Policy Brief No. 165 – May 2021

Protecting Freedom of Thought in the Digital Age

Susie Alegre

Key Points

- → The increasing impact of digital technology and artificial intelligence (AI) on the way we think, feel and behave calls for a new perspective on regulation to protect our rights to freedom of thought and opinion.
- → There are three key elements to the right to freedom of thought and all are affected by technology: the right to keep our thoughts and opinions private, the right not to have our thoughts and opinions manipulated, and the right not to be penalized for our thoughts and opinions.
- → International human rights law prohibits states from violating our rights and puts a positive obligation on them to protect our absolute right to freedom of thought from the activities of businesses by creating adequate legal and regulatory frameworks.
- → Protecting freedom of thought requires innovation from technologists and law makers to think very carefully about the future we want and to create the incentives we need to protect freedom of thought and drive technological innovation in a new direction for the future.

Introduction

The concept of data can feel abstract and impersonal, but the data economy is something we should all take very personally. We take the freedom to think for ourselves for granted, yet it is the foundation of democracy and the key to what makes us human. But what does freedom of thought really mean in the twenty-first-century data economy, and how can we ensure that innovation in technology thrives on and supports our inner freedoms?

The philosophical concept of freedom of thought and opinion in Enlightenment thinking was an inspiration for politicians such as Benjamin Franklin who famously wrote: "Without freedom of thought, there can be no such thing as wisdom." But freedom of thought is not only a philosophical idea but also a legal right protected in international human rights law. Digital innovation in many spheres, in particular in the field of "big data," is driven by a desire to get inside our minds, to understand what makes us tick, and to influence our thoughts and behaviours. So, how does this fit with our legal right to freedom of thought?

Regulation of the digital space has, so far, focused on the rights to privacy and data protection or the right to freedom of expression. But the increased impact of digital technology and AI on the way we think, feel and behave calls for a new perspective on regulation to protect our rights to freedom of thought and opinion in the "forum internum" — the inner space of our mind.

¹ Writing under the pen name of Silence Dogood.

About the Author

Susie Alegre is an international human rights lawyer, an associate at Doughty Street Chambers and a research fellow at the University of Roehampton in London, England. She is called to the Bar of England and Wales and holds a master's degree in French and philosophy, as well as a master's degree in international human rights law.

Her experience includes work for non-governmental organizations, such as Amnesty International, and for international organizations, including the Organization for Security and Cooperation in Europe, the United Nations and the European Union, on complex issues such as protecting human rights in the counterterrorism context and combatting corruption in the developing world.

In recent years, her focus has been on the human rights implications of technology, in particular the impact of technology on our rights to freedom of thought and opinion. In 2019, she was awarded a grant from the Digital Freedom Fund to develop arguments on freedom of thought for strategic litigation, and she has worked as a consultant for Avaaz on disinformation and for 5Rights Foundation on children's online safety.

She advises civil society and the public and private sectors on ways to incorporate fundamental rights and freedoms into innovation in technology. Her work on this topic has been published in academic journals and international media and was featured in a BBC Radio 4 documentary titled *Forum Internum*. She is currently working on a book on the topic for Atlantic Books (to be published in spring 2022).

These rights are absolute rights in international law and, as such, require a different and radical approach to regulation, including the potential to ban the use of technology that interferes unlawfully with our minds in any sphere.

Regional and international organizations such as the Council of Europe² and the United Nations³ are increasingly recognizing the risks posed by technology for human agency and autonomy, which rely on freedom of thought and opinion. But there is a need for leadership in regulating digital technology to protect freedom of thought and, with it, the potential for technological innovation in the future. This policy brief will explore what the rights to freedom of thought and opinion mean in practical terms when applied to the digital space and will draw up some pointers for what future-proof regulation to protect our minds could look like.

What Is the Right to Freedom of Thought?

Freedom of thought is an essential plank of the international human rights framework. It is a freedom that has been described as "one of the foundations of a 'democratic society'"⁴ and "the basis and origin of all other rights" (René Cassin, quoted in Sheinin 1992, 266). And it is connected to the corresponding right to "hold opinions without interference" in article 19 of the International Covenant on Civil and Political Rights (ICCPR), set out alongside the right to freedom of expression, which provides the social backdrop needed for critical thought.

Freedom of thought is protected along with freedom of religion, belief, conscience and opinion

² For example, the Council of Europe's Declaration by the Committee of Ministers on the manipulative capabilities of algorithmic processes (Adopted by the Committee of Ministers on 13 February 2019 at the 1337th meeting of the Ministers' Deputies).

³ For example, the Secretary-General's High-level Panel on Digital Cooperation and the subsequent Secretary-General's Roadmap for Digital Cooperation and reports by David Kaye, former UN Special Rapporteur on the promotion and protection of the right to freedom of opinion and expression.

⁴ See European Court of Human Rights judgment in Nolan and K. v Russia, No 2512/04, [2009] ECHR 262 at para 61.

in article 18 of the ICCPR, and international human rights law makes a distinction between the internal aspect of the right — the right to think or believe what you like in the inner sanctum of your mind — and the external expression or manifestation of your thoughts. Once you express your feelings, thoughts, opinions or ideas, or manifest your religion or beliefs, they may be limited by law, for example, to protect the rights of others or to prevent hate speech. States have quite a wide margin of appreciation as to how they interpret and apply these limitations of expression, but our inner space is inviolable.

Most rights, such as privacy or freedom of expression, allow for restriction in certain circumstances, but the UN Human Rights Committee has clarified that the right to think what you like in the *forum internum* is protected absolutely. This level of protection reflects the fundamental importance of freedom of thought to our humanity as individuals and as societies.

But in order to protect this right, we need to know what it entails in practice. There are three key elements to the right to freedom of thought and the related right to freedom of opinion:

- → the right to keep our thoughts and opinions private;
- → the right not to have our thoughts and opinions manipulated; and
- → the right not to be penalized for our thoughts and opinions (Alegre 2017; Aswad 2020; Vermeulen 2006, 752).

These three pillars are the key to ensuring that our right to freedom of thought is real and effective, not just an illusory philosophical ideal.

Why Does It Matter Now?

International human rights law prohibits states from violating our rights and puts a positive obligation on them to protect our right to freedom of thought from the activities of businesses by creating adequate legal and regulatory frameworks. The UN (2011) Guiding Principles on Business and Human Rights: Implementing the United Nations 'Protect, Respect and Remedy' Framework makes it clear that businesses also have a responsibility to respect human rights. But as technology reaches farther and farther into our minds, how

confident should we be that our right to freedom of thought is real and effective in the digital age?

The current business model for big tech has implications for all three aspects of the right to freedom of thought. Shoshana Zuboff (2019) describes what she calls the "human futures" market — essentially, the sale of what we will do next. In order to predict, or even to curate, what we do next, masses of personal data from our online presence and connected devices are used to try to understand how and what we are thinking. That understanding and the way it can be used have significant implications for the right to freedom of thought.

The Right to Keep Our Thoughts and Opinions Private

The promise of knowing what we think and how we think is one of the selling points of the data economy. In 2015, researchers claimed that Facebook could know us better than our friends and family on the basis of a relatively small number of Facebook "likes" (Youyou, Kosinski and Stillwell 2015). The Australian broke a story in 2017 that claimed Facebook was offering realtime insights into the moods of teenagers and young people for targeted advertising (Whigham 2017). It is a claim that Facebook denied, but in 2021, Reset Australia revealed that Facebook was offering targeted advertising based on children's propensity for gambling, interest in extreme weight loss and other vulnerabilities (Priest 2021). And a 2019 Privacy International (2019) report revealed that many mental health websites share user data with third parties, including companies whose business is targeted advertising. Regardless of whether this data is accurate or not, its value is in the information it provides about our inner states.

When we think about data protection and privacy, we may think about our personal details, our names or phone numbers, or we may be concerned about our correspondence being intercepted. But a more fundamental concern in the data economy is the sharing and sale of inferences and insights about what we are thinking, whether they are accurate or not. These insights are not based on what we say but on a granular automated analysis of everything we do as revealed in our metadata (for example, the pictures we hover over, the time we check our Twitter feed, the connections we make with others, the regularity of our daily habits).

The scale of sharing and information gathering means that companies may have vast amounts of data points on us even if we have never used their platforms at all. Trying to understand what makes people tick, in general, is not unlawful — we all do it every day in our social interactions — but it depends on the context. Where do we draw the line between what we choose to reveal about ourselves and what is being unlawfully inferred about the absolutely protected space inside our heads? This is a fundamental question for the protection of freedom of thought in the twenty-first century.

The Right Not to Have Our Thoughts and Opinions Manipulated

Data analysis that claims to show what and how we think and feel, in particular in real time, is valuable because it gives an opportunity to identify and exploit our weak moments for commercial or political gain. In 2014, Facebook published the results of research showing it could alter the emotional state of users by manipulating their newsfeeds (Kramer, Guillory and Hancock 2014). When the Cambridge Analytica scandal became front-page news in 2018, it became clear that techniques such as behavioural microtargeting of advertising were being developed to weaponize the potential to influence our minds in the political sphere. In addition, the explosion of online misinformation and disinformation that we have seen in recent times has been a major factor in the polarization of our societies. If a small tweak of your Facebook newsfeed can affect how you feel about the world, just imagine the potential impact on your mental state of all the information you receive being filtered through an algorithm powered by the potential to enrage you.

But the power to manipulate our minds is not just about politics. What has been described as "the attention economy" is all about using psychological techniques to make devices and platforms "sticky" so that we find it hard to put them down. The UN Secretary-General's High-level Panel on Digital Cooperation (2019) noted that "we are delegating more and more decisions to intelligent systems, from how to get to work to what to eat for dinner. This can improve our lives, by freeing up time

for activities we find more important. But it is also forcing us to rethink our understandings of human dignity and agency, as algorithms are increasingly sophisticated at manipulating our choices — for example, to keep our attention glued to a screen." The more time we spend on technology, the more information on and access to our thoughts it has to sell. It is no accident that you find it hard to put your phone down.

The Right Not to Be Punished for Our Thoughts and Opinions

Inferences that are made about our thoughts, feelings and opinions, regardless of whether they are accurate or not, are increasingly used in both the public and private sectors to inform automated decisions that will affect our futures. In the criminal justice sphere, predictive policing and risk profiling are being developed in ways that are billed as crime prevention. But AI that promises to analyze individuals' moods in a security setting or their predisposition to criminal behaviour is essentially a tool to punish and constrain people based on assumptions about what may be going on inside their heads. In many cases, this kind of tool is trained on highly contentious data that entrenches existing biases and discrimination (Noble 2018).

The public sector is not the only forum in which people may be penalized for inferences about who they are rather than what they have done. In late 2016, Facebook refused to allow a car insurance company to install an app that would give it access to young drivers' Facebook accounts in order to analyze their personality traits and price their car insurance accordingly (Ruddick 2016). Facebook turned down the app based on its privacy policy. But the type of data and the way it was to be used could also raise concerns about the right not to be penalized for our thoughts and opinions.

How Can We Protect Our Freedom of Thought for the Future?

When it comes to freedom of thought and opinion, states have an obligation to protect our rights. We cannot simply rely on the

⁵ The term "attention economy" was coined by psychologist, economist and Nobel laureate Herbert A. Simon (1994), who said that attention was the "bottleneck of human thought."

goodwill of corporate entities; we need laws and regulations to set out the boundaries.

Protecting the right to freedom of thought does not mean moulding minds in the direction we think is best; rather, it is about recognizing and preventing the kind of activities that threaten to undermine this right. So, how can we ensure that the right to freedom of thought is protected now and in the future?

Regulating from the perspective of the right to freedom of thought is new and complex, but it is crucial to our future as autonomous humans living in democratic societies founded on human rights. So far, states have failed to take serious action in this area, but it is not something we can afford to put off. If a particular technology or the use of it undermines our freedom of thought, it should not be allowed, no matter who is using it or for what ends. Once we lose our individual and collective rights to freedom of thought and opinion, we may never get them back. This would have very serious consequences for us as individuals and as communities. Regulating to protect freedom of thought may require a more radical approach to what is permissible in technological innovation and development than the more familiar regulatory territory of privacy and freedom of expression. Regulators and law makers need to take decisions on what the risks are and what will never be acceptable. Doing so will require new regulatory frameworks that recognize and respond to the wider societal impacts of the use of data rather than focus on control of personal data.

Governments will ultimately need to address the fundamental problem of the business model of the data economy and the driving force of online advertising based on "brain hacking." But while this can feel like an overwhelming task, there are obvious areas where urgent action is called for, and those actions may open the way for wider reform and reflection.

Regulation for Democracy

To protect our democracies, we need clear regulation on the ways that political campaigns can legitimately persuade us to vote for them. In Spain, the Constitutional Court found that laws that allowed political parties to collect data for profiling and targeting the electorate were unconstitutional and considered their impact on ideological freedom (Alegre 2019). But such laws

still exist in many countries, allowing political parties access to our thoughts and fears to play on our vulnerabilities at election time. The rise of "neuropolitics" — practices that claim to hack minds through neuroscience for political campaigns — along with recent studies that claim to predict political opinions through facial images are a fundamental threat to the future of democracy (Kosinski 2021). A ban on micro-targeted online advertisements in political campaigns and clear legal prohibitions on technology designed to infer or predict voters' political views through biometric data would be good places to start.

Legislation for Justice

The rule of law is key to protecting our human rights, and the criminal justice system is where we may feel the threat to our individual human rights most acutely. Technology that claims to see inside our minds to identify criminal thoughts and intentions is very clearly an interference with our right to keep our thoughts private and the right not to be penalized for our thoughts alone. Facial recognition technology that purports to infer criminality or criminal intent through emotion analysis has no place in a criminal justice system governed by human rights and the rule of law. Similarly, lie detectors and black-box algorithms that are used to assess how inherently risky a person might be in terms of sentencing, parole or other decisions on their treatment in the criminal justice system should be outlawed. People should be judged on what they say or do, not on inferences about what they may be thinking. The inherent problems of historical bias and discrimination in the criminal justice system mean that any inferences about who people are on the inside that are made on the basis of big data are also likely to be loaded with prejudice. A criminal justice system that violates our right to freedom of thought will not make any of us safer.

Children's Rights

Protecting our children's rights to freedom of thought in the digital world while guiding their development is key to all our futures. In its "General Comment 25 on children's rights in relation to the digital environment," the UN Committee on the Rights of the Child provides clear guidance on the steps that states need to take to achieve this goal: "The Committee encourages States parties to introduce or update data protection regulation

and design standards that identify, define and prohibit practices that manipulate or interfere with children's right to freedom of thought and belief in the digital environment, for example by emotional analytics or inference. Automated systems may be used to make inferences about a child's inner state. They should ensure that automated systems or information filtering systems are not used to affect or influence children's behaviour or emotions or to limit their opportunities or development."

This is not just a recommendation for data protection regulation; it is a clear call for states to legislate to protect our children from the everyday monitoring and profiling they are increasingly subjected to, whether in school, in the community, or at play online. The general comment is the first clear articulation of the right to freedom of thought in the digital age from a UN body. It is the start of a serious debate about how this right should be interpreted in practice in the twenty-first century.

Conclusion

Understanding the current situation and how it affects our rights is a matter of urgency for regulators. In December 2020, the US Federal Trade Commission (FTC) (2020) issued orders to nine social media companies demanding clarity on the way they collect and use personal data and the impact that collection and use has, in particular, on children and teens. In a public statement accompanying the orders, three of the commissioners explained: "Never before has there been an industry capable of surveilling and monetizing so much of our personal lives. Social media and video streaming companies now follow users everywhere through apps on their alwayspresent mobile devices. This constant access allows these firms to monitor where users go, the people with whom they interact, and what they are doing. But to what end? Is this surveillance used to build psychological profiles of users? Predict their behavior? Manipulate experiences to generate ad sales? Promote content to capture attention or shape discourse? Too much about the industry remains dangerously opaque."

It remains to be seen what the FTC will uncover in the responses to the orders, but its analysis of the impact of tech companies needs to go beyond privacy. It is the impact on freedom of thought that underpins the concerns they describe.

In April 2021, the European Commission announced a new approach to regulating AI in Europe, including a tough stance on "unacceptable risk: AI systems considered a clear threat to the safety, livelihoods and rights of people will be banned. This includes AI systems or applications that manipulate human behaviour to circumvent users' free will (e.g. toys using voice assistance encouraging dangerous behaviour of minors) and systems that allow 'social scoring' by governments" (European Commission 2021).

This is a welcome indication that, at least in Europe, legislators are waking up to the seriousness of these threats and the need to take serious preventive action. But the effectiveness of the approach will depend on the details of the final regulations. European law makers, or others grappling with these issues, must ensure that they ban all uses of AI that interfere with the right to freedom of thought; any interference with the right to freedom of thought is an unacceptable risk for us both individually and collectively. The right to freedom of thought should be at the heart of any regulation or legislation to address the problem for the future. But to protect the right to freedom of thought effectively, we need clear lines around what is and is not acceptable in advertising, politics, health, the justice system, education, and all the fields in which technology interacts with our lives and moulds our societies.

Protecting freedom of thought is not just an issue for regulators or a problem for consumers but also, ultimately, the key to the future of technological innovation. In a 2019 commencement address to Stanford University students, Apple CEO Tim Cook warned of the "small, unimaginative world we would end up with" if we continue on our current global course, adding, "it's the kind of environment that would have stopped Silicon Valley before it had even gotten started....If we believe that freedom means an environment where great ideas can take root, where they can grow and be nurtured without fear of irrational restrictions or burdens, then it's our duty to change course, because your generation ought to have the same freedom to shape the future as the generation that came before" (Stanford News 2019).

⁶ Convention on the Rights of the Child, 2 March 2021, "General comment No. 25 (2021) on children's rights in relation to the digital environment", UN Doc CRC/C/GC/25.

The right to freedom of thought is crucial to our human future, and it needs to inform how we address the challenges and concerns we have about technology and the data economy. Privacy is a gateway right, but the right to think for ourselves is at the heart of what it means to be human. Protecting freedom of thought for the future is not simply a matter of reining in technological development or punishing technology companies for bending the rules. It requires innovation from technologists and law makers to think very carefully about the future we want and to create the incentives we need to protect freedom of thought and drive technological innovation in a new direction — one that supports rather than limits human freedom. Once we have lost our freedom of thought, it will be very difficult to get it back. There is an urgent imperative to shift the direction of travel to regulate, legislate and innovate to make our technological future one that respects and enhances human dignity, creativity and diversity of thought. It will take imagination and resolve, but our human future is in our hands.

Works Cited

- Alegre, Susie. 2017. "Rethinking Freedom of Thought for the 21st Century." European Human Rights Law Review (3): 221–33.
- ——. 2019. "Spanish Court overturns political parties exemption for personal data casting doubt on human rights compliance of UK DPA 2018." Doughty Street Chambers (blog), June 25. https://insights.doughtystreet.co.uk/post/102fmpj/ spanish-court-overturns-political-partiesexemption-for-personal-data-casting-dou.
- Aswad, Evelyn Mary. 2020. "Losing the Freedom to Be Human." Columbia Human Rights Law Review 52 (1): 1–66.
- European Commission. 2021. "Europe fit for the Digital Age: Commission proposes new rules and actions for excellence and trust in Artificial Intelligence." Press release, April 21. https://ec.europa.eu/commission/presscorner/detail/en/IP_21_1682.
- FTC. 2020. "Joint Statement of FTC Commissioners Chopra, Slaughter, and Wilson Regarding Social Media and Video Streaming Service Providers' Privacy Practices." Commission File No. P205402. December 14. www.ftc.gov/system/files/documents/public_statements/1584150/joint_statement_of_ftc_commissioners_chopra_slaughter_and_wilson_regarding_social_media_and_video.pdf.
- Kosinski, Michal. 2021. "Facial recognition technology can expose political orientation from naturalistic facial images." Scientific Reports 11 (1): 1–7. doi:10.1038/s41598-020-79310-1.
- Kramer, Adam D. I., Jamie E. Guillory and Jeffrey T. Hancock. 2014. "Experimental evidence of massive-scale emotional contagion through social networks." Proceedings of the National Academy of Sciences of the United States of America 111 (24): 8788–90. www.pnas.org/content/111/24/8788.
- Noble, Safiya Umoja. 2018. Algorithms of Oppression: How Search Engines Reinforce Racism. New York, NY: NYU Press.
- Priest, Evin. 2021. "Lobby group Reset Australia 'floored' by Facebook advertising loophole for teens." News.com.au, April 28. www.news.com.au/technology/online/social/lobby-group-reset-australia-floored-by-facebook-advertising-loophole-forteens/news-story/6fc35b40a5f99046cbaf1718341679cd.
- Privacy International. 2019. "Privacy International study shows your mental health is for sale." Privacy International, September 3. https://privacyinternational.org/long-read/3194/privacy-international-investigation-your-mental-health-sale.
- Ruddick, Graham. 2016. "Facebook forces Admiral to pull plan to price car insurance based on posts." The Guardian, November 2. www.theguardian.com/money/2016/ nov/02/facebook-admiral-car-insurance-privacy-data.
- Scheinin, Martin. 1992. "Article 18." In The Universal
 Declaration of Human Rights: A Commentary, edited
 by Gudmunder Alfredsson, Asbjørn Eide, Göran
 Melander, Lars Adam Rehof, Allan Rosas and Theresa
 Swinehart. Oxford, UK: Oxford University Press.

- Simon, H. A. 1994. "The Bottleneck of Attention: Connecting Thought with Motivation." In Nebraska Symposium on Motivation, Volume 41: Integrative Views of Motivation, Cognition, and Emotion, edited by William D. Spaulding, 1–21. Lincoln, NE: University of Nebraska Press.
- Stanford News. 2019. "2019 Commencement address by Apple CEO Tim Cook." Stanford News, June 16. https://news.stanford.edu/2019/06/16/remarks-tim-cook-2019-stanford-commencement/.
- UN. 2011. Guiding Principles on Business and Human Rights: Implementing the United Nations 'Protect, Respect and Remedy' Framework. New York, NY: UN. www.ohchr.org/ documents/publications/guidingprinciplesbusinesshr_en.pdf.
- UN Secretary-General's High-level Panel on Digital
 Cooperation. 2019. The Age of Digital Interdependence.
 Geneva, Switzerland: UN Secretary-General's Highlevel Panel on Digital Cooperation. www.un.org/en/
 pdfs/DigitalCooperation-report-for%20web.pdf.
- Vermeulen, Ben. 2006. "Freedom of Thought, Conscience and Religion (Article 9)." In Theory and Practice of the European Convention on Human Rights, edited by Pieter van Dijk, Fried van Hoof, Arjen van Rijn and Leo Zwaak, 751–71. Cambridge, UK: Intersentia.
- Whigham, Nick. 2017. "Leaked document reveals Facebook conducted research to target emotionally vulnerable and insecure youth." News.com.au, May 1. www.news.com.au/technology/online/social/leaked-document-reveals-facebook-conducted-research-to-target-emotionally-vulnerable-and-insecure-youth/news-story/d256f850be6b1c8a2laec6e32dae16fd.
- Youyou, Wu, Michal Kosinski and David Stillwell. 2015. "Computer-based personality judgments are more accurate than those made by humans." Proceedings of the National Academy of Sciences of the United States of America 112 (4): 1036–40. www.pnas.org/content/112/4/1036?with-ds=yes.
- Zuboff, Shoshana. 2019. The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power. New York, NY: PublicAffairs.

About CIGI

The Centre for International Governance Innovation (CIGI) is an independent, non-partisan think tank whose peer-reviewed research and trusted analysis influence policy makers to innovate. Our global network of multidisciplinary researchers and strategic partnerships provide policy solutions for the digital era with one goal: to improve people's lives everywhere. Headquartered in Waterloo, Canada, CIGI has received support from the Government of Canada, the Government of Ontario and founder Jim Balsillie.

À propos du CIGI

Le Centre pour l'innovation dans la gouvernance internationale (CIGI) est un groupe de réflexion indépendant et non partisan dont les recherches évaluées par des pairs et les analyses fiables incitent les décideurs à innover. Grâce à son réseau mondial de chercheurs pluridisciplinaires et de partenariats stratégiques, le CIGI offre des solutions politiques adaptées à l'ère numérique dans le seul but d'améliorer la vie des gens du monde entier. Le CIGI, dont le siège se trouve à Waterloo, au Canada, bénéficie du soutien du gouvernement du Canada, du gouvernement de l'Ontario et de son fondateur, Jim Balsillie.

Copyright © 2021 by the Centre for International Governance Innovation

The opinions expressed in this publication are those of the author and do not necessarily reflect the views of the Centre for International Governance Innovation or its Board of Directors.

For publications enquiries, please contact publications@cigionline.org.



This work is licensed under a Creative Commons Attribution — Non-commercial — No Derivatives License. To view this license, visit (www.creativecommons.org/licenses/by-nc-nd/3.0/). For re-use or distribution, please include this copyright notice.

Printed in Canada on Forest Stewardship Council® certified paper containing 100% post-consumer fibre.

Centre for International Governance Innovation and CIGI are registered trademarks.

67 Erb Street West Waterloo, ON, Canada N2L 6C2 www.cigionline.org

Credits

Managing Director of Digital Economy Robert Fay Program Manager Aya Al Kabarity Publications Editor Susan Bubak Graphic Designer Brooklynn Schwartz