Brexit &
Future EU
An Ibec campaign

Ibec
For Irish Business

Europe's digital future - open for business

Irish business priorities for a
digitalised EU 2020-2024

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Future EU**

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Contents

Key messages

Ibec envisages a Europe that provides the ambition and tools to enable its member states, businesses, innovators and citizens to lead and succeed in the local and global opportunities offered by further digital transformation, enabling further innovation, quality jobs, better services and enhanced well-being in period 2020-2024.

Digital leadership is critical to Europe's future economic success and well-being. Embracing further technological change presents both opportunities and challenges across several economic and social domains. The EU and its Member States cannot be complacent on the level and pace of their digital development. While progress is being made, the European Single Market is still incomplete, and its Member States, businesses and individuals must be further enabled to embrace emerging technologies and innovation for a competitive digitalised world. European Union policy makers can play a key leadership role in preparing Member States, organisations and individuals for further technological change. In this context, the shared ambition of the EU and its Member States must be to lead on digital development. Europe's digital frontrunners should seek to bring along other Member States, share best practice and build an inclusive agenda that ensures a rising [digital] tide raises all boats. Europe must enable and champion further digital innovation, enterprise and trade.

This paper presents nine Ibec recommendations, across three priority areas, to EU policy makers and influencers on the next steps for a more digitalised, more successful Europe. These include:

Priority 1.   Lead an era of further digital transformation. Specifically:
1. Prioritise further digital development across the EU and complete the Single Market.
2. Work with, not against, technology in governance.
3. Intensify collaboration in developing international digital standards.
4. Lead by example in eGovernment and digitalised public services, share best practice.

Priority 2.   Enable everyone to reach their potential in a digital era. Specifically:
5. Maintain trust and security in accessing further digital opportunities.
6. Ensure further investment and innovation in secure digital infrastructure and services.
7. Enable everyone to accomplish more through the right knowledge training and skills.

Priority 3.   Champion innovation, enterprise and trade in a digital era. Specifically:
8. Invest and collaborate in further digital innovation, deployment and adoption.
9. Intensify work with partners to lower global barriers to digital trade and innovation.

Our vision for a more digitalised Europe that works

A Europe that provides the ambition and tools to enable its member states, businesses, innovators and citizens to lead and succeed in the local and global opportunities offered by further digital transformation[1], enabling further innovation, quality jobs, better services and enhanced well-being.

New context needs new thinking

Sean O'Casey, the Irish playwright observed, 'All the worlds a stage and most of us are desperately unrehearsed'. Europe must be prepared for an era of further change. The EU and its Member States compete on an increasingly competitive global stage in the context of significant technological, geopolitical[2], demographic[3] and sustainability challenges[4]. Embracing further technological change[5] presents both opportunities and challenges across several economic and social domains[6][7]. Further progress in the level and pace of digital development is seen as critical to the EU's current and future economic, operational and political success[8].

Ibec welcomed the European Commission's Digital Single Market (DSM) Strategy[9] in 2015[10] as bringing a necessary focus to the importance of our digitalised era. However, the ultimate success of the DSM Strategy must be measured in terms in economic growth and jobs. While it may be too early for ex-post evaluations, it is estimated that initiatives[11] enacted or expected to be enacted, in the European Digital Single Market (DSM) Strategy, since 2015, could deliver €177 billion in annual economic gains to the European Union (EU)[12]. While this is positive progress, the European Single Market is still incomplete, and the net cost and commercial impact of new regulation has yet to be assessed. Member states, businesses and individuals must be further enabled to embrace emerging technologies and innovation on a competitive digitalised world stage. It is estimated that fully implementing the DSM strategy, promoting further internet connectivity and enhancing cyber security could provide annual efficiency gains of up to €178 billion to the EU economy up to 2030[13].

The EU and its Member States cannot be complacent on the level and pace of their digital development. The European Commission ranks Ireland above the EU average in a cluster of high performing member states and 7th in terms of overall digital performance across the EU[14]. Many of the EU's digital frontrunners have relatively small populations and are open, well digitized, innovative and export driven economies[15]. The Commission report that top European performers are performing well internationally across many indicators of digital development but that European countries combined still have gaps to close with global top performers[16]. Evidence shows that the EU and its Members States must intensify their momentum in digital development[17] or risk losing ground in the face of further technological change and increased global competition[18].

In this context, the shared ambition of the EU and its Member States must be to lead on further digital development. An effective digitalised single market would mean that European countries combined would be on a par with global top performers in digital. To do this, all Member States, including Ireland, must show leadership by developing their national digital agendas and working together with the EU institutions and business to ensure Europe develops a more effective digitalised economy that can compete globally, generating further economic and societal benefits for its citizens.

This paper presents Ibec's vision and recommendations to EU policy makers and influencers on the next steps for a more digitalised, more successful Europe for national Governments, enterprise, innovators and individuals. The paper examines enablers including governance, education, infrastructure, innovation and enterprise conditions. The paper is necessarily a priority list rather than an exhaustive list. We believe that, pursued with vigour, these priorities will enable business to deliver further economic and societal benefits in Ireland and across the EU.

Our priorities for a more digitalised Europe, 2020-2024

A. Lead an era of further digital transformation.

European Union policy makers should play a key leadership role in preparing Member States, organisations and individuals for further technological change. They should leverage the Single Market and shape the emerging governance of digital transformation, both at home and with its international partners, developing conditions that enable Member States, organisations and citizens to succeed in an era of further digital transformation[19]. They should act as a catalyst by enhancing conditions for further secure digital adoption and lead by example in embracing technological change and enhanced public service delivery.

Recommendations:

1. **Prioritise further digital development across the EU and complete the Single Market.**

   Preparing for further digital transformation is a global strategic issue[20] and should remain a key political commitment for the EU and Member States in the period 2020-2024. In this regard, Ibec welcome the appointment of a dedicated Vice-President of the next European Commission to drive this shared agenda. Some of the factors that hold up Europe's digital performance are simply due to regulatory complexity and fragmentation in the current Single Market[21]. This does not always require further regulation but rather better communication and better implementation of existing rules. Ensuring a Single Market that works[22] is the foundation for enhancing Europe's future global digital performance.

   i   Reflect the strategic, horizontal and cross-sectoral impacts of further digitalisation in an integrated EU governance framework. Digital transformation is breaking down silos so there is a need to recognise the cross-sectoral impacts of digital transformation. However, that means there is a need to better co-ordinate policy initiatives that originate from different pathways and assess the cumulative impacts of such proposals. For example, the proposal on ePrivacy and other EU regulation (GDPR) should work together to deliver EU objectives to promote the development and use of emerging digital technologies. Ensure coherence of current and any future EU rules in this context.

   ii   Member States should intensify the level and pace of their national digital development. Deeper commitment from Member States, coupled with an integrated EU framework will enable further digital opportunities.

   iii   Complete the Single Market. Ensure effective implementation and risk-based enforcement of rules.

2. Work with, not against, technology in governance.

Employ a considered governance approach in encouraging further digital transformation, including the development and deployment of artificial intelligence (AI) and digital automation.

    i   The heterogenous nature of AI and its applications means a one-size-fits-all legislative approach would be problematic or risk stifling the desired opportunities. Harness existing governance frameworks where possible, complemented by voluntary initiatives for trustworthy AI applications, for example certifications or codes of conduct. Policy makers and stakeholders should work together to define any further appropriate safeguards needed for sensitive use cases whilst continuing to encourage innovation. There should be an evidence-based, risk-based and proportionate approach to AI governance.

    ii   Regulatory intervention should be considered only where real market failures exist. The Single Market is digitalised. Any new rules should be an evidence-based and 'digital by default'.

    iii   Employ a flexible, outcome-based policy framework that sets clear thresholds for market intervention and unlocks the positive potential of further digital transformation for businesses and consumers alike. The rate of technological and behavioural change can often outpace policy and regulatory processes. This can risk undue regulatory burden or obsolescence.

    iv   Recognise the global nature of further digital transformation and remain open to the principles of innovation, competition and free trade. Some stakeholders may see further digital transformation as a threat and seek to implement isolationist or protectionist measures. Further technological development and adoption cannot be reversed. It may be possible to frustrate digital development temporarily, but that would come at the cost of our innovation and lost global competitiveness.

3. Intensify collaboration in developing international digital standards.

Secure digital transformation is borderless. EU engagement with its international partners can deepen our mutual understanding of the opportunities and overcome shared technical and policy challenges. Shared global standards in emerging technologies and cyber security will further enable trust, fair competition and avoid market distortions. Develop industry-led standards 'bottom-up', using the following principles: inclusiveness, consensus, transparency, effectiveness, technology-neutrality and impartiality.

4. Lead by example in eGovernment and digitalised public services, share best practice.

The EU institutions and national governments should act as a catalyst for enabling further cross-border and cross-sectoral digital opportunities and raising Europe's collective digital performance.

a. **Ensure a rising [digital] tide raises all boats and our future global competitiveness.**
Digital performance, while improving, varies across the EU. There are competing views of a digitalised Single Market. Rigorous debate is necessary and should continue in building consensus and bringing everyone along. However, EU digital frontrunners should also intensify the pace and level of Europe's collective digital performance by demonstrating their success stories, building trust in digital transformation and deepening collaboration with the weaker performers[23] in building a shared and inclusive agenda.

b. **Use the European Semester to promote adoption of digital opportunities.**
Encourage Member States in further digital development efforts, share best practice in realising digital opportunities. The European Commission co-ordinates EU countries' macroeconomic policies through the European Semester process.

c. **Lead on online Government services and the digitalisation of public service delivery.**

    i   Intensify EU and national GovTech ecosystems. Further develop institutional capacities and public-private partnerships (PPPs) to realise identified opportunities for online Government services and digitalised public service delivery for organisations and citizens. Deliver the Tallinn Declaration on e-Government[24].

    ii   Intensify work on open data. Define and extend the range of high value datasets that the public sector will make available in promoting further digital innovation. Enhance transparency, promote further business creation and innovative public services[25].

    iii   Deliver the investment promised to support further public sector digital deployment in the next long-term EU budget – the European Multiannual Financial Framework (MFF), for the 2021-2027 period.

B. Enable everyone to reach their potential in a digital era

To be a digital leader, Europe needs an inclusive and pro-investment environment. Leaders bring people and organisations with them – investment and success follows. Europe must enable everyone to reach their potential in an era of further digital transformation. This means an environment that: protects organisations and people online, while enabling investment in further digital opportunities; and enables everyone to accomplish more with technology and data through the right knowledge, training and skills.

Recommendations:

5. **Maintain trust and security in accessing further digital opportunities.**

   Ensure an environment that adequately protects rights, values and assets[26], while providing an effective framework to invest further in innovative digital products and services.

   a. **Take a human-centred approach[27] to further digital development and adoption.**
   Help Member-States, organisations and individuals to contextualise and operationalise EU[28] and OECD principles[29] in the development and deployment of 'trustworthy AI'[30] powered solutions across several domains. Governance should protect values (including human dignity and fundamental rights, freedom, democracy, equality and justice) and enable business to add value – innovation and enterprise are human endeavours that can enable higher standards of living across the EU.

   b. **Ensure consumers are prepared to access further digital opportunities.**
      i   Enhance consumer information[31]. Increase awareness and enforcement of existing consumer protection rules. Digital transformation is driving further cross-border movement of goods and services.
      ii Reflect current business and consumer experience in any evaluation of existing or proposed rules. Digital transformation has altered business models and consumer behaviour. Adapt existing rules to the digitalised market.
      iii Balance consumer trust with legal certainty to businesses providing innovative products and services in any new proposals.

   c. **Strengthen cyber security to protect and enable further digital opportunity.**
      i   Intensify EU and Member State work with international partners to understand and shape the response to an ever-changing cyber risk and governance environment.
      ii Engage enterprise in the development of certification schemes designed under Cyber Security Act[32].
      iii Align the certification schemes with market driven standards. To be successful the schemes must be able to keep pace with business, sectoral and technological developments in order to generate adoption in the market. Avoid regulatory fragmentation.

iv   Enhance the sharing of information on threats and best practice. A formal structure of information sharing is required between a multitude of stakeholders (not just those listed within the Cooperation Group of the Cybersecurity Act).

v   Foster and promote the cyber security ecosystem at both EU and Member State levels. Promote further research, innovation and entrepreneurship in the field of cyber security.

- Attract and foster talent for further secure digital transformation.
- Invest further in the knowledge and employability skills for a secure digital age.
- Promote Europe as a location for mobile cyber security talent.
- Deliver the investment promised for 'cyber security and trust' in the next long-term EU budget – the European Multiannual Financial Framework (MFF), for the 2021-2027 period[33].

d.   **Ensure privacy standards enable further digital innovation.**

i   Ensure the GDPR advances the goals of the Single Market by delivering on the objective of pan-European goals in ongoing implementation and risk based-enforcement that enables innovation.

ii   Deliver a considered ePrivacy proposal that works together with other EU regulation to deliver EU objectives to promote the development and use of emerging digital technologies.

iii   Establish structured enterprise engagement and consultation by the European Data Protection Board (EDPB) with industry and assess the impact of GDPR to ensure it supports innovation and the Single Market.

iv   Support multi-market business models by ensuring timely and consistent EU-wide regulatory guidance and swift risk-based enforcement that also rewards good practice.

v   Support and facilitate EU-wide Codes of Conduct for GDPR implementation by SMEs and interested sectors.

vi   Deliver a balanced EU-US bilateral agreement on cross-border access to e-evidence in criminal matters[34]. While acknowledging the importance of effective law enforcement, the protection of fundamental rights and business certainty must be incorporated into any final agreement. There must be appropriate checks and balances on law enforcement access to citizens' and company data.

6. Ensure further investment and innovation in secure digital infrastructure and services.

To be a digital leader, Europe must further develop its digital and data infrastructure to enhance connectivity, access and inclusion in further digital opportunities, mitigating potential digital divides. This means ensuring competition and the right incentives enable further investment and innovation in secure digital infrastructure and services.

a. **Encourage further private sector investment in high quality, secure digital infrastructure[35].** Promote a consistent Single Market approach to spectrum policy and management. Enable 5G deployment aligned with objectives for an EU Gigabit Society[36]. Deliver the investment promised for developing digital infrastructure in the next MFF, for the 2021-2027 period.

b. **Ensure a level playing field amongst players that offer the same service based upon an evidence-based approach[37].**

c. **Ensure effective enforcement of competition law.**
It is important for Europe's future competitiveness that our digitalised markets remain competitive and open to new business models. Use an evidence-based approach to assess barriers to competition and to address any infringements or identified market failures. Be mindful of unintended impacts of market-wide regulation to correct for competition concerns and apply better regulation principles to ensure such action is justified, proportionate and non-discriminatory. The rights of market actors should be balanced in any new proposals – adequate market information, IP rights, and the freedom of contract of firms.

d. **Intensify collaboration between government, regulators, enterprise and the research community to encourage voluntary, responsible sharing of datasets for training AI systems relevant to key sectors while respecting IP, privacy and cyber security requirements.**
    i   Engage stakeholders, identify and breakdown technical barriers to sharing data (for example around portability and interoperability), establish standards and mechanisms to enable legal and responsible data sharing.
    ii   Incentivise the legal and responsible sharing of research datasets:
        • Encourage voluntary sharing of data.
        • Promote data usage agreements.
        • Use regulatory sandboxes to test data sharing standards and mechanisms.

e. **Maintain legal certainty for business on liability around emerging technologies.**
The current framework, including the limitations to intermediary liability and Product Liability Directive, offer certainty for digital supply chains and the delivery of AI applications in the B2C context. Commission guidance could provide further certainty. Transparency and accountability should be promoted in the B2B context, while respecting contractual freedom. The 'Digital Service Act' discussions should seek to retain the principle of limited liability and develop a robust evidence base before proposing any change.

f. **Encourage continued investment in quality digital content for consumers.**
Ensure the implementation of EU copyright rules strikes a balance between rights holders and the further development and provision of innovative services. Ensure any review of the E-Commerce Directive (2000/31/EC) recognises the importance of safeguarding media freedom or fundamental rights via horizontal limitations to liability and the role that this framework plays in ensuring a diverse supply of intermediation services. Maintain country of origin rules within the single market, as a basis for scaling small businesses and, keeping derogations to a minimum.

7. **Enable everyone to accomplish more through the right knowledge, training and skills.**

Enable everyone to reach their potential in an era of further innovation and technological change. Encourage inclusion and diversity; invest further in education and digital skills; and share best practice. Build an indigenous pipeline of European digital talent. Augment this pipeline, build partnerships and attract mobile digital talent.

a. **Invest in helping organisations and people prepare for further digital transformation.**

   i   Identify and address relevant skill gaps at Member State and EU levels. Align the needs of our labour market and education and training systems.

   ii   Invest in the knowledge and employability skills for a digital age. The economy needs co-ordinated initiatives across the education system from primary to post-graduate, apprenticeships and alternative pathways to gain the relevant STEAM[38] and transversal skills[39] to embrace further technological change, including AI and digital automation.

   • Integrate digital skills at early curricular levels. Include digital skills alongside literacy and numeracy as a basic skill.

   • Empower educators and parents. Curriculum reform, professional development opportunities for educators and career guidance are required so that education reflects the changing world around us and fosters future awareness and digital talent.

   • Ensure AI and digital automation are not just included in computer science curricula but in joint degrees or course modules too. Encourage cross-faculty collaboration between computer science and other enterprise-focussed academic fields to develop an indigenous pipeline of enabled AI talent.

   • Embed an inclusive and lifelong approach to the development of skills for a digital age. Enable organisations, workers and jobseekers to keep pace with technical change through upskilling and reskilling as necessary.

   • Deliver the investment promised for digital skills development in the next long-term EU budget – the European Multiannual Financial Framework (MFF), for the 2021-2027 period.

   iii Work with employers to manage further digital transformation in the workplace. Employers will need to facilitate new ways of working. Public policy on childcare, lifelong learning, retirement, pensions and taxation must keep people engaged in the labour market in a way that doesn't discriminate or disincentivise work. Ensure that the employment rights framework and social protection system facilitates flexible working arrangements, new forms of work and management of remote working, employee productivity and employee performance. Deploy appropriate supports to people whose current jobs may be transformed by technological change, with a focus on training, career guidance and social safeguards.

b. **Promote further collaboration in learning.**
   Build on the Digital Jobs and Skills Coalition. Promote greater collaboration between government, organisations and education providers in the development, promotion and delivery of Science, Technology, Engineering Arts and Maths (STEAM), language and digital skills at all levels. Develop a framework that promotes STEAM and encourages Member States to learn from each other in developing STEAM talent across the EU.

c. **Encourage inclusion, diversity and talent to guarantee Europe's digital leadership.**
    Promote inclusion and equality in access to the opportunities presented by further digital transformation. Widen the perspectives used in the development of emerging technologies such as AI. Embed inclusion and diversity in technology.

    i   Continue to improve Europe's attractiveness to mobile digital talent and investment. Market Europe as a location to invest or develop a career in our digitalised economy.

    ii   Educate and challenge occupational stereotypes in technical fields. This means building an awareness of gender stereotyping among educators and parents, overcoming the challenges of subject availability and opening horizons to broader careers for example as entrepreneurs, in STEM or other technical fields. This requires career guidance, exposure to role models from industry to bring to life non-stereotypical career opportunities and the availability of work placements in organisations in gender atypical areas.

    iii Provide tools and share examples of good practice that employers have engaged in to break down the barriers to gender balance. Demonstrate real business and economic reasons rather than purely legislative reasons to embrace diversity.

    iv   Promote flexibility within all forms of employment, by promoting flexible forms of work and working arrangements in general, various categories of persons can be brought back to, or kept in labour markets to avoid a segmented labour market.

C. Champion innovation, enterprise and trade in a digital era

To be a digital leader, Europe needs to encourage further digital innovation enterprise and trade. Rising global protectionism, political and regulatory fragmentation threaten the opportunities for economic growth and well-being from further digital transformation. The success and sustainability of Europe's digital leadership will be bolstered by an environment that shuns protectionism, champions further digital innovation and trade, and enables digital adoption among Member States, organisations and individuals alike.

Recommendations:

8. **Invest and collaborate in further digital innovation, deployment and adoption.**

    a. Leverage the EU Digital Innovation Hub network further. Develop a coherent network that is enterprise led. Support further awareness, development and deployment of digital applications across the European economy for big and small firms alike.

    b. Invest further in applied research, supporting our innovators and enterprise through development and real-world testing of new digital applications. Europe is successful in research output in AI[40]. However, there is more to do in linking this to business needs and in co-ordinating efforts between Member States. Ensure further alignment between EU innovation and industrial policy. Use regulatory sandboxes to test and scale up research as appropriate. Enable shared learning between innovators, enterprise and regulators. This should make it easier to launch and scale further digital innovation across Europe.

    c. Promote interdisciplinary research to encourage innovation not just in technical issues associated with the development and deployment of AI applications but in the socio-economic, legal and ethical impacts too.

    d. Provide a platform to gather, store and share AI related knowledge that can encourage further innovation by researchers and firms.

    e. Deliver the investment promised to support further digital innovation and adoption in the next long-term EU budget – the European Multiannual Financial Framework (MFF), for the 2021-2027 period (for example support in the Horizon Europe and Digital Europe programmes for AI).

    f. Work ambitiously towards reaching the European target of 3% of EU's GDP invested in research and development. Increase this ambition beyond 2020. Begin work on a second EU 'Digital Europe Programme', laying the foundations for future digital leadership.

9. Intensify work with partners to lower global barriers to digital trade and innovation.

a. Champion further digital trade and innovation.
While ecommerce is becoming a global reality, there are currently no comprehensive WTO rules governing this trade. The discussions underway between some WTO members working towards a plurilateral agreement on the trade related aspects of ecommerce is therefore a welcome step. Working with trading partners, the OECD and the WTO on an evidence-based multilateral framework could make it more secure and easier to trade online for businesses and consumers[41]. At a minimum, promote the following principles:

- Facilitate cross-border data flows and prevent forced data localisation measures. Ibec like several European business groups and likeminded Member States, support EU legislation to remove unjustified restrictions to the free flow of data[42].

- The transfer or access to source codes should not be a market requirement for providing or selling digital products or services.

- Avoid mandates on the creation of backdoors for the national security requirements. These requirements impair innovation and weaken cyber security and data protection.

- Prohibit, on a long-term basis, imposition of customs duties on electronic transmissions. Provide certainty for further digital investment.

- Consider how to improve the GATS services schedules in sectors that facilitate digital trade to increase market access and digital trade.

- In parallel, the EU should intensify the use of free trade agreements (FTAs) and mutual adequacy decisions as a vehicle[43] to promote further (bilateral) digital trade and cross-border data flows; and to address digital protectionism without prejudice to EU data protection rules.

b. Ensure the outcome of Brexit enables data flows, digital innovation and trade.
Prioritise EU-UK adequacy negotiations to provide a solid legal base for data flows post-Brexit. Ensure that the EU and Ireland are not disadvantaged in terms of R&D and international investment[44].

c. Ensure our tax policy framework remains outward looking and supports further digital innovation and investment in Europe.
Where BEPS[45] issues arise, it is our continued view that they need to be dealt with as a coherent part of an overall global framework. The OECD has made significant progress in this area[46]. We believe that any future solution should take account of the following principles:

- i   Align with international tax principles. Unilateral action on digital taxation creates complications and fragmentation as enterprise adopts new business models and further digital transformation. When new OECD rules are agreed they should be based on corporate profits and not revenue.

- ii Apply any changes to international tax rules across the economy, not just specific companies or sectors. The economy is digitalised, avoid fragmentation.

- iii Include dispute resolution mechanisms to reduce tax uncertainty and promote further investment and digital innovation.

- iv Provide simple, predictable and effective rules to enable business to invest in further digital transformation.

Ireland's contribution to a digitalised Europe

- A Minister of State on the Digital Single Market (DSM) and data protection.

- The European Commission rank Ireland in a cluster of EU states who are high performers in digital progress[47]. Ireland is among a group of northern European digital frontrunners who would see further growth and jobs from further digital adoption[48].

- The proximity of leading-edge sectors and talent in Ireland offers Europe both a test-bed for leveraging the benefits of digitalisation and a means to create new cross-sectoral digital ecosystems[49].

  - Ireland's digitally intensive sectors employ 212,000 (10.6%) of Ireland's workers and account for €30 billion GVA in Ireland's economy and 26% of its exports[50].

  - Ireland is home to:
    - 16 of the top 20 global software companies.
    - Top 3 global enterprise software companies.
    - 4 of the top 5 IT services companies.
    - 9 of the top 10 US technology companies.

Ibec contributions to the debate on a digitalised Europe

2015	A Digital Single Market that Works
2016	Implementing A Digital Single Market that Works
2018	Completing A Digital Single Market that Works
2019	Europe's digital future - open for business

References and notes

1. Digital transformation refers to the impacts of digitisation and digitalisation. Digitisation is the conversion of analogue data and processes into a machine-readable format. Digitalisation is the use of digital technologies and data as well as their interconnection which results in new activities or changes to existing activities (Source: OECD (2019) Going Digital https://www.oecd.org/going-digital/).

2. For example: https://www.ibec.ie/influencing-for-business/ibec-campaigns/brexit-and-the-future-of-europe

3. European Commission (2018) https://ec.europa.eu/info/news/economy-finance/policy-implications-ageing-examined-new-report-2018-may-25_en. Europe's population is getting older and this has pressure implications for future public spending (pensions, healthcare, education, unemployment benefits). Digital and data innovation can enable better health and care.

4. UN (2016) https://www.un.org/sustainabledevelopment/sustainable-development-goals/. It is considered that Digital solutions can contribute to the achievement all 17 UN Sustainable Development Goals (SDGs) and >50% of the 169 targets http://systemtransformation-sdg.gesi.org/160608_GeSI_SystemTransformation.pdf.

5. Transformative digital technology drivers include: Cloud computing; Internet of Things (IoT); Data analytics techniques and tools; Digitally enabled automation and AI (artificial intelligence) applications; Blockchain and distributed ledger technologies; Extended reality; and Quantum computing. Sources: OECD (2019) Ibid and Accenture (2019) https://www.accenture.com/ie-en/insights/technology/technology-trends-2019.

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7. Digital transformation is impacting all aspects of policy making. https://www.oecd.org/going-digital/topics/

8. European Political Strategy Centre – European Commission, EPSC (2019) https://ec.europa.eu/epsc/publications/strategic-notes/rethinking-strategic-autonomy-digital-age_en

9. European Commission (2015) COM/2015/0192 final. The DSM strategy was enacted between 2015-2019.

10. Ibec (2015) A Digital Single Market that Works.

11. The main anticipated gains make assumptions around spill-over effects from the implementation of new EU rules on the re-use of public sector information, geo-blocking, a single digital gateway and a European Electronic Communications Code.

12. Marcus, Petropoulos and Yeung (2019) Contribution to Growth. European Digital Single Market: Delivering economic benefits to citizens and businesses. Study requested by IMCO Committee of European Parliament.

13. European Parliamentary Research Service, EPRS (2019) Europe's two trillion-euro dividend: Mapping the cost of non-Europe 2019-2024. EPRS estimate an annual gain of €178 billion from the digital economy in the period 2019-2030. EPRS base this on analysis of several studies with varying assumptions of the macroeconomic situation and on the potential gains arising from Single Market reforms.

14. European Commission, Digital Economy and Society Index DESI (2019) https://ec.europa.eu/digital-single-market/en/desi

15. BCG (2016) Digitizing Europe.

16. European Commission, International Digital Economy and Society Index, I-DESI (2018) https://ec.europa.eu/digital-single-market/en/news/how-digital-europe-compared-other-major-world-economies.

17. Tufts (2018) https://sites.tufts.edu/digitalplanet/how-digital-economies-are-evolving/

18. [a] McKinsey Global Institute (2019) https://www.mckinsey.com/featured-insights/artificial-intelligence/tackling-europes-gap-in-digital-and-ai and [b] EPSC (2019) Ibid.

19. https://www.oecd.org/going-digital/

20. OECD (2019) Ibid

21. (a) European Parliamentary Research Service, EPRS (2019) Ibid. and (b) ECIPE (2018) https://ecipe.org/publications/the-next-steps-for-the-digital-single-market-from-where-do-we-start/

22. Ibec (2018) Ireland in the EU: A Dynamic Future

23. [a] Public First (2019) A way forward for the D9 in the age of AI – an Industry view; [b] ECIPE (2018) https://ecipe. org/publications/cooperation-in-europes-digital-economy/ and [c] BCG (2016) Ibid.

24. https://ec.europa.eu/cefdigital/wiki/display/CEFDIGITAL/2017/10/12/ Tallinn+Ministerial+Declaration+on+eGovernment

25. https://www.oecd.org/gov/digital-government/open-government-data.htm

26. This includes tangible (infrastructure) and intangible (knowledge) assets.

27. Approach outlined by the European Commission's High-Level Expert Group on AI ('AI HLEG') and OECD that encourages beneficial outcomes from AI for both humans and the planet that sustains them. This approach encourages a respect for law, human rights and democratic values as well as a consideration for the natural environment and sustainability.

28. European Commission High Level Expert Group on AI or 'AI HLEG' (April, 2019) Guidelines for trustworthy AI (https://ec.europa.eu/digital-single-market/en/news/ethics-guidelines-trustworthy-ai).

29. OECD Council Recommendation (May, 2019), OECD Principles on AI (https://www.oecd.org/going-digital/ai/ principles/)

30. Trustworthy AI is lawful, ethical and robust throughout its lifecycle. It requires transparency and accountability by organisations who deploy or use AI.

31. For example: https://www.businesseurope.eu/publications/easier-consumer-journey-when-buying-online

32. https://ec.europa.eu/digital-single-market/en/eu-cybersecurity-act

33. https://ec.europa.eu/commission/sites/beta-political/files/budget-june2018-digital-transformation_en.pdf

34. https://ec.europa.eu/info/policies/justice-and-fundamental-rights/criminal-justice/e-evidence-cross-border-access-electronic-evidence_en#internationalnegotiations

35. Infrastructure that enables the digitalised economy, including a spectrum of network, compute and storage functions required for the successful delivery of digital applications and services e.g. high-speed broadband, data centres, hardware and software etc.

36. https://ec.europa.eu/digital-single-market/en/broadband-europe

37. The digital market structure has dramatically changed, making it possible to provide an increasing number of services by different actors. Accordingly, new digital products and services have appeared, with sometimes different rules applying to players offering comparable services. This makes it necessary to establish a level playing field amongst players that offer the same service. Whether services are the same, which obligations should apply and why, should be soundly assessed and any outcome should not hinder either innovation or consumer benefits. The European Electronic Communications Code (EECC) framework should ensure a level playing field, where applicable, irrespective of the nature of the service provider, with downsized and futureproof regulatory solutions fostering innovative services.

38. Science, Technology, Engineering, Arts and Mathematics

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About Ibec

Ibec is Ireland's largest lobby group, representing Irish business both domestically and internationally. Our members span all sectors of the economy, collectively employing over 70% of the private sector workforce. Our policy work seeks to improve business conditions and thereby promote sustainable economic growth.

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