



Roinn an Taoisigh
Department of the Taoiseach

6 March 2019

Ms Eilis Fallon
Committee Secretariat
Committee of Public Accounts
Leinster House
Dublin 2
D02 XR20

Your Ref : PAC32-I-1313

Dear Ms Fallon,

I refer to your letter dated 12th February 2019 and seeking further information which is set out below:

1. Commissions of Investigation

The Department of Expenditure and Reform collates data on a quarterly basis on the costs of Commissions of Investigation, Tribunals of Inquiry and commissions to inquire into various matters. Mr Brian O'Malley from that Department undertook at the meeting to provide this information directly to the Committee.

2. Government Information Services staffing

The reformed Government Information Services (GIS) unit now incorporates the Government Press Office, giving a total of 17 posts, two of which are vacant at present. The unit is led by a Principal Officer and is staffed by a mixture of grades from Clerical Officer to Assistant Principal Officer.

The work of the reformed Government Information Service includes; the work of the Government Press Office, the digital team/merrionstreet.ie, central support services for other Departments, providing services to the media, managing media events and producing communications material across all platforms.

GIS is supporting the development of the single Government identity, the single web portal project, gov.ie and capacity building in communications across Government. GIS continues to have a co-ordinating and supporting role for national, cross-Government communications, as has always been the case, but such campaigns are being led and funded by the relevant line Department.

3. Risk Assessment

A copy of the latest National Risk Assessment which provides an Overview of Strategic Risks facing Ireland in 2018 is enclosed. The annual National Risk Assessment process, which is overseen by the Department of the Taoiseach, is in place to provide a systematic overview of strategic risks that form an important part of the overall process of risk management and inform the detailed risk management conducted within government departments and agencies. The Table of Risks set out in the NRA cover strategic geopolitical, economic, social, environmental and technological risks facing Ireland.

Respective government departments retain responsibility for individual policies and their execution. The Department of the Taoiseach has responsibility for risks associated with supporting the Taoiseach in his role, the co-ordination of whole of Government policy formulation and oversight of the implementation of the government's programme.

The Department's Risk Register includes five categories of risks including Reputational Risks described as Risks to the public reputation of the Department, alongside Strategic, Operational, Financial and Legal & Regulatory Risks.

The National Risk Assessment is in place to highlight national risks so for the Department a significant proportion of the risks are in the corporate and operational sphere:

- Unavailability of DoT facilities and accommodation due to natural disaster.

- Risk of ICT systems failure or Network Security breach.
- Failure to recruit, retain and develop employees with the required level of expertise and experience could limit effectiveness of the Department's work.
- Failure to comply with Public Financial Procedures, including Public Procurement requirements, and other financial policies resulting in reputational damage.
- Failure to effectively manage Departmental budget could result in DoT not being adequately resourced.
- A breach of DoT physical security could result in building being inaccessible.
- Significant failure in the carrying out of State Ceremonial and other events.

Yours sincerely



Martin Fraser

Secretary General



Rialtas na hÉireann
Government of Ireland

2018 National Risk Assessment

Overview of Strategic Risks



Prepared by the Department of the Taoiseach
gov.ie

Table of Contents

Contents

Foreword.....	4
1. Introduction 2018	6
Overview of the National Risk Assessment Process	6
Table of Risks 2018	9
Overview of strategic risks for Ireland in 2018	10
2. Geopolitical Risks.....	16
2.1 Departure of the UK from the EU.....	16
2.2 Instability in Northern Ireland	19
2.3 Future direction and stability of the EU.....	21
2.4 Changing distribution of global influence and move away from a rules-based system	22
2.5 Terrorist incidents and armed conflicts.....	23
3. Economic Risks	25
3.1 Overheating in the Economy	25
3.2 Changes to international trading environment.....	27
3.3 International tax changes	28
3.4 Impact of Brexit on vulnerable sectors of economy	30
3.5 Reliance on multinational corporations’ and sectoral concentration.....	33
4. Social Risks	35
4.1 Human capital and skills needs.....	35
4.2 An Ageing Population including pensions and health system challenges.....	37
4.3 Expectations for Public Expenditure	40
4.4 Social cohesion and political stability.....	41
4.5 Migration and integration	44
4.6 Impact of Social Media on public debate	45
5. Environmental Risks.....	48
5.1 Climate Change & Biodiversity.....	48
5.2 Ensuring an affordable, sustainable and diverse energy supply	50
5.3 Infrastructure constraints	51
5.4 Food safety & Animal disease	54
5.5 Supply and Affordability of Housing	54

6. Technological Risks.....	57
6.1 Cyber Security	57
6.2 Disruptive technology trends	59
6.3 Anti-Microbial Resistance	62
6.4 Nuclear contamination.....	63
List of acronyms	65
Annex 1. Government Task Force on Emergency Planning – National Risk Assessment for Ireland 2017	67
Annex 2: Summary of Open Policy Debate, April 12 2018	69
Annex 3. National Risk Assessment 2014 – 2017: A Look Back	73
Annex 4. NRA public consultation – groups/individuals that made a submission.....	80
Annex 5. NRA Public Consultation – risks highlighted by respondents.....	81

Foreword

Ireland's risk landscape is constantly evolving, and recent years have seen more and more unexpected external shocks added to the national risks we plan for. This report is needed now, more than ever, as we tackle challenges like Brexit, infrastructure and housing pressures, challenges like climate change and biodiversity, and emerging new technologies that require constant adaptation and adjustment. While Ireland's economy has grown, and our national well-being has improved since the publication of the first report in 2014, there is no room for complacency. I believe a major challenge in the years ahead is breaking the economic cycle of boom and bust that we have seen in Ireland in the past in favour of sustained economic growth and social progress. We have a once in a generation opportunity to get this right.

The National Risk Assessment: Overview of Strategic Risks, first published five years ago, aims to counteract "group think" and to ensure all voices are heard by Government. It seeks to prevent a repeat of the mistakes of the past, when dissenting voices were not heeded, leading to catastrophic consequences for the country. It has helped stimulate a national conversation about risk that takes place at every level from private citizens to civil society groups, industry and public bodies.

This is achieved through wide consultation, including an Open Policy Debate, held in April of this year, which saw a discussion of national risk by a diverse group of stakeholders. It was followed by the publication of a draft report for public consultation. We invited members of the public, civil society groups and political parties to submit their views on the draft report, and these helped shape this final report.

This year, while the discussion continues about ever-present risks like climate change and risks to Ireland's biodiversity, food safety, anti-microbial resistance, and terrorist incidents, we have added two new risks: *Overheating in the Economy* and the *Impact of Social Media on Public Debate*. We have also dedicated risks under both the Geopolitical and Economic sections of the Report to the many implications of Brexit. While the risks are separated into categories, the Report aims to reflect the interconnected nature of risks and, as such, cross-cutting issues like Brexit are acknowledged and discussed throughout the Report.

This annual, evolving national conversation around risk can help ensure that we are constantly vigilant in planning for the future. It is an essential step in managing the potential impacts of these risks on our economy, our societal well-being, our environment, and our country.

Leo Varadkar, T.D.

Taoiseach

1. Introduction 2018

Overview of the National Risk Assessment Process

The National Risk Assessment (NRA) provides an opportunity to identify and debate strategic risks facing Ireland over the short, medium and long term. Since the first report was published in 2014, it has called attention to a number of risks that subsequently became major issues for society, including Brexit, risks to EU stability, risks around cyber security, and around housing supply.

The NRA is an exercise in horizon scanning, and an important contribution to our efforts to avoid repeating failures of the past, when risks were not identified in time to avoid or mitigate them. While not intended to replicate or displace the detailed risk management that is already conducted within government departments and agencies, the NRA does aim to provide a systematic overview of strategic risks that can form an important part of the overall process of risk management.

Detailed risk management being conducted separately to the NRA process includes the work of the Department of Finance and the Central Bank of Ireland in relation to financial and macro-prudential risks; and the work of the Government Task Force (GTF) on Emergency Planning, supported by the Office of Emergency Planning (OEP), who produce a National Risk Assessment for Ireland centred on risks relating to potential civil emergencies at national level.¹ The Departments and agencies involved in these risk management exercises also feed in to this National Risk Assessment process, thus ensuring coherence and alignment with other elements of the overall risk management approach.

The National Risk Assessment involves a number of layers of debate and involvement from a broad spectrum of representatives from the public sector, civil society, industry, and the public. An important reason for taking this approach is to avoid the possibility of ‘group think’ when identifying national strategic risks.

¹ See overview of the GTF’s National Risk Assessment for Ireland 2017 at Annex 1.

A Steering Group, chaired by the Department of the Taoiseach and comprising representatives from all Government Departments and agencies, worked together to draw up an initial draft of risks, as in previous years.

These draft risks for 2018 were then taken to a wider audience, and were discussed and debated at an Open Policy seminar held in the Department of the Taoiseach on 12 April 2018. Government Departments and agencies, public bodies, universities and research institutes, civil society groups, think tanks, industry and the NGO sector were all represented at this discussion, which took the form of a round table workshop. Two expert panels discussed the five categories of risk, with each table then holding individual discussions, and this was followed by an open Q&A session. A summary of proceedings is provided at Annex 2.

As mentioned above, 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. 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 this context, this year we have taken the opportunity to look back at the previous four reports and carry out an analysis of the process and the risks identified in each of these years, including how they have changed and evolved. In this, we have very much taken a self-reflective approach. This work is included at Annex 3.

The draft National Risk Assessment 2018 was published for public consultation in May and laid before the Houses of the Oireachtas. Over 70 submissions were received, and these are outlined at Annexes 4 and 5.

In parallel with this consultation, work also continued 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 above, 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.

The final list of strategic risks for Ireland in 2018 is included on the following page. The risks are grouped across five different categories: geopolitical, economic, social, environmental and technological.² This final report is the result of the extensive consultation and debate described above, and presents a collaborative and broad view of the risks facing Ireland today.

² This categorisation is derived from the various iterations of the World Economic Forum's *Global Risk Report*; the 2018 Report can be found at: <https://www.weforum.org/reports/the-global-risks-report-2018>

TABLE OF RISKS 2018

Strategic Geopolitical Risks	
GEOPOLITICAL	Departure of the UK from the EU
	Instability in Northern Ireland
	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	Overheating in the Economy
	Changes to international trading environment
	International Tax changes
	Impact of Brexit on vulnerable sectors of economy
	Reliance on multinational corporations' and sectoral concentration
Strategic Social Risks	
SOCIAL	Human capital and skills needs
	An Ageing Population including pensions and health system challenges
	Expectations for Public Expenditure
	Social cohesion and political stability
	Migration and integration
	Impact of Social Media on public debate
Strategic Environmental Risks	
ENVIRONMENTAL	Climate Change & Biodiversity
	Ensuring an affordable, sustainable and diverse energy supply
	Infrastructure constraints
	Food safety and Animal disease
	Supply and Affordability of Housing
Strategic Technological Risks	
TECHNOLOGICAL	Cyber security
	Disruptive technology trends
	Anti-Microbial Resistance
	Nuclear contamination

Overview of strategic risks for Ireland in 2018

The national risk landscape has seen some significant changes since last year's report, with developments such as the departure of the UK from the European Union progressing and evolving, and implications of issues such as climate change continuing to evolve in terms of interpretation and preparations. The pace of technological developments means that this is a risk category which needs to be monitored closely, while infrastructure constraints, including implementation of newly-announced plans, and housing supply and affordability issues remain relevant, but evolving concerns.

One of the insights that emerged from this year's Open Policy Debate was around the tendency for longer-term risks to be discounted, for example climate change, funding for pensions, and the provision of critical infrastructure, and the associated risks of such cultural and societal behaviour and norms. It was felt that there is a need for greater awareness and understanding around these risks across both society, and the public sector, in order to motivate short-term actions towards gains which may not be seen until the medium, or longer-term.

A key aspect that is reflected in this year's report (and over previous years) is the multi-faceted nature of many of the risks discussed, and the inter-connections between these risks. The risks identified below are categorised, following the World Economic Forum approach, and for ease of consideration. However, given the potential for them to interact with each other in both predictable and unpredictable ways, this could be seen as somewhat limited and limiting. Environmental or health risks, for example, can have severe economic or social consequences, and risks around cyber security can pose threats across all five of the risk categories outlined here. A serious terrorist incident could have implications for revenue from tourism. Likewise, there are clearly both economic and social aspects and risks to the supply and affordability issues around the housing sector, as well as to infrastructure constraints, in addition to environmental aspects.

In particular, Brexit is an overarching risk which amplifies many of the individual risks listed. All risks should therefore be considered as part of the same multi-faceted environment and taken in the round, rather than in isolation.

Geopolitical risks

Given our position as a small, open economy, Ireland is extremely vulnerable to geopolitical changes and as such, careful vigilance is required in identifying potential risks from external sources at an early stage. Ireland's close trading relationships with countries such as the US and the UK mean that we are particularly at risk of negative consequences stemming from developments in, or affecting, those countries. While such developments are largely outside of our control, it is important to be as prepared, and aware, as possible.

Since last year's National Risk Assessment was published, the risks for Ireland emerging from both Brexit, and policy changes in the US have continued to intensify.

In terms of Brexit, intensive and sustained engagement at an EU level has taken place over the past year which has ensured that Ireland's unique issues and concerns have been fully understood by the EU27 and have been to the fore of the EU's negotiating approach to date. There is wide support for the position that nothing is agreed until everything is agreed, including on the backstop and the other Irish issues. Analysis and research has continued to improve our understanding of the trade and other risks for Ireland potentially arising from Brexit. Research commissioned by the Department of Business, Enterprise and Innovation found that while the Irish economy is expected to grow out to 2030, Brexit produces a dampening effect in all scenarios. New Brexit-related concerns raised through this year's process relate to potential specific risks around judicial cooperation and law enforcement.

Developments in US trade policy, in particular an increased emphasis on protectionist policies, and the growing threat of a global trade war, have given rise to a further intensification of risks around geopolitical stability. As the US is Ireland's largest trading partner and export market, the risks for the Irish economy are therefore significant.

In addition, the stability and future direction of the EU is an ongoing concern, with a continued rise in populism noted in countries like Austria and Italy, and significant amounts of debt remaining in some EU economies, including Ireland, with related risks around the sustainability of the euro zone.

Economic risks

While the Irish economy continues to perform strongly, there are a number of factors that present significant risks. Ireland is highly exposed to changes in global economic and trading conditions and significant movements in major exchange rates, particularly in terms of its trade performance. 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. And while Irish importers may have benefited from currency fluctuations to date, their future exposure is significant. The specific Brexit-related risks for vulnerable sectors of the economy is also discussed, with the agri-food, pharma-chem, manufacturing, printing, and services sectors highlighted as those likely to be most affected.

As mentioned in the geopolitical context above, concerns that the US is pulling back from globalisation and free trade and implementing a more protectionist trade policy approach are becoming more pronounced. The past year has seen the current US administration's withdrawal from numerous international agreements, as well as the introduction of new import tariffs. Tariffs on both Chinese and EU imports were met with retaliatory tariffs, further raising concerns of a potential trade war, with global ramifications.

On the domestic front, this year's Report discusses the risk of overheating in the economy if growth rates continue on the present trajectory and the economy potentially approaches its capacity limits. This is identified as a new economic risk this year, and is linked to risks around the under-supply and lack of affordability of housing (discussed in the Environmental risk category), related risks to our competitiveness, as well as a tightening of the labour market, and infrastructure constraints.

Concerns around international tax changes, which could have potentially negative impacts on foreign investment in Ireland, also continue. In addition, as in previous Reports, it is noted that Ireland's economy and employment is heavily influenced by a relatively small number of multinational corporations (MNCs), concentrated in a few enterprise sectors, and the potential risks around this are discussed in Chapter 2.

Social risks

A new social risk that has emerged since the publication of the 2017 National Risk Assessment is around the influence of social media on public debate, with emerging concerns around the accessing and use of personal data by third parties. This is particularly pertinent in light of ongoing investigations in the US and the UK around election manipulation. This risk was of particular importance in the context of the referendum on the Eighth Amendment in Ireland. Questions are also raised in this year's report around the sustainability of traditional media, both in Ireland and globally.

The report also sees a new amalgamated risk encompassing risks around *An Ageing Population including pensions and health system challenges*. This reflects the challenges that come with an ageing population, on top of existing health system and pensions capacity issues in an Irish context. Expectations around public expenditure continue to be a concern as the economic recovery continues and expectations increase for additional resources to be made available for a wider range of social priorities. Risks around human capital and skills needs remain, with this year's report noting concerns around the static participation rate, as well as the need for the education and training system to ensure it is responding to both current and future skills needs, for both new and existing labour market participants. In addition, it is noted that supply issues regarding housing, healthcare and childcare could undermine the attractiveness of Ireland as a place to live and work, leading to difficulties in attracting valuable foreign talent, and returning emigrants.

Inequality, particularly in relation to income, remains a concern in this year's report. The link between income inequality and the rise of populism and erosion of public trust remains relevant. A related risk discussed in this year's report is the concern around 'fake news' or disinformation, and implications for public trust in institutions.

Risks around large-scale migration at the EU level continue to be relevant, with new potential migration-related risks discussed in the context of Brexit. In addition, while the, relatively recent, increase in Ireland's immigrant population has happened without any of the social upheaval experienced in other countries, the need to maintain this level of social cohesion as further generations of migrant communities emerge is noted. International examples point to potential negative consequences if this is not achieved.

Environmental risks

Housing continues to present a significant challenge for Ireland, both in terms of meeting the current demand, as well as a growing concern around the affordability of housing, in particular in urban areas. This risk also has social risks, as well as economic implications for Ireland's competitiveness and ability to attract foreign direct investment (FDI).

Similarly, risks around infrastructure constraints persist, and could impede Ireland's ability to attract labour and investment. This risk is related to the risk of overheating in the economy, discussed under Economic risks, and related risks to Ireland's competitiveness, and value for money in terms of State capital investment. Risks around capacity constraints which could prove challenging for the full implementation of the Government's National Planning Framework (NPF) and National Development Plan (NDP) (Project Ireland 2040) are apparent particularly in terms of both institutional capacity, and capacity in the economy including skills constraints (particularly in the construction sector). In addition, the risks around public opposition are discussed. These challenges could hinder the implementation and delivery of projects under the NPF and NDP, with the associated risk of contributing to price inflation if these constraints are not alleviated in order to ensure infrastructure constraints are addressed in a sustainable way.

The risks around climate change & biodiversity continue to be developed in this year's Report. In addition to ongoing concerns around the erosion of Ireland's biodiversity, there are significant risks for Ireland in terms of failing to implement appropriate policies and provide the long term pricing signals to encourage investment and behavioural change. These are the necessary core elements if Ireland is to meet both international climate change targets and begin the process of transitioning to a decarbonised economy. The report also notes the need to define our approach to carbon neutrality for agriculture in a way that supports the achievement of our climate targets and decarbonisation goals; and to make investments to develop new and innovative economic opportunities, for example in the bioeconomy.

Climate change and the need for a secure and diverse energy supply both present significant challenges for Ireland in terms of achieving national and international targets, mitigating our emissions and adapting to the effects of a changing climate. The cost of delayed action is

discussed as a major factor in this risk, including the non-compliance charges and loss of economic development opportunities. Given the high percentage of energy imported from the UK, and Brexit-related implications, investment in climate change mitigation will be vital in reducing Ireland's reliance on these imported energy supplies.

Technological risks

Under the Technological risks category, cyber security is discussed as a major concern, with potential risks from a disruption to critical information networks remaining significant. The risk of job loss through automation continues to feature as a disruptive technology trend. This risk intersects with the *Human Capital and Skills Needs* risk under the Social category, in that significant re-skilling will be required to adapt to technological changes and take advantage of new job opportunities that arise, with related capacity and forward-planning demands for the education and training systems.

In addition, contamination as a result of fallout from a nuclear accident remains a risk, with obvious risks to public health and well-being arising, as well as the potential for negative economic impact for Ireland in the case of such an event occurring.

2. Geopolitical Risks

2.1 Departure of the UK from the EU

2.2 Instability in Northern Ireland

2.3 Future direction and stability of the EU

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

2.5 Terrorist incidents and armed conflicts

2.1 Departure of the UK from the EU

The decision of the UK to leave the EU presents uniquely significant and unprecedented political, economic, social and diplomatic challenges for Ireland, given the extent of the interconnectedness of the economies and people. These are challenges both to Ireland's peace and prosperity, and how they are dealt with in the months and years ahead may have significant impacts for Ireland into the future.

Since the publication of the 2017 National Risk Assessment, the Article 50 negotiations, which formally began on 19 June 2017, are proceeding on the basis of the phased approach set out in the April European Council Guidelines. On 15 December 2017, the European Council, on the basis of the EU-UK Joint Report of 8 December³, agreed that sufficient progress had been made in Phase 1 of the negotiations⁴ and that discussions could therefore start under Phase 2 on the framework of the future relationship. Following intensive negotiations between the EU and the UK, the March 2018 European Council agreed that

³ The EU-UK Joint Report includes UK commitments to uphold the Good Friday Agreement in all its parts, protect North-South cooperation, and maintain the Common Travel Area (CTA) and avoid a hard border, including through the so-called backstop option.

⁴ Notably citizens' rights, the UK's financial settlement, separation issues and the Irish-specific issues.

progress had been made on several elements of the draft Withdrawal Agreement⁵, including on transitional arrangements, and it adopted guidelines for discussions with the UK on the framework for the future relationship. These propose a Free Trade Agreement covering trade and economic cooperation, as well as other areas, including terrorism and international crime, security, defence and foreign policy. They are based on established UK red lines, which limit the depth of the future partnership, but include a commitment to revisit our position should the UK position evolve in the future. Our interest is in the closest possible relationship between the EU and the UK including on trade, while ensuring a level playing field and the integrity of the Single Market.

In the meantime, negotiations between the EU and the UK continue with a view to closing the gaps on the outstanding parts of the draft Withdrawal Agreement, including those in relation to the border, on the basis that nothing is agreed until everything is agreed. The June 2018 European Council expressed disappointment at the lack of progress and called for intensified negotiations. The leaders agreed that, if there is not agreement on a backstop and the other outstanding elements, it will not be possible to finalise the Withdrawal Agreement as a whole, including the transitional arrangements.

From Ireland's perspective, our priorities remain minimising the impact on Ireland's trade and economy; protecting the Peace Process and the Good Friday Agreement in all its parts; maintaining the Common Travel Area with the UK; and securing Ireland's future in a strong EU. Over the past year, intensive and sustained engagement at an EU level has taken place which has ensured that Ireland's unique issues and concerns have been fully understood by the EU27 and have been to the fore of the EU's negotiating approach to date. There is wide support for the position that nothing is agreed until everything is agreed, including on the backstop and the other Irish issues.

We know that Ireland is uniquely exposed to Brexit due to a very high trade intensity with the UK. Approximately 15% of Irish goods and services exports are destined to the UK. In the agri-food sector around 40% of exports are destined for the UK. In addition, two-thirds of Irish exporters make use of the UK land bridge to access continental markets. While

⁵ A draft Withdrawal Agreement, including a Protocol on the Irish-specific issues translates into legal text the principles and commitments outlined in the December Joint Report.

importers may have benefited from currency fluctuations to date, their future exposure is significant.

A February 2018 research report commissioned by the Department of Business, Enterprise & Innovation⁶ identified a range of Brexit scenarios and quantified the possible impact of these scenarios on Irish trade and on Ireland's overall economy. In all scenarios, while the Irish economy is expected to grow out to 2030, Brexit produces a dampening effect (i.e. while the Irish economy is still forecast to grow, Brexit will result in a lower growth rate than would have occurred without Brexit). The research found that an EEA scenario (similar levels of trade costs as are currently observed between the EU and EEA members) would be least damaging, resulting in Irish GDP in 2030 being 2.8% below what it would have been in the absence of Brexit. A WTO scenario (whereby trade would be governed by WTO rules and agreements) would have the most impact, resulting in Irish GDP in 2030 being 7% below a non-Brexit baseline. The report found that five sectors account for 90% of the negative impact - Agri-food, Pharma-chemicals, Electrical Machinery, Wholesale & Retail, and Air Transport - with the rise of non-tariff barriers (specifically due to regulatory divergence) the main factor driving the results. The impact of Brexit on vulnerable sectors of the economy is discussed in further detail in Chapter 3 (3.4).

The operation of the Common Travel Area (CTA) between Ireland and the UK, which is in existence since 1922, 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 risks, Brexit may give rise to a risk of increased illegal movement of third country nationals into Ireland from the UK, as well as possible consequences for secondary movements of asylum seekers and illegal migrants from the UK to Ireland in the event of UK divergence from EU law in the field of asylum.

⁶ Copenhagen Economics (February 2018), 'Ireland and the Impacts of Brexit', available at: <https://dbei.gov.ie/en/Publications/Publication-files/Ireland-and-the-Impacts-of-Brexit.pdf>

Brexit 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 previously⁷. EU instruments also provide for the recognition and enforcement of judgments in a range of civil, commercial and family law matters. Disruption to law enforcement and judicial cooperation arrangements would have a particular impact at North-South level. It will be necessary to agree arrangements between the EU and UK no less effective than those in place at EU level, which may take some time. Agreement that the full EU acquis continue to apply in and to the UK during a transitional period is therefore of great importance and, in the absence of overall EU agreement on measures such as the European Arrest Warrant, bilateral provisions will need to be considered.

While the Irish Government will continue to do all in its power on both a domestic and European front to work for a Brexit agreement in line with Irish interests, the risks to our interests, our trade, our economy at both the macro and micro level⁸, and our relationship with Northern Ireland, and the UK which could emerge from potential Brexits are manifold and significant, and it is likely that Brexit will remain one of the most significant risks facing this country over the coming years.

2.2 Instability in Northern Ireland

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.

⁷ 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, in addition to law enforcement and judicial cooperation issues such as the jurisdiction of the European Court of Justice, maintenance by the UK of EU-equivalent data protection standards, and the implications for EU agreements with other third countries.

⁸ For example, rising cost of living for individual consumers as highlighted by the ESRI in March 2018 [Report](#), which could have serious implications for consumers, in particular the less well off in Irish society.

The breakdown of the NI Executive and the collapse of the talks on the formation of a new Executive together with increased cross community tensions created by the Brexit vote, means that Northern Ireland is facing a challenging environment for the peace process in the period ahead. The inability of the Northern Parties to reach a compromise on contested issues during the talks process would suggest a period of political instability is ahead. The restoration of the institutions is essential in the context of full implementation of the Good Friday Agreement, and the Government needs to continue to engage with the British Government and the parties in Northern Ireland in the period immediately ahead to encourage the urgent formation of a new Executive by the mandated political parties.

Brexit has added an additional and significant challenge to the political situation in Northern Ireland. The lack of a 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 significant concern in relation to 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 lack of an Executive has resulted in a tangible slowdown in North South engagement at political level and has had a detrimental effect on the effective operation of the North South bodies set up under the GFA.

The Government will continue to engage as a co-guarantor of the Good Friday Agreement to support the re-establishment at the earliest opportunity 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.

As mentioned above, on the Protocol on Ireland and Northern Ireland, the UK has now agreed that a backstop solution for the border will form part of the legal text, in line with paragraph 49 of the Joint Report published last December. The UK has also agreed that all

the issues identified in the EU draft of the Protocol will be addressed to deliver a legally sound solution for the border.

Brexit has also played significantly into the debate in Scotland about its future within the UK, raising questions in relation to the devolution settlement and the possibility of a further independence referendum. The Scottish Government has passed a Continuity Bill to provide a backstop in the event that agreement with the UK Government on amendments to the EU (Withdrawal) Bill (to satisfactorily address the handling post-Brexit of matters of EU competence that were not formally reserved to Westminster under the terms of the Scottish devolution settlement) cannot be reached. 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.

Constitutional questions have been raised regarding the applicability to Scotland of any arrangements made to address 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.

2.3 Future direction and stability of the EU

The 2017 National Risk Assessment discussed risks around the stability of the European Union, including in relation to Brexit, migration, and the economy. Notwithstanding progress achieved since then, significant challenges to the unity and effectiveness of the EU remain, and should not be discounted.

As discussed in the 2017 Report, 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 and/or eurosceptic parties in a number of EU states while in some Central and Eastern Member States, there is a growing defiance of EU values and norms. A Bloomberg analysis⁹ of decades of election results across 22

⁹ Bloomberg (2017) *How the Populist Right is Redrawing the Map of Europe*, available at:

<https://www.bloomberg.com/graphics/2017-europe-populist-right/>

European countries reveals that support for populist radical-right parties is higher than it has been at any time over the past 30 years.

In addition, concerns about adverse market reactions as monetary policy normalises, and vulnerabilities in the broader euro area, remain, particularly in the context of the unwinding of the ECB's Quantitative Easing programme, and significant amounts of debt in some EU economies, including Ireland, with related risks around the sustainability of the Eurozone.

Ongoing or continuing risks to the unity and effectiveness of the EU include:

- risk that the loss of the UK undermines the EU's effectiveness as a global actor;
- 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 or protectionist stance; and
- risks specific to Ireland's interests and influencing power within the EU which could emerge from the loss of the UK as a negotiation partner.

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

Geopolitical volatilities continued throughout 2017 and early 2018, with the associated risk of a weakened international rules-based system, identified in the 2017 and previous National Risk Assessments. During this period, we have seen a heightening of tensions with the Democratic People's Republic of Korea, increasingly strained relations between Russia and the US, and Russia and the UK, with a growing global impact and involvement, and ongoing conflict in Syria, where military clashes between Israel and Iran have also occurred, and tensions in the wider Middle East, all of which could present serious threats to international peace and security. The withdrawal by the US from the Iran nuclear agreement has already increased tensions across the Middle East, and also risks damaging the potential to resolve other global conflicts by means of international agreements.

The current US administration's withdrawal from the Joint Comprehensive Plan of Action with Iran, as well as the Trans-Pacific Partnership (TPP), re-negotiation of the North American Free Trade Agreement (NAFTA), reduced role at the World Trade Organisation (WTO), and introduction in March 2018 of import tariffs of 25% on steel and 10% on

aluminium (exempting Canada and Mexico, and temporarily exempting the EU and South Korea), as well as 25% tariffs on \$60bn worth of Chinese imports, all further strengthen previous indications that the US are moving away from the free trade model, with associated risks of reduced global economic growth, and increased uncertainties and instabilities in the global economy.

Relations between Russia and the US are increasingly strained, as are relations between Russia and the UK and Western allies. This is reflected for example, in the expulsion by the UK of 23 diplomats following a poisoning incident in the UK in March 2018 with suspected Russian involvement, and the subsequent expulsions by a number of EU and Western states, including Ireland, and the US and NATO in solidarity. The Russian government retaliated with the subsequent expulsion of 59 diplomats from 23 countries, including 1 from Ireland.

Previous NRA Reports discussed globalisation trends involving an ongoing and significant shift of political and economic power towards countries in the East and South, representing a challenge to the existing international order. Comments that such trends necessitate more strategic and deeper engagement with Asian, African and Latin American countries continue to be valid, in terms of protecting and promoting Ireland's trade, tourism and investment interests.

Likewise, a move away from a rules-based multilateralism system both at the international level (UN, WTO), and at the European Union level (if the EU were to move towards a system based more on inter-state interests for example) would not be in line with Ireland's interests, and could pose significant risks for us.

2.5 Terrorist incidents and armed conflicts

The risks arising from terrorist incidents and armed conflicts, as highlighted in previous Reports, remain. 2017 saw heightened tensions in the Middle East and North East Asia (Democratic People's Republic of Korea) as well as terrorist incidents and attacks across Europe, in particular in the UK. Over the past 12 months, conversations around the risks to Ireland and the Irish response capacity in this regard have also increased, highlighting increased awareness of the risks involved in the Irish context.

There have been a number of high profile and deadly terrorist attacks in recent years, including in May 2017 in the UK where 22 people were killed in a bomb attack in Manchester, and another 13 people were killed in separate attacks in London in March and in June. In April 2017, a terrorist attack in Stockholm killed 4 people, while 14 were murdered in a subway bombing in St. Petersburg, and 2 people were killed in Austria in June.

Europol data shows that in overall terms, the level of activity in the EU attributed to jihadist terrorism remains high, with indications of it continuing to rise. 718 arrests related to jihadist terrorism were made in 2016, a number that has sharply increased in each of the last three years. Another trend identified by Europol involves the expected increase in the number of returnees from conflict zones in Syria/Iraq with the military defeat of IS. An increasing number of returnees will likely strengthen domestic jihadist movements and consequently magnify the threat they pose to the EU¹⁰.

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 2017 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. Any impacts on the tourism sector, for example, could have potentially serious economic consequences.

Likewise, a breakdown in international peace and security arising from inter-state wars or other armed conflicts could have significant repercussions for Ireland and the EU, including potential impacts on energy supplies, transport routes or the environment.

¹⁰ Europol (2017) European Union Terrorism Situation and Trend Report 2017, available at: <https://www.europol.europa.eu/activities-services/main-reports/eu-terrorism-situation-and-trend-report-te-sat-2017>

3. Economic Risks

3.1 Overheating in the Economy

3.2 Changes to international trading environment

3.3 International Tax changes

3.4 Impact of Brexit on vulnerable sectors of economy

3.5 Reliance on multinational corporations' and sectoral concentration

While the Irish economy continues to perform strongly, there are a number of factors that could present significant risks. The risks are outlined in the following sections in detail. They should be seen against a backdrop of continuing high indebtedness (both public and private). In dealing with these issues, Ireland has benefitted from a benign international financial environment. Any reversal in low global interest rates, such as the expected normalisation in ECB monetary policy, would lead to increased debt servicing costs and associated impacts on the public finances over time. These factors would amplify the impact on the economy, should any of the economic risks outlined below materialise.

3.1 Overheating in the Economy

Ireland continues to experience sustainable and balanced economic growth. A range of economic data, spending and activity indicators suggest that the underlying picture is that growth has continued at a strong pace.

A key indicator of this economic performance is the significant progress in the labour market. Employment now stands at 2.2 million. The latest monthly figures show that unemployment was down to 5.3% in May¹¹. This is the lowest since November 2007 and well below the euro area average of 8.6% (January). This has supported the recovery in incomes and, in turn,

¹¹ <https://www.cso.ie/en/releasesandpublications/er/mue/monthlyunemploymentmay2018/>

growth in consumer spending. With regard to investment, while the headline measure remains volatile, the evidence suggests that the recovery in the domestic components, particularly construction, continues to gather pace, although from a relatively low base.

Ireland has experienced strong economic growth, to the extent that it was the fastest growing economy in the EU in 2017 for the 4th year in a row. Looking forward, however, there are risks around over-stimulating the economy if growth rates continue on the present trajectory and as the economy potentially approaches its capacity limits. The Irish Fiscal Advisory Council have warned in recent months of the potential risks of over-heating in the economy, concluding that while the economy may not yet be overheating, it is likely to be operating close to its potential, and that there is a risk that overheating could occur in the years ahead if growth was to continue at elevated levels¹². The Central Bank has also noted the prospect of the labour market returning to full employment in the near-term and the need for a prudent domestic policy stance to avoid the risk of overheating.

To date inflation has remained muted. The Harmonised Index of Consumer Prices (HICP) rose by 0.3 percentage points in 2017, resulting in the Irish economy experiencing the lowest rate of inflation across the EU28. The prevailing weakness of sterling is a factor in this, due to the high proportion of goods imports which come from the UK. In addition, wage growth so far has remained moderate. However, with domestic demand growing solidly and the recent recovery of the labour market, inflationary pressure is likely to increase in the near term.

Given the persistently strong rates of growth experienced in recent years, stronger than currently assumed growth over the short and medium-term, coupled with challenges around infrastructure constraints, an under-supply (and affordability) of housing¹³ and commercial properties, and a tightening labour market, could all give rise to a risk of overheating in the domestic economy¹⁴, with related risks to our competitiveness including in terms of labour costs, prices, and infrastructure. In addition to the overall general risk of overheating in the economy, more specific issues such as the economic impacts of construction cost inflation,

¹² Irish Fiscal Advisory Council (2017) Fiscal Assessment Report November 2017, available at: <http://www.fiscalcouncil.ie/fiscal-assessment-reports/fiscal-assessment-report-november-2017/>

¹³ The under-supply and affordability of housing will also be discussed under Social risks in Chapter 3 below.

¹⁴ ESRI (2018) Quarterly Economic Commentary Spring 2018; and Central Bank (2018) Quarterly Bulletin Q1 2018

including rising labour costs associated with a tightening labour market, and the consequent impact on value for money both for the State in terms of its capital programmes, as well as for the individual consumer, can be identified.

As the Exchequer moves into surplus, continued vigilance is required to ensure tax and revenue remains on a sustainable footing and that pro-cyclical budgetary decisions are avoided. In addition, prudent fiscal policy will need to be balanced against the need to address existing capacity constraints and the potentially significant negative impacts of international shocks in this current period of global uncertainty.

3.2 Changes to international trading environment

As a small open economy, and one in which multinational corporations (MNCs) play an important role, Ireland is highly exposed to changes in global economic and trading conditions and significant movements in major exchange rates, particularly in terms of its trade performance. There are a number of ways in which trade could be affected, including weaker economic growth in trading partners, which makes companies and consumers there less likely to buy goods and services imported from Ireland, as well as through the imposition of tariff and non-tariff barriers to exports and imports of both goods and services. In addition, an appreciation of the euro exchange rate can impact on trade, such as the strong upward momentum of the euro against the US dollar and sterling seen in 2017, which raises the price of Irish exports in non-euro area markets.

Concerns that the US is pulling back from globalisation and free trade and implementing a more protectionist trade policy approach are becoming more pronounced. As the US accounted for 18% of total exports in 2016, these risks underline the importance of our trade with the rest of the EU which, excluding the UK, accounted for some 41% of total goods and services exports in 2016.

As mentioned above, in Geopolitical Risks, when discussing the changing distribution of global influence and a move away from a rules-based system, the past year has seen the current US administration's withdrawal from the Trans-Pacific Partnership (TPP), re-negotiation of the North American Free Trade Agreement (NAFTA), and reduced role at the World Trade Organisation (WTO). The current administration also introduced import tariffs

of 25% on steel and 10% on aluminium (exempting Canada and Mexico, and temporarily exempting the EU and South Korea) in March 2018, as well as 25% tariffs on \$50bn worth of Chinese imports. In addition, the US administration's withdrawal from the Joint Comprehensive Plan of Action with Iran will have wide-reaching implications in terms of sanctions for those involved in trade with Iran. All of these moves serve to further strengthen the above-mentioned concerns, and concerns of an increase in retaliatory protectionist measures (as seen in both the EU and China's subsequent introduction of retaliatory tariffs), and a related trade war, with global ramifications.

The potential impact on all sectors of the Irish economy (particularly the agri-food sector) given the significance of the trade links between Ireland and the US, as well as the large presence of US multinationals in Ireland, is of concern. In addition, there is uncertainty over the pace of any future changes to interest rate policy by the US Federal Reserve, and how the global economy and financial markets may be impacted. As the US is Ireland's largest trading partner and, largest export market, as well as 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.

As mentioned above in relation to Brexit (Geopolitical Risks), we know that Ireland is uniquely vulnerable to material negative consequences for the economy or significant sectors of it as a result of Brexit, given the depth and extent of our economic ties. 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.

3.3 International tax changes

Ireland's corporation tax regime is a major factor in creating favourable conditions in which Irish-based enterprises operate, as well as in ensuring a stable environment, transparency and

predictability for inward investment. Ireland's competitive corporation tax offering remains an important part of Ireland's wider competitiveness offering to support enterprises based in Ireland invest, innovate and compete internationally¹⁵. However, the high dependence of Ireland's output and value added on Foreign Direct Investment (FDI) (discussed in more detail in Section 2.6 below) presents a vulnerability in terms of how anchored foreign multinationals are to the Irish economy, which is further complicated by the emergence of challenges to Ireland's corporation tax regime.

Work on international tax reform continues with additional proposals under discussion at EU and OECD level as to how digital companies are taxed. Ultimately, any reform which seeks to allocate greater taxing rights to users or customer location poses challenges for small countries like Ireland. There has been significant work at international level to reshape international tax rules, led by the OECD Base Erosion and Profit Shifting (BEPS) Project. Ireland has played an active role in implementing international tax reforms through the BEPS project, and is amongst the countries who have adopted early the country-by-country reporting for large firms. In addition, US tax reform should lead to some behavioural change and should eliminate the ability for US companies to pay very low tax rates on their global profits.

FDI in the Irish economy is concentrated in sectors that represent a large proportion of economic activity in Ireland. This means firstly that the Irish economy and its revenue base are significantly dependent on non-Irish firms, and the risk of relocation. Significantly, Irish corporation tax is highly concentrated, with the top 10 payers contributing close to 40% of this tax. The rising share of corporation tax receipts within overall taxation (16% of total revenue) and the concentration of receipts within a small number of firms poses a significant risk to the public finances¹⁶. Secondly, it also means that a significant share of turnover from these sectors is being lost to other jurisdictions. This was dramatically highlighted in 2015 and 2016. Despite posting very large GDP and GNP growth rates in those years, the material benefit to the Irish economy was considerably more modest. The reason for the disparity was related to the on-shoring of capital (intangible) assets and aircraft leasing (CSO, 2016). This also highlights the distortionary impact the large FDI presence is having on Irish national

¹⁵ National Competitiveness Council (2017) Ireland's Competitiveness Challenge 2017

¹⁶ Department of Finance, Annual Taxation Report, January 2018

accounts, which has knock-on implications for Irish fiscal and budgetary policies (as well as reputational risks).

Ireland has taken steps to amend some aspects of its system and has introduced domestic measures to address tax evasion and avoidance. Changes to tax residency rules implemented in 2015 have reduced opportunities for aggressive tax planning. The Irish Knowledge Development Box, introduced in 2015, has been approved by the Code of Conduct on Business Taxation Group and the OECD Forum on Harmful Tax Practices. The Government has published an Independent Review of the Corporation Tax Code (Coffey, 2017) and is carrying out a consultation on some of its recommendations (Department of Finance, 2017b). The provisions of the Anti-Tax Avoidance Directives (ATADs) have to be transposed into national law by the end of 2018 and 2019, and will introduce new anti-abuse rules that are currently missing from the Irish tax system¹⁷.

It is vital that Ireland's tax offering remains competitive for firms seeking an EU base for operations. Ireland also needs a competitive tax offering to attract and develop knowledge-based investment, related to research and development and intellectual property. As the international tax environment is changing rapidly, maintaining a good reputation has become increasingly important for the sustainability of corporation tax policy here in Ireland¹⁸. In this context, and in parallel with domestic reforms and restructuring, it is essential that the Government remains proactive in the ongoing international efforts to co-ordinate tax standards.

3.4 Impact of Brexit on vulnerable sectors of economy

The full implications of Brexit have yet to manifest themselves; however, analysis indicates that it is likely that it will result in disruption for the Irish economy in the foreseeable future¹⁹. The risk of new trade barriers accessing the UK market is likely to have consequences for the cost base of manufacturers in Ireland as costs associated with cross-border trading, energy and transport are likely to increase. This will also have implications for Irish based MNCs accessing global supply networks. The increasing value of the Euro

¹⁷ European Commission (2018) European Semester Country Report Ireland

¹⁸ National Competitiveness Council (2017) Ireland's Competitiveness Challenge 2017

¹⁹ See link: <https://dbei.gov.ie/en/Publications/Publication-files/Ireland-and-the-Impacts-of-Brexit.pdf>

relative to the Sterling is already beginning to undermine the competitiveness of Irish exports into the UK as they become relatively more expensive. This is particularly of concern for goods exporters heavily reliant on the UK market.

Recent analyses commissioned by the Government have found that Ireland has a significant exposure to Brexit and it will have negative impacts on the Irish economy under all scenarios. According to the CSO, Ireland has trade worth €39bn with the UK, approximately 17% of total Irish exports in 2015²⁰. The Copenhagen Economics Report²¹ has estimated that exports could be -3.3% to -7.7% lower (depending on the scenario considered) than where they would have been by 2030 under a baseline non-Brexit scenario (i.e. a scenario where Brexit did not occur). The report also found that the reduction in imports could range from -3.5% to -8.2% compared to the baseline scenario. Many exporting firms, including foreign-owned firms, are dependent on imports as inputs to their exports, and both Irish-owned and foreign-owned firms in Ireland are sourcing a large number of inputs from the UK, which implies a double impact from Brexit for some exporters²². For firms dependent on the local, domestic market, the effects of Brexit are less direct, but potentially no less profound or challenging. As sub-suppliers of goods and services to exporting businesses, any upstream threat to their customer base will quickly impact upon the bottom line of such firms. More broadly, any slowing of growth in the UK economy as the impact of Brexit becomes more tangible will have knock-on effects on Irish growth potential.

Clearly, some sectors and regions will also be harder hit than others. While 13% of total Irish goods exports (€15bn) and 16% of total Irish service exports (€22bn) went to the UK in 2016, for certain sectors and sub-sectors, the figures were much higher. The agri-food sector is at particular risk from Brexit. 37% of Irish food and drink exports went to the UK in 2016, and within that sector, exports to the UK accounted for 50% of beef exports, 56% of pig meat exports, and 53% of cheese exports²³. In addition to trading difficulties, the Irish fisheries sector also faces very significant difficulties in the context of potential loss of access to UK

²⁰ These figures are based on the External Trade Statistics and the Balance of Payments statistics for 2015.

²¹ Copenhagen Economics (2018) 'Ireland and the Impacts of Brexit, Strategic Implications for Ireland arising from changing EU-UK Trading Relations'

²² Copenhagen Economics (2018) 'Ireland and the Impacts of Brexit, Strategic Implications for Ireland arising from changing EU-UK Trading Relations'

²³ Bord Bia (January 2018) Export Performance and Prospects, Irish Food, Drink and Horticulture, 2016 - 2017

waters and loss of quota share. 34% of all fish landings by Irish vessels are currently taken from UK waters. The OECD estimates that a ‘Hard Brexit’ with trade governed by WTO rules could reduce exports by 20% in some sectors such as agriculture and food²⁴. The Department of Finance’s analysis of Brexit sectoral exposure identified Pharma-chem; Food & Beverage; Traditional Manufacturing; Materials Manufacturing; and Printing as the most exposed manufacturing sectors²⁵. The study estimated that together these sectors accounted for 75% of manufacturing Gross Value Added (GVA) and over 112,000 jobs. The study also notes the regional spread of these sectors is more concentrated in rural regions which have had a comparatively slower post-crisis recovery than the Dublin region.

The services sector too faces significant disruption. The Irish financial services sector is particularly integrated into City of London, meaning the imposition of any new barriers to trade could have significant negative impacts on the sector here. Conversely, there may also be an opportunity to attract some additional financial services investment to Ireland as UK-based firms seek a new location to access the EU market. However, prevailing infrastructure and housing bottlenecks may weaken Ireland’s attractiveness as a relocation option.

In terms of regulatory risks, Irish business and industry are increasingly concerned by the potential for regulatory drift and divergence post-Brexit in such areas as company law, intellectual property, State aid, standards and social rights for workers, environmental standards and agriculture. In advance of the outcome of negotiations, the level of risk is difficult to fully assess. 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. Regulatory divergence would also introduce barriers to trade, potentially interrupting the supply of goods and services, disrupting supply chains etc.

More generally, Brexit has introduced a level of uncertainty which may result in foreign enterprises holding off on investment decisions until greater clarity emerges. There is a need to maintain a focus on enhancing Ireland’s competitiveness as a result of the increasingly

²⁴ OECD (2018) Economic Survey Ireland 2018, available at: <http://www.oecd.org/ireland/economic-survey-ireland.htm>

²⁵ http://www.finance.gov.ie/wp-content/uploads/2017/05/170302-An-Exposure-Analysis-of-Sectors-of-the-Irish-Economy-update-March-2017_2.pdf

competitive market for international investment as other EU member states compete to attract foreign investment looking for access to the EU market.

3.5 Reliance on multinational corporations' and sectoral concentration

As discussed in previous National Risk Assessments, Ireland's economy and employment are heavily influenced by a relatively small number of multinational corporations (MNCs), concentrated in a few enterprise sectors. While multinational investment has been transformative for the Irish economy, this also creates a particular vulnerability to changes in Ireland's attractiveness as a location for those companies, as well as to sector-specific changes or risks.

Foreign-owned multi-national corporations (MNC's) are concentrated in Ireland's most competitive export sectors, such as modern manufacturing and information & communications and accounts for a disproportionately large share of output, value-added and productivity²⁶. The most recent available CSO data indicates that a small number of 'foreign-owned MNC dominated' sectors²⁷ accounted for 40% of total Gross Value Added (GVA) in 2016²⁸. While on one hand, this evidence shows how successful Ireland has been at attracting and retaining FDI, on the other it seems to correspond with much more modest performance amongst Irish-owned firms in the same sectors. Despite several decades of FDI-led growth in Ireland, there are prevailing and increasing gaps in GVA, productivity (GVA per employee) and wages by ownership, with foreign-owned enterprises generally seeing much higher and increasing productivity and wages, relative to Irish-owned enterprises.

The high dependence of Ireland's output and value added on FDI presents a vulnerability in terms of how anchored foreign multinationals are to the Irish economy. Many of the foreign-owned enterprises that operate in the Irish economy today have a long-standing and substantive investment in Ireland. However, Ireland's relationship with FDI is likely to be complicated by the emergence of challenges to Ireland's corporation tax regime and rising anti-globalisation and protectionist sentiments, in particular in the US and UK (the two

²⁶ Dept. Finance, Patterns of Firm Level Productivity in Ireland, March 2018, see link: http://www.finance.gov.ie/wp-content/uploads/2018/03/180308-Patterns-of-firm-level-productivity-TBP_for-publication.pdf

²⁷ The term 'foreign-owned MNE dominated' sector – used frequently in the paper – refers to a group of sub sectors where foreign-owned MNEs create more than 85 per cent of the sector turnover.

²⁸ See link: <http://www.cso.ie/en/releasesandpublications/er/gvafm/grossvalueaddedforforeign-ownedmultinationalenterprisesandothersectorsannualresultsfor2016/>

largest sources of FDI in Ireland), as discussed above. These developments present a risk to the sustainability of FDI in Ireland.

There are many reasons why firms choose to invest in Ireland, however, the EU's Digital tax, proposals for a common consolidated corporate tax base and the OECD's BEPS process could significantly impact on foreign investment flows in future. As mentioned above, the recent emergence of the prospect of a trade war between the world's largest economies could disrupt global trade and investment flows, which would significantly impact Ireland as a small open economy highly dependent on foreign trade and investment.

It is worth noting that Irish corporation tax is highly concentrated, with the top 10 payers contributing close to 40% of this tax. The rising share of corporation tax receipts within overall taxation – it now accounts for 16% of total revenue – and the concentration of receipts within a small number of firms poses a significant risk to the public finances²⁹. It also means that a significant share of turnover from these sectors is being lost to other jurisdictions. This was dramatically highlighted in 2015 and 2016. Despite posting very large GDP and GNP growth rates in those years, the material benefit to the Irish economy was considerably more modest. The reason for the disparity related to the on-shoring of capital assets and aircraft leasing (CSO, 2016). This also highlights the distortionary impact the large FDI presence is having on Irish national accounts, which has knock-on implications for Irish fiscal and budgetary policies.

²⁹ Department of Finance, Annual Taxation Report, January 2018

4. Social Risks

- 4.1 Human capital and skills needs**
- 4.2 An Ageing Population including pensions and health system challenges**
- 4.3 Expectations for Public Expenditure**
- 4.4 Social cohesion and political stability**
- 4.5 Migration and integration**
- 4.6 Impact of Social Media on Public Debate**

4.1 Human capital and skills needs

Ensuring Ireland has the skills to respond to the demands of the emergent Digital Economy and changing world of work will be essential to sustaining economic competitiveness and growth. With the recovery in the labour market, unemployment has fallen considerably to 5.3% in May³⁰ and employment has reached over 2.23 million. The ESRI has forecast that unemployment will fall below 5% 2019³¹ and employment will increase to 2.27 million by end of 2018 and reach 2.3 million in 2019. In this context, as the economy continues to expand, increasing the participation rate and sourcing skilled international talent will be important supplements necessary in the context of growing labour market demand as well as existing skills gaps in specific areas. In addition, there may be opportunities to address skill gaps through facilitating the return of emigrants.

However, despite the recovery, the participation rate remains below its 2007 peak level³² and in fact, the overall participation rate has remained broadly flat since 2011 and is at the same level as the participation rate in the early 2000s. In addition, while sourcing international talent will also be necessary to address capacity constraints in the short term, in the post-

³⁰ CSO monthly unemployment figures <https://www.cso.ie/en/releasesandpublications/er/mue/monthlyunemploymentmay2018/>

³¹ ESRI, Quarterly Economic Commentary, Summer 2018, See link: <https://www.esri.ie/pubs/QEC2018SUM.pdf>

³² In Q4 2017 the seasonally-adjusted participation rate was 62.3%, 4.4 percentage points lower than in Q1 2007

recession world it is likely to be more difficult to attract foreign talent. Ireland must compete with other countries to attract both high and intermediate level skilled labour. Since 2015 net immigration has returned, and in 2017, net migration was +19,800, accounting for about 37% of the annual population increase for that year. However, supply issues in regard to accessing housing, healthcare and childcare may undermine the attractiveness of Ireland as a place to live and work.

Risks around skills gaps in the area of ICT are particularly pertinent. The availability of appropriate skills for developing, implementing and using ICT is an important condition for the competitiveness and innovation capability of the Irish economy. The skills required go far beyond the narrow confines of traditional ICT practitioner expertise; ICT practitioners are now expected to have additional skill-sets, such as business, analytical and foreign language skills. The strong European competition for skills, especially in a region where there is free movement of labour, makes it important for Ireland to develop, attract and retain the right high level, and intermediate level ICT skills to satisfy the demand across the Irish economy. It is likewise imperative for Ireland to be able to continue to attract and serve the R&D activities, high tech manufacturing and global services companies that are important for Ireland's economic growth.

In addition, with the emergence of the Digital Economy, the demand for digital skills has grown. The driving elements of digitalisation include automation, artificial intelligence and the leveraging of big data. The acquisition of new skills is vital to keep pace with advances in technology and similarly, the availability of the right skills is a key enabler of enterprise performance and growth. Numerous academic studies and reports have identified that re-skilling/up-skilling of the workforce is a requirement of the future as jobs become increasingly digitalised. It is also important that these re-skilling opportunities are seen to lead to good quality employment, which can adequately replace the jobs that are becoming digitalised, and that divergent digital skills do not exacerbate existing socio-economic inequalities. It is therefore essential that the workforce is equipped with the requisite skills to fully unlock the benefits of the digital economy. It has been estimated by the OECD that 10%

of workers are in jobs that are at risk of being replaced by machines with a further 25% of people in jobs where a high percentage of their tasks could be automated^{33 34}.

The education and skills system will play a key role in addressing existing and emerging skills needs, providing training and skills to new entrants as well as ongoing upskilling and reskilling of existing labour market participants. In addition to the risks to jobs from automation, the new digital world of work will also create jobs not even thought of today. We need to ensure our education and training systems are sufficiently adaptable to meet the needs of the future. Continued investment to develop talent and skills to meet emerging skills gaps is therefore important. This is particularly evident in terms of the full implementation of Project Ireland 2040, to ensure additional economic costs are not incurred from capacity issues in this context. There is a need to continue cooperation between providers and employers to ensure that training is addressing emerging skills gaps.

4.2 An Ageing Population including pensions and health system challenges

Ireland faces significant risks in terms of an ageing population. The share of population aged 65 and over is projected to increase from one in eight to one in five by 2030, and the number of people aged 85 and over is projected to almost double. Older age cohorts tend to be the highest users of most health and social services and have more complex care needs. The 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 22,500³⁵. Planning for demographic changes in the population is dependent on accurate forecasting so 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.

Notwithstanding 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 grow³⁶. The second is that the dependency ratio - i.e., the ratio of persons under 15 and 65

³³ OECD, 2016, 'The Risk of Automation for Jobs in OECD Countries: A Comparative Analysis', OECD Social, Employment and Migration Working Papers, see link: <http://dx.doi.org/10.1787/5f1z9h56dvq7-en>

³⁴ This is discussed in more detail in Section 5.3 Disruptive Technology Trends

³⁵ Central Statistics Office (2016) *Census 2016 Summary Results – Part 1* (Dublin: CSO).

³⁶ The Central Statistics Office estimates that the number of people aged over 65 will almost treble to 1.45 million people between 2011 and 2046.

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, which will impact on 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, and challenges for the health system may be among the most serious.

The European Commission estimates that total age-related expenditure is forecast to rise by 4.1 percentage points of GDP during 2016-2070, with total pensions alone rising by 1.6 percentage points of GDP³⁷. While Ireland has a comparatively young population relative to other European countries, it nevertheless faces the same longer term ageing challenges. A key challenge in this regard is the sustainability and coverage of pensions in Ireland. The Irish pension system faces a number of very serious demographic, adequacy and sustainability challenges. The task of financing increasing pension spending will fall to a diminishing share of the population as projections indicate the ratio of people of working age to every person aged over State pension age will reduce from its current rate of 4.9:1 to 2.3:1 over the next 40 years. This presents significant funding challenges with the Social Insurance Fund forecast to accumulate a potential deficit of up to €335bn over the next fifty years. Notwithstanding the gradual increase in State pension age from 65 in 2010 to 68 in 2028, it is estimated that the number of persons at State pension age and older will more than double from 586,000 in 2015, to 1,402,000 by 2055. In addition, Ireland also has a very low level of private pension coverage, with approximately only 35% of the private sector employed population covered by a supplementary pension. This suggests that a high percentage of the working population is not saving enough, or is not saving at all, for retirement, reflecting a significant risk both in terms of the funding and sustainability of pensions in Ireland.

In the context of the health system, Irish health expenditure remains well above the OECD average, notwithstanding our young population³⁸. While much progress has been made in improving health outcomes with life expectancy now above the EU average, and improvements in patient outcomes for conditions such as stroke, heart disease and some cancers, the health system is facing major sustainability challenges and delays for patients

³⁷ European Commission (2018) European Semester Country Report Ireland

³⁸ Houses of the Oireachtas (2017) Irish Health Expenditure: the comparative context, available at:

<https://www.oireachtas.ie/parliament/media/housesoftheoireachtas/libraryresearch/lrsnotes/Irish-health-expenditure---the-comparative-context.pdf>

accessing care. The system developed at a time when episodic care was the norm and communicable diseases accounted for a large proportion of healthcare demand. This has resulted in a very hospital-centred system and a fragmentation and underdevelopment of community-based services. Future healthcare demand and the cost of healthcare provision will be impacted by a variety of factors including demographics; epidemiological trends (e.g. prevalence of chronic diseases) and lifestyle risk factors impacting health status; changes to modes of healthcare delivery (e.g. ambulatory emergency care reducing admissions from Emergency Departments, shift to day case surgery); availability of new drugs and other technological developments; changes in the socio-economic structure of the population (education level, income, employment) and changes in people's expectations of health services; proportion of the population with private health insurance; and supply-induced demand (e.g. additional funding allocated to service provision).

The significant increase in the number of people in older age cohorts will create significant additional demand for a range of health and social care services, including nursing home care, homecare, and medicines. Chronic diseases already account for a significant proportion of healthcare activity, including 40% of hospital admissions and 75% of hospital bed days. Some 60% of those aged over 50 report having at least one chronic condition. The level of multi-morbidity is increasing with 18% of adults over 50 having two or more chronic conditions. 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. The economic burden of healthcare expenditure in relation to chronic diseases 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.

At the same time, there are difficulties attracting and retaining suitably qualified healthcare workers to meet demand. Our workforce is ageing, with 21% aged 55 years or over. The European Commission has estimated a potential shortfall, within the EU, of around 1 million health workers by 2020. Global developments in technology will also impact on our workforce with unpredictable consequences, including the potential for new roles and skill development but also the automation and redundancy of other roles.

A high performing health system is integral to supporting labour force participation and the overall wellbeing of the Irish population. Thus, with the population likely to expand notably over the coming years, as well as increases in chronic diseases, pressures will mount on the health system and existing infrastructure. While this isn't a challenge that is unique to the Irish health system, it represents a significant risk to our capacity to deal with these issues, in the context of risk around the healthcare system over the medium-term.

4.3 Expectations for Public Expenditure

The Budgets of the last several 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 Budgets while reaching broad consensus on key priorities.

As the economic recovery continues, the expectations, from a range of sources, that additional resources will be made available for a wider range of social priorities are likely to strengthen including in the context of social welfare payment increases. Further, Ireland's public debt, and the potential for rising interest rates, market volatility, Brexit-related matters and other factors to impact on the cost of servicing our public debt, could have consequent impacts on the appropriate fiscal stance for the economy. Sustainability metrics show that although declining, public indebtedness remains high in Ireland especially when compared to other EU countries; these metrics include the absolute level of debt, debt interest payments as a share of revenue and debt to GNI*³⁹.

We have also seen 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. We must ensure we do not repeat the mistakes of the past and return to unsustainable levels of expenditure.

³⁹ Department of Finance (2018) Stability Programme Update, available at: <http://www.finance.gov.ie/wp-content/uploads/2018/04/spu-final-final.pdf>

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.

4.4 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. According to the OECD, growing income inequality can have a negative effect on social cohesion and impede economic growth.⁴⁰ The OECD has said that economic recovery since 2010 in the OECD area has not led to inclusive growth, and has not reversed the trend of increasing income inequality.⁴¹ As discussed above (Section 1.3), the global trend of rising populism and anti-establishment sentiment, evident in Poland, Hungary and Austria among others, is further contributing to risks around this erosion of social cohesion and trust in institutions. This international populism can be seen as partly rooted in great divides, such as those based on age, geography and wealth. Issues arising from growing inequality coupled with a rise in populism may be further exacerbated by the role of social media in public debate, discussed further under the Technological risks below. Conversely, there is potential for an increasing sense of isolation and exclusion for those who may not have the necessary resources or skills in terms of access to social media and services delivered online.

In Ireland, taxation and social transfer policies have been effective in offsetting market income inequality. In 2016, transfers reduced the at-risk-of-poverty rate from 44.9% to 16.5%, underlining the effectiveness of social transfer policies and taxation in offsetting income inequality⁴². Similarly, the total income received by the top income quintile compared to the bottom income quintile stood at 4.7 in 2016⁴³ down from 5.1 in 2012 at the height of the economic downturn. In recent years there has been some improvement in measures of

⁴⁰ OECD (2015) *In it Together: Why Less Inequality Benefits All* (Paris: OECD).

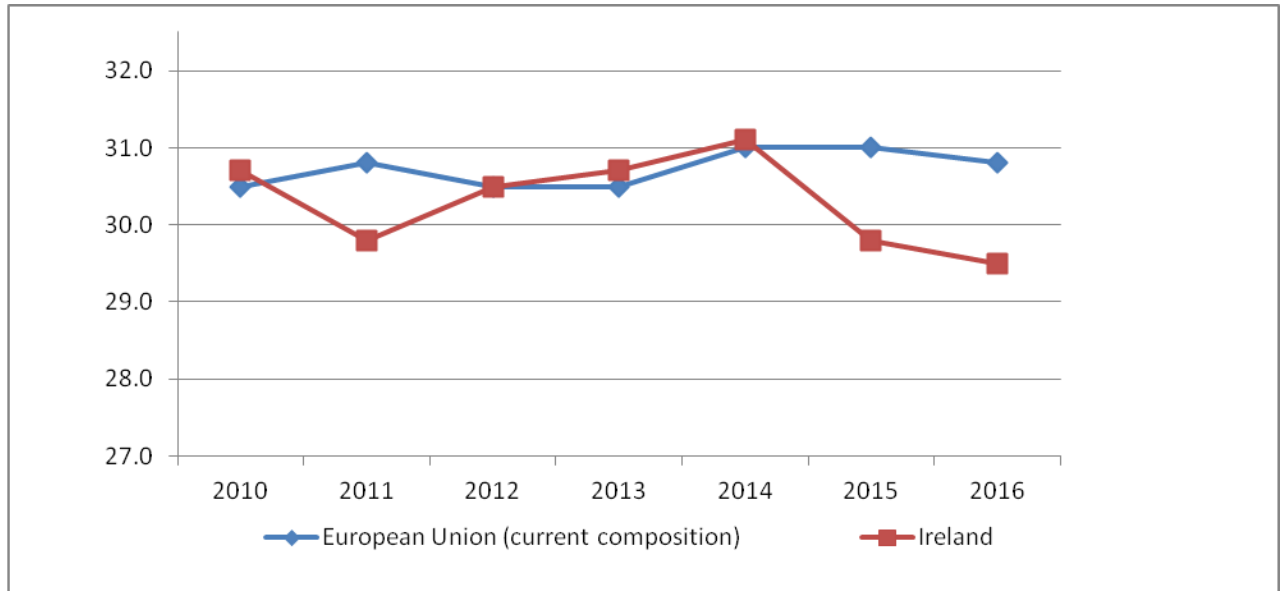
⁴¹ OECD Income Inequality Update (Paris: OECD) <http://www.oecd.org/social/OECD2016-Income-Inequality-Update.pdf>

⁴² <http://cso.ie/en/releasesandpublications/er/silc/surveyonincomeandlivingconditions2016/>

⁴³ <http://cso.ie/en/releasesandpublications/er/silc/surveyonincomeandlivingconditions2016/>

poverty and inequality, with the Gini coefficient⁴⁴ for disposable income falling below the EU average in 2015, and falling further in 2016 to 29.3. However, measures of consistent poverty remain above the targets set for 2020.

Figure 1: Gini coefficient Ireland versus EU, 2010-2016



Source: Eurostat

Migration, discussed in Section 3.5 below, can be another factor and potential challenge in relation to the erosion of social cohesion. The continued successful integration of second and third generation immigrants in Ireland will be important in ensuring that risk does not materialise in an Irish context. 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

⁴⁴ 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.

legislation is progressing to address this in the form of the Employment (Miscellaneous Provisions) Bill 2017.

Another consequence of the recent recession in Ireland was a damaging effect on public trust. The OECD notes in a recent report that the decline of people's trust in institutions in the aftermath of the global financial crisis has been a "key policy concern" in recent years. Furthermore, lower public trust in institutions limits the capacity of Governments to implement their policies, and has been linked to increasing dissatisfaction with democracy.⁴⁵ The report also reflects the extent to which the population feels it has a say in what government does. According to the report, Ireland is below the OECD average in terms of the percentage of the working-age population who feel that they have a say in what the government does.⁴⁶

The 2018 Edelman Ireland Trust Barometer finds that the media is now the least trusted institution globally, however in Ireland trust is now on the rise overall. While trust in Government, the media, and NGOs rose between 2017 and 2018, trust in business decreased marginally, and Ireland is among 20 of the 28 countries surveyed who displayed overall distrust in institutions. The Trust Barometer also highlights that 64% of people surveyed in Ireland are worried about fake news and its influence⁴⁷ and the impact of social media on public debate is discussed below in Section 4.6. Overall, the Edelman report notes that distrust is on the rise globally.

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,⁴⁸ 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

⁴⁵ OECD How's Life 2017 https://read.oecd-ilibrary.org/economics/how-s-life-2017_how_life-2017-en#page186

⁴⁶ OECD How's Life 2017 https://read.oecd-ilibrary.org/economics/how-s-life-2017_how_life-2017-en#page185

⁴⁷ Edelman 2018 Trust Barometer <https://www.edelman.com/trust-barometer>

⁴⁸ 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.

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 ongoing negotiations. Irish business has stressed the importance of a stable domestic political backdrop.⁴⁹ 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. Concerns have also been expressed around a rise in external or foreign donations to political or civil society organisations active in campaigns and the electoral process, and associated risks of interference in the electoral process in Ireland, mirroring concerning allegations internationally. 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.⁵⁰

4.5 Migration and integration

Migration has become one of the most contentious and contested issues in political debates across many countries in recent years. It played a significant role in the UK's referendum on Brexit, it has fuelled the rise of extreme 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 to date it has not felt a direct impact from many of these pressures, this should not induce complacency about the issues that migration and integration can generate, particularly in the context of continuing pressures from the Mediterranean and Africa, and the sheer volumes seeking to migrate into the EU.

In addition, as mentioned in Section 1.1 above, Brexit introduces new potential risks around immigration including an increase in illegal movement of third country nationals into Ireland from the UK, as well as legal divergence possibilities in relation to asylum matters. As Brexit evolves there may also 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.

⁴⁹ Ibec (2016) *The UK Referendum on EU Membership: The Impact of a Possible Brexit on Irish Business* (Dublin: Ibec).

⁵⁰ European Central Bank (2016) *Financial Stability Review – November 2016* (Frankfurt: ECB).

In terms of internal integration risks, Ireland has changed from an ethnically homogeneous society to a much more multi-ethnic one in slightly over a generation, 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 nationality⁵¹. While this represents a small decrease on the 2011 Census⁵², 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 nationality⁵³. This brings with it a need to be responsive to the changing nature of society, for example in terms of the needs of a now multilingual society and the potential for language to become a barrier in accessing Government communications and services.

The increase in the immigrant population in Ireland 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 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.

4.6 Impact of Social Media on public debate

Social media has become an integral part of how billions of people around the globe connect and communicate. While social media platforms offer many benefits, the lack of oversight of both social media users and their data has led to a greater risk of the spreading of misinformation or so-called ‘fake news’, with associated challenges for and risks around regulatory systems readily apparent. This can have an effect on different levels from individuals through to institutions and can pose a risk to society by exacerbating divisions and already growing levels of public distrust and rising populism, diminishing shared bonds, and actively targeting certain cohorts with targeted information or misinformation. The targeting of social media users with political advertisements and sponsored news stories to influence their beliefs, opinions and possibly voting intentions, for example, is of considerable concern. Balanced and representative discourse and debate is vital to ensure the

⁵¹ Central Statistics Office (2016) *Census 2016 Summary Results – Part 1* (Dublin: CSO).

⁵² The 2011 Census showed that 544,357 people, or 12% of the population, did not have Irish nationality.

⁵³ In the 2002 Census, 224,261 people were recorded as not having Irish nationality.

integrity of any referendum or electoral process. There is also a risk that the multiplicity of information platforms could lead to more polarised societal viewpoints.

Recent revelations about the harvesting of third party data, and their use in targeting certain groups and cohorts, as well as ongoing investigations and commentary in both the US and UK around election manipulation by third parties (including foreign actors), underline the need both for greater protection of citizens' privacy rights, and greater transparency from organizations on how they are using any personal data they collect. The General Data Protection Regulation (GDPR), which came into effect across the European Union on 25th May 2018, is designed to achieve these goals. In addition, the Data Protection Bill 2018 includes a provision to limit the scope of any processing of personal data revealing political opinions to prevent misuse.

The growing influence of social media brings with it concerns around the spread of “fake news”. The European Commission defines fake news as “intentional disinformation spread via online social platforms, broadcast news media or traditional print” and it proposes a comprehensive policy response, which “must reflect the specific roles of different actors (social platforms, news media and users), and define their responsibilities in the light of a number of guiding principles. These include the freedom of expression, media pluralism, and the right of citizens to diverse and reliable information.”⁵⁴ The Commission noted that media literacy and quality journalism would be “vital tools to address the spread of fake news online”.

These concerns are of particular priority in an Irish context in relation to the May 2018 referendum on the Eighth Amendment to the Constitution. In light of revelations around the collection and use of personal data from Facebook accounts by data analytics company Cambridge Analytica (mentioned in discussing data fraud and theft in Section 5.2 above) Facebook responded by announcing that Ireland would be part of the pilot programme for a new feature that identifies propaganda advertisements from April 2018. The tool is intended to address the ability of certain pages and advertisers on Facebook to micro-target users. It allows users to view all advertisements being run by a particular page, regardless of whether these advertisements are targeted at a specific group. In a further step, Facebook announced

⁵⁴ The European Commission Policy report on Fake news <https://ec.europa.eu/digital-single-market/en/fake-news>

in early May 2018 that advertisements funded from abroad in relation to the referendum would be banned. Shortly after this announcement, Google announced that all advertisements relating to the referendum on the Eighth Amendment in Ireland would be banned.

These wider concerns also raise questions around the sustainability of traditional media and their role, both in Ireland and globally. A thriving, independent media is essential to a healthy society, especially in this increasingly online era, where risks to traditional print media and their audiences and readership levels are becoming increasingly apparent. Most recently, the European Commission has called on social media companies to “step up their efforts to tackle online disinformation” and draft a new code of practice aimed at reducing false information on social media. The Commission notes that “platforms have not provided sufficient transparency on political advertising and sponsored content”. Should this approach be unsuccessful, the possibility of “further action” to address the issue was raised. The Commission will report on progress made on this matter by December 2018, as well as potential next steps.⁵⁵

⁵⁵ Tackling online disinformation: a European approach <https://ec.europa.eu/digital-single-market/en/news/communication-tackling-online-disinformation-european-approach>

5. Environmental Risks

- 5.1 Climate Change & Biodiversity**
- 5.2 Ensuring an affordable, sustainable and diverse energy supply**
- 5.3 Infrastructure Constraints**
- 5.4 Food safety & Animal disease**
- 5.5 Supply and Affordability of Housing**

5.1 Climate Change & Biodiversity

Many effects of climate change are now unavoidable. Recent years have illustrated clearly the risks posed to Irish society by extreme weather events, most recently with Storms Ophelia and Emma. There is also the potential of a future global seismic event causing adverse effects, for example the eruption of Katla in Iceland, which could cause disruption of aviation services in Ireland.

Future impacts of climate change 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; and adverse impacts on water quality.

There are also significant threats to Ireland’s biodiversity, with the Biodiversity Indicator Survey for 2017 stating that 91% of our habitats designated under EU law are “inadequate” or of “bad” status⁵⁶. This requires Ireland to develop a comprehensive series of measures to maintain and where necessary restore these habitats. Ireland will develop a new “Prioritised Action Framework” for Natura 2000 sites, i.e. those designated under the EU Nature Directives, by the end of 2018 as an initial step in that work. As a Party to the UN Convention on Biological Diversity, Ireland is committed to prepare Action Plans towards

⁵⁶ <https://indicators.biodiversityireland.ie/>

the achievement of the Convention's targets. Implementation of the National Biodiversity Plan will be a key part of addressing these risks, and the National Development Plan also recognises the need for increased funding for biodiversity. The risks of not delivering on these commitments are stark and far-reaching, and include loss of habitats and consequent pollinator decline, with one third of Irish bee species threatened with extinction.

In terms of Climate Change, there is an economic rationale for taking early action to mitigate green house gas (GHG) emissions, invest in renewable energy, improve energy efficiency and implement adaptation measures to the effects of climate change. The cost of inaction exceeds the cost of action and this cost differential will rise steeply with time. It will be critical to take action on climate change, as set out in the National Development Plan, the National Mitigation Plan and the National Adaptation Framework, to avoid threats to human health, economic development, property, infrastructure and ecosystems, as well as reputational damage.

Potential costs to the exchequer include those associated with not achieving compliance with our EU GHG emissions and renewable energy targets to 2020 and future targets resulting from negotiations on individual EU Member State targets for 2030. There is a range of economic risks associated with failing to price the cost of carbon into our economic model to provide appropriate long term signals to the private sector and encourage behavioural change in broader society. It will also be critical to define our approach to carbon neutrality for the agriculture sector in a way that supports the achievement of our climate targets and decarbonisation goals while respecting sustainable food security and to make investments to develop new and innovative economic opportunities, for example in the bioeconomy.

A related risk is failing to plan for success and economic growth in this context. Ireland's green reputation could also be impacted by a climate-change related degradation in the quality of our natural environment.

Both political and societal willingness to tackle the longer-term risks of climate change could present a challenge, as significant up-front investment is required, which may not yield benefits for many decades. Fundamental behavioural change will be necessary in this regard, from the public and private sectors as well as the general public, given that our efforts to

tackle climate change effectively are predicated on significant buy-in from these groups. Engagement with these groups can be facilitated through initiatives such as the National Dialogue on Climate Action. There is a necessity for realistic and frank discussion about what investments will be needed to meet EU 2030 targets and ensure that Ireland is on a sound pathway to decarbonisation. This is underscored by the EPA projections that indicate that Ireland's non ETS emissions in 2020 could be in the range of 4% to 6% below 2005 levels as against the binding EU target of emissions being 20% below 2005 levels.

A whole of Government approach that encompasses climate and energy policies will be required to ensure policy coherence and to meet the EU requirement to develop an integrated National Energy and Climate Plan that covers the period 2021 to 2030. Maximising the potential of our renewable energy resources, energy efficiency measures and electricity interconnectors is core to ensuring a secure and sustainable energy supply. Having appropriate processes and policies in place in terms of planning, technology and community engagement are central in this regard.

5.2 Ensuring an affordable, sustainable and diverse energy supply

Ireland's situation as an island on the periphery of Europe renders it particularly vulnerable to disruptions to the supply or price of oil, gas or electricity which would have significant economic, social and competitive impacts. Such disruption could arise from natural disaster, economic trends or geopolitical change, such as Brexit, disruption to oil supplies in the Middle East, Russian sanction impacts on gas supplies and OPEC cuts.

Brexit poses a particular risk as Ireland imports the vast majority 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. As Ireland electrifies vital services, such as transport and heating, which will be necessary to meet climate change obligations, the challenges and risks around energy security will continue to shift and evolve.

A large proportion of Ireland's energy needs are met through imports - circa 70% in 2016. However, it is worth noting that indigenous energy production is increasing - from 12% of the total primary energy supply in 2015 to 30% in 2016. This is in part due to 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, introduce more certainty in the energy fuel mix and move Ireland toward its 2020 and future renewable energy targets.

Ensuring an energy supply that is not only affordable, sustainable and diverse but also secure will be extremely important as pressure increases on the world's resources due to climate change. Close attention should be paid to energy affordability in particular, given recent trends. There are also geopolitical implications contributing to this risk, with international relations and tensions creating doubt over the security of energy supply.

In the last few years, 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 very high levels in the near future, which is of some economic benefit to Ireland. However, continued low prices and a stronger Euro to dollar value 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.

5.3 Infrastructure constraints

Ireland was again the fastest growing economy in the EU in 2017, and its population is continuing to grow – it grew by 3.8% over the inter-censal period 2011-2016. This context, coupled with an under-supply of housing and associated affordability issues, a tightening labour market and continued stronger than expected economic growth, could give rise to overheating in the economy (see Section 2.4 for more discussion on risks around overheating). This brings with it the risk of negative impacts for Ireland's competitiveness and value for money concerns for the State in terms of capital programmes, as well as for the individual consumer. In addition, while Project Ireland 2040 was launched in February 2018, and set out both a detailed capital investment plan for the period 2018 to 2027 (the National Development Plan 2018-2027), and the 20-year National Planning Framework 2040, risks around capacity constraints which could prove challenging for its full implementation are apparent. In particular, risks in terms of both institutional capacity and capacity in the

economy including skills constraints can be seen, with skills constraints particularly evident in the construction sector⁵⁷. These challenges could hinder the implementation and delivery of projects under the NDP and NPF, with the associated risk of contributing to price inflation if these constraints are not alleviated in order to ensure infrastructure constraints are addressed in a sustainable way.

By 2040 an additional one million people will live in Ireland, almost a quarter of whom will be over 65 (double the current levels). An additional two-thirds of a million people will work here, and an additional half a million homes will be needed to accommodate this growth. A plan-led approach to infrastructural investment is therefore vital. Historically, constraints on public finances and a market- and developer-driven development environment has resulted in infrastructure following, rather than driving, change and development for the benefit of society. Failing to renew and enhance our infrastructural capabilities through a strategic plan will impact on competitiveness, quality of life and our ability to meet new environmental challenges.

Preparing for and managing progressive and sustainable growth requires careful preparation and planning for all regions. In addition, decoupling growth from adding to environmental pressures such as climate change and declining biodiversity is critical. In response, the National Planning Framework was developed in parallel with the National Development Plan, under Project Ireland 2040. The strategies combine to present a map for effective spatial planning and strategic investment in infrastructure, which will allow Ireland to accommodate anticipated population growth while ensuring growth continues in a balanced way.

The risks and implications of not delivering on the objectives in the Plan are clear. The availability of competitively priced world-class infrastructure (e.g. energy; telecoms, including the implementation of the National Broadband Plan; transport – road, public transport, airport, seaports; waste and water) and related services is critical to support competitiveness which in turn determines the sustainability of living standards. In addition to the capacity and skills constraints outlined above, the National Competitiveness Council (NCC) quotes IMF estimates which show that an increase of 1 percentage point of GDP in

⁵⁷ Department of Finance (2017) Review of the Capital Plan 2016-2021, available: [file:///C:/Users/HayesCurtinC/Downloads/Capital-Plan-Review-2016-2021%20\(1\).pdf](file:///C:/Users/HayesCurtinC/Downloads/Capital-Plan-Review-2016-2021%20(1).pdf)

investment spending can increase output by approximately 0.4 per cent in the same year and by 1.5 per cent four years after the increase in investment.⁵⁸

Following a significant reduction in public capital expenditure over the course of the recession, the level of capital expenditure has increased as the economy has returned to growth, and the public finances recovered.

A range of international benchmarks are available comparing the stock and quality of infrastructure in Ireland with our competitors. Ireland's diminished investment is evident in declining and low scores in relation to the perception of overall infrastructure quality, with Ireland's score falling over the five years to 2016. Perceptions of infrastructure quality as measured by the World Economic Forum's Global Competitiveness Report 2017-2018⁵⁹ show the perceived overall quality of infrastructure in the economy remains low in Ireland. Ireland is ranked 51st in the world with the UK 27th. In an EU context Ireland is ranked 21st, with the UK ranked 12th.

In addition to potential risks to cross-border infrastructure projects in the context of Brexit, a significant threat to delivery of Project Ireland 2040 is rising levels of litigation leading to delays in infrastructure delivery. There is also a risk that the growing influence of social media may become a relevant factor in the context of opposition of citizens and communities to the implementation of infrastructure projects. This may become more pronounced as projects under Project Ireland 2040 commence design, planning and construction phases. Wider communities have in some cases opposed projects despite rigorous planning, environmental assessment and consultation processes. Enhanced mechanisms to create better community ownership of and participation in required investment projects may go some way to mitigating this opposition by allowing those most affected to benefit more directly from the development of such infrastructure. Ireland's development consent systems need to be robust and efficient to maximise certainty and minimise delay in converting capital to projects that deliver.

⁵⁸ National Competitiveness Council (2017) *Ireland's Competitiveness Challenge*, available at: <https://dbei.gov.ie/en/Publications/Publication-files/Irelands-Competitiveness-Challenge-2017.pdf>

⁵⁹ World Economic Forum (2017) *The Global Competitiveness Report 2017-2018*, available at: <http://www3.weforum.org/docs/GCR2017-2018/05FullReport/TheGlobalCompetitivenessReport2017%E2%80%932018.pdf>

5.4 Food safety & Animal disease

Our food safety and production standards, which include a favourable animal health and welfare status, are key to consumer confidence in Irish food and drink products both at home and abroad. While the possibility of food contamination or an outbreak of food-borne human illness clearly represents a risk to the health of citizens, a food safety incident of Irish origin or a major disease outbreak in farmed animals in Ireland could also jeopardise international trade in Irish food.

Any such adverse incident could lead to immediate exclusion from certain markets and it could take a considerable period of time to recover consumer confidence and market share. Given the vital importance of the agri-food sector, and its high dependence on exports, this would lead to significant implications for the Irish economy, particularly in rural areas. The agri-food sector is highly export dependent. In 2017, agri-food exports increased to €11.5 billion, representing a growth of 41% since 2010. 37% or €4.13 billion of this is exported to the UK⁶⁰ leaving the sector particularly exposed to risks related to Brexit.

5.5 Supply and Affordability of Housing

The supply of housing and accommodation is one of the most immediate of the domestic challenges currently facing Ireland. 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. Housing supply contracted sharply from late 2007, with the number of new dwellings falling by over 90% between 2006 and 2013⁶¹.

This has impacted the country socially and economically; through challenges to the provision of social housing, an increase in homelessness, and constraining competitiveness. This constraint on competitiveness especially affects Ireland's ability to continue to attract Foreign

⁶⁰ Bord Bia Export Performance and Prospects 2017, available at:

<https://www.bordbia.ie/industry/manufacturers/insight/publications/MarketReviews/Documents/Export-Performance-and-Prospects-2017.pdf>

⁶¹ Department of Housing, Planning and Local Government figures, based on ESB connections

Direct Investment (FDI), as availability of housing is a key concern for MNCs considering locating here. Currently, pressures on the housing market have led to overcrowding and lowering of quality of life. The CSO 2017 Facts and Figures report showed that in 2017, almost 10% of the population were living in accommodation with less than one room per person. This marked a 28% rise on the equivalent figure for 2011⁶². Housing supply therefore presents a highly complex challenge, heightened by legacy effects of the post-2008 economic contraction.

Underlying housing demand has outpaced actual supply in recent years, manifesting in stronger growth in house prices and rents, with such increases being rapid in Dublin and other urban areas compared with the rest of the country. Housing undersupply has been compounded by the rapid growth of the Irish economy in recent years resulting in affordability issues and rental property prices rising above their previous peaks. There is now a growing risk around the issue of affordability as, even as supply increases, affordability issues persist. This is of particular concern in Ireland's cities. In addition, risks around increasing wage pressures may be further exacerbated by housing affordability issues, leading to a continued increase in house prices, and continuing affordability challenges. In terms of increasing wage pressures from the public sector, such risks are linked with increasing expectations for public expenditure, discussed above in Section 3.3.

According to the CSO, rental costs in Dublin are at an all time high while the rate of increase in national property prices has been accelerating since the second half of 2016, reaching double digit growth rates in May 2017. In January 2018, prices increased by 12.5% year-on-year, the fastest growth rate in over two years. Based on these trends, housing and rental costs are likely to translate into increased demand for wage increases in the medium term.

Housing supply is essential for societal well-being and economic growth. The lack of affordable accommodation has been linked to rising levels of homelessness with significant social and financial costs. In addition to the increased number of rough sleepers recorded in recent years, many families have been living for long periods of time in emergency accommodation with considerable impacts on family life. Difficulties accessing affordable accommodation are a major source of concern for many people.

⁶² CSO 2017 Facts and Figures http://www.cso.ie/en/media/csoie/releasespublications/documents/statisticalpublications/2017/Ireland_-_facts_&_Figures_-web.pdf

To address increasing risks in the housing market, the Government launched its Rebuilding Ireland programme in July 2016. Under the plan the Government intends to meet the social housing needs of over 137,000 households by 2021. In terms of affordability, the Government has also launched the Rebuilding Ireland Home Loan to provide long-term mortgages for first time buyers and offers both fixed and variable rate products. A new Affordable Purchase Scheme has also been announced which will see affordable homes built initially on State land, in cooperation with local authorities. However, for the foreseeable future housing shortages are likely to act as a constraint on economic activity and competitiveness, and reflect one of the most prominent risks and challenges facing the country.

6. Technological Risks

- 6.1 Cyber Security**
- 6.2 Disruptive technology trends**
- 6.3 Anti-Microbial Resistance**
- 6.4 Nuclear contamination**

6.1 Cyber Security

Disruption to critical information infrastructure

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. The proliferation of IoT (internet of things) connectivity acts as an enabler for many of these risks. It is important to consider the possibility of State or non-State actors resorting to cyber-measures to advance their aims by, for example, launching an attack on and disrupting critical information infrastructure and networks. Europol currently judges the risk of cyber-terrorism to be one of high potential but low probability, though the probability may be increasing. This is an issue of growing concern at EU and international levels reflecting the importance of continuing to build our expertise and capacity in cyber security to enable us to address these threats effectively.

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 was particularly evident from the ‘WannaCry’ ransomware attack in May 2017, which caused serious disruption to a number of large organisations across the world. While in these cases 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, while prolonged or repeated incidents risk creating a backlash against digitization, with further economic consequences.

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. Risks associated with cyber security are diverse, and many instances of cyber security breaches are accidental. The EU is now moving in the direction of focusing efforts on higher level threats. 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, including in regards to the protection of government digital assets. There are challenges and a variance in institutional capacity to address cyber security across the EU. Ireland has the potential to leverage the significant expertise that exists in our private sector, as well as information sharing and cooperation with agencies in other countries to address this risk.

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 several years by a number of major companies abroad, including Photobucket (1.9 million records), Christies (2.7 million records), and Yahoo!, who disclosed two major breaches in 2016 involving 1 billion and 500 million records, which had taken place in 2013 and 2014, respectively. A more recent example of the potential scale of data theft was the hacking of around 150 million users of the app MyFitnessPal in March 2018.⁶³ In Ireland, Eir had a small but serious data breach involving 2,000 records. Indeed, any challenge to the quality of Ireland's data regulation environment, which has been key to the continuing expansion and growth of the digital economy in Ireland, creates a risk of business disruption as well as reputational damage.

⁶³ <https://www.forbes.com/sites/paullamkin/2018/03/30/under-armour-admits-huge-myfitnesspal-data-hack/#4aa35fe6cc54>

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), which came into force in May 2018, is a regulation to strengthen and unify data protection within the 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. Most recently, there have been concerns around the collection of personal data from Facebook accounts by data analytics company Cambridge Analytica. It has been alleged that the data was then used by political organisations to influence public opinion. The risk of this manipulation of public opinion is discussed in more detail in Section 5.5 below. The Cambridge Analytica data breach affected up to 87 million Facebook users worldwide and is the subject of ongoing investigation.

The challenges discussed above are just some of the many forms that cybercrime may take. The cyber dimension to conventional crime brings with it significant demands in terms of the tools needed to gather evidence, identify perpetrators and undertake prevention initiatives. Attacks on the data stored on computers or the systems themselves is another aspect of cybercrime that pose both law enforcement issues and in some case State security issues.

The international dimension to investigating cybercrime brings with it many challenges in terms of international cooperation and jurisdiction. There are further challenges faced by law enforcement agencies including loss of data, encryption, virtual currencies, loss of location, the need for expedited measures, managing online investigations, and managing public-private cooperation, amongst many more.

6.2 Disruptive technology trends

Disruptive technology trends are continuously bringing new ways of conducting business, manufacturing products and making decisions which could usurp traditional methods and lead to significant job losses in affected sectors. Legislative and regulatory challenges may come with advances in digital technologies, as well as threats to employment. The speed of adoption of technological advances is seeing the emergence of new global business models,

products, markets, sectors and activities; as well as disrupting ways of working and impacting on skills needs.

A 2016 OECD-commissioned study⁶⁴ estimates that 9% of jobs are at a high risk of being automated on average, with 8% of jobs at risk for Ireland (below the OECD average). These are jobs where the tasks involved have a probability of being automated of 70% or higher. A larger, but important share (between 50% and 70%) of jobs has a low risk of complete automation. These jobs will not be substituted entirely, but a large share of tasks may be, radically transforming how these jobs are carried out. These jobs will be significantly retooled and workers will need to adapt (circa 22% for Ireland). A 2018 follow up OECD study (Nedelkoska and Quintini) suggests that a greater proportion (14%) of jobs in OECD member countries have a high probability of being automated as compared to the 2016 study. It should be noted that alternative models and measurement tools have been used in other studies in this area which have generated significantly higher estimates of job losses arising from automation. Similarly, a recent study conducted by PriceWaterhouseCooper⁶⁵ (PwC) points to three waves of automation unfolding from now into the 2030s, affecting first “algorithmic” jobs which involve analysis of data and simple computational tasks; followed by clerical support and decision making; and thirdly jobs involving physical labour, with this wave seeing the highest rate of projected job loss. For Ireland specifically, the study estimates that 2% of jobs in all industries could be automated in the first wave, 19% in the second wave (by late 2020s) and 31% in the third wave (by mid 2030s).

Technological advances will also lead to new jobs being created, as well as economic benefits associated with more efficient ways of doing business. According to PwC analysis, smart automation has the potential to add \$15 trillion to global GDP by 2030. However, there is a risk that these new jobs will be less dependent on human labour, or will require significant re-skilling. The scale of the re-skilling problem is becoming a key priority for the European Commission, as it has been suggested that in the near future, 90% of existing jobs will require some degree of digital skills. While this presents both opportunities and threats

64 Amtz, M., T. Gregory and U. Zierahn (2016), “The Risk of Automation for Jobs in OECD Countries: A Comparative Analysis”, OECD Social, Employment and Migration Working Papers, No. 189, OECD Publishing, Paris. <http://dx.doi.org/10.1787/5jlz9h56dvq7-en>

65 The Impact of Automation on jobs, PwC report: <https://www.pwc.co.uk/services/economics-policy/insights/the-impact-of-automation-on-jobs.html>

the research generally indicates that, across all countries, workers with a lower level of education are at the highest risk of displacement. As artificial intelligence (AI) continues to develop it could also be that in the future higher skilled occupations may face higher risk of automation than the current state of technology implies. While this is not a risk unique to Ireland, it requires actions across a range of areas including a significant increase in our delivery of lifelong learning and skills development as well as the need for continued investment in the digital economy and R&D.

While no sector will be immune to the impact of disruptive technology, jobs and functions that require greater degrees of cognition, subjective thought and personal interaction will be somewhat cushioned. The acquisition of new skills is vital to keep pace with advances in technology. Similarly, the availability of the right skills is a key enabler of enterprise performance and growth. Jobs as we know them are undergoing a process of change with the skills required with many jobs changing significantly. Numerous academic studies and reports have identified that re-skilling/up-skilling of the workforce is a requirement of the future as jobs become increasingly digitalised. Thus it is essential that the workforce is equipped with the requisite skills to fully unlock the benefits of the digital economy.

The identified risks in this section reflect many of the issues referred to in the April 2018 Communication on Artificial Intelligence (AI) from the European Commission, which identifies a need to prepare for socioeconomic changes, through training more specialists in AI, and obtaining detailed analysis and expert inputs to anticipate the changes on the labour market and the skills mismatch across the EU. The importance of this is exemplified by the Government's establishment, under Project Ireland 2040, of a €500 million challenge-based Disruptive Technologies Innovation Fund.

Additional risks associated with disruptive technologies include:

- Failure to communicate the value that disruptive technologies can provide in growing the economy, and failure to capitalise on economic opportunities arising;
- Failure to deploy disruptive technologies in the public sector rapidly to provide concurrence with the private sector; as well as 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;
- Failure to plan for employment shifts resulting from technological advances, which will continue to be a challenge for social protection systems in Ireland and elsewhere; and
- Regulatory challenges associated with technological advances, such as driverless cars for example, and associated capacity issues.

6.3 Anti-Microbial Resistance

Anti-microbial resistance (AMR) is an increasing concern across the globe, with the World Health Organisation (WHO) describing it as “a crisis that must be managed with the utmost urgency.”⁶⁶ Antimicrobials have been essential for the provision of modern medical care since the 1940s, substantially reducing mortality and morbidity from infectious diseases and complications. These advances are now being put at risk by a significant rise in the prevalence of bacteria that are resistant to one or more antimicrobial, with knock-on consequences for human health as well as the economy in terms of more expensive treatment costs and lost productivity.

The World Economic Forum’s Global Risks Report for 2018 included a reflection on the evolution of this risk on the world stage. This quoted research from the World Bank, the UK Government and the Wellcome Trust estimating AMR would exert a drag on global GDP of between 1.1% and 3.8% between now and 2050, as well as costing \$100 trillion and killing 10 million people over that period. That report also noted that resistance to even the strongest antibiotics continues to spread, as they are increasingly used to combat diseases resistant to weaker antibiotics. It notes that research conducted in 2017 demonstrated that bacteria resistant to colistin, the “antibiotic of last resort”, had spread throughout the world within 18 months of the resistant strain first emerging.

The extensive use, misuse and overuse of antimicrobials in human health has increasingly raised levels of antimicrobial resistance in a wide range of pathogens in all countries and in patients of all age groups. In the animal population, the rate of development and spread of antimicrobial resistance has also increased. The increasing global demand for affordable

⁶⁶ WEF Global Risks Report 2018 <http://reports.weforum.org/global-risks-2018/anti-microbial-resistance/>

food, and in particular animal protein, has led to intensification in certain animal sectors, which can result in higher potential risks of disease outbreaks. Therefore a strong reliance on availability of effective antimicrobials to treat disease and protect animal welfare has occurred.

There are also increasing concerns about the role the environment may play in the spread of clinically relevant antimicrobial resistance. Environmental regulators monitor and control some of the possible pathways responsible for the release of antimicrobials into the environment, e.g. through water contamination and agricultural run-off. However a greater understanding of many of the key issues in relation to the environmental role will further enhance the delivery of environmental protection from AMR. The rise in antimicrobial resistance is thus one of the greatest potential threats to human health at global, European and national levels with serious consequences for public health, animal health and welfare.

Given that the natural responses of microbes to the use of antimicrobials is resistance, they therefore need to be used as sparingly as possible to retain their efficacy. A National Public Health Emergency has been declared in respect of CPE (a form of antimicrobial resistance that is particularly problematic in Irish hospitals). Ireland's National Action Plan on Antimicrobial Resistance 2017-2020 (iNAP) was launched in October 2017, with a cross-sectoral and whole of Government approach to addressing the world-wide threat of AMR. It was developed following the WHO Global Action Plan on Antimicrobial Resistance 2015, which required all countries to establish a national action plan, and in light of the European Commission requirement that Member States develop a national action plan in 2017.

6.4 Nuclear contamination

Contamination as a result of fallout from a nuclear accident is a risk that has to be acknowledged, despite the low probability associated with this for Ireland. Obvious risks to public health and well-being arise, as well as the potential for negative economic impact. This is significant, in particular in relation to potential reputational risk to the agricultural sector. There is a risk 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 recently published paper 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 contamination⁶⁷. 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 €4.1 billion in a scenario with no contamination where losses are reputational, through to €115 billion, where high levels of radioactive contamination would necessitate a prolonged period of food controls and agriculture protective actions. The paper also estimates that indirect losses in the Irish economy would range from €287 million in a scenario where losses are reputational, to €44 billion in a scenario with high levels of contamination.

The intersections of this risk with Food Safety are highlighted in the ESRI paper where it is stated that meat and dairy produce account for 57% of the lost value, where losses are purely reputational. In the most extreme scenario dealing with high levels of contamination, the total value of loss of export markets is some €84bn, with meat, dairy and seafood produce accounting for over €50bn.

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.

⁶⁷ ESRI Disaster cost assessment: A case study of the potential economic impact of a nuclear accident affecting Ireland:
http://www.ssi.ie/A_Method_of_Disaster_Cost_Assessment.pdf

List of acronyms

AMR	Anti-Microbial Resistance
CSO	Central Statistics Office
CTA	Common Travel Area
ECB	European Central Bank
ECRIS	European Criminal Record Information System
EEA	European Economic Area
EPA	Environmental Protection Agency
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
GDPR	General Data Protection Regulation
GNI	Gross National Income
GNP	Gross National Product
GTF	Government Task Force
GVA	Gross Value Added
HCI	Harmonised Competitiveness Index
ICT	Information and Communications Technology

MNC	Multination Corporation
NAFTA	North American Free Trade Agreement
NCC	National Competitiveness Council
NDP	National Development Plan
NRA	National Risk Assessment
NPF	National Planning Framework
OECD	Organisation for Economic Cooperate and Development
OEP	Office of Emergency Planning
QNHS	Quarterly National Household Survey
QE	Quantitative Easing
TPP	Trans-Pacific Partnership
UCPM	Union Civil Protection Mechanism
WTO	World Trade Organisation

Annex 1. Government Task Force on Emergency Planning – National Risk Assessment for Ireland 2017

This National Risk Assessment complements the detailed risk assessment work carried out by the Government Task Force on Emergency Planning, chaired by the Minister with responsibility 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 (GTF) 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).⁶⁸ 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 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 and was subsequently noted by Government, submitted to the EU Commission and published at www.emergencyplanning.ie.

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

⁶⁸ 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.

at national and regional level and will help inform future assessments of risk management capabilities. 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.

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 trends.

Annex 2: Summary of Open Policy Debate, April 12 2018

On April 12, 2018, an Open Policy Debate was held in the Department of the Taoiseach to discuss the draft list of strategic risks for 2018, as drawn up by the National Risk Assessment Steering Group. The seminar saw representatives of Government Departments and public sector organisations, civil society groups, industry, and research and education institutions contribute to a discussion around the main risks facing Ireland over the medium, and long-term.

The debate was structured around two expert panels, divided across the main categories of risk. Panel 1 covered Social, Environmental and Technological Risks. This panel comprised Prof. John Fitzgerald, Chair of the Climate Change Advisory Council and adjunct Professor in Economics at TCD; John McKeon, Secretary General at the Department of Employment Affairs and Social Protection; Brid O’Brien, Head of Policy and Media at the INOU; and Richard Browne, Principal Officer (Internet Policy) at the Department of Communications, Climate Change and the Environment. Panel 2 covered Economic and Geopolitical risks and the panel comprised Anne Nolan, former Second Secretary General at the Department of Finance; Dan O’Brien, Chief Economist with the IIEA; Dr. Orlaigh Quinn, Secretary General at the Department of Business, Enterprise and Innovation; and Seamus Coffey, Chair of the Irish Fiscal Advisory Council. The workshop was facilitated by M.CO Consultants and attended by almost 80 invited participants.

Martin Fraser, Secretary General, Department of the Taoiseach, set the context for the workshop, emphasising the importance of accurate, evidence-based risk diagnosis and evaluation, and the importance of the role of robust public discourse.

Panel 1 – Social, Environmental and Technological Risks

Each of the risks identified under the three categories were discussed, through contributions from the expert panel, round table discussion, and a subsequent open Q&A session. The group discussed the risk of underemployment, and the challenge of building on the education system’s capacity for up-skilling and re-skilling, to increase labour force participation, as well as the future of work and displacement of jobs. The risk of increased expectations in terms of social welfare expenditure was discussed, as well as the changing nature of income.

Fake news and populism were mentioned in the context of a fragmented political landscape, and international populism trends, and other risks to social cohesion in Ireland, such as societal inequalities and migration, were discussed. The session also focused on the challenges of preparing for Ireland's ageing population, and the risks associated with failing to respond to these changing demographics.

Discussing the risks, and multitude of related impacts around Climate Change led to debate around the need for upfront investment, and behavioural change, as well as the risks of conflicting economic and climate change objectives, and the risks of not planning for economic success and growth in the context of carbon emissions. The relationship between climate change and international migration was also noted. The session then moved to risks around energy security, noting Ireland's reliance on imported energy sources and related Brexit implications. A potential increase in the impact of an energy security risk was noted as Ireland electrifies vital services such as transport and heating, which will be necessary to meet our climate change obligations.

This panel also focused on risks relating to housing supply and affordability. In this context the risk that the market may be unable to address housing issues on the scale required, and the potential role of the State in this situation was discussed. It was noted that housing is becoming an increasingly economic issue, having to date been regarded more as a social or personal issue. However, the point was raised that the risk of a new housing bubble emerging may be overstated, as traditional indicators of a bubble are not present.

Cyber security and the rising risks associated with the growing ubiquity and connectedness of network information systems in all sectors was discussed. It was noted that many cyber attacks and data breaches are accidental. It was also noted that Ireland is equally as vulnerable as other countries in this respect, as geographic location, economy or population size are not factors. Ireland's potential to leverage the significant expertise that exists in the private sector, as well as information-sharing and cooperation with agencies in other countries, was noted. The impact of social media on public debate was discussed as a new risk included in the NRA for 2018. The risk that the multiplicity of information platforms may lead to more polarised societal viewpoints was noted.

Panel 2 – Geopolitical and Economic Risks

The second session looked at Geopolitical and Economic Risks, and a broad range of key messages emerged in relation to the draft list of risks. The importance of international trade for Ireland's open economy and ongoing recovery, as well as the rising risk of anti-globalisation within Europe was discussed. The increasing risk of a global trade war, and Ireland's exposure to the US in such a context, was also raised. It was noted that the importance of the US as a trading partner should not be understated, given that the US is Ireland's largest trading partner, with Ireland's reliance on the US similar to that of Canada or Mexico. The limited control we have over this risk was discussed, given that Ireland is not a key influencer with regard to international trade.

On the domestic side, the risk of overheating in the economy was debated, with the point raised that this risk can be somewhat overstated, given Ireland's low inflation rate (as measured by Consumer Price Index (CPI)), and level of underemployment. Limitations in available economic data were noted to prove challenging in assessing overheating in Ireland's economy. This in turn brings an associated challenge of building trust in data. The risk of over-protection of data, impacting on researchers' ability to provide answers for policy makers, was also raised.

The possibility of the emergence of a two-speed Europe was discussed, while it was recognised that this already exists to a certain extent in terms of East-West and North-South divides. The risk of an increase in integrationist policy in the EU was noted to be potentially overstated, with a sense of limited appetite for further integration noted across the broader EU membership. The possibility that the risk of a Eurozone crisis may be understated was also raised.

In terms of Brexit, the risk of pushing too hard on the so-called 'backstop' option, leading to the breakdown of negotiations and resulting in a hard border was raised. The risk of the loss of the UK as a partner in negotiations in the EU was noted to be significant, and the need for Ireland to build new relationships and alliances, which will take time to mature, was discussed. Relatedly, given the UK and Ireland's mutual interest in working for an open market in services within the EU, the loss of the UK as an ally in this context will be felt.

Furthermore, the risk of the UK becoming a direct competitor to Ireland, following its exit from the EU, with the scope to enhance its competitiveness, not only through tariffs but also through regulatory change, was discussed. Given Ireland's EU membership, it was noted that this will be difficult to mitigate. Implications for Northern Ireland related to the risk of fracturing within the UK were also raised.

General discussion points on risk

Over the course of panel discussions, round table discussions, and open Q&A sessions, a number of points were raised on risk in general. These included:

- The importance of the role of the citizen in the conversation on national risk, and the need to share open, accurate and timely information to build public understanding, trust and openness to change.
- Ensuring citizens are not “left behind” requires communications, public engagement and new ways of mobilising behaviour change.
- Some risks identified at the debate are associated with significant opportunities and benefits for Ireland, e.g. the large presence of MNCs or the challenge of managing economic growth in an environmentally sustainable way. There will be a challenge in managing potential adverse impacts of these risks, while continuing to recognise and protect value.
- The tendency for long term risks to be discounted, e.g. climate change, pensions, critical infrastructure. The need to increase awareness and understanding of long-term risks to motivate short-term actions for gains, some of which will not become apparent until potentially beyond our own lifetimes.
- The balance between the short-term nature of the political system and the need for long-term planning for risks.
- The fact that many risks are multi-faceted and interconnected. The potential value in a matrix approach to risk assessment and a systems approach to risk mitigation.
- The need to focus on the risks that we can influence, but to identify and monitor those that we cannot.
- Some risks are well understood, and the challenge is to make decisions and develop a more adaptable model to address the acceleration of risks, such as housing.

Annex 3. National Risk Assessment 2014 – 2017: A Look Back

The National Risk Assessment, Overview of Strategic Risks was first published in 2014. The exercise aims to examine the high level strategic risks facing the country over the medium- to long-term in a comprehensive, transparent and open way. An important part of the process involves engaging with a wide range of civil society, research and academic, industry and wider public service bodies, as well as the public more generally, to ensure this is truly a national conversation. With four Reports published to date, an analysis of the process and the risks identified in each of these years, including how they have changed and evolved is now timely. In particular this may be of interest in terms of how these changes may reflect the evolution of the risk landscape more generally, and how successful the NRA has been to date in tracking this, as well as in providing useful insights into emerging risks and trends pertinent to Ireland.

The NRA process aims to look ahead to emerging risks, whilst not avoiding those that already exist. However, it could be argued that in some cases these current risks received more attention than the necessary horizon-scanning that leads to the identification of emerging risks. This is perhaps a natural outcome when producing a report on an annual basis, with an understandable focus on annual change. Conversely, the benefits of an annual timeframe include encouraging regular debate and dialogue generally, as well as contributing to ensuring that the public sector system is considering and responding to risks and issues in the more immediate term. In working to achieve the right balance in this regard, consideration could be given to structuring the process and the report in such a way as to clearly identify and discuss both the short and longer-term risks, or to ensure the longer-term, more nebulous outcomes are sufficiently drawn out, in addition to the more immediate risks identified.

Indeed, in previous reports, the NRA has inevitably not always succeeded in this more uncertain long-term territory. For example, while the risks around a potential Brexit were identified at an early stage, the emerging international trade war that continues to develop was not foreseen. It could also be argued that further development of the technology-related risks may have been useful, and that the NRA process was perhaps somewhat reticent in recognising the growth in the significance of online tools for public debate and public opinion. While this recognition in the 2018 report is in line with work now ongoing in

various other fora, including the EU Commission, bodies such as the World Economic Forum were discussing this trend as early as 2013⁶⁹. In this context, this report and process itself could perhaps be more risk-taking in its approach, and in exploring emerging trends which may or may not continue to evolve into distinct threats, but which may warrant such consideration at an early stage.

With this self-reflective lens in mind, the following sections set out the main risks identified, and their evolution, under 5 broad categories⁷⁰ over the course of the 4 Reports.

Geopolitical Risks

In the four National Risk Assessment (NRA) Reports since 2014, a clear emerging theme was the increasing and related risks and concerns around both Brexit, and the stability of the EU. The intensity of the risks can be seen to increase over the course of the four reports, with the 2017 Report expanding greatly in detail on previous years. Risks around Northern Ireland also came increasingly to prominence in this category, in particular in 2016 and 2017, and while risks related to terrorist incidents and armed conflict could be seen to increase in urgency over the period in a European context, a decrease was noted in terms of threats from dissident republican and loyalist groups in Northern Ireland.

While risks around the changing distribution of global influence and a move away from a rules-based system were consistently on the agenda throughout the four years, the rise of populism and anti-establishment sentiment has also presented a growing threat world-wide in the years since the first report was published, which perhaps may have warranted inclusion at an earlier stage⁷¹. The effects of this growing trend, and the clear inter-linkages between the two risks are reflected in this year's report, for example, with the risks around a global trade war, arising from a significant change in policy following the election of the current US administration in 2016. This example highlights the importance of identifying and

⁶⁹ World Economic Forum Global Risks Report 2013:

http://www3.weforum.org/docs/WEF_GlobalRisks_Report_2013.pdf

⁷⁰ The risks are grouped under GeoPolitical, Economic, Social, Environmental, and Technological categories, in line with the WEF's approach in their Global Risks series.

⁷¹ Reference to increasing populism and its part in contributing to global instability was first mentioned in the 2017 NRA.

recognising the crucial linkages between and among risks, in an exercise such as this, an element which has been further developed in the 2018 Report.

Economic Risks

Weaker than expected global economic growth and risks around public debt sustainability featured strongly in the first three NRA Reports before dropping off the list of strategic economic risks in 2017. The strong domestic economic growth experienced since then has led to a risk of overheating in the economy being included in this year's report. While it could be argued that potential risks around stronger than expected domestic economic growth could perhaps have been explored at an earlier stage in the process, the evolution of these risks over the course of four years exemplifies the volatile and uncertain global economic environment and the difficulty of accurate risk assessment at this level, and during this period.

Vulnerabilities in the domestic banking system, and economic risks around the re-emergence of the euro area debt crisis and turbulence in the euro area, as well as monetary policy uncertainties continued to feature as key strategic risks over the four years, further underlining the above point re volatility and uncertainty. Similarly, risks around the Irish economy's overreliance on multinational corporations, proposed international tax changes, and a loss of competitiveness all continued to be discussed over the four years.

Additions to the list in later years included risks around our trading relationship with the UK in 2016, which then was expanded to changes in the international trading environment in 2017, and a new specific risk around the economic impact of Brexit on vulnerable sectors of the economy in 2017.

The potential significant economic impacts from the rapidly-changing, volatile European and international climate we have seen over the past several years, while making risk identification a difficult task, also highlight the relevance of an annual exercise, given the rapid pace of change. As discussed above in the introductory section, managing this short-term pace of change, whilst still ensuring longer-term strategic analysis remains constant, can prove challenging.

Social Risks

In terms of social risks discussed over the four years, a key risk identified as a legacy of the recession was around the persistence of structural unemployment in 2014 and 2015. This evolved slightly in framing to long-term exclusion from employment in 2016, before dropping off in 2017 as long-term unemployment rates continued to fall. The related risk around Human Capital and Skills needs and gaps, originally discussed in an economic context in 2014, moved to the Social category in 2015, and continued to feature in 2016 and 2017, including discussion of risks around the funding and reform of the education and training system and its ability to meet the needs of a fast-changing labour market.

Another legacy of the recession, risks around public expectations and pressures in relation to public expenditure have been discussed in all 4 years, including the possibility of calls for reversal of short-term fiscal measures introduced during the recession, particularly in relation to public pay.

Risks around any potential failure to respond to demographic changes/dependency ratio; social cohesion and political stability; and increases in chronic diseases have been discussed in a relatively unchanging fashion throughout the four years⁷². Migration and Integration issues have similarly featured in all four reports, however, the narrative has moved from concerns around the level of outward migration and the loss of skilled members of society, to challenges around the changing nature of Irish society and related integration issues, as well as broader issues in relation to the role migration played in the Brexit debate, and specific labour market implications arising from Brexit. Again, the multi-faceted and fast-changing nature of the risks around migration and integration point to the rapidly-changing context of today's world, and the relevance of an annual exercise in tracking these changes and the risks they bring for Ireland.

The new risk added in 2018, the Impact of Social Media on Public Debate, has been a growing threat for several years now. As previously mentioned, given that the World Economic Forum identified the spread of misinformation online as a top trend in modern society as early as 2014, there was perhaps scope in this exercise to highlight the potential risks and impacts at an earlier stage.

⁷² Increase in chronic diseases is not discussed as a stand-alone risk in the 2018 Report.

Environmental Risks

The risks discussed under the Environmental category have remained largely constant over the four years of the National Risk Assessment exercise. Climate Change and extreme/adverse weather events; disruptions to energy supply and ensuring an affordable, sustainable and diverse energy supply; food safety; and infrastructure development have all featured in each report, reflecting the evolution and development of these risks over the period.

Climate change has loomed large as a significant environmental risk since the first NRA Report in 2014. Since then, the focus has shifted from impacts of climate change such as flooding, water shortages, increase in extreme weather events and negative effects on tourism to compliance costs for Ireland associated with emissions and renewable energy targets to firstly 2020, and now 2030. The risk of failing to invest effectively or sufficiently in both mitigation and adaptation measures was detailed in 2016 in addition to Brexit-related impacts, and the 2017 Report highlighted the need for policy and regulatory stability to promote necessary investment.

Housing issues were discussed as part of the infrastructure section in 2014, before gaining prominence as a separate discrete risk in 2015, 2016 and 2017. While housing-related risks were therefore reflected from the start of the process and before they became very prominent in public debate, the pressures on the rental market were not a feature of the discussion until the 2015 Report. In this regard, a greater focus on a deeper level of analysis in investigating potential developments in terms of identified risks could potentially help in foreseeing future, related issues.

The implications of failing to invest adequately or strategically in infrastructure, in the context of projected population growth of 1 million additional people over the next 20 years were explored over the four years, in addition to the risks around public opposition to infrastructure projects. The impact of insufficient public investment on indigenous job growth and FDI opportunities, leading to regional imbalance, and the need for investment in water infrastructure were highlighted in the 2014, 2015 and 2016 Reports. The 2017 Report focused on challenges in terms of preparing and planning for sustainable growth, given the strong performance of the economy, and in particular the importance of plan-led investment in this regard. Decoupling growth from adding to environmental pressures such as climate change and declining biodiversity was noted as one of these critical challenges.

Technological Risks

In terms of technological risks discussed throughout the four Reports to date, a growing urgency can be seen in terms of risks related to cyber security, critical information infrastructures, and data theft and fraud. The risks around cyber security have grown in prominence over the four years evolving from noting the increased sophistication of tools for carrying out cyber attacks and the threat to data collected by the public service to the growing concern at EU and international levels of the possibility of terrorist groups resorting to cyber measures, as well as the risks for businesses and individuals, including from related criminal activity.

Risks in relation to anti-microbial resistance, major pandemics, and nuclear contamination have been discussed every year, but with the related risks remaining relatively unchanged. Likewise, risks around disruptive technology trends and their potential impact on the world of work and jobs are discussed throughout the four years, with the need to focus on re-training, in particular in the area of digital skills noted. However, as mentioned in the introductory section above, there may have been scope in previous years for further development of the technology-related risks.

Conclusions

It is understandable that many of the risks discussed over the last four years remain unchanged, either in subject area and/or in nuance, given the medium- and longer-term context of the majority of the risks discussed under the National Risk Assessment reports. Risks identified in the Technological, Environmental, and Social risk categories can be seen in this context.

However, some of the changes in risks discussed, particularly in the GeoPolitical and Economic categories, display the very rapidly changing and unpredictable environment Ireland finds itself in. For example, while Ireland recorded the highest levels of growth in the EU over the past four years, as a very open economy, weaker than expected global economic growth was a key economic risk and concern over 2014, 2015 and 2016, reflecting our vulnerability to risks facing the global economy.

Similarly, the rapidly changing geopolitical context, with significant changes in trade policy approaches apparent in the US, as well as potential trade implications from Brexit, is very apparent over the course of the four NRA Reports, with new, emerging risks around these challenges introduced in latter reports.

Likewise, while risks around migration and integration were discussed in the context of concerns around net outward migration in 2014, and the loss of skilled members of society, the conversation changed dramatically from 2016 on, to challenges around the changing nature of Irish society and related integration issues, as well as broader issues in relation to the role migration played in the Brexit debate, and specific labour market implications arising from Brexit.

In such a time of turbulence, uncertainty, and rapid change therefore, the annual nature of the National Risk Assessment process is important in ensuring both that risk analysis is up to date and current, and that conversations around risks at the national strategic level are prioritized at all levels.

One of the difficulties in producing such a Risk Assessment is that the majority of risks discussed across the five categories are longer-term in nature, which means they remain relevant over many years even as they evolve and change. From an administrative point of view, this makes curating the risks to be included each year a challenge, as the risks are of such significance and gravitas that to exclude them does not seem feasible, but creating space (in every sense) for the consideration of new and perhaps more nebulous and less well-defined emerging risks, becomes challenging. The far-reaching breadth of the Report, reflecting risks across five categories is a factor in this as well. Nonetheless, much of the value is in stimulating dialogue about risks which might lie beyond the current agenda of policymakers.

However, these limitations, and the aims and purpose of the process, are clearly set out and acknowledged in the Report each year. While the value of the exercise is in creating the opportunity for a broad and inclusive conversation on strategic risks facing the country at a high level, consideration could also be given to ensuring space is created for both the immediate and the longer-term, less defined risks on the horizon.

Annex 4. NRA public consultation – groups/individuals that made a submission

All submissions are available on the Department of the Taoiseach website

(www.taoiseach.gov.ie)

Apartment Owners Network

Centre for Cross-Border Studies

Coláiste Ghobnait, Inis Oir

Commissioners of Irish Lights Navigation and Maritime Services

Conradh na Gaeilge

Dental Health Foundation

DCU INTERACT research project

Eamon Ryan, T.D.

Ervia

ICMSA

ICTU

INOUE

Irish Airline Pilots Association

60 submissions from Private Individuals

Social Justice Ireland

The Wheel

Listed in Alphabetical Order

Annex 5. NRA Public Consultation – risks highlighted by respondents

The following table contains a summary of the risks highlighted by respondents during the public consultation phase of the National Risk Assessment 2018, in addition to how, where appropriate, these are reflected in the final Report. A number of submissions raise points not directly addressed in the table, including risks already explicitly identified, drafting points and other comments on specific policy issues, as well as points on mitigating risks which, as mentioned previously, does not come under the remit of this exercise.

Category	Individual Risk	How reflected in NRA 2018
Geopolitical	Instability in Northern Ireland, including the potential cost of a united Ireland	Risks around Northern Ireland are discussed under the Northern Ireland risk.
	Dissident activity and terrorism	This is discussed under the Northern Ireland risk.
Economic Risks	Economy overheating, including uncontrolled growth	This is covered under ‘Overheating in the Economy’.
	Risks around the national debt	This context is set out under the Economic Category.
	Danger of another banking crisis, and the need for banks to better understand and work with business	This specific issue is not included as a strategic risk this year.
	Monetary policy normalisation	This context is set out under the Economic Category.
Social	In relation to skills needs: - The risk of not creating welcoming conditions for returning emigrants, in particular, including lack of responsiveness in the education system to skills needs and need to expand education system to encourage more students to take	High-level, strategic risks around ‘Human Capital & Skills Needs’ are discussed in the Social Risks category.

	<p>up apprenticeships and alternatives to university education where appropriate; and</p> <ul style="list-style-type: none"> - Risk that CAO points race is not creating a positive educational environment; - The risk of not addressing the need to appropriately support and re-skill and/or up-skill the long-term unemployed and youth unemployed; and - Risk of skill shortages in key areas such as healthcare and engineering. 	
	<p>Risk of not adequately providing for pension needs</p>	<p>Risks around pensions are discussed under ‘An Ageing Population including pensions and health system challenges’</p>
	<p>Risk of not addressing challenges in the healthcare system</p>	<p>Risks around health system challenges are discussed under ‘An Ageing Population including pensions and health system challenges’</p>
	<p>Risks around wealth inequality, encompassing:</p> <ul style="list-style-type: none"> - Related social consequences, including rise of populism and impact of use of social media in intensifying this risk; - Wealth inequality meaning that certain risks, such as the rise in chronic conditions, are borne more by the less well-off ; 	<p>The Social Risks category includes a high-level and broad-ranging discussion of strategic risks around ‘Social Cohesion and Political Stability’. In addition, linkages are made to the risks discussed around the ‘Impact of Social Media on Public Debate’ which is also discussed under Social Risks.</p>

	<ul style="list-style-type: none"> - Risk that imbalanced and overly narrow tax base, the increasing digitisation of jobs, and the increasing role of intangible assets in value generation will exacerbate wealth disparities; - Risk that wage disparities for young people, migrant workers and women will exacerbate issues of inequality; - Risk that insurance costs will continue to rise such that people and/or businesses do not purchase the necessary insurances; and - Risk that insufficient steps are taken to ensure social and economic inclusion of the less well-off. 	
	Rise of extremism on both left and right	This is covered under ‘Social Cohesion and Political Stability’.
	Lack of public trust in institutions hampering take-up and delivery of public services	There is a discussion of public trust under ‘Social Cohesion and Political Stability’.
	Lack of trust in and security for traditional media	The role of traditional media and related risks are discussed under ‘Impact of Social Media on Public Debate’
	Risks around the referendum on the eighth amendment, held in May	This is covered in the report under ‘Impact of Social Media on Public Debate’
	Risk that we do not adapt and sufficiently skill people in relation to social media etc. in terms of critical	These risks are covered under ‘Impact of Social Media on Public Debate’

	capacity regarding news content and resilience	
	The need for multilingual communication in crisis situations and to ensure that non-English speaking citizens are not “left behind”	This risk is reflected under ‘Migration and Integration’ risks.
	Risk of not adequately providing for childcare and early education needs	This specific issue is not included as a strategic risk this year.
Environmental Risks	<p>Risks under Climate Change:</p> <ul style="list-style-type: none"> - Risk of over-reliance on imported fuel sources; - Risk of not having sufficient power generation solutions in place to support transition to low carbon and climate resilient society; - (Despite generally high levels of public acceptance of the role that human behaviour plays in climate change) there is a risk that the necessary behavioural change to address climate issues will not take place. This includes not achieving the heightened awareness and understanding of how to respond to climate related events such as flooding and water safety that is needed; - The risk of not responding to climate change appropriately and associated costs, including emissions related and reputational 	Risks around climate change are set out under the Environmental category

	<p>risks as well as other unintended consequences e.g. how airports are configured; and</p> <ul style="list-style-type: none"> - The need to invest in renewable energy and recycling facilities. 	
	<p>Risk that biodiversity is not adequately protected – with attendant impacts on our habitat, climate and economy</p>	<p>Reflected under ‘Climate Change & Biodiversity’ risk</p>
	<p>Risks around infrastructure:</p> <ul style="list-style-type: none"> - Risk of investment in infrastructure not keeping pace with growth, and bottlenecks in progressing infrastructure developments including strategic infrastructure projects and projects that contribute to decarbonisation, social services etc.; - Risk that rising levels of litigation hamper development and delivery of services; - The risk of one-off housing leading to infrastructure constraints, including consequent risks to competitiveness; - Lack of investment in public transport and alternative commuting options such as cycle paths; and - Risk of not sufficiently joining up measures to improve international 	<p>These risks are reflected and discussed under ‘Infrastructure Constraints’, which includes discussion of Project Ireland 2040</p>

	connectivity and ensure capacity is in place to meet rising demands on marine and air transport.	
	<p>Housing risks including:</p> <ul style="list-style-type: none"> - Homelessness, rising price of property and rising rents; - The risk of the housing challenge growing and having a demotivating effect; and - The risk of housing stock, particularly apartments, not being of sufficient standards. 	Risks around housing are covered under the ‘Supply & Affordability of Housing’ risk.
Technological	Risks around underestimation of cyber security threat and potential for cross-cutting consequences	Covered under Cyber Security
	The risk of not planning for artificial intelligence and of not leveraging the full potential of computing power to tackle challenges such as health etc.	This is discussed under risks around ‘Disruptive Technologies’
	Pandemics, in particular ebola	This specific issue is not included as a strategic risk this year.
Other	Risks around declining use of the Irish language in Gaeltacht areas and consequent risks to national identity	This specific issue is not included as a strategic risk this year.
	Risk of declining populations in Island communities (and rural areas) affecting service delivery etc.	This specific issue is not included as a strategic risk this year.

