



# Policy Brief

## ICT Policy and Regulations

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## INTRODUCTION

This Policy Brief summarises the key policies that impact the development and use of information and communications technology (ICT) in the European Union, the United States, and Canada, including intellectual property rights, data protection rules, the regulatory environment, and support for digital innovation.

Of the four areas examined, the strongest similarities between the three markets were in intellectual property rights, in large part due to the importance of international agreements in shaping policy in domestic markets—although text and data mining is a notable exception, because of legal restrictions in the EU that do not exist in the United States or Canada. Data protection laws differ greatly across the three markets. In contrast, there are vast differences in data protection law. The EU and Canada have consolidated—but very different—data protection statutes, whereas the United States enforces protection rules through various sector-specific market regulations.

Likewise, international agreements between the EU, the United States, and Canada mostly cooperate well in the field of intellectual property, ensuring rights are upheld on both sides of the Atlantic. However, the transatlantic economy lacks consistent protections for trade secrets, while technical differences in intellectual property rules—such as copyright protection for databases in the EU, and definitions of “fair use” or “fair dealing”—are an obstacle to transatlantic ICT research cooperation and trade.

All three entities have signed the Information Technology Agreement, and tariffs on IT goods are low. However, the current level of cooperation on data flows underestimates the importance of free

data flows in trade. Transatlantic data flows out of the EU are currently underpinned by two ad-hoc rules—the EU’s “adequacy” decision on Canada’s data protection laws, and its bilateral Privacy Shield agreement with the United States—neither of which assert a basic principle of data transfers being a component of trade.

Transatlantic ICT cooperation could be boosted through a variety of measures, such as renewed commitments to trade agreements, and the establishment of international fora for resolving policy differences that frustrate cooperation and trade. Furthermore, domestic regulations that restrict innovation locally, as well as internationally, should be revised for the sake of the territories in which they apply, the resulting benefits to transatlantic cooperation being a secondary benefit of such reform.

The report provides a hypothetical case of a Canadian startup to illustrate the effects of the different regulatory environments on transatlantic trade in data-driven ICT services. The firm produces an app and a connected wearable device and wants to provide services in the EU. The company faces both opportunities and challenges in this endeavor: though it benefits from the extent to which the EU facilitates trade with 28 different countries, and faces no obstacles to data flows thanks to the European Commission’s “adequacy” decision for Canada, restrictions on algorithmic decision making and on text and data mining make it hard for the firm to directly replicate its Canadian service in the EU.

# 1. COMPARATIVE ANALYSIS OF TRANSATLANTIC ICT POLICY AND COOPERATION

The EU, US and Canada each have varying approaches to ICT policy and regulations. Individual digital issues, from data protection to R&D funding, have elicited vastly different approaches to regulation across these three regions/countries. For example, while the US has in many cases created a light-touch, sector-specific data protection regime, the EU and Canada each have created a single set of general data protection rules for all industries. That said, all three have fairly robust and largely similar laws with regard to copyright protection. This section analyses how the contrasts between ICT policies and regulations shape the transatlantic ICT market, and how the EU, the US and Canada, cooperate on ICT.

## Intellectual Property

While IPR differ between the EU, the United States, and Canada, there are basic common protections in all three markets established by a variety of international agreements. The United States and the EU both support research into the importance intellectual property to their respective economies. For example, the report published by the European Patent Office (EPO) and the EU Intellectual Property Office (EUIPO) found that IPR-intensive industries generated 27.8% of jobs in the EU during 2011-2013, and accounted for 42% of GDP<sup>1</sup>. The US Economics and Statistics Administration (ESA) and the US Patent and Trademark Office (USPTO), meanwhile, found that IPR-intensive industries accounted for 30% of US employment, 30% of US growth, and 38.2% of overall GDP in 2014<sup>2</sup>.

## Data Protection

The EU, the US and Canada, have very different data protection regimes. Data flows, and the regulation thereof, are an increasingly important topic for transatlantic trade. The EU and the US are each respectively one another's largest export markets for digitally-deliverable services, and the US underwater cable Internet connections to Europe are its fastest. However,

there are barriers to the free flow of data internationally, particularly as a result of data protection concerns. Efforts to harmonize laws have been limited since the EU will not negotiate privacy in trade agreements.

The EU's Data Protection Directive 95/46/EC and the General Data Protection Regulation (GDPR), which will replace the Directive in 2018, prohibit transfers of personal data outside the EU unless the European Commission has ruled the data protection laws of the destination country to be adequate, or unless there is a binding international agreement to protect the data<sup>3</sup>. The US has also resisted international efforts to abolish rules restricting data transfers for financial data, as part of its negotiations with Canada and Pacific countries for the Trans-Pacific Partnership (TPP, from which it has now withdrawn completely), due in part to pressure from US financial regulators concerned about their ability to access data<sup>4</sup>.

Canada's Personal Information Protection and Electronic Documents Act (PIPEDA) has been deemed adequate for transfers of European personal data by the European

<sup>1</sup> EPO and EUIPO (2016, October), "Intellectual property rights intensive industries and economic performance in the EU"

<sup>2</sup> ESA and USPTO (2016) "Intellectual Property and the U.S. Economy: 2016 Update"

<sup>3</sup> Directive 95/46/EC; Regulation (EU) 2016/679 (GDPR)

<sup>4</sup> Nigel Cory and Robert Atkinson (2016, April), "Financial Data Does Not Need or Deserve Special Treatment in Trade Agreements" Information Technology and Innovation Foundation

Commission since 2001<sup>5</sup>. The Commission has not ruled US law adequate, but data transfers to the US are permitted under the terms of the Privacy Shield Agreement between the US and the EU.

### Regulatory Environment

Transatlantic regulatory coordination with specific regard to ICT is very limited, although the importance of ICT to transatlantic trade makes it a major factor in trade policy. The High-Level Regulatory Cooperation Forum is intended to establish cooperation between the EU and the US on developing “better and more compatible” rules, but it has not published any reports of meetings since 2014, amid negotiations for the Transatlantic Trade and Investment Partnership (TTIP), a proposed trade agreement between the EU and the US<sup>6</sup>. Those negotiations have themselves stalled due to political resistance on both sides of the Atlantic. Meanwhile, the Transatlantic Economic Council (TEC), which has not met at ministerial level since the start of TTIP negotiations but continues to meet at the technical level, includes in its mission statement the reduction of regulatory barriers between the EU and the United States, including with regard to ICT<sup>7</sup>.

The EU, the United States, and Canada are all party to the WTO’s Information Technology Agreement (ITA), which commits them to abolish tariffs on ICT products. However, some ICT tariffs and taxes do nevertheless persist in the three markets, although they are far lower than in countries that have not signed the ITA. The more recent CETA further eliminates most other tariffs between the EU and Canada.

Tariffs aside, the differences in intellectual property and data protection rules between the three markets add up to very different regulatory environments for ICT.

### Government Support for Digital Innovation

EU-Canada and EU-US cooperation on science and technology is institutionalized via the bilateral Agreements for Scientific and Technological Cooperation signed with the European Union 1996 and 1998, respectively. The EU-Canada S&T Agreement committed both parties to provide funding, and established the Joint Science and Technology Cooperation Committee (JSTCC), which is responsible for making recommendations to the EU and Canada for supporting, among other things, ICT and medical and health research.

Similarly, the EU-US S&T Agreement established the Joint Consultative Group (JCG). The EU and the US also have a memorandum of understanding (MOU) committing them to cooperation on development of eHealth systems, and have published a joint “roadmap” for development of eHealth technologies, skills, and services on both sides of the Atlantic.

In addition, in October 2016, the European Commission and the US and Canada, respectively, signed Implementing Arrangements that provide additional flexibility to US and Canadian organizations to participate in Horizon 2020. Furthermore, the EU, the United States, and Canada, have a number of collaborative initiatives on data.

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<sup>5</sup> COMMISSION DECISION of 20 December 2001 pursuant to Directive 95/46/EC of the European Parliament and of the Council on the adequate protection of personal data provided by the Canadian Personal Information Protection and Electronic Documents Act

<sup>6</sup> European Commission, “EU - US Cooperation” Last updated April 28th, 2017.

<sup>7</sup> Framework for Advancing Transatlantic Economic Integration between the United States of America and the EU. Ref. Ares (2014)3748022, November 11, 2014

## 2. IMPACT OF ICT POLICY ON TRANSATLANTIC RESEARCH AND INNOVATION

Technology has changed the methods companies, whether multinational enterprises or SMEs, use to innovate. Innovation is now commonly a cross-border and is also increasingly moving from an in-house, intra-company model to a global, collaborative “open innovation” model based on partnerships with other companies, universities, and research institutions<sup>8</sup>. In essence, innovation has been internationalized, and companies are finding this new, collaborative approach to innovation to be the fastest, most-productive way to accelerate the development of new products and services across markets. What this means is that data, design files, project management systems, and more, need to flow seamlessly across borders to support the innovation process itself.

### Data flows

Data is increasingly the source of the innovation itself. Indeed, it is the ability to extract actionable, real-time insight from data (e.g., through data analytics, data mining, machine intelligence, etc.) that is increasingly driving value creation across the global economy.

In short, organizations use data to create better insights, which, in turn, leads to innovation. Businesses use data to enhance research and development, develop new products and services, or delivery processes, and establish new organizational and management approaches. Countries that enact barriers to data flows make it harder and more expensive for their companies to gain exposure, and to benefit from the ideas, research, technologies, and best practices that accompany data flows and the innovative new goods and services that rely on data.

### Smart manufacturing

The EU, the US and Canada, are all investing in the promise of smart manufacturing (broadly called “Industry 4.0” in Europe), which refers to the application of ICT to every facet

of modern manufacturing processes<sup>9</sup>. The digitalization of manufacturing will transform how products are designed, fabricated, and used, as well as the operations, processes, and the management of manufacturing supply chains. ICT-enabled smart manufacturing approaches are expected to increase global manufacturing productivity by up to 25%. Europe is investing heavily in Industry 4.0, e.g. the EU’s Horizon 2020 program allocated a total of €7 billion in a “Factories of the Future” public-private partnership to develop the blueprints for a smarter manufacturing sector in the EU. For its part, the US is investing in smart manufacturing through its Manufacturing USA network as well as through its National Institute of Standards and Technology (NIST). Canada’s Advanced Manufacturing Fund constitutes a \$200-million fund to help Canadian manufacturers adopt smart manufacturing techniques, and it is supported by Canadian Manufactures & Exporters (CME) SMART Programs that have provided direct funding to over 1,400 smart manufacturing projects in Canada.

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<sup>8</sup> Transatlantic Business Dialogue, (2011, November), “Accelerating the Transatlantic Innovation Economy”.

<sup>9</sup> Stephen J. Ezell, (2016, November), “A Policymaker’s Guide to Smart Manufacturing,” Information Technology and Innovation Foundation.

## Challenges in international research grants

A number of US institutions that have been successful in applying for Horizon 2020 grants have nevertheless turned them down and refused to sign the grant agreement. For some of these institutions, the main reason was due to the administrative burden required to abide by the current Horizon 2020 grant regulations. Nevertheless, the last modification on April 2017 of the article 14a) of the H2020 grant agreement, where a new figure has been added, the so called International partners, allows to participate in H2020 grants without signing the grant agreement.

While Horizon 2020 has a whole set of fellowships and grants, e.g., Maria-Skłodowska Curie Awards and the prestigious European Research Council (ERC) grants, that allow and even encourage Europeans to engage in research in different countries', there is no equivalent set of fellowships and grants among US federal agencies, and certainly nothing that is considered a "flagship" mobility scheme that actively encourages US researchers to have an equivalent experience in a different country. Creating a fellowship scheme like this among US federal agencies, would do much toward encouraging US researchers to engage in research activities having partnerships at European institutions.

Whereas many European institutions and research agencies recognize that transnational research partnerships are far more successful at generating results and publications that are more widely cited, this is still relatively unknown among US and even some Canadian institutions.

## Distinctions in data protection regimes and their impact on innovation

A key difference between the EU, the US and Canada is how each ensures data protection and privacy. The US tends to take a sectoral approach and does not try to enact border check points to control where personal data is transferred, but instead stipulates that the company transferring the data ensure it protects the data, as required by US law, wherever it is stored.

The US does not have a single dedicated law for data protection. Instead, the US legislative framework for privacy and information security consists of multiple laws that regulate the private sector primarily on a sector-by-sector basis, with multiple regulatory authorities dedicated to oversight.

American policy toward data protection has tended to give consumers more power over controlling their privacy settings in order to leave open greater space for business model experimentation. On the other hand, it means that enterprises that compete in multiple sectors have to understand and respond to multiple privacy directives and this can also make it more difficult for companies from other nations to understand the variety and complexity of America's sector-based privacy laws. By contrast, PIPEDA in Canada and the incoming GDPR in the EU both apply generally, to data processing in all business sectors. The GDPR will give the EU by far the most preventive data protection regime of the three markets, in terms of the limitations on companies providing services based on personal data.

### 3. ICT POLICY - USER SCENARIO

This user scenario illustrates the meaning of transatlantic contrasts for ICT cooperation. It considers the hypothetical case of a Canadian digital start-up that wants to open an office in the European Union, and the unfamiliar rules it will have to comply with trying to expand into the European market.

AcmeDigital is an app developer and device manufacturer interested in opening an office in the EU. Its most popular app is iGobble, which offers personalized restaurant and dietary recommendations based information supplied by the user about what they eat, what they like or do not like, their allergies, whether they are vegetarian or vegan, and their budget. In addition, iGobble collects data from a wearable fitness tracker. iGobble also provides links to relevant publicly-available articles, such as restaurant reviews or articles about fitness and human health.



iGobble processes the user data using a machine learning algorithm that becomes more sophisticated as more people use the app and provide it with information. AcmeDigital also uses text and data mining technology to analyze information in academic journals and medical research, which it accesses lawfully, in order to further iGobble recommendations. iGobble uses similar techniques to identify relevant articles for the user.

The app is free to customers, and the company generates revenue through a combination of fees from restaurants, who want to be included in the app, and targeted advertising for dietary and fitness products. The app does not supply any personal data to third parties.

#### What should ACME Digital do to get into European market and be compliant to European digital protection law?

**Certification** - As a ICT manufacturer, it must provide a Supplier’s Declaration of Conformity for its fitness tracker, where the device would have to go through the Occupational Safety and Health Administration’s Nationally Recognized Testing Laboratory program.

**Intellectual property** - iGobble trademark can be set up according to European Trade Mark (EUTM) system. However, copyright law in the EU will restrict the use of data, so iGobble may have to limit its text and data mining research not only to Canada, but also to non-European journals.

**Data Protection** - The European Commission views Canadian data protection law as adequate for the transfer of personal data from the EU. However, this does not mean that AcmeDigital can operate the same data protection practices in the EU as it does in Canada. There are three significant EU rules in particular—the right to data portability, the right to be forgotten and the right to explanation—which do not appear in PIPEDA, and may come as a surprise to Acme’s compliance team.

*Data portability.* Under GDPR Article 20, data subjects have the right not only to a copy of all of the data a data

processor has on them, which is also required by PIPEDA, but also to a machine-readable copy in a structured, commonly used format. Acme would need to make sure it was in a position to provide this data to its customers upon their request. The rule does not cover “inferred” data produced through algorithmic processing, which could be considered Acme’s intellectual property, but Acme would nevertheless need to distinguish think carefully about what data might reasonably be considered “observed,” and therefore subject to the customer’s right to **data portability**.

*The right to be forgotten* would apply to AcmeDigital once it establishes a base in the EU. AcmeDigital could find itself forced to remove links to some of the publicly-available articles it recommends in iGobble, something it would not have had to do in Canada. For example, if an old review mentions a disgraced chef who was once fired from an otherwise reputable restaurant, that chef could invoke his right to be forgotten.

For the time being, however, there is no requirement for AcmeDigital to comply with the right to be forgotten as there is no **explicit right to be forgotten** in Canada and no statute enforcing one.

*The right to explanation* - The EU’s right to explanation, which will come into force with the GDPR, could pose a significant challenge to AcmeDigital’s work. For example, the possibility that a user might experience an allergic reaction to a food recommended by iGobble could conceivably lead to an argument that the recommendations may have ‘significant or legal effects’ under the GDPR, requiring AcmeDigital to explain any of iGobble’s decisions on demand. A user with an undiagnosed allergy who has such a reaction may wish to know why iGobble

recommended that food item, AcmeDigital’s team would have to go through the logs for that individual user and come up with an intelligible explanation for why the algorithm drew the conclusions that it did on the basis of the data it had access to. This is a complex and potentially very costly requirement. Moreover, even if such a scenario never occurs, the mere potential for it could be sufficient for the right to explanation to apply in other cases.

Some users may worry that certain foods were recommended due to ethnic profiling. While Canadian app developers might be forgiven for lacking awareness of the many politically-charged European ethnic distinctions, they may nevertheless have to account for whether their algorithm had included in its analysis subtle ethnic markets of which they were permissibly ignorant.

### **Tax**

Canada offers some of the world’s most generous tax credits for collaborative R&D. For example, a business in Ontario can take a 60% flat tax credit when it funds R&D taking place in Canadian universities, which is a strong encouragement for AcmeDigital to maintain some of its research in Canada. Similarly, however, France also has tax breaks for R&D, called the *crédit d’impôt recherché* (CIR), which helps to persuade French start-ups to keep their research teams in France when expanding into the United States. All businesses consider taxation when relocating, but research-driven start-ups face particular contrasts and incentives when moving across borders.

## 4. RECOMMENDATIONS

The objective for improving transatlantic cooperation should not be to eliminate policy differences—which, besides anything else, is impossible, but to develop a set of measures that acknowledge these differences and establish as much common ground as possible for cooperation that maximizes the economic benefits of ICT innovation for the EU, the US and Canada.

Our recommendations are targeted at the Union level in the EU and at the federal level in the US and Canada. The most relevant policymakers in the EU are those of the European Commission, particularly its Directorates General (DGs) for Trade; for Communication Networks, Content & Technology; and for Justice, because the Commission has exclusive right of initiative. In the US and Canada, Congress and Parliament can propose and pass legislation affecting these issues, but many policies will be made by other government agencies, such as the US Federal Trade Commission, the US Department of Commerce, Global Affairs Canada; and Innovation, Science and Economic Development Canada.

### Intellectual Property

- Support the free movement of knowledge
- Protect trade secrets on both sides of the Atlantic

To support cross-border R&I, companies participating in pre-competitive research should be able to freely transfer ownership and access rights for IP to affiliates across and between the EU, US, and Canada.

### Data Protection

- Keep data protection rules simple
- Do not impose pointless restrictions on artificial intelligence
- Support the free flow of data
- Support strong encryption

- Establish A “Geneva Convention” on the Status of Data

The three actors should work together on developing multilateral legal standards for surveillance and government access to data, for transparency in the treatment of international data, and for resolving questions of jurisdiction and conflicting laws.

### Regulatory Environment

- Establish a framework to resolve conflicting digital regulations
- Stop protectionist ICT procurement policies

Different regulatory attitudes to the global internet can lead to legal conflicts between countries. There should be a framework for addressing such conflicts when they arise, because they can put companies in a position where complying with the law in one country means breaking the law in another.

### Government Support for Digital Innovation

- Collaborate on voluntary, transparent, consensus-based, market-led standards
- Establish a tripartite partnership for science and technology research
- Boost cooperation between regional bodies
- Create a common position on text and data mining’s place in copyright law
- Help start-ups grow
- Promote tech literacy among legislators to enhance their understanding of ICT and the impact of regulations upon it.
- Review major policy issues together
- Revive and revise the Transatlantic Trade and Investment Partnership (TTIP)

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