 2017 of the UK's intention to leave the EU in accordance with Article 50 of the Treaty on European Union, triggering an exit process that, unless extended by unanimous agreement, will end in March 2019.

Building on extensive analysis by the Government and others in the past year, Brexit is acknowledged as the most immediate and potentially serious risk for Ireland. It brings the potential to affect nearly all parts of national life, including a large number of the risks and areas addressed in this draft National Risk Assessment, such as economic growth, trade and competitiveness; relations with Britain, Northern Ireland and the EU, as well as stability within the EU itself; and justice and legal regulations.

As set out in a number of key government documents,[4] the Government has identified the key areas of concern for Ireland in the Brexit negotiations as:

- **Trade and the economy**: Any future trading relationship could involve a new tariff regime and non-tariff barriers, which would raise the cost of doing business and reduce competitiveness. There is also concern regarding potential regulatory divergence and unfavourable exchange rates.
- **Peace process and Northern Ireland**: The preservation and protection of the Good Friday Agreement must be a priority, along with avoiding the reintroduction of a 'hard' border, which could have deeply adverse consequences for the peace process and for the social and economic wellbeing of the island of Ireland.
- **Common Travel Area**: Maintaining the Common Travel Area (CTA) will involve working closely with the UK and building awareness, understanding and support among EU partners.

[4] Ireland and the Negotiations on the UK's Withdrawal from the European Union: The Government's Approach (May 2017); Government Statement on Brexit Preparations (2 May 2017); Brexit: Ireland's Priorities (March 2017).

- **Influence the future of the EU:** Ireland will need to remain vigilant and active in pursuing its interests, strengthening existing alliances and building new ones where interests are shared.

Economic risks

The Irish economy continues to perform well and unemployment has fallen to its lowest level in nine years. Informed commentators, including the European Commission and the IMF, expect this trend to continue in coming years. However, the recovery remains fragile and is subject to downside risk, not least as a result of the UK's decision to leave the EU. Since last year’s National Risk Assessment was published, there has been a change in administration in the US with consequent uncertainty around the future direction of US policy. Imbalances remain a feature of some emerging market economies.

The main **external economic risks** include:

- Serious damage to the economy or significant sectors of it as a result of the **UK leaving the EU**, especially if the exit were to take place in a disorderly manner. Ireland is uniquely vulnerable given the extent to which our economies are linked.
- Negative consequences for the sustainability of our economic model - including our ability to attract and retain investment and jobs - from any **change to US trade and tax policy**. It is worth noting that Irish corporation tax remains highly concentrated, with the top 10 payers contributing close to 40% of this tax.
- **A return to economic turbulence in Europe**. While growth has returned to the EU and the eurozone, it remains fragile, and unemployment remains high, especially among young people. Populist politics, which have grown in popularity in the wake of the economic crash, could increase tendencies of protectionism and disruption to trade.

Internal risks to our future economic security include legacy issues that continue to pose a risk to stability, including continuing high levels of public and private debt. Continuing fiscal and other constraints are also risks; for example, as Ireland returns towards full employment and the labour market tightens, shortages of skills in certain sectors and/or rising wage costs will threaten competitiveness and our ability to sustain continuing growth. Similarly, in a scenario of continuing growth, pressure points could emerge in our infrastructural capacity, including in our public services, as the population continues to grow.

Of course, while each risk alone can materialise and have significant impact, were a number to materialise together this impact would be amplified and the consequences of a serious economic shock made potentially much more severe.

Environmental risks

Given its significance, climate change is included as a discrete risk in this year's National Risk Assessment. Climate change presents very significant challenges for Ireland, both in terms of mitigating our emissions and in achieving national and international binding targets, as well as adapting to the effects of a changing climate. In addition to the non-compliance charges that would become payable in the event of failing to meet legally-binding EU targets, there are the risks of losing economic development opportunities, excessively high abatement costs in the public and private sectors, and the emergence of stranded fossil fuel assets.

Investment in climate change mitigation is also important in reducing reliance on imported energy supplies, including in the context of Brexit, while a failure to invest exposes Ireland to the risk of rising energy costs where there is continued dependence on imported fossil fuels, particularly if oil prices were to return to previous highs.

Ireland is also facing a continuing housing supply constraint centred on the main urban areas, giving rise to environmental, economic and social challenges. The rising cost of housing risks upward pressure on wages and creates social consequences, not least for children and homeless families, while absence of supply could weigh on our capacity to attract labour, skills and inward investment, including in the context of Brexit.

Similar impacts could arise from underinvestment in the economic and social infrastructure needed to support a growing population and economy.

Social risks

The focus of some of the social risks identified has been updated since last year's National Risk Assessment. Human capital and skills needs are issues of growing prominence in light of the very strong economic and employment growth.

A failure to respond to demographic changes is also specifically highlighted, as the changing nature of our population and demography creates challenges. As the population ages, for example, the need to ensure the adequacy and sustainability of pensions and spending on the health system becomes more critical. Living longer also means that more of us can be expected to experience a chronic disease or illness, with social and economic consequences. Our housing stock also needs to adjust; average household size is expected to decrease as the population ages; more people are living in urban areas; and more are renting - whether by choice or from need, with an increased focus on security of tenure, especially in old age.

In addition to these demographic developments, the recovering economy and public finances is leading to significant expectations for increased public expenditure. This is noted as a specific risk, given the challenges inherent in meeting expenditure expectations while also ensuring prudent fiscal policy.

Much global instability in recent years has had its roots in growing populism and anti-establishment sentiment and action. With increased political fragmentation, this could become a feature in Ireland also. As the Irish population changes, including as a result of migration, it is possible that social cohesion will decrease and tensions increase, as has happened in other developed societies. Social cohesion can also come under pressure from inequality, real or perceived, in terms of income and job security, or a ‘two-tiered’ recovery with divergence in prosperity between major urban areas and more rural parts of the country.

The trends towards more disruptive technologies in the workplace and in society more widely may also present social challenges if care is not taken to ensure that all sections of society have the opportunity, skills and access to enable them to share the benefits. It is estimated, for example, that up to 90% of jobs may require some degree of digital skills in the near future.

Technological risks

The prominence of some technological risks has increased since the last National Risk Assessment. In particular, recent events have highlighted the potential for cyber-attacks, such as that involving the ‘WannaCry’ ransomware or from data fraud and theft, to cause serious and strategic disruption to important networks or to result in significant negative economic or social consequences.

The fact that Ireland is home to a large number of international data centres, means that a serious attack or cyber-security failure could have a damaging impact not just on our reputation, but also on our economy. Data protection and security are of critical importance for both citizens and enterprises. There is also a risk, albeit considered low at present, of a broader criminal or terrorist attack on the internet as a fundamental component of the infrastructure underpinning a wide range of economic and social activities.

‘Data fraud and theft’ and ‘disruption to critical information infrastructure and networks’ have therefore been included as discrete risks in this National Risk Assessment.

Jobs and income inequality may also be impacted significantly in the future by disruptive technology trends – such as Artificial Intelligence, Robotics and Smart Technologies – with the potential to displace and replace existing products, jobs and businesses.

1. Geopolitical Risks

- **Departure of the UK from the EU**
- **Instability in Northern Ireland and changes to constitutional makeup of the UK**
- **Future direction and stability of the EU**
- **Changing distribution of global influence and move away from a rules-based system**
- **Terrorist incidents and armed conflicts**

1.1 Departure of the UK from the EU

The decision of the UK to leave the European Union presents unprecedented challenges for Ireland. Following Prime Minister May's Article 50 notification to the President of the European Council on 29 March 2017, the European Council agreed the EU negotiating guidelines on 29 April. The guidelines, importantly, take account of island of Ireland concerns, including to protect the peace process underpinned by the Good Friday Agreement and to avoid a hard border. On 2 May, the Government published details of Ireland's approach to the negotiations on the UK's withdrawal from the European Union. On 22 May, the Council of the EU adopted the negotiating Directives, which build on the European Council Guidelines and mandate the Commission to begin negotiations with the UK. The negotiations are expected to begin before the end of June.

In advance of the negotiations, which will be complex, precise impacts on specific sectors are difficult to determine. However, Ireland has undertaken extensive internal analysis and external consultation in preparation for the Brexit negotiations and has identified key challenges and issues that will need to be addressed, including

- impact on the border and the peace process;
- threat to the Common Travel Area;
- impediment of trade with the UK and consequential damage to the Irish economy; and
- law enforcement and judicial cooperation.

Mitigating measures against these risks have been outlined in the Government's paper on Ireland's priorities for the Brexit negotiations[5] and the document on its approach to the Article 50 negotiations.[6]

Impact on the border and the peace process

The European Union provides a very important facilitating framework for peace and prosperity in Northern Ireland, and the EU has provided significant direct support to furthering peace and reconciliation. As noted, protecting the peace process and Northern Ireland is a key priority for the Government in dealing with Brexit. This includes ensuring that all provisions of the Good Friday Agreement are fully respected and upheld, avoiding a hard border on the island and maintaining EU support for the peace process.

While avoiding a hard border is a shared objective of the European Union and the UK, other policy objectives of the British Government in terms of its withdrawal from the EU – notably in relation to the Customs Union and the Single Market – heighten the risk that Brexit will impact negatively on the border. The European Council guidelines of 29 April acknowledge that flexible and imaginative solutions will be required to avoid a hard border and that any approach must respect the integrity of the Union's legal order. The Government will continue to work intensively and proactively with all EU Member States and institutions to find an approach that avoids a hard border on the island and that is consistent with EU law and Ireland's obligations and interests as an EU Member State, including continued enjoyment of the full benefits of the Single Market. The British Government will also need to prioritise its stated objective to avoid a hard border on the island of Ireland.

Depending on the ultimate outcome of the Brexit process, there are risks to the political and economic stability of Northern Ireland, including in relation to cross-border trade.

Threat to the Common Travel Area

The agreement between Ireland and the UK on the Common Travel Area (CTA), which is in existence since 1922, allows for the free movement of people across the islands and for access by Irish and UK citizens to various services and benefits in each country. Its operation

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[5] Irish Government (2017) *Brexit: Ireland's Priorities* (Dublin: Irish Government Publications).

[6] Irish Government (2017) *Ireland and the Negotiations on the UK's Withdrawal from the European Union: The Government's Approach* (Dublin: Irish Government Publications).

is vital in facilitating the extensive trading relationship between Ireland and the UK and the operation of an all-island economy. It is particularly important in the context of the Northern Ireland peace process, and any diminution of the CTA could have a destabilising impact on the peace process and on North-South relations.

With regard to broader immigration, the fact that the UK will no longer be an EU Member State may give rise to a risk of increased illegal movement of third country nationals into Ireland from the UK on the basis of perceived better prospects in Ireland. In addition, the position adopted by the UK in relation to asylum matters could diverge from EU law in the field of asylum, including the Dublin Regulation, with consequences for secondary movements of asylum seekers and illegal migrants from the UK to Ireland.

An extensive programme of engagement has been put in place by Ireland, and our interests and concerns – including the importance of maintaining the Common Travel Area - highlighted through political and diplomatic engagement with other Member States, ongoing engagement with EU institutions and regular contact with the EU Commission negotiating team on the UK exit. However, it is not possible to predict how negotiations will develop, and the possibility remains that the outcome could impact adversely on the operation of the CTA.

Even as Ireland will continue to maintain and enhance cooperation with the UK in relation to general immigration and border enforcement, it remains a committed member of the European Union and will continue to uphold the right of free movement for all EU citizens.

Impediment of trade with the UK and consequential damage to the Irish economy

The decision by the UK to leave the EU could have significant adverse economic and financial impacts on Ireland. The UK is one of our most important trading partners, accounting for about 17% of our exports – next to the US at 16.8%. About €1.2 billion in goods and services are traded every week between the UK and Ireland and bilateral trade flows between the two countries could be reduced by 20% or more on average in a worst case scenario, while for a number of industry subsectors and major employers, exports to the UK account for in excess of 40% of total exports.

There are critical risks for key sectors, including agri-food, retail, tourism, fishing and energy. A UK exit could be expected to create obstacles to the seamless flows of goods, services, capital and people. The small size of our domestic market means that exports of goods and services are far more economically significant for Ireland than for other countries. The new post-exit EU-UK trading relationship could see Irish businesses subject to a new tariff regime and non-tariff barriers, which would raise the cost of doing business and reduce the competitiveness of Irish exporters operating within the all-island economy and exporting to the UK mainland.

Any restrictions on trade will also have profound impacts on all-island relations; the deepening of North-South trade and economic ties has been made possible by peace in Northern Ireland and it, in turn, reinforces the peace process. The extent of the impact hinges on the nature of the UK trading relationship with the EU after it leaves.

See also Economic risks: impact of Brexit on vulnerable sectors of the economy; changes to international trading environment; loss of competitiveness.

Law enforcement and judicial cooperation

The UK exit from the EU will also impact on the operation of a wide range of EU legal instruments concerning law enforcement and judicial cooperation. Of greatest concern to Ireland is the future of the European Arrest Warrant, which provides a vastly more effective extradition mechanism than existed previously. Other areas of concern in the criminal justice field include Mutual Legal Assistance, Europol, the police aspects of the Schengen Information System, the Prüm system for exchange of fingerprint, DNA and car registration data, the European Criminal Record Information System (ECRIS) and the Passenger Name Record Directive. EU instruments also provide for the recognition and enforcement of judgments in a range of civil, commercial and family law matters.

While there appears to be consensus that there should continue to be a high level of co-operation between the UK and the EU on policing and law enforcement matters in particular, it will be necessary to agree arrangements no less effective than those in place at EU level, which may take some time. Issues arise in relation to the jurisdiction of the European Court of Justice and maintenance by the UK of EU-equivalent data protection standards. Solutions will need to be found and transitional arrangements will have to be considered. In the absence of overall EU agreement on measures such as the European Arrest Warrant, bilateral provisions will need to be considered.

1.2 Instability in Northern Ireland and changes to constitutional makeup of the UK

The results of the referendum on the UK's membership of the European Union in June 2016 showed that a majority of voters in England and in Wales voted to leave whilst a majority in Northern Ireland and Scotland voted to remain within the EU. This has given rise to considerable issues for Westminster and the devolved administrations to consider.

In Northern Ireland, differences between the political parties again present a very serious risk to the continued and effective operation of the devolved power-sharing institutions of the Good Friday Agreement. There remains an acute and continuing need for engagement by the Irish and British governments to support the institutions of the Agreement. At the time of writing, the Government and the British Government are facilitating and participating in an intensive talks process in Belfast to address unimplemented commitments from previous agreements and to support the political parties in reaching an agreement to form a new Executive following an Assembly election on 2 March. A sustained collapse of the devolved power-sharing institutions would present serious difficulties for the peace process. Continued engagement by both governments will be required to ensure that this risk does not materialise in the period ahead, given the enduring political tensions in Northern Ireland.

Brexit has added an additional and significant challenge to the political situation in Northern Ireland. The role of the power-sharing Executive in representing and pursuing Northern Ireland's interests in the context of the EU-UK negotiations, with the UK and Irish governments as appropriate, is of central importance in managing the specific challenges of Brexit for Northern Ireland. An Executive is also required for the functioning of the North South Ministerial Council, to oversee and further cross-border cooperation in the agreed sectors and to consider and address the all-island issues raised by Brexit.

The Government will continue to engage as a co-guarantor of the Good Friday Agreement to support the effective operation of the power-sharing institutions. Both the Irish and the UK governments have affirmed that the principles, procedures and institutions of the Good Friday Agreement remain the basis for their engagement in Northern Ireland. Ensuring that the Good

Friday Agreement and the benefits of the peace process are not disturbed by a UK exit from the EU is a priority for the Government.

Brexit has also played significantly into the debate in Scotland about its future within the United Kingdom with first steps taken by the Scottish Government to provide for a possible further independence referendum. The status of Scotland in the United Kingdom is an internal matter for the people of Scotland and the people of the United Kingdom, and therefore a matter on which the Irish Government does not and will not engage. The question of possible Scottish independence could be linked by some to the challenges posed by Brexit for Northern Ireland and for the island of Ireland. However, the situation in Northern Ireland is unique and not directly comparable to any other region, given the nature of the political and constitutional settlement of the Good Friday Agreement.

1.3 Future direction and stability of the EU

Europe has undergone a series of crises in recent years: the eurozone crisis, the migration crisis, terror attacks in a number of Member States and the shock of Brexit. These have played out against the background of a rise of populism as shown in electoral advances by extreme right-wing parties in a number of EU states. EU leaders are working to devise a coherent response that addresses these disparate challenges while uniting the EU in an agreed narrative for moving forward.

Migration

The migration crisis that developed rapidly in the spring of 2015 has been largely contained, but not resolved. Mass migration from Turkey into Greece has all but stopped following a deal agreed between EU leaders and Turkey in March 2016. Turkey has on occasion threatened to stop cooperating, which could allow wholesale irregular migration to restart. It has yet to make good on these threats, but could do so at any time, reigniting Europe's migration crisis.

Meanwhile, the focus has shifted from the eastern Mediterranean to the so-called Central Mediterranean Route (between North Africa and Italy). In 2016, more than 181,000 migrants arrived in Europe along this route. People smugglers have profited from the absence of a functioning government in Libya by using that country as a launching pad for migration to the EU.

Migration remains a challenge for Europe, both because it highlights the lack of consensus on such an important issue and because extremists could infiltrate Europe under the guise of refugees and asylum seekers. The threat posed to Ireland by migration is less immediate, given our geographic location.

Brexit

Brexit has focussed attention on what some see as overreach by the EU institutions and has emboldened those who would like to see powers revert to Member States. It has also revived talk of a multi-speed Europe, which could be the precursor to a more loosely constructed, potentially less cohesive Union. There are dangers for Ireland in a new configuration of this kind: of being side-lined while the majority moves ahead and deepens cooperation. On the positive side, 'variable geometry'[7] has been in existence for many years – witness Schengen and the eurozone in which not all Member States participate – and is provided for in the EU treaties with so-called enhanced cooperation procedures.

Other risks to the future stability and direction of the EU include:

- risk that the loss of the UK undermines the EU's effectiveness as a global actor;
- risk of contagion whereby other Member States decide to leave;
- risk of negotiations breaking down, causing divisions amongst Member States – for example, in relation to the EU budget;
- risk that the loss of the UK voice in EU decision-making could tip the balance of interests towards a more conservative stance.

1.4 Changing distribution of global influence and move away from a rules-based system

Geopolitical instability, as manifested by rising populist movements and conflicts across the globe, poses a challenge to the post-war international order, which has safeguarded peace and security in Europe for over 70 years. Growing tensions with the Democratic People's Republic of Korea, strained relations with Russia, the ongoing conflict in Syria and tensions in the wider Middle East are serious threats to international peace and security. The US

[7] The term 'variable-geometry' describes the idea of differentiated integration in the EU, acknowledging the potential of irreconcilable differences among countries and that ways to resolve such impasses should exist. In terms of a given goal, the method would allow groups of interested countries to pursue that goal while allowing those opposed to hold back. See eur-lex.europa.eu/summary/glossary/variable_geometry_europe.html.

withdrawal from the Trans-Pacific Partnership (TPP) and indications that they are moving away from the free trade model may slow global economic growth.

As a result of globalisation, there is likely to be an ongoing significant shift of political and economic power to countries in the East and South. These trends are challenging the existing international order, in which liberal democracies have played the dominant role. They will necessitate deepening engagement with Asian, African and Latin American countries if Ireland is to protect its interests in promoting trade, tourism and investment.

Slowing world economic growth and, in particular, lower energy and commodity prices will increase economic pressures on emerging market economies. The rule of law in many of these countries could be weakened further as has been seen in Russia. Pressures in the Caucasus and Central Asia are likely to be particularly heavy, contributing to internal instability and possibly interstate tensions.

Ireland has benefited from the opportunities offered by rules-based multilateralism, as exemplified by our membership of the UN and WTO, and any move away from this system would be counter to Ireland’s interests. If the EU were to become orientated less around a rules-based system and more around inter-state interests (recognising that this has always been a delicate balance), then this too would be adverse to Ireland's interests.

1.5 Terrorist incidents and armed conflicts

There has been a number of high profile and deadly terrorist attacks in recent years, most recently in the United Kingdom where 22 people, including many children, were killed in a bomb attack in Manchester and another 13 people were killed in separate attacks in London in March and in June.

Other incidents have included an attack on a Tunisian holiday resort in June 2015 that left three Irish citizens dead; the bombing of a Russian airliner flying out of Egypt in October 2015, which killed all 224 people on board; and the co-ordinated series of terrorist attacks in Paris in November 2015 that killed 130 people. In March 2016, a series of co-ordinated bombings in Brussels left 32 dead; 41 people were killed by bombs at Istanbul airport in June; in July, a truck was driven into crowds in Nice leaving 85 dead; and in December, an attack on the Christmas markets in Berlin killed 12 people. In April 2017, a terrorist attack in

Stockholm killed four people, while 14 were murdered in a subway bombing in St. Petersburg.

These attacks have been mainly inspired by the continuing instability and conflict in the Middle East and the influence of ISIL/Da'esh and similar groups. There is a continuing occurrence of 'lone-actor' attacks directed at soft targets, such as the attacks in London in March and June 2017 and in Manchester in May 2017, and these types of low-tech or lone actor attacks are particularly difficult for the authorities to detect and disrupt.

Europol has judged that the overall threat to the security of the European Union from jihadist terrorism remains on an upward trajectory and that it faces a shifting and increasing range of threats emanating from jihadist groups and individuals. Attacks have shown that ISIL/Da'esh terrorists can plan relatively complex attacks quickly, effectively, at relatively low cost and with easily repeatable modi operandi.[8] Exploring new modi operandi is considered an ISIL/Da'esh hallmark, and those currently used in Syria and Iraq could be exported to the EU, with future attacks possibly involving car bombs, extortion and kidnappings. For example, in July 2016, al-Qaeda called on fighters to take Western hostages and exchange them for jailed jihadists. In addition, the ongoing campaign against ISIL/Da'esh, and its possible weakening, is likely to see an increase in the numbers of foreign terrorist fighters returning to their home countries who may pose a terrorist threat.

Like other countries, Ireland and its citizens could be negatively affected by terrorist incidents, depending on the location of such incidents and their wider impact. The recent attacks in London and Manchester serve to highlight the challenging nature of the threat and the need for continued co-operation among partner states to counteract it. 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 destination to live and work in, and to visit. As an example, tourism in Ireland generates revenues of some €7 billion and supports some 220,000 jobs, and any impacts on the sector could have potentially serious economic consequences. A breakdown in international peace and security arising from inter-state wars or other armed conflicts could have significant

[8] Europol (2016) *Changes in Modus Operandi of Islamic State (IS) Revisited* (The Hague: Europol); Europol, *Terrorism*, available at: europol.europa.eu/crime-areas-and-trends/crime-areas/terrorism.

repercussions for Ireland and the EU, including potential impacts on energy supplies, transport routes or the environment.

Experience in other European countries shows that levels of threat from terrorism can escalate rapidly and that the source and intensity of that threat can differ.[9] While it is currently assessed that such an attack in Ireland is unlikely, it is nonetheless possible and the threat level from international terrorism remains under constant review, with appropriate measures in place to guard against the threat.

[9] Irish Government (2015) *White Paper on Defence* (Department of Defence).

2. Economic Risks

- Changes to international trading environment
- Impact of Brexit on vulnerable sectors of economy
- Vulnerabilities in the euro area and monetary policy uncertainties
- Loss of competiveness
- Vulnerabilities in the banking system
- Overreliance on multinational corporations and unfavourable international tax changes

2.1 Changes to international trading environment

Ireland's economic performance is highly exposed to external demand given the openness of our economy. One of the ways in which Ireland is most exposed to external shocks is through trade. There is emerging evidence of a plateau in global trade volumes since the beginning of 2015 and that there is a growing resort to protectionist measures in various countries globally, which may be damaging to Ireland.[10]

US

There are concerns that the US, which accounts for almost 17% of total exports, is pulling back from globalisation and free trade with a more protective outlook. This underlines the importance of our trade with the rest of the EU, excluding the UK, which accounts for some 37% of total goods and services exports.

There is uncertainty regarding the direction of US polices on tax and trade, with potential to impact on Ireland given the significance of trade links between both countries, as well as the large presence of US multinationals in Ireland. In addition, there is uncertainty over the pace of any future changes to interest rate policy by the US Federal Reserve - in particular, how the global economy and financial markets may be impacted.

[10] S.J. Evenett and J. Fritz (2016) *Global Trade Plateaus: The 19th GTA Report* (London: Global Trade Alert/CPER Press). This reports that, in 2015, policy initiatives harming foreign commercial interests outnumbered trade liberalisation policies three-to-one. An emerging concern is that "a negative feedback loop develops where zero trade growth fuels resort to even more zero-sum trade policies which, in turn, discourages cross-border supply of national markets" (p.8).

There are a number of ways in which trade could be affected, including an appreciation of the euro exchange rate, which raises the price of Irish exports in non-euro area markets; weaker economic growth in trading partners, which makes companies and consumers there less likely to buy goods and services imported from Ireland; and through the imposition of tariff and non-tariff barriers to trade in both goods and services.

As the US is Ireland's second largest trading partner, its second largest export market and its largest source of Foreign Direct Investment (FDI), enhancing the many strands of the economic relationship with the US is central to Ireland's continued prosperity.

Brexit

UK trading relations are likely to be affected by Brexit, with a concurrent impact on Ireland. Trade impacts represent the primary channel through which Brexit's economic effects will emerge, and it will likely lead to a fundamental restructuring of the trading framework in which Irish exporters operate. If the UK pursues trade agreements with third countries, this could present additional competitiveness challenges for Ireland's traditional UK market suppliers. While many of Brexit's economic impacts will not emerge until after the UK's exit, Brexit's contribution to sterling's devaluation and heightened volatility is already creating challenges for exporters.

2.2 Impact of Brexit on vulnerable sectors of economy

While the UK accounts for around 17% of our exports, for a number of industry subsectors and major employers, exports to the UK account for in excess of 40% of total exports. Brexit could result in significantly differing trade impacts across sectors, products and firm types, as merchandise trade is heavily concentrated in some sectors and products.[11]

Sectoral

Sectors particularly dependent on the UK for exports include agriculture and fishing, food and beverages, and chemicals. The largest commodity groups in Ireland's goods exports to

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[11] Ireland's top 10 exports to Britain from 3,200 product types account for 31% of total exports. With trade concentrated in a few product types - including packaged medicines, powders used to make soft drinks, boneless beef, cheese, computer storage units and processed chicken dishes - increased trade barriers would have a more pronounced impact on trade volumes. See A. Barrett, A. Bergin, J. FitzGerald, D. Lambert, D. McCoy, E. Morgenroth, I. Siedschlag and Z. Studnicka (2015) *Scoping the Possible Economic Implications of Brexit on Ireland* (Dublin: ESRI).

the UK are food and live animals, and chemicals, together accounting for 55% of total Irish goods exports to the UK, while the next largest at 17% is machinery, though this commodity group is affected by the presence of trade in aircraft. The traditional manufacturing sector and the materials manufacturing sector also record high exposure measures and sensitivity to changes in the trade relationship with the UK.

Both multi-national and domestic Irish firms will be impacted, and in terms of economy-wide spillovers, both the food and beverage sector, and the traditional manufacturing sector have relatively high output multipliers, which suggest the potential for comparatively large second-round economic impacts from any adverse changes.

The impact on the financial services sector is difficult to quantify; much will depend on the future EU-UK relationship and any transitional arrangements. There will also be potential opportunities for the relocation of services from the UK to Ireland.

There will be economic opportunities for Ireland, arising from the UK's decision to leave the EU and the Government will seek to take those opportunities, including in promoting Ireland as a location of choice for companies and talented people looking to establish or expand operations.

Impact of tariffs

The WTO trading regime applies tariffs by product type. Ireland's agri-food sector would be most adversely impacted as a result of the high tariffs applied to this sector. With the UK very tightly integrated into Irish food production, changes to the existing trading relationship will be challenging for the sector. Indeed, concerns about the land bridge with the UK, the status of goods in transit and the impact of customs checks on the cross-border transit of goods are also shared by the wider Irish exporting community. As the UK is one of Ireland's most important sources of intermediate and consumption goods, the aforementioned concerns could increase import costs. In the energy sector, for example, Ireland imports around 88% of its total energy requirements, worth around €4.6 billion annually, mainly through the UK.[12] This could have an inflationary impact, which would see Irish consumers face higher product prices and the cost base for Irish manufacturers rise.

[12] M. Howley, M. Holland, D. Dineen and E. Cotter (2015) *Energy in Ireland: 1990-2014* (Dublin: SEAI).

Border and regions

The ESRI finds that indigenous firms, which are often important employers in rural areas and more dependent on the UK as an export market, and exporters in the border region and rural areas will most likely experience the greatest negative impacts (relative to multinationals) from Brexit. These companies have more limited in-house capacity to absorb and mitigate potential adverse impacts than larger firms. Given the impact of cross-border trade on local economic development in the border region and the relatively greater dependence of rural Ireland on sectors (e.g., agri-food) that are most at risk, government policies to mitigate the regional impacts of Brexit will be important.

Critically, the 1,476 Enterprise Ireland (EI) client companies recording exports to the UK employ 100,000 full time employees across all regions of Ireland. This represents half of total employment amongst EI clients. The emergence of any barriers to exporting to the UK could represent a significant threat to jobs in the regions.[13] There is a particular focus on supporting sectors such as food, construction and engineering that are most exposed to the UK and provide major employment across all the regions. However, Brexit has implications for all sectors.

Regulation

While the UK Great Repeal Bill[14] would see all EU legislation transposed into domestic UK law, Irish business and industry are increasingly concerned by the potential for regulatory drift and divergence in such areas as company law, intellectual property, State aid, standards and social rights for workers, environmental standards and agriculture. In advance of clarity around negotiations, the level of risk is difficult to assess fully. Less demanding regulation could put UK firms at a competitive advantage whilst further advantages could emerge should the UK be able to support its industries and business through the use of State aid in the future.

[13] 201,108 jobs were supported by Enterprise Ireland in 2016. 65% of those are outside of Dublin and 84,838 of the jobs are outside of the five cities of Ireland.

[14] It is intended that the ‘Great Repeal Bill’ will repeal the 1972 European Communities Act, ending the legislation that gives European Union law supremacy in Britain, convert all EU law into United Kingdom law, and create the necessary powers for MPs to change these laws once Britain has left the EU.

Brexit also poses a risk in terms of loss of the UK as a like-minded ally with Ireland. The strength of convergence with the UK on policy approaches varies across different areas but the UK is considered a strong Irish ally in many policy areas, including but not limited to company law, IP, research, standards, employment permits, occupational health and safety, and chemicals.

Should there be obstacles to retaining the CTA and the existing rights of UK citizens in Ireland, the impact would be significant. There are approximately 55,900 UK nationals employed in the State,[15] such that requiring UK citizens to obtain permits would have a significant impact on business activity and could also impact on Ireland's adoption of future EU Directives affecting immigration and border control.

2.3 Vulnerabilities in the euro area and monetary policy uncertainties

The main risks in the euro area, particularly for its financial system, are low output growth and low inflation in the euro area; public and private sector debt sustainability; weak profitability and structural issues in the EU banking sector; a reversal of the search for yield in financial markets, including a re-pricing in global fixed-income markets; and the increasing size of the non-bank financial sector and its linkages to the broader financial system. Each of these is dealt with in turn below.

Low output growth and low inflation in the euro area

Although there have been improvements of late, the economic environment in the euro area is characterised by low inflation and low output growth.

Inflation in the euro area has been below levels consistent with price stability[16] for some time, though recent data suggest moves towards the European Central Bank's (ECB) 2% target. Recent meetings of various central banks over the past few months have highlighted a division in policy. During its 15 March policy meeting, the Federal Reserve voted to raise its benchmark Fed-Funds rate by a quarter percentage point, to a range of 0.75% to 1%. This was the second increase in the space of three months. In contrast, the ECB at its meeting on

[15] This is an estimate based on May 2017 QNHS data from the CSO, which is available in Annex 1 at: cso.ie/en/releasesandpublications/er/qnhs/quarterlynationalhouseholdsurveyquarter12017/. QNHS estimates will be revised later in the year to take account of the 2016 Census.

[16] This is defined as below but close to 2% on an ongoing basis.

27 April kept rates on hold at record lows and repeated their commitment to quantitative easing (QE) and loose monetary policy. The Bank of Japan also kept rates on hold and purchases of bonds at the same level, with Governor Kuroda stating on 24 March that he saw "no reason to reduce the level of monetary accommodation in light of current economic and price developments," suggesting the Bank of Japan will maintain its expansive policies for the foreseeable future. The Bank of England, whilst voting to keep rates on hold, was the only central bank to show signs of potential changes; one of the policy committee members unexpectedly voted to raise rates, causing sterling to strengthen against peers.

By historical standards, global economic activity has also been subdued. Risks to the economic outlook for the euro area include the lack of clarity about future economic and political agreements between the EU and the UK following the vote by the UK to leave the EU. The persistently high level of non-performing loans (NPLs) in the EU banking sector acts as a drag on economic activity. Increased geopolitical tensions and uncertainties surrounding macroeconomic policy in advanced economies and the medium- and long-term prospects for emerging markets, particularly the Chinese economy, are also relevant to future economic performance.

Public and private sector debt sustainability

While sovereign stress in euro area bond markets has been restrained in recent years, high public debt, weak economic growth, poorly performing banks in some Member States, and political developments (including commitment to EU fiscal rules) could revive market concerns about fiscal sustainability. A change to monetary policy, including central bank asset purchases, could have an impact on sovereign bond market conditions. High debt burdens among firms and households in some EU Member States also pose economic and financial risks. While the indebtedness of the private sector has declined in most EU Member States, the deleveraging process has been uneven and vulnerabilities remain, including from the effects of higher interest rates or lower output growth. Political uncertainty, developments (such as Brexit) and slow reform efforts add to concerns about debt sustainability.

The sensitivity of government debt to a rise in interest rates on new borrowing is moderated by the debt structure (mostly fixed rates and the long maturity profile of our existing stock of debt).[17] Ireland has benefitted from the ECB's programme of QE, with an associated reduction in interest costs, though the ending of this programme could have the reverse effect given Ireland's high debt levels – despite improvements in the debt-to-GDP ratio, the absolute level of debt remains high at €200 billion. The risks to Ireland's long-term debt sustainability relate mostly to changes to the economic outlook, primarily the growth prospects of key trading partners and the impact of changes on the international trading environment. However, the continued high level of private debt means households would be affected by increases in interest rates in the medium term or a decline in disposable income. Other events that could result in turbulence in the euro area debt markets include risks of bank losses in this negative interest environment, changes in market sentiment, and the uncertainty stemming from any potential political instability.

Weak profitability and structural issues in the EU banking sector

Although steeper yield curves and market sentiment have helped support bank share prices of late, vulnerabilities in the EU banking sector remain. Weak profitability, asset quality and cost efficiency are issues for many EU banks. Following the Brexit vote and the EBA stress test results in 2016, investor sentiment was particularly negative toward banks with high stocks of legacy NPLs and those potentially facing large misconduct fines. The European banking sector faces structural business model challenges, including overcapacity and evolving market and regulatory environments, as well as cyclical pressures arising from the low nominal growth and low interest rate environment. Weak profitability is hindering banks' ability to strengthen solvency ratios further either through retained profits or external capital issuance.

A reversal of the search for yield in financial markets, including a re-pricing in global fixed-income markets

Risk premia of financial assets would appear to have been compressed in recent years as investors searched for better returns. Simultaneous upward corrections of such premia across asset classes could materialise over time, including over a short period. These could be triggered by changing market expectations about economic policies and monetary policy or an event (or events) that affects investor confidence. In recent months, the US Federal Reserve has been tightening its monetary stance, putting upward pressure on US Treasury

[17] European Commission (2015) *Country Report Ireland 2015, Including an In-Depth Review on the Prevention and Correction of Macroeconomic Imbalances* (Brussels: European Commission).

bond yields. The expectation of a loosening of US fiscal policy and a switching of investments away from bonds to other asset classes has added to that pressure, which could spill over to other markets, including European fixed income markets. Global interest rates are also at historical low values, leaving scope for them to rise. The adverse effects of a repricing of fixed-income assets could include a re-emergence of concerns about public and private sector debt sustainability in some EU Member States. If risk premia have been under-priced and this is reversed, a disorderly adjustment across multiple asset classes could occur, which could affect market liquidity.

The increasing size of the non-bank financial sector and its linkages to the broader financial system

The potential for the non-bank financial sector to amplify market shocks remains high, given the greater connectivity, leverage and complexity of this sector internationally. The EU fund sector is now more exposed to developments in global markets than previously. Liquidity mismatches and high synthetic leverage are features of some investment funds. A run on some UK property-related open-ended funds in the aftermath of the Brexit vote (amid uncertainty over UK CRE valuations) and episodes of extreme volatility in foreign exchange markets (including the sterling flash crash last October) illustrate potential vulnerabilities arising from the sector. A strong increase in global risk premia or adverse economic or policy shocks could lead to fund redemptions and force funds to sell into illiquid markets.

2.4 Loss of competitiveness

Ireland's national competitiveness refers to the capacity of enterprises in Ireland to compete in international markets.[18] It is a broad concept encompassing components of business performance such as costs, productivity, regulation of public utilities, prices and labour supply. Competitiveness is integral to economic growth and job creation. As a peripheral trading economy in a single currency area, Ireland is vulnerable to losses of competitiveness through wage and/or productivity developments that are out of line with our competitors in the euro area and beyond.

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[18] NCC (2016) *Why Competitiveness Matters for Ireland*, Competitiveness Bulletin 16-3.

Ireland's competitiveness rankings, as measured by the Harmonised Competitiveness Index (HCI), improved up to 2017[19] but some of this improvement was attributable to benign external conditions such as a low inflation, low oil prices and a favourable exchange rate, which could change quickly as demonstrated by recent volatility in sterling and the US dollar. The real HCI increased by 2.3% in the year to November 2016 when deflated with consumer prices, indicating a degree of diminishing Irish competitiveness.

The depreciation of sterling has diminished competitiveness relative to UK-produced goods and services. Conversely, imports to Ireland from the UK are becoming more competitive. The potential permanency of the euro/sterling exchange rate shift is a particularly significant competitiveness risk, particularly in employment intensive sectors such as agri-food, traditional manufacturing, tourism and sectors of the economy sensitive to cross-border trade and online trade. A more diverse export and enterprise base could help reduce exposure to external demand shocks.

A number of short- and medium-term risks have already emerged in key areas that could undermine national competitiveness, growth and living standards. Brexit, in particular, presents Ireland with far-reaching and ongoing structural implications across a range of policy areas, which directly impact on the country's national competitiveness. These include fiscal sustainability, tax competitiveness and innovation capability, all of which threaten to become more acute. Issues such as cost competitiveness, infrastructure bottlenecks and deficits, and the potential for increasing industrial unrest are emerging as immediate challenges. In the longer term, the implications of extra costs and tariffs, standards, regulations and customs on exports between Ireland and the UK could negatively impact on the capacity of exporters to compete internationally.[20]

The challenges posed by Brexit and policy uncertainty in the US and EU provide additional motivation to pursue cost competitiveness across a range of business inputs. Price levels in Ireland were 22.5% higher than the EU average in 2015; the UK was 31.3% above the EU

[19] Ireland's overall ranking in the IMD World Competitiveness Yearbook has shown significant improvement: from 16th in 2015 to 6th in 2017 (out of 63 economies assessed).

[20] NCC (2017) *Competitiveness Key to Meeting the Economic Challenges of Brexit*, Competitiveness Bulletin 17-2.

average. The services sector is likely to remain the main source of upward price pressure in Ireland, with the price pass through exchange rates and expected increases in energy prices.

Ireland needs to maintain and improve its relative cost competiveness in areas such as labour costs, property and utilities.[21] Ireland is competitive relative to both the UK and euro area with regard to average labour costs. While labour cost growth has been positive in Ireland in recent years, overall the growth has been below EU and euro area averages, representing a competitiveness gain for Ireland. Ireland's relative competitive position would be negatively affected if wage growth outpaces that of competitor countries and productivity growth.

A number of high profile industrial disputes in 2016 have resulted in settlements which could raise expectations in 2017/18, resulting in higher pay claims, an increased number of industrial disputes and leading to unsustainable wage growth. The number of days lost to industrial disputes increased from 5,115 in Q1 2016 to 51,135 in Q4 2016.

In addition, domestic factors including the economic recovery and the continued shortage of housing may drive up wage demands, which could erode competitiveness in a low inflation environment.[22] Whilst wage costs are an important component of competitiveness, in the medium term productivity performance is the key determinant. To facilitate such growth, there must be a continued focus on investing in the development of people, technology and processes.[23] Increasing productivity growth across all sectors of the economy remains a significant challenge. While Ireland's productivity performance is strong, there are measurement challenges in calculating the level of economic activity in Ireland that complicate the productivity estimates for Ireland. In addition, the narrow base of sectors leaves Ireland's productivity performance vulnerable to sectoral shocks.

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[21] National Competitiveness Council (2017) *Costs of Doing Business 2017* (Dublin: NCC).

[22] The National Competitiveness Council's Ireland's Competitiveness Scorecard 2016 (Dublin: NCC) notes that the dangers of wages spiralling upwards with rising house prices and/or rents would represent "one of the greatest threats to the recovery" (p.5).

[23] NCC (2016), op. cit, p.35. The Report of the Expert Group on Future Funding for Higher Education (2016) makes the point that a key component of the competitiveness agenda is the adequate funding of 3rd level institutions to ensure that they are open to students from a range of social backgrounds.

2.5 Vulnerabilities in the banking system

Bank balance sheet repair and the work-out of impaired loans

There have been positive developments in the domestic banking sector, and the recovery in banks' profits is continuing to improve, reflecting both the improved pre-provision profits and write-backs of impairment provisions. New lending, while increasing, remains at levels that are being offset by redemptions of existing loans.

The effective workout and resolution of distressed loans is crucial to banks' viability. High levels of non-performing loans (NPLs) can constrain both credit growth and economic activity. Impaired loans tie up capital and can diminish the ability of banks to undertake new lending. Credit quality has improved in recent years. Management of NPLs continues to be a high focus for both the regulatory authorities and the banks themselves, with overall NPL levels continuing to reduce: they are now 63% below their Q3 2013 peak. Nevertheless, they constitute 15.74% of the Irish domestic banks' loan books, which is high relative to EU peers. While the CRE loan portfolio saw the largest reduction in the value of impaired loans in 2016, it has the highest NPL rate of 30.6% (down from 70% at the end of 2013). Impairments can be expected to be sensitive to changes in interest rates and in domestic economic conditions. The mortgage arrears process has proven to be slow and complex.

The high level of impaired loans remains a significant challenge for the banking system, as well as carrying a wider social and economic cost. Headwinds facing the sector include the low interest rate environment, increased regulatory costs and the possible consequences of Brexit. The main Irish banks have significant exposure to the UK market, and profits and asset quality may be affected by any downturn there. Irish banks have been subject to a number of stress tests by international institutions, including the International Monetary Fund and the European Banking Authority. These tests indicate that Irish banks are "adequately capitalised but remain vulnerable to a downturn, especially in relation to the continued workout of problem loans and the sustainability under stress of current profitability levels."[24]

[24] Governor of the Central Bank of Ireland (2016) *Macro-Financial Perspectives on the Irish Economy*, Speech to the IIEA, 2 August 2016.

Concentration in banking activity

The Irish domestic banks' loan book is becoming increasingly concentrated, with three-quarters of outstanding loans being made within Ireland and almost two-thirds being mortgage-related. This leaves the sector vulnerable to events impacting the Irish economy and its household sector.

Funding needs

Reflecting the banks' deleveraging, their funding levels have declined of late, with some incremental changes in funding structure also occurring. Funding continues to benefit from the prevailing interest-rate environment, which could change. Notwithstanding significant reductions in reliance on wholesale debt, funding remains susceptible to any negative changes in investors' risk appetite and in sentiments towards the banks and the Irish sovereign. These factors, alongside the greater concentration in the banking sector, also pose a risk to the level and cost of credit available to both consumers and enterprises, with consequent negative economic and social impacts. The uncertainty surrounding the UK's exit from the EU has increased volatility in financial markets, which could affect investor sentiment and banks' access to wholesale funding.

Near-term uncertainty and political rhetoric could lead to instability, volatility in FX markets[25] - as has already been experienced - and delays in investment decisions. Negative impacts on the macro-economy of either or both the UK and Ireland would impact Irish banks loan books, possibly reducing the value of the State's shareholdings in banks.

2.6 Overreliance on multinational corporations and unfavourable international tax changes

Ireland's economy and employment are heavily influenced by a relatively small number of multinational corporations concentrated in a few enterprise sectors. Whilst this reflects the success of Ireland's enterprise policy in attracting FDI in these sectors, it also creates a vulnerability to changes in Ireland's attractiveness as a location for these companies. The top 10 goods export products from Ireland, drawn principally from the chemical and pharma industries, account for 45% of all goods exports, while the IT industry dominates services

[25] Foreign exchange market (also called Forex, FX or currency market) - the market where participants can buy, sell, exchange and speculate on currencies.

exports. The top 10 tax-paying groups account for close to 40% of corporation tax receipts, making this revenue stream vulnerable to weaker global growth and changes to business models and processes in these sectors.

There is a risk that a sector heavily concentrated in Ireland, such as IT or pharma, could suffer a particular shock impacting on its growth potential, which could curtail inward investment. There is also a risk that the multinational companies that drive Ireland's export growth may relocate their business elsewhere. Variables such as price competitiveness, skills shortages or changes to the tax environment can influence such decisions.[26]

Ireland is uniquely vulnerable to serious negative consequences for the economy or significant sectors of it as a result of the UK leaving the EU, given the extent to which our economies are linked. There is also the risk of serious negative consequences due to changes to US trade and tax policy, or from a return to economic turbulence in Europe, with potential for populist politics to deliver an increased tendency towards protectionism and trade disruption.

Regarding potential taxation changes, there continues to be significant discussions and developments at EU, US and OECD levels in relation to corporation tax, and there is significant public and political pressure in many countries. Further vulnerabilities and risks to the tax base could arise in relation to the European Commission’s proposed Common Consolidated Corporate Tax Base (CCCTB), which would involve two steps: the first, a single or common set of tax rules for large companies and permanent establishments in the EU; the second, a consolidated tax return mechanism.

[26] D. Purdue and H. Huang (2015) *The Facts, the Fictions and the Risks* (Dublin: NTMA Economics).

3. Social Risks

- **Human capital and skills needs**
- **Failure to respond to demographic changes**
- **Expenditure expectations**
- **Social cohesion and political stability**
- **Migration and integration**
- **Increases in chronic diseases**

3.1 Human capital and skills needs

Future economic performance will critically depend on the quality of human capital. Ireland's competitive advantage in international markets, as well as the competitiveness of our regions, will increasingly be driven by the availability of world class skills at all levels. The OECD has called skills the new global currency of 21st century economies. As risks emerge to other areas of competitive advantage, such as the corporate tax regime, it is important that Ireland's strong position in terms of the availability of talent is protected.

There are some short-term risks associated with the skills needs that are emerging between labour market requirements and the nature and level of available skills. For example, while unemployment levels have fallen, there are global issues regarding skills needs and mismatches in certain labour market areas, such as ICT. If employers are not able to source appropriate skills domestically, this will have a detrimental impact on the cost base and productive capacity of the economy.

Reform of the education and training system is underway through a variety of measures. However, there may be a longer-term risk that, without continued implementation of reform, the education and training system may not (in light of demographic pressures) meet the skills requirements of a fast-changing labour market with strong global competition for investment and talent, thereby negatively affecting economic performance and employment growth.

The higher education system has experienced a fall in core funding and a rise in the staff-to-student ratio since 2008. Technical work is now underway on options to increase funding for the higher education sector in response to concerns that the current funding system fails to recognise the current pressures facing higher education institutions or the scale of the coming demographic changes.[27]

3.2 Failure to respond to demographic changes

The preliminary results from Census 2016 show that Ireland's population increased from 4.588 million in 2011 to 4.762 million in 2016. The natural population increase was 196,100 with net outward migration estimated at 22,500.[28] Planning for demographic changes in the population is dependent on accurate forecasting so that resources and services can be directed where needed. With an open economy like Ireland's, this is difficult and the uncertainties associated with Brexit will only accentuate this problem.

The Central Statistics Office has provided projections of possible changes in the dependency ratio up to 2026 based on a number of different scenarios.[29] About 85% of the difference between high and low assumptions for changes in the population and dependency ratio is explained by potential migration flows. It is worth noting that the CSO's most positive scenario for migration was dependent on net outward migration of 19,000 per annum, yet the Census results for 2016 indicate annual average net outward migration of 5,625 for the inter-censal period 2011 to 2016.

Whatever the uncertainties associated with population projections, two related issues are highly probable. The first is that the number of people aged over 65 will continue to grow, with the CSO estimating that it will almost treble to 1.45 million people between 2011 and 2046. The second is that the dependency ratio - i.e., the ratio of persons under 15 and 65 and over to persons of working age (15-64) - will increase into the future, in the absence of improbably large immigration of people of working age. The future age dependency ratio is important because it points to impacts in areas such as education, child income supports, healthcare, long-term care, housing and pension provision. Each of these will be an area of acute concern but pensions may be the most serious.

[27] Report of the Expert Group on Future Funding for Higher Education (2016) *Investing in National Ambition: A Strategy for Funding Higher Education* (Dublin: Department of Education and Skills).

[28] Central Statistics Office (2016) *Census 2016 Summary Results – Part 1* (Dublin: CSO).

[29] Central Statistics Office (2014) *Population and Labour Force Projections* (Dublin: Stationery Office).

State pensions

State pensions account for the single largest block of social welfare expenditure. In 2016, nearly €7 billion was spent on pensions, which represents 35% of the Department of Social Protection's total current expenditure. While expenditure on pensions is increasing by approximately €1 billion every five years due to demographic pressures, this is being successfully managed within the overall welfare budget. A number of significant reforms to state pensions were introduced in recent years to ensure the system's sustainability, most notably the increase in the state pension age. Legislation already provides for an increase in the State pension age to 66, and will further increase it to 67 in 2021, and to 68 in 2028.

However, there are concerns about the adequacy and sustainability of the current system. In 2015, 36% of people expected the state pension to be their main source of income in retirement,[30] and the OECD expects expenditure on pensions to nearly double from 5.4% of GDP in 2011 to 9.2% of GDP in 2060.[31] By this time, the shortfall in the Social Insurance Fund, from which pension payments are drawn, is expected to be about €324 billion.[32]

3.3 Expenditure expectations

The Budgets of the last three years, published by the Departments of Finance and Public Expenditure and Reform, have set about restoring resources to key priority areas while also ensuring the viability of the public finances. The enhanced engagement with the Oireachtas, particularly the Select Committee on Budgetary Oversight, has also assisted in formulating Budget 2017 while reaching broad consensus on key priorities.

As the economic recovery continues, the expectations that additional resources will be made available for a wider range of social priorities are likely to strengthen. There is also a clear possibility of calls for the reversal in the short term of efficiency measures introduced during the recession and in the area of public service pay. However, it is important not to forget the need to maintain the health of the public finances, reduce the continuing high level of public debt, and ensure compliance with the fiscal rules.

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[30] Central Statistics Office (2016) *QNHS Module on Pensions Q4 2015.*

[31] OECD (2014) *OECD Reviews of Pension Systems: Ireland* (Paris: OECD Publishing).

[32] KPMG/Department of Social Protection (2012) *Actuarial Review of the Social Insurance Fund 2010* (Dublin: Department of Social Protection).

This tension between these kinds of constraints and expenditure pressures arising from other areas such as demographic growth, capital investment needs and public demands for increased services have to be managed to ensure sustainability over the economic cycle. The successful management of competing priorities is all the more important given the context of external challenges to be faced though the UK's decision to leave the EU.

3.4 Social cohesion and political stability

The recent recession and the consequent need to stabilise the public finances has raised concerns, aired in other countries as well, about income distribution and inequality. The OECD makes the point that this discussion often focuses on a cadre possessing apparently extreme wealth but that more attention should be focussed on the relative decline in the proportion of low-income households.[33] According to the OECD, growing income inequality can have a negative effect on social cohesion and impede economic growth.[34]

In Ireland, taxation and social transfer policies have been effective in offsetting market income inequality. In 2015, transfers reduced the at-risk-of-poverty rate from 34.9% to 16.9%, representing a poverty reduction effect of 52%, and currently Ireland is the best performing EU Member State in this regard. Similarly, the ratio of total income received by the top income quintile compared to the bottom income quintile stood at 4.7 in 2015[35] down from 5.1 in 2012 at the height of the economic downturn.

In recent years there has been some improvement in measures of poverty and inequality, with the Gini coefficient[36] for disposable income falling below the EU average in 2015. However, measures of consistent poverty remain above the targets set for 2020.

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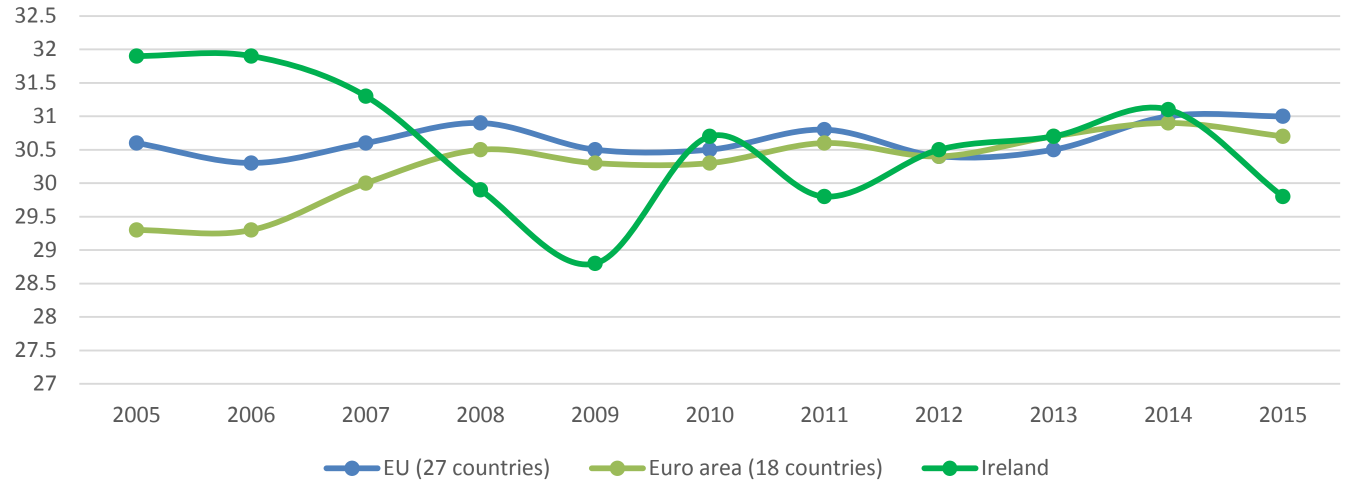
[33] OECD (2015) *In it Together: Why Less Inequality Benefits All* (Paris: OECD).

[34] OECD (2015) *In it Together: Why Less Inequality Benefits All* (Paris: OECD).

[35] cso.ie/en/releasesandpublications/er/silc/surveyonincomeandlivingconditions2015/

[36] The Gini coefficient measures the extent to which the distribution of income among individuals or households within an economy deviates from a perfectly equal distribution. A Gini coefficient of zero represents perfect equality and 100, perfect inequality.

Figure 1: Gini coefficient Ireland versus EU, 2005-2015



Source: Eurostat

Social groups that continue to be disproportionately affected by poverty include jobless households, those living in social housing (often associated with spatial concentrations) and lone-parent households (mainly female-headed) across the lifecycle, with children more likely to be in poverty than adults. Eurofound, OECD, ILO, NESC and the ESRI have all commented on the fact that the key route out of social exclusion is support for individuals to be in work, and that enhanced training and education can be beneficial in achieving this.

Although the labour market has seen significant recovery in recent years, risks remain in this area in terms of access to and the quality of work. Access to stable employment remains a key challenge, in particular for young people, and the use of temporary and precarious employment practices by industry also remains a risk, although legislation is progressing to address this in the form of the Employment (Information) (Amendment) and Organisation of Working Time (Amendment) Bill 2017.

Another consequence of the recent recession in Ireland has been a damaging effect on public trust. The 2017 Edelman Ireland Trust Barometer finds a crisis in trust levels in the country, with trust levels in institutions and leaders falling – most notably, trust in the media – and 59% of respondents to the survey in Ireland stating their belief that the system has failed them. Edelman Ireland noted that when the majority of the population believes the system has failed them, there is the danger of vulnerability to the fears behind anti-establishment actions and that “Ireland must consider itself on notice for the rise of populism.”[37] Furthermore, concerns have been raised in other countries in relation to the possible use of social media technologies to manipulate feelings of fear and distrust to effect change and political outcomes.

Source: Edelman Trust Barometer Global Results 2017

Political Stability

While political instability in the sense of the Irish Government being destabilized or overthrown by unconstitutional or violent means, including politically-motivated violence and terrorism, is a relatively low risk,[38] there is a risk that a fragmented political system would not have the capacity to make difficult policy choices, including involving contentious legislation. On the other hand, the presence of a wide range of views and voices can support improved public debate of the risks and challenges facing the country and on the best ways to address them.

Political stability is also a key factor in attracting investment in Ireland, and it is particularly important in the context of Brexit and the negotiations that will take place over the coming two years, in which it is essential that Ireland’s interests and priorities are strongly represented. Irish business has stressed the importance of a stable domestic political

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[37] edelman.ie/magazine/posts/2017-edelman-trust-barometer-reveals-crisis-of-trust-in-ireland/

[38] According to the World Bank Political Stability index, Ireland had a stability score of 0.93 in 2015 - the range is between -2.5 (weak) to +2.5 (strong). Data available from info.worldbank.org/governance/wgi/#reports.

backdrop.[39] In the context of Brexit and growing Euroscepticism elsewhere, there is the risk of increasing anti-EU sentiment in Ireland and erosion of support for Ireland's membership of the EU.

In a broader context, the European Central Bank has pointed out that the increase in political uncertainty in several countries could lead to delays to fiscal and structural reforms where policy agendas are less reform-oriented and more domestically focused, and that this could increase pressures on more vulnerable sovereigns.[40]

3.5 Migration and integration

Migration is becoming one of the most contentious and contested issues in political debates across many countries. It played a significant role in the UK's referendum on Brexit, it has fuelled the rise of nationalist political parties in some countries and it has caused other countries to re-establish some form of border controls within Europe. Even though Ireland's location in Europe means that it does not bear the direct brunt of many of these pressures, this should not induce complacency about the issues that migration and integration can generate.

In slightly over a generation, Ireland has changed from an ethnically homogeneous society to a much more multi-ethnic one, a transformation reflected in rural as well as urban communities. Census 2016 shows that 810,406 people or 17.3% of the population were born outside the State (this figure includes people of Irish nationality who were born outside the State, including in Northern Ireland), and that 535,475 people or 11.6% of the population do not hold Irish nationality.[41] While this represents a small decrease on the 2011 Census,[42] it represents an increase of almost 139% in the number of people without Irish nationality since 2002, the first time the Census included a question on nationality.[43]

This increase in the immigrant population has happened in a very short time and without any of the upheaval that has occurred in other countries with such dramatic movements of the

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[39] Ibec (2016) *The UK Referendum on EU Membership: The Impact of a Possible Brexit on Irish Business* (Dublin: Ibec).

[40] European Central Bank (2016) *Financial Stability Review – November 2016* (Frankfurt: ECB).

[41] Central Statistics Office (2016) *Census 2016 Summary Results – Part 1* (Dublin: CSO).

[42] The 2011 Census showed that 544,357 people, or 12% of the population, did not have Irish nationality.

[43] In the 2002 Census, 224,261 people were recorded as not having Irish nationality.

population. Failure to maintain this level of cohesion, especially as second and third generation migrant communities emerge, represents a significant risk of negative consequences similar to those experienced by other countries.

As Brexit evolves there may be significant labour market implications for Ireland. To give one example, the expansion of the construction sector in Ireland may attract many Eastern European Construction workers currently based in the UK.

3.6 Increases in chronic diseases

Increases in chronic diseases, such as heart disease and cancer, are the leading cause of death and morbidity in developed countries. The rise in childhood obesity and other trends can be seen as an indicator of future rises in chronic diseases such as diabetes, cardiovascular disease, chronic obstructive pulmonary disease (COPD) and arthritis. It is estimated that within the next decade, the number of adults with chronic diseases will increase by around 40%, with relatively more of the conditions affecting those in the older age groups. For example, the obesity levels for both men and women in Ireland are higher than those for most of Western Europe.

It is estimated that 80% of healthcare expenditure relates to chronic diseases. The economic burden is considerable, not only for the health system but also in terms of families and society as a result of reduced income, early retirement, an increased reliance on social care and welfare support and diminished productivity and absenteeism.

4. Environmental Risks

- **Climate change**
- **Ensuring an affordable, sustainable and diverse energy supply**
- **Under-investment in infrastructure**
- **Under-supply of housing**
- **Food safety**

4.1 Climate change

Warming of the climate system is unequivocal. Mitigation actions are being taken to limit warming, with clear expectations arising from the new global commitment to taking action following the adoption of the Paris Climate Agreement in December 2015. However, many impacts of climate change are 'locked-in' for decades to come and adaptation actions are aimed at managing these climate change risks.

The scale and rate of climate change in Ireland is consistent with regional and global trends and these changes are projected to increase over the coming decades. Recent years have illustrated clearly the risks posed to Irish society by extreme weather events, with instances of prolonged cold in 2010, damaging windstorms in the winter of 2013/2014, and widespread flooding in late 2015/early 2016.

Climate change is already having diverse and wide ranging impacts on Ireland's environment, society, economic and natural resources. Future impacts are predicted to include sea level rise; more intense storms and rainfall; increased likelihood and magnitude of river and coastal flooding; water shortages in summer; increased risk of new pests and diseases; adverse impacts on water quality; and changes in distribution and time of lifecycle events of plant and animal species on land and in the oceans. Against this background, strategies must be devised to reduce and manage climate change risks through a combination of mitigation and adaptation responses.

While the Climate Action and Low Carbon Development Act 2015 has been enacted and structures developed to prepare and implement a series of successive National Mitigation Plans and National Adaptation Frameworks over the period to 2050, various risks could arise from the failure to invest effectively or sufficiently in both the mitigation and adaptation measures required to make the low-carbon transition and to help minimise or address the impacts of climate change.

The pathway to meeting the 2050 objective of transitioning to a competitive, low-carbon, climate-resilient and environmentally-sustainable economy will necessarily be incremental, having regard to a range of objectives, including the need for policy and regulatory predictability and stability in order to promote the necessary investment; the need for policy measures to achieve the optimum benefits at least cost; and the need to have regard to technology as a driver of change. Failure to work towards the 2050 objective on a steady pathway could entail a range of economic and financial risks, such as economic development opportunities foregone, excessively high abatement costs in both the public and private sectors or the emergence of stranded fossil fuel assets.

There is also an economic rationale for adaptation action, where the cost of inaction exceeds the cost of action and where this cost differential rises steeply with time. Early action is imperative to anticipate potential damage and plan for and implement measures to minimise threats to human health, economic development, property, infrastructure and ecosystems. In essence, early engagement reduces the risk and is more cost effective than reactive, unplanned adaptation.

Apart from the physical, environmental and economic risks posed by climate change itself and the risks arising from failure to achieve the low-carbon transition on a steady, incremental pathway, there are also potential costs associated with not achieving compliance with Ireland’s current greenhouse gas emissions targets to 2020 (non-Emissions Trading Scheme), and future targets resulting from negotiations on individual EU Member State targets for 2030, which are expected to conclude in 2017.

Projections published by the EPA indicate that Ireland's emissions in 2020 could be in the range of 4% to 6% below 2005 levels, with the likely outcome at the lower end of that range (i.e., 4%).[44] It is clear, therefore, that further policies and measures beyond those that are already in place will be necessary to address compliance but also to ensure that Ireland is on a

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[44] EPA (2017) *Ireland’s Greenhouse Gas Emission Projections: 2016-2035* (Wexford: EPA).

sound pathway to permanent and incremental decarbonisation to achieve the national transition objective.

In addition, the level of Ireland's 2030 non-ETS greenhouse gas emissions reduction target, which is yet to be agreed, is expected to pose a significant challenge to the State in terms of meeting the level of investment required to achieve compliance. Initial analysis of the potential level of effort required to 2030, published in the draft National Mitigation Plan, suggests that additional measures with a cumulative greenhouse gas mitigation capacity of 73 Mt CO_2 eq over the period 2021-2030 will be necessary under current emissions projections scenarios.

4.2 Ensuring an affordable, sustainable and diverse energy supply

Ireland is overwhelmingly dependent, economically and socially, on secure energy supplies - particularly on oil for transport and natural gas for electricity generation and heating. Ireland imports nearly all of its energy needs; in 2015, indigenous energy production amounted to only about 12% of the total primary energy supply, although this share will increase over the next few years with the coming on stream of natural gas production from the Corrib project. Increasing levels of renewable energy will help offset our dependency on imported fossil fuels and will introduce more certainty in the energy fuel mix, as well as enabling Ireland to reach its 2020 renewable energy targets.

Ireland's situation as an island on the periphery of Europe renders it particularly vulnerable to disruptions to the supply of oil, gas or electricity. Such disruption could arise from natural disaster or geopolitical change, with Brexit posing a particular risk as Ireland imports 88% of its energy requirements - mainly oil and gas - from the UK. The potential impact of Brexit on the Single Electricity Market is also of particular note. Ireland is also vulnerable to sudden movements in energy prices, which could be precipitated by disruptive geopolitical shocks or economic trends and which would have significant economic, social and competitive impacts.

In 2015, all fossil fuels fell in price, especially oil, which resulted in some positive economic effects for Ireland. Notwithstanding increases since the trough in early 2016, oil prices are not expected to return to previous high levels in the near future, which is of some economic benefit to Ireland. However, continued low prices may undercut the urgency of stimulating the transition from a fossil fuel-based energy sector to a clean, low-carbon system as set out in the Energy White Paper published in late 2015. If this transition is delayed, it may make a 'hard landing' more likely, given that the price of carbon-based energy sources may have to rise abruptly. Energy-intensive sectors such as transport could experience disruptions as the cost of their energy inputs rise, and households might have to bear some of this cost.

4.3 Under-investment in infrastructure

Ireland is the fastest growing economy in Europe and its population is continuing to grow – it grew by 3.8% over the inter-censal period 2011-2016. According to current estimates, we can expect an extra one million people living in Ireland over the next 20 years or so, almost a quarter of whom will be over 65 (double the current levels). We expect more than 500,000 extra people at work, many in high-skilled jobs created by the modern economy and living in and around key cities. There will be a need for 500,000 extra homes, including new construction, regeneration and re-use of existing built-up areas, as well as all accompanying infrastructure.[45]

Preparing for and managing progressive and sustainable growth requires careful preparation and planning for all its regions, and decoupling growth from adding to environmental pressures such as climate change and declining biodiversity is critical. For these reasons a new National Planning Framework for the period 2018 to 2040 is in preparation.

A plan-led approach to infrastructural investment is vital; historically in Ireland, factors such as constraints on public finances and a market- and developer-driven development environment (rather than a planning-led one), has tended to result in infrastructure following, rather than driving, change and development for the benefit of society.

From 2008 to 2014, acute pressures on the public finances created major challenges in maintaining investment in public infrastructure, such that from a peak of 5.2% of GDP in 2008, public investment fell to a low of 1.8% of GDP in 2013 before recovering from 2014 through to 2016 to about 2% of GDP, still well below the EU average of 2.9% and well below the averages of some EU Member States, which are closer to 6-7%.

[45] Consultation Document on National Planning Framework

The European Commission, for example, has identified the importance of and challenges to coherent spatial planning and infrastructure provision, such as transport, water and energy, and their efficient integration with public transport corridors in and around main urban areas.[46] The Commission has recommended prioritising public infrastructure investment in transport, water services and housing.

As Ireland's recovery continues and consolidates, failure to renew and enhance clear infrastructural capabilities within an overall strategically planned approach will impact on our quality of life, the competitiveness of our places and our capability to meet new environmental challenges. Through a combination of a recovering national economy providing the resources for investment and integrated spatial and capital investment planning, mitigation measures are in hand to address risks from under-investment in infrastructure.

Another risk in this area is the opposition of citizens and communities to the implementation of infrastructure. In areas such as electricity network development, renewable energy projects, waste management and some transport projects, wider communities have opposed such projects despite rigorous planning, environmental assessment and consultation processes. This suggests that enhanced mechanisms need to be developed to create better community ownership of and participation in required investment projects. It is imperative that Ireland's development consent systems are robust and efficient to maximise certainty and minimise delay in converting capital to projects that deliver.

4.4 Under-supply of housing

A capable, effective and sustainable construction industry on the right scale is essential for economic growth and development. Driven by unsustainable residential construction, the scale of construction output grew to an unprecedented 25% of gross national product (GNP) in 2006 before dropping dramatically to 6.4% of GNP in 2012.[47]

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[46] European Commission (2017) *Country Report Ireland, Including an In-Depth Review on the Prevention and Correction of Macroeconomic Imbalances* (Brussels: European Commission).

[47] Forfás (2013) *Ireland's Construction Sector: Outlook and Strategic Plan to 2015* (Dublin: Department of Jobs, Enterprise and Innovation).

Output in the residential construction sector fell by 90% between 2006 and 2013 - from 93,000 to just 8,000 completions. While housing output as measured by ESB connections has increased to over 15,000 in the most recent 12-month period, this is still significantly below the level of output required to meet demand, and below the Government's target of 25,000 units per year. Census 2016 data shows that population growth is outpacing the growth in housing stock, with increases in the household size and overcrowding evident.

An adequate supply of housing is essential for Ireland's social and economic well-being and stability, and for future economic growth. Persistent housing supply bottlenecks are indicated by strong rates of price growth and rental growth, which are having profound adverse effects on individuals and families across most segments of the social, rental and private sectors of the housing market. The lack of affordable accommodation has been linked to rising levels of homelessness, with significant social and financial costs. In addition to rough sleeping, many families have been living for long periods of time in emergency accommodation with significant impacts on family life. Difficulties accessing affordable accommodation are a significant source of concern for many people.

The current problems in the housing market also have broader negative macroeconomic and labour market implications.[48] Housing shortages and associated high costs are clear risks for Ireland's national competitiveness and its attractiveness for inward investment, for skilled migrants and for the return of Irish migrants.[49] The supply and affordability of residential housing is an element of Ireland's ability to compete internationally, it affects Ireland's attractiveness as an investment location for investment, and it impacts on enterprise costs - directly through wage effects and indirectly in determining the cost of Irish goods and services. Labour mobility is influenced by the cost of renting and purchasing housing, and it affects the ability of the economy to adjust to adverse economic shocks.

While the overall level of housing construction needs to increase, there is a clear need for coherent spatial planning and infrastructure investment so that housing is built where needed.

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[48] Irish Fiscal Advisory Council (2016) *Fiscal Assessment Report* (Dublin: IFAC).

[49] National Competitiveness Council (2016) *A Study to Examine the Affordability of Irish Housing* (Dublin: NCC); European Commission (2017) *Country Report Ireland, Including an In-Depth Review on the Prevention and Correction of Macroeconomic Imbalances* (Brussels: European Commission).

The ability of Ireland to benefit from any upside potential in the context of the UK's departure from the EU and the maintenance of Ireland's attractiveness as an entry point to the EU single market will depend on the timely resolution of the acute housing issues and meeting investment needs.

There have been a number of initiatives to address housing issues, the most recent of which is the Government's Action Plan for Housing and Homelessness, *Rebuilding Ireland*, which was published in July 2016. While *Rebuilding Ireland* includes a wide range of important commitments, it will take time for its full impact to have effect.

4.5 Food safety

Threats to food safety could arise from contamination of food or a significant outbreak of food-borne human illness. A food scare associated with a food product, animal feed or the outbreak of a major disease in farmed animals could have implications for the health of citizens, and where such incidents are of Irish origin could have the potential to jeopardise international trade in Irish food.

The agri-food sector is of vital importance to the Irish rural economy and is highly export dependent. In 2015, agri-food exports increased to €10.7 billion and the sector accounted for approximately 9% of total employment. Consumer confidence in Irish food and drink products at home and abroad is predicated on Ireland's excellent food safety standards, its favourable animal health and welfare standards and its sustainable grass-based farming systems. There would be an immediate impact occasioned by exclusion from certain markets and it could take a considerable period of time to recover consumer confidence and market share.

5. Technological Risks

- **Disruption to critical information infrastructure and networks**
- **Data fraud and theft**
- **Disruptive technology trends**
- **Nuclear contamination**
- **Major pandemics**
- **Anti-microbial resistance**

5.1 Disruption to critical information infrastructure and networks

The internet has become a fundamental component of many different types of infrastructure, underpinning a wide range of economic and social activities. However, unlike the situation for traditional economic and social infrastructure, our geographical position does not provide any protection from cyber-attacks. The threat landscape continues to evolve, and a wide range of significant risks arise for key national infrastructure including energy, transport, telecoms systems and financial systems. It is important to consider the possibility of terrorist groups resorting to cyber-measures to advance their aims by, for example, launching an attack on and disrupting critical information infrastructure and networks.[50] Europol currently judges the risk of cyber-terrorism to be one of high potential but low probability,[51] though the probability may be increasing. This is an issue of growing concern at EU and international levels.

Criminal gangs operating in different parts of the world have growing capabilities in terms of launching disruptive cyber-attacks and also holding entities to ransom where they succeed in encrypting business and personal data. This is particularly evident from the recent attack involving 'WannaCry' ransomware, which caused serious disruption to a number of large organisations across the world in May 2017. While in this case the impact on Ireland was relatively minimal, the risk of further, more devastating attacks remains. In addition to being costly, attacks could affect the availability of cash which, depending on the downtime, could have serious effects on the economy. The recent cyber-attack also demonstrates the potential impact on the provision of services and on the reputation of businesses and the public service,

[50] Europol (2016) *European Union Terrorism and Situation Trend Report 2016* (The Hague: Europol).

[51] Europol (2016) *IOCTA 2016: Internet Organised Crime Assessment* (The Hague: Europol).

while prolonged or repeated incidents risk creating a backlash against digitization, with further economic consequences.

5.2 Data fraud and theft

The internet is a key enabling infrastructure for economic growth and prosperity. Side by side with its increasing importance has been a growth in attempted cyber-attacks, due to the high value of personal and corporate data.

Although there have been significant improvements in building resilience to attacks, this continues to be a growing challenge for businesses and individuals and society in general. Pressing risks for businesses and individuals include the loss or theft of personal or business information, or even the destruction of property or critical records like medical records. The impersonation of individuals in order to make fraudulent transactions is a major issue involving billions of euro globally. Significant data breaches have been reported over the past year by a number of major companies abroad, including Photobucket (1.9 million records), Three UK (9 million records) and Christies (2.7 million records), while in 2016, Yahoo! disclosed two major breaches involving 1 billion and 500 million records, which had taken place in 2013 and 2014, respectively.[52] In Ireland, Eir had a small but serious data breach involving 2,000 records.

The public service is also a major collector and processor of data. A specific risk is the targeting of public service data repositories, and the theft or compromising of that data. If successful, this would reduce confidence in public service administration and the use of technology for public services.

The General Data Protection Regulation (GDPR), coming into force in May 2018, is a regulation to strengthen and unify data protection within EU. It will give the right to a person who has suffered material or non-material damage to seek compensation from a data controller. A significant data breach could result in significant compensation payments being made by the State.

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[52] See europol.europa.eu/crime-areas-and-trends/crime-areas/forgery-of-money-and-means-of-payment/payment-fraud; breachlevelindex.com; Europol (2016) *IOCTA 2016: Internet Organised Crime Assessment* (The Hague: Europol).

5.3 Disruptive technology trends

Disruptive technology can be defined as new ways of doing things that disrupt or overturn the traditional methods and practices of conducting business. In terms of broad economic risks, significant elements of the Irish economy could be radically impacted by digital technologies, and this impact will require careful attention from policy makers.

Studies conducted in other jurisdictions indicate that automation, digitisation and greater moves towards artificial intelligence will impact to varying degrees across and within different sectors, both in terms of job losses and the changing nature of work.[53] Futurists predict that approximately one third of jobs that exist today could be overtaken by Smart Technology, Artificial Intelligence, Robotics, and Algorithms by 2025.[54] Developments in these areas are also likely to render some businesses and products obsolete relatively quickly. Successor businesses will obviously arise but there is a risk of these being less dependent on human labour, or necessitating significant reskilling. The World Economic Forum Report surmises that both industries and occupations will, in coming years, undergo substantial transformation and this changing nature of work will need to be reflected in how we plan for the new economies of the future.[55] The scale of the reskilling problem is becoming a top priority for the EU Commission, as it has been suggested that in the near future, 90% of existing jobs will require some degree of digital skills.[56]

This presents both opportunities and threats to the economy and the landscape of the workforce into the future. While no sector will be immune to the impact of disruptive

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[53] Deloitte (2016) *Automation Set to Transform Public Services* IN Deloitte/Reform, State of the State 2016-17: Brexit and the Business of Government (London: Deloitte); PwC (2017) Will Robots Steal our Jobs? The potential impact of automation on the UK and other major economies, *UK Economic Outlook March 2017*; OECD (2016) *Automation and Independent Work in a Digital Economy*, available at oecd.org/employment/future-of-work.htm.

[54] D. Brougham and J. Haar (2017) Smart Technology, Artificial Intelligence, Robotics, and Algorithms (STARA): Employees' Perceptions of Our Future Workplace, *Journal of Management & Organization* 1-19.

[55] World Economic Forum (2016) *The Future of Jobs: Employment, Skills and Workforce Strategy for the Fourth Industrial Revolution* (Geneva: World Economic Forum).

[56] European Commission (2016) *Digital Single Market: Digital Skills and Jobs* (Brussels: European Commission).

technology, jobs and functions that require greater degrees of cognition, subjective thought and personal interaction will be somewhat cushioned.

Risks associated with disruptive technologies

- Fiscal impact of job loss associated with advancements associated with disruptive technologies;
- Failure to plan for and accommodate the future landscape of Ireland's workforce;
- Failure to communicate the value that disruptive technologies can provide in growing the economy;
- Failure to rapidly deploy disruptive technologies in the public sector to provide concurrence with the private sector;
- Failure to ensure that the costs of government are not disproportionate to costs within industry;
- Failure to assess and mitigate the adverse societal, workplace and social impact of disruptive technologies on the lives of our citizens;
- Employment shifts resulting from technological advances will continue to be a challenge for social protection systems in Ireland and elsewhere.

5.4 Nuclear contamination

The potential contamination of Ireland as a result of fallout from a nuclear accident is a risk, albeit one of low probability. Apart from the obvious risks to public health and well-being, the potential for economic impact on Ireland is significant, in particular reputational risk to the agricultural sector. This could arise in the event of consumer resistance to even miniscule levels of radioactivity in the food chain and Ireland's competitors portraying Ireland's food products as unsafe, were contamination to occur.

A recent report from the Economic and Social Research Institute (ESRI) examined the potential cost to the Irish economy of a number of scenarios involving varying levels of contamination.[57] While stressing the very low risk of a nuclear accident and without measuring the likelihood of any particular scenario, the study assessed potential costs to Ireland in four hypothetical scenarios: costs ranged from €4 billion in a scenario with no

[57] J. Curtis, E. Morgenroth and B. Coyne (2016) *The Potential Economic Impact of a Nuclear Accident - An Irish Case Study* (Dublin: Economic and Social Research Institute).

contamination where losses are reputational, through to €161 billion, where high levels of radioactive contamination would necessitate a prolonged period of food controls and agriculture protective actions.

In view of the potentially catastrophic humanitarian consequences of a nuclear detonation, it will remain important to continue international engagement relating to nuclear safety, as well as on nuclear disarmament and non-proliferation.

5.5 Major pandemics

Human pandemics and outbreaks of exotic diseases in farmed animal populations are unpredictable events that can cause social, economic and political stress. Outbreaks of exotic diseases in farmed animal populations can have significant economic repercussions resulting from their impact on trade, loss of income for farmers and the rural economy, and the cost of dealing with the outbreak. Human pandemics can cause death and illness on a significant scale and disrupt normal social and economic activity. International exercises and experience indicate that a pandemic has the potential to disrupt economic and social life significantly, with the possibility of energy and food supply shortages. The 2013-2016 Ebola epidemic and the transmission of the virus outside of Africa is a reminder that, as the world becomes more connected, facilitating the spread of disease-causing organisms, the risks of a pandemic become greater.

Many emerging human diseases with pandemic potential have originated in animals, prompting the 'One Health' concept, which recognises the links between public, animal and environmental health.

5.6 Anti-microbial resistance

Concern in relation to anti-microbial resistance (AMR) is on the increase at global and European levels. The World Health Organization has described AMR as "a crisis that must be managed with the utmost urgency."[58] Since the 1940s, antimicrobial medicines have substantially reduced morbidity and mortality in humans from infectious diseases and have provided protection against infectious complications for many modern medical practices

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[58] WHO Director-General briefs UN on antimicrobial resistance, available at: who.int/dg/speeches/2016/antimicrobial-resistance-un/en/.

including surgery, neonatal care, transplants and cancer treatment. These advances are now being put at risk by a significant rise in the prevalence of bacteria that are resistant to one or more antimicrobials, with knock-on consequences for human health as well as the economy in terms of more expensive treatment costs and lost productivity. Resistance is a natural response on the part of microbes to the use of antimicrobials; thus, antimicrobials need to be used as sparingly as possible if their efficacy is to be retained.

List of acronyms

AMR	Anti-microbial resistance
COPD	Chronic obstructive pulmonary disease
CRE	Commercial real estate
CSO	Central Statistics Office
CTA	Common Travel Area
ECB	European Central Bank
ECRIS	European Criminal Record Information System
EI	Enterprise Ireland
EPA	Environmental Protection Agency
ESRI	Economic and Social Research Institute
FDI	Foreign direct investment
GDP	Gross Domestic Product
GDPR	General Data Protection Regulation
GNP	Gross National Product
GTF	Government Task Force
HCI	Harmonised Competitiveness Index
ICT	Information and communications technology
IS	Islamic State
ISIL	Islamic State of Iraq and the Levant
NCC	National Competitiveness Council
non-ETS	non-Emissions Trading Scheme
NPL	Non-performing loan
NRA	National Risk Assessment
OEP	Office of Emergency Planning
QE	Quantitative easing
QNHS	Quarterly National Household Survey
SEAI	Sustainable Energy Authority of Ireland
TPP	Trans-Pacific Partnership
UCPM	Union Civil Protection Mechanism
WTO	World Trade Organisation

Annex 1: Open Policy Debate – 24 April 2017

Keynote presentation on global risks

Evolving Risks in an Evolving World

Aengus Collins, Practice Lead for Global Risks at the World Economic Forum in Geneva

The process of assessing risks is becoming more difficult as deepening interconnectedness and uncertainty increasingly become the norm. Each year the World Economic Forum publishes the *Global Risks Report* to help this process by mapping the global risks landscape and drawing the attention of decision-makers in both the public and private sectors to potential sources of disruption. We track the perceived likelihood and impact of individual risks considered in isolation – and since 2007, our reports have shown a clear shift in focus from economic to environmental risks[59] – but increasingly our analysis focuses on the ways in which risks interact and on the feedback loops that can form between risks and our responses to them.

The global financial crisis is perhaps the paradigmatic case of overall risk at the systemic level turning out to be much greater than the sum of the measured risks at the subsystem levels. But these days more and more of life is shot through with the same kind of dynamics. We see it in cascading technological revolutions, in the unprecedented environmental challenges facing the world, and even in the heightened political risk that has characterised the last few years in many countries. The United Kingdom's decision to leave the European Union is a case in point, with ostensibly unspectacular stresses and strains ultimately aligning in such a way as to produce a potentially radical reconfiguration of the political and economic status quo.

How should governments and other organisations respond to the changing global risks landscape? Increasingly, answering that question requires a willingness to live with uncertainty and ambiguity and to develop strategies that are flexible enough to adapt to disruptions that might emerge from unexpected sources and that might evolve in any number of directions. Humanity has been remarkably successful at managing vast amounts of what we might term conventional or linear risk – disruptions such as car accidents or earthquakes. But the deepening integration of our social, political, economic, technological and environmental systems means we are now faced with a growing array of unconventional or non-linear risks, characterised by complexity, unpredictability, blind spots and tipping points. The days of tick-box approaches to risk are giving way to a need for flexibility and creativity in the way we assess and manage risk, and for ongoing trade-offs in the face of ambiguous signals about the possible disruptions that lie ahead of us.

[59] The World Economic Forum's *Global Risks Report 2017* includes a diagram of the evolving risks landscape 2007-2017(Figure 2).

Open panel discussions

In the first open discussion, a broad range of key messages, risks and concerns related to **geopolitical risks** emerged, including:

- concerns about the impact of Brexit on British-Irish relations and Northern Ireland (NI), including the availability of post-Brexit support; the capacity of NI to deal with devolution; the psychological impact of Brexit on the people of NI as well as implications for the peace process; the risk of a return to a polarised sense of identity in NI; and the absence of the UK as a partner at EU level post-Brexit;
- concerns around the functioning of the EU, including a rejection of its values in some parts of the EU; the impact of continuing migration; the EU no longer being characterised as an expanding zone of stability; and the impact of low youth employment and resulting disenfranchisement in parts of the EU and neighbouring regions;
- potential changes to US economic and foreign policy and the impact of those changes, including the threat of tax reform; decreased U.S. involvement in NATO; changing U.S.-Ireland relations; and a lack of clarity around the US administration's stance on various issues, including the EU;
- concerns around broader global instability, including in Syria, Libya and the Ukraine; in the humanitarian crisis in Yemen and North Africa; threats to the rules-based global order; the increasing threat of terrorism; the volatile situation in Turkey; the potential for the escalation of conflict with Russia on Europe's borders; sharpening tensions in the South China Sea region; increasing pressure in the North Korean peninsula and the return of nuclear threat; and the reduced capacity and funding of the UN.

Key issues that emerged from the second open discussion, which looked at **social and economic risks**, included:

- concerns about the impact of Brexit, particularly in border regions and on the agri-food sector; the nature of future EU/UK trade relationships; the vulnerability of certain sectors to potential changes in US policy; the potential for multiple and compounding severe economic impacts from, inter alia, Brexit and US policy changes;
- the potential break up or diminution of the single market and the impact of a change in monetary policy in the euro area;

- challenges in measuring economic outputs, and changes in the distribution of economic growth, which could lead to poor policy decisions;
- concerns around infrastructural deficits and bottlenecks hindering future growth; and concerns about our reliance on MNCs in terms of employment and corporation tax;
- the impact of new technologies on economic strength globally, as well as the issue of inadequate support for innovation, STEM subjects and life-long learning, and the implications of these for jobs and the economy;
- unequal access to new technologies across societal groups potentially leading to disenfranchisement and societal polarisation; concerns around growing job polarisation as well as trends towards low-quality and precarious work and insecurity resulting from these trends; an overreliance here on third level education and insufficient emphasis on vocational training;
- the importance of ensuring that the benefits of economic growth do not accrue only to certain segments of society and the risk of social fragmentation; unsuitable regional/spatial development, including depopulation and urban sprawl; changing demographics and the challenge to health and social welfare systems;
- concerns around the ability of the political system to respond to long-term challenges and to make difficult trade-offs; the politicisation of strategic issues, and an under-appreciation of the potential role for civil society in responding to national challenges.

The third open discussion looked at **technological and environmental risks.** Key messages, concerns and risks that arose for consideration included:

- the risk of job displacement arising from disruptive technology creating a need for increased retraining and upskilling;
- the challenge in gaining public and social acceptability in implementing new methods and technologies in Ireland;
- the impact of technology on politics, including the ‘echo chamber’ effect of social media/online forums and changes in agenda-setting powers away from traditional media; as well as the potential role of social media companies in curating content across Europe;
- cyber security as a geopolitical and a private risk, and human error as a compounding factor in this risk; the risk of Ireland being at the epicentre of international cyber security threats due to the prevalence of data centres here, and the ensuing need for

clarity around data protection and security; and lack of access to privately-held big data potentially impacting on the quality of policy-making;

- the risk of climate change and the challenge of decoupling economic growth from carbon emissions; the cascading effect of environmental risks and risks to biodiversity;
- the need for significant air and water quality issues to be addressed; the overall reduction in arable soil in Europe; and risks to food security;
- concerns around underinvestment in infrastructure and the undersupply of housing, including as a concern for potential investors in Ireland.

Annex 2. Government Task Force on Emergency Planning – Draft National Risk Assessment for Ireland 2017

This National Risk Assessment complements the detailed risk assessment work carried out by the Government Task Force (GTF) on Emergency Planning, chaired by the Minister for Defence. Through the Office of Emergency Planning, under the Department of Defence, a three year National Risk Assessment process and methodology is applied, which focuses on risks relating to potential civil emergencies at national level.

The White Paper on Defence (2015) sets out the Government's commitment to maintain and further develop a robust strategic emergency management framework, and the Government Task Force on Emergency Planning conducts a cyclical process of hazard analysis and risk assessment as an essential step in the process of identifying the challenges that may have to be addressed by society, particularly in the context of emergency management.

The GTF risk assessment process was first carried out in 2012 and led to the publication of the first National Risk Assessment for Ireland 2012, which was accepted by the European Commission as meeting the requirements of the Union Civil Protection Mechanism (UCPM).[60] Following a review in 2016 by the Office of Emergency Planning and Dublin City University Business School, the GTF incorporated a number of methodological changes to this process, which were designed to reflect current risk management standards and international good practice. This led to the production of a further Draft National Risk Assessment for Ireland 2017, which considered specific risks relating to potential civil emergencies at national level and was adopted by the GTF in March 2017.

The National Risk Assessment for Ireland 2017 has specifically identified twenty key national risks that will be used to guide future mitigation, planning and preparation activities at national and regional level. Flooding remains one of the highest likelihood/impact risks on this National Risk Matrix 2017, with Infectious Disease, Food Contamination, Nuclear Incidents (abroad), Disruption to Energy Supplies and Network and information Security/Cyber Incidents highlighted as having potentially the highest impact on Ireland.

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[60] Decision No 1313/2013/EU of the European Parliament and of the Council of 17 December 2013 on a Union Civil Protection Mechanism, available at: eur-lex.europa.eu/eli/dec/2013/1313/oj.

This document will be submitted to Government shortly for approval and for submission to the EU and subsequent publication. In line with good practice and the UCPM requirements, the aim is to repeat this process at three yearly intervals so as to capture new and emerging threats and changing trend.