

G20 Governance of Digitalization, 1999-2017

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Introduction

The Group of Twenty (G20) has increasingly come to embrace the digital revolution among us. This paper analyses the G20's focus on digitalization and related issues, starting with the ministerial meetings in 1999 and up to the annual leaders' summit in 2017. It outlines the various perceptions of other scholars on G20 digitalization governance and assesses the G20's performance in this field. This paper then examines the causes of the G20's performance on digitalization governance and provides two case studies of the most recent Chinese and German presidencies, identifying more closely the contributions and causes of each. It argues that while the G20 has historically performed poorly on digitalization, recent achievements allow for cautious optimism.

Significance

Despite the G20 serving as the world's premier forum for economic issues, its governance of the digital world has been overlooked in the scholarly literature. However, as the G20 continues to put greater focus on digitalization, so too should interest within academic circles rise. In the last few years, the G20's performance on digitalization has become a key component of the summit agenda, with the most recent 2017 Hamburg Summit being an unprecedented success on this.

The borderless nature of the internet has quickened the pace of global integration. Cross-border data flows rose by approximately 50% annually between 2005 and 2014, and the internet economy in developing markets is growing at 15% to 25% per year.¹ Additionally, 90% of all global data was created during the last two years and a 20% increase in information and communications technology (ICT) investment is estimated to produce 1% growth in gross domestic product (GDP). The overall impact of digitalization might account for up to 28% of today's GDP in mature market economies.² Within the G20, the internet economy alone was estimated to have contributed \$4 trillion to its GDP in 2016. Beyond GDP figures, activities such as e-commerce, online advertising, and information transfer enable business development, improve welfare, and strengthen consumer benefit.³

Digitalization – which comprises the digital economy and ICT development⁴ – is thus fundamentally altering the content of global economic growth as well as the way in which the international economic system as a whole operates. Yet despite the benefits to be harnessed by the digital revolution, its weak security guarantees undermine trust in electronic processes and

¹ B20 Digitalization Taskforce, "Digitalization for All: Future-Oriented Policies for a Globally Connected World," *B20 Germany*, published March 2017, https://www.b20germany.org/fileadmin/user_upload/documents/B20/B20_Digitalization_Policy_Paper_2017.pdf.

² Ibid.

³ Ibid.

⁴ The digital economy was defined by the G20 as "a broad range of economic activities that includes using digitized information and knowledge as the key factor of production, modern information networks as the important activity space, and the effective use of Information and Communication Technology (ICT) as an important driver for efficiency-enhancing and economic structural optimization" (see G20 Leaders, "G20 Digital Economy Development and Cooperation Initiative," *G20 Information Centre*, published September 5, 2016, <http://www.g20.utoronto.ca/2016/160905-digital.html>). In contrast, ICT is the infrastructure and components that enable modern computing. It generally refers to all advices, networking components, applications, and systems that combined allow businesses, consumers, governments, and other actors to interact in the digital world.

can challenge financial system stability. Further, the increasing need for digital skills and training can aggravate, rather than reduce, divides between the rich and poor. Politically, digital technologies have also enabled new forms of sovereign interference that were previously impossible. Traditional regulatory frameworks are also not adapting fast enough to address the unique features of the digital environment. It is no wonder that digitalization requires a coordinated response from the G20, as the world's leading economies with a mission to ensure financial system stability and ensure globalization's inclusivity. Understanding why and how the G20 has addressed digitalization is important. It may also provide key implications for the G20's future performance on digitalization, starting under the current Argentine presidency.

Schools of Thought

Assessments of how well the G20 summit has governed digitalization have attracted little attention in academic circles. Most of the existing accounts are also prescriptive in nature, and only tangentially or inferentially assess G20 performance on digitalization thus far.

Recent Surge Amidst Poor Performance

John Kirton and Brittaney Warren argue that the G20 summit's digitalization agenda and actors steadily expanded since the start, especially in the last two years. G20 summits first addressed e-commerce as a tool to use in response to the 2008 global financial crisis. Gradually, the G20 expanded its agenda to focus on inequality, moving from crisis response to crisis prevention.⁵ However, G20 governance of digitalization advanced primarily starting at the 2016 Hangzhou and 2017 Hamburg summits, whose "politically secure" hosts sought to shape digitalization for the benefit of all in response to the rise of populism and protectionism worldwide, including in G20 members such as the United Kingdom and United States.⁶

Dennis Snower welcomed the surge in performance at Hamburg as a promising spike. The summit sought to address the challenges of "technological change, as well as a sense of disempowerment in the presence of automation and digitalization."⁷ One of the summit's "three major achievements" was digitalization, given G20 leaders' declaration to "strive to ensure that all our citizens are digitally connected by 2025 and especially welcome infrastructure development in low-income countries in that regard" and to "promote digital literacy and digital skills in all forms of education and life-long learning."⁸ Snower argues that Hamburg's unprecedented attention to the issue justifies the assumption of improved performance at future summits.⁹

Notwithstanding, Kirton and Warren argue that the G20 has still performed poorly on the digital economy. They assessed the impact of the 89 recommendations by the Think 20 (T20) for the 2017 Hamburg Summit, which included 20 recommendations on digitalization under four

⁵ John Kirton and Brittaney Warren, "G20 Governance of Digitalization," Submitted to *International Organizations Research Journal*, last modified December 18, 2017.

⁶ Ibid.

⁷ Dennis J. Snower, "The G20 summit was more successful than you think," *G20 Insights*, published July 14, 2017, <http://www.g20-insights.org/2017/07/11/g20-summit-successful-think/>.

⁸ Ibid.

⁹ Ibid.

themes: digital safeguards, employment and education policies for the digital age, harnessing blockchain technology, and safeguarding the financial system from cyber attacks.¹⁰ Kirton and Warren found that only five of the 20 digitalization recommendations were realized in the 533 commitments that G20 leaders made at the Hamburg Summit, and all five were only partially realized. Three were on employment and education policies for the digital age and two were again on defensively safeguarding the financial system from cyber attacks.¹¹

While Kirton and Warren's assessment of G20 digitalization governance follows the same systemic hub model of G20 governance used in this paper, their analysis is focused primarily on data pertaining to G20 governance of the digital economy, which largely excludes other aspects of digitalization, such as ICT advancement. While Kirton and Warren's assessment rightfully indicates a recent but modest surge in G20 governance of the former, their research cannot account for digitalization as a whole, as it excludes an essential component.

Avoiding the Elephant in the Room

Ed Bryztwa argues that while the G20 is a key setting to achieve consensus on 21st century technology policy, it has only agreed to address certain issues in digitalization by avoiding the more controversial and divisive aspects. At the inaugural meeting of G20 digital ministers in Dusseldorf in April 2017 and again at the Hamburg Summit in July, the "elephant in the room" was the absence of language to avoid and eliminate restrictions on cross-border data flows, such as data localization requirements.¹² There are currently over 80 data location measures worldwide, and numbers are steadily increasing. Yet concurrently, such requirements also decrease the spread and effectiveness of digital technologies, undermine the internet's openness, and prevent G20 members from achieving their own 2016 digitalization commitments.¹³ Notwithstanding this, Bryztwa himself recognizes that G20 digital ministers outlined several aspects of digitalization for the 2018 Argentine presidency to address, signalling that the G20 will continue to attempt to address critical issues in digitalization in the immediate future.¹⁴

Conflicting Objectives, Weak Commitments

Monika Ermert similarly points to problems in Düsseldorf. Importantly, G20 digital ministers made bold statements that were not accompanied by supporting commitments. For example, they emphasized a need to measure digital trade to "foster informed and evidenced-based policy-making regarding Digital Trade," but did not make hard commitments to achieve this.¹⁵ G20 digital ministers also supported privacy, data protection, and consumer protection, but the

¹⁰ John Kirton and Brittaney Warren, "G20 Insights: T20 Recommendations Realized," *G20 Information Centre*, published November 3, 2017, <http://www.g20.utoronto.ca/analysis/t20-2017-recommendations-realized.html>.

¹¹ Ibid.

¹² Ed Brzytwa, "G20 Digital Economy Outcomes – Avoiding the Elephant in the Room," *Information Technology Industry Council*, published April 20, 2017, <https://www.itic.org/news-events/techwonk-blog/g20-digital-economy-outcomes-avoiding-the-elephant-in-the-room>.

¹³ Ibid.

¹⁴ Ibid.

¹⁵ Monika Ermert, "G20 IT Ministers Want Access For All, Commit To Conflicting Objectives," *Intellectual Property Watch*, published April 7, 2017, <https://www.ip-watch.org/2017/04/07/g20-ministers-want-access-commit-conflicting-objectives/>.

problem of conflicting interests in cyberspace between different industries and groups was merely touched upon. Further, they acknowledged that digitalization “can create challenges for inclusiveness, labour markets, and structural adjustments,” but only offered “appropriate domestic policy settings and international cooperation, for example sharing of best practices” as a tool.¹⁶ Yet as with Bryztwa, Ermert also recognizes that the inaugural session of G20 digital ministers was mostly about reaffirming the status quo and setting the tone for future G20 presidencies to build on its progress.¹⁷

Great Potential

Sarah Mariani and Martin Dionne argue that the G20 has great potential to advance the governance of digitalization. Specifically, artificial intelligence (AI) can be utilized by the G20 to realize its core mission of making globalization work for all. It “offers a way to better coordinate a diverse, interconnected world.”¹⁸ AI was introduced at the 2016 Hangzhou Summit as a disrupter of production, but it should instead be depicted as a builder of sustainable communities at home and around the globe.¹⁹ The G20 should thus focus more on how AI can improve global governance, by making more commitments to promote AI research funding, entrepreneurship and community building, and encouraging global connectivity.²⁰

Additionally, Cathleen Berger, Constance Bommelaer de Leusse, and Craig Fagan posit that the time has come for a collaborative G20 digital agenda. Whereas in Germany, G20 members outlined their aspirations for the development of global digital society, the Argentine presidency’s five priority areas of digital inclusion, future job skills, digital government, small and medium-sized enterprises (SMEs) and entrepreneurship, and Industry 4.0 are all dependent on a strong digital economy and society.²¹ Accordingly, “now is the year to turn these aspirations into actions.” Berger, Bommelaer de Leusse, and Fagan thus call on the Argentine presidency to build a dedicated G20 digital agenda, including priority commitments to boost internet access by providing meaningful access, continuing with initiatives like Germany’s #eSkills4Girls, and scaling investments in private and community-based digital networks and infrastructure, as well as to increase security by ensuring an inclusive and transparent approach to tackling hard issues such as strong encryption, vulnerability management processes, and privacy-protecting designs for emerging technologies.²²

Yet while Mariani and Dionne, as well as Berger, Bommelaer de Leusse, and Fagan make good recommendations on the future direction of the G20’s governance of digitalization, their

¹⁶ Ibid.

¹⁷ Ibid.

¹⁸ Sarah Mariani and Martin Dionne, “How Can the G20 Use AI to Help Create Sustainable Communities in an Inter-Connected World?” *G20 Information Centre*, published September 21, 2017, <http://www.g7g20.utoronto.ca/comment/170921-mariani-dionne.html>.

¹⁹ Ibid.

²⁰ Ibid.

²¹ Cathleen Berger, Constance Bommelaer de Leusse, and Craig Fagan, “It’s Time for a Collaborative G20 Digital Agenda,” *Internet Society*, published February 2, 2018, <https://www.internetsociety.org/blog/2018/02/time-g20s-first-digital-agenda/>.

²² Ibid.

arguments are prescriptive rather than analytical. Furthermore, neither seeks to explain the current state of the G20's performance on addressing digital issues.

Puzzles

Although various schools of thought offer general insights into the G20's governance of digitalization, none of them provide a systemic nor comprehensive explanation of the G20's performance on digitalization as a whole. To acquire a more inclusive understanding of the G20's performance on digitalization, it is essential to conduct an evidence-based examination of how the G20 has governed digitalization-related issues, including both the digital economy and ICTs, since its inception. This examination is done by outlining the dimensions and causes of the G20's performance at both the ministerial and leaders' levels, as developed by Kirton's systemic hub model of G20 governance, followed by case studies of some of the G20's particularly noteworthy contributions to global digital governance.

Thesis

This paper aligns with Kirton and Warren's observation that the G20's governance of digitalization is best described as a recent surge from poor performance. The 2016 and 2017 presidencies of China and Germany made dramatic progress, and it is expected that the 2018 Argentine presidency will build upon these achievements. While the G20's track record on digitalization is tangential at best, the severity of digitalization's implications for global economic growth and social advance makes the subject too important to ignore. Accordingly, the G20 has started to implement the groundwork for successive G20 presidencies to maximize the opportunities afforded by the digital revolution and thwart its potential to undermine the G20's core missions. This paper finds that while the G20 faces certain challenges in advancing a digital agenda, it nevertheless carries the potential to guide the international community into the future.

Dimensions of Performance

The G20's governance of digitalization can be chartered along six dimensions of performance, as developed by Kirton. They are domestic political management, deliberation, direction setting, decision making, delivery, and the development of global governance. Overall, G20 digitalization performance has increased since the group's inception at the ministerial level in 1999 and upgrade to the leaders' level in 2008 (see Appendices A and B). However, progress is predominantly a recent phenomenon, with the two previous presidencies of China and Germany making significant headway, the latter at the dedicated ministerial as well as the leaders' meeting.

Domestic Political Management

On the first dimension, domestic political management, there were no communiqué compliments on digitalization at the ministerial level, from 1999 to 2017.

At the leaders' level, the number of annual communiqué compliments in relation to digitalization has steadily increased, suggesting that G20 members are increasingly acting on their recognition

of the critical importance of the digital revolution to its various activities (see Appendix C). No compliments were made until the 2011 Cannes Summit, where the *Cannes Action Plan for Growth and Jobs* twice recognized the European Union's progress on structural reforms. At the 2013 St. Petersburg Summit, the *St. Petersburg Action Plan* also commended Mexico's constitutional reforms in competition and telecommunications. Another two compliments were made at the 2015 Antalya Summit in the *Antalya Action Plan*, to Mexico and China's progress on structural reforms. This number doubled in quantity and breadth at the 2016 Hangzhou Summit, where four compliments were extended to Indonesia, Korea, Germany, and India's efforts, again to enhance structural reform. Four compliments were also made at the 2017 Hamburg Summit in the *G20 Hamburg Action Plan*. India and Turkey were recognized for their actions to enhance the resilience of their economies, and the EU and Japan were commended for their efforts to maintain the momentum on structural reform and sustainable growth.

The absence of compliments at the ministerial level on G20 members' efforts to address digitalization suggests that the G20 is more likely to commend its colleagues at the leaders' level. In the end, a broad number of countries were complemented, from the G7, BRICS grouping of Brazil, Russia, India, China, and South Africa, and MIKTA grouping of Mexico, Indonesia Korea, Turkey, and Australia, largely due to the common logic of structural reforms. The fact that these compliments also primarily related to economic activities further suggests that the lack of compliments given in G20 ministerial meetings addressing issues other than finance, such as agriculture, energy, and labour, may be due to G20 members' relatively little progress in those other areas.

Deliberation

On the second dimension, deliberation, the number of words dedicated to digitalization in ministerial documents only recently surged (see Appendix D). There were no references to digitalization from the 1999 meeting in Berlin to the 2009 meeting in St. Andrews. While it made an appearance at the 2010 meeting in Washington, only 214 words were dedicated to the topic. Digitalization made additional minor appearances at the 2012 Merida, 2013 Moscow, and 2014 Sydney ministerial meetings. However, almost all of the ministerial meetings under the 2016 and 2017 presidencies of China and Germany dedicated significantly larger portions of their declaration to addressing digitalization. In China, G20 finance, agriculture, labour, energy, and trade ministers all recognized the capacity for digitalization to both advance and undermined their plans. The German presidency continued to address the link between digitalization and agriculture, labour, and finance, and also hosted the first meeting of G20 ministers responsible for the digital economy in Düsseldorf, which dedicated all four of its resulting documents to digitalization and collectively addressed the online world in 6635 words.

At the leaders' level, deliberation also progressed over time (see Appendix E). Digitalization was mentioned in 66 words at the first summit in Washington in 2008. While not mentioned at the 2009 London Summit, the 2009 Pittsburgh Summit dedicated 277 words to the topic. In 2010, these numbers dipped as only 212 words spoke of digitalization in Toronto and the issue was entirely absent in Seoul. The 2011 Cannes Summit, however, regained momentum by dedicating 424 words. The next spike occurred at the 2013 St. Petersburg Summit, which dedicated 926 words to digitalization. Notably, digitalization was entirely absent at the 2014 Brisbane Summit,

which was largely seen as a disappointment for its small communiqué and lack of progress on several critical issues. The 2016 Hangzhou and 2017 Hamburg summits picked up on lost progress, dedicating 3689 and 5639 words to the topic, respectively. Additionally, both summits dedicated documents specifically to digitalization, with the *G20 High-Level Principles for Digital Financial Inclusion* in Hangzhou and the *G20 Roadmap for Digitalization* as well as the *#eSkills4Girls Initiative* under the German presidency.

It is particularly noteworthy that at both the ministerial and leaders' levels, the G20's attention to digitalization only recently become a critical component of the summit agendas. Under the Chinese presidency, digitalization accounted for approximately 16% of each of the three declarations of finance ministers and central bank governors, and the G20 leaders had doubled the number of digitalization-specific documents at Antalya to accompany the summit communiqué. Further, in Germany G20 ministers responsible for the digital economy convened for the first time. The quantity of digitalization-specific documents also increased from one in Antalya, to two in Hangzhou, to three in Hamburg, as well as four from Düsseldorf. This recent surge in G20 attention to digitalization thus shows its appreciation for digitalization's implications for various social and economic issues that G20 leaders traditionally focus on, including development, financial stability, gender equality, employment, and economic growth.

Direction Setting

On the third dimension, direction setting, the 2010 Washington ministerial meeting first referenced the G20's core missions of promoting financial stability and making globalization work for the benefit of all in the context of digitalization (see Appendix F). Aside from two references to an inclusive digital economy at the third Moscow meeting of G20 finance ministers and central bank governors in 2013, neither foundational mission was addressed at the ministerial level again until 2016. In Shanghai, G20 finance ministers and central bank governors made three references to financial stability and one reference to making globalization work for all. In Washington in the same year, these numbers increased to six and one, respectively; and at Chengdu, financial stability again tallied six meanwhile globalization for all increased to two. In Baden Baden in 2017, G20 finance ministers and central bank governors raised the bar even higher by making six references to financial system stability and five to globalization for all. While G20 ministers in Düsseldorf made no references to financial system stability, they made 46 references to globalization for all. The balance thus shifted strongly from defensive financial stability to offensively making globalization work for the benefit of all.

At the leaders' level, direction setting has also shown the G20's increasing recognition of digitalization's importance to fulfilling the G20's core missions (See Appendix G). On financial stability, the 2009 Pittsburgh Summit marked the first time this connection was made at the leaders' level, with seven references. An additional two were made at the 2010 Toronto Summit, and four were made at the 2011 Cannes Summit. At the 2016 Hangzhou Summit, six references were made to financial stability. The 2017 Hamburg Summit also reached an unprecedented level of recognition of digitalization's ability to impact financial stability with an impressive 18 references.

On globalization for the benefit of all, there has also been a late but steady rise in G20 leaders' recognition of the importance of addressing digitalization's impact on globalization. While the 2013 St. Petersburg Summit made the first reference, this number increased to three at the 2015 Antalya Summit before spiking to 28 and 33 at the 2016 Hangzhou and 2017 Hamburg summits, respectively. The shift from stability to offensiveness thus arose at the leaders' level too, as the reality and threat of financial crises declined and economic inequality grew.

Overall, the G20 is increasingly cognisant of the fact that the digital revolution carries the capacity to simultaneously advance and undermine the G20's core missions. While digitalization has the capacity to advance inclusive global economic growth, it can also aggravate social and economic divides. The borderless nature of the internet is particularly relevant to the G20, as it implicitly reflects the extent to which the world has become globalized and integrated. Furthermore, the anonymous, intangible, and largely unregulated nature of the digital world enables particular kinds of crime, corruption, and other interferences that were previously impossible, with minimal risk of detection or punishment. Accordingly, the G20 has recognized that if it desires to mitigate the risks posed by the digital world and reap the benefits that it provides, it must work to understand and address them together.

Decision Making

On the fourth dimension, decision making, there were no commitments made on digitalization at the ministerial level until the 2016 finance meeting in Shanghai, when eight commitments were made to digitalization in the areas of market stability and financial inclusion (see Appendix H). G20 finance ministers and central bank governors made an additional six digitalization commitments in Washington in 2016 in the same areas. In Chengdu, they made a further four. At the 2017 meeting in Berlin, G20 agriculture ministers made one commitment to modernize agricultural systems and embrace digital technology. In Baden Baden, G20 finance ministers and central bankers made another three digitalization commitments, this time on financial regulation and taxation. In Bad Neuenahr, G20 labour ministers made a further seven promises to provide training for the digital job market and support women-specific digital skills development programs. The biggest surge in G20 digitalization commitments came from Düsseldorf, where G20 ministers responsible for digitalization made an impressive 89 digitalization commitments – 100% of the commitments made at the meeting – on the aforementioned areas but also issues including development in Africa, the 2030 Agenda for Sustainable Development, and education.

At the leaders' level, decision making also increased (see Appendix I). There was a rise in the number of annual commitments that G20 leaders have made to addressing digitalization and its intersection with other global governance issues. Until the 2017 Hamburg Summit, the G20 tended to make these commitments predominantly through the prism of digitalization's relation to broader economic or financial issues. Four commitments on financial regulation were made at the 2008 Washington Summit. One additional commitment on the same issue was made each year at the 2009 Pittsburgh, 2011 Cannes, and 2012 Los Cabos summits. At the 2013 St. Petersburg Summit, a commitment to development was made, marking the first non-financial regulation commitment on digitalization. At the 2015 Antalya Summit, six commitments were made: four to crime and corruption and two to ICT. This skyrocketed to 101 commitments – 47.2% of all commitments made – at the 2016 Hangzhou Summit on topics including the

aforementioned as well as macroeconomic policy, accountability, trade, labour and employment, international cooperation, infrastructure, G8/G20 governance, and microeconomics. In Hamburg, only 88 commitments addressed digitalization, accounting for 16.5% of all commitments made.

At both the ministerial and leaders' levels, the nature of the G20's digitalization commitments in 2016 and 2017 reflect the priorities of the G20 presidency at the time. China – a major exporter and economic powerhouse that framed its summit largely in terms of development – hosted a summit that addressed digitalization in terms of its economic and financial implications for development and trade. In contrast, Germany – under the leadership of Angela Merkel and the Christian Democrats – placed greater emphasis on social policies and the importance of decreasing the digital gender divide, integrating digitalization into the G20's development programs in Africa, and using “smart” technologies that were friendly to the environment.

While the number of leaders' commitments made at the 2017 Hamburg Summit pales in comparison with the 2016 Hangzhou Summit, progress nevertheless was made at the former. In particular, the G20 addressed the social dimensions of digitalization in its commitments for the first time. The 88 commitments on digitalization included pledges to address the digital world's implications for education, terrorism, and gender equality. Furthermore, the fact that 100% of the commitments made at the Düsseldorf meeting were on digitalization helps compensate for the difference. On the whole, the G20 has increasingly committed to putting principle into action. They do not just recognize the risks and benefits of digitalization; they have also declared their intention to act accordingly.

Delivery

The fifth dimension, delivery, is not applicable at the ministerial level as compliance with G20 ministerial commitments on digitalization has not been assessed. Further, while compliance with G20 commitments on digitalization at the leaders' level has only been tangentially measured, the limited data available indicates a low average compliance score of +0.0408 (see Appendix J). Commitment 2012-52, which reaffirmed a prior commitment on over-the-counter derivative contracts, secured an average score of 0.37. While seven G20 members fully complied with the commitment, the others only partially complied. Compliance with commitment 2015-93, to strengthen financial inclusion work in developing countries, had an average score of 0.10: only Canada, Korea, Saudi Arabia, the UK, and the EU fully complied; Italy, Japan, and the US failed to comply; and the other G20 members only partially complied. Of the 10 assessed 2016 commitments, two had an average score of negative compliance and the other eight averaged partial compliance scores. These commitments addressed issues in trade, macroeconomic policy, ICT, and microeconomics.

The limited data available thus indicates a negative trend in G20 compliance with its digitalization commitments. This is particularly noteworthy given that the selected commitments measured for compliance were all economic in nature, representing some of the G20's hallmark policy arenas. Yet before any broad trends or conclusions can be drawn, more research on G20 compliance with its other digitalization commitments is needed.

Development of Global Governance

On the sixth dimension, the development of global digitalization governance, first began at the ministerial level at the 2010 Washington meeting (see Appendix K). The communiqué made two internal references to the Financial Stability Board (FSB) and two external references: one to the Financial Action Task Force (FATF) and another to the Organisation for Economic Co-operation and Development (OECD). At the third finance ministerial meeting in Moscow in 2013, one internal reference was made to the joint G20/OECD Base Erosion and Profit-Shifting (BEPS) Project and six external references to the OECD, the Global Partnership for Financial Inclusion (GPMI), the SME Finance Challenge, and the Alliance for Financial Inclusion.

Under the Chinese presidency in 2016, the Shanghai meeting made four internal and eight external references, the Washington meeting made five and 10 respectively, and the Chengdu meeting made six and nine respectively. The predominant internal institution mentioned was the FSB, but also the *G20 High-Level Principles on Digital Financial Inclusion*. External institutions made went entirely to financial and economic institutions, including the Basel Committee for Banking Supervision (BCBS), International Monetary Fund (IMF), GPMI, FATF, and Bank for International Settlements. The 2017 Baden Baden meeting again made a new peak, referencing nine internal and 13 external institutions including the FSB, the G20/OECD BEPS Project, and the *G20 High-Level Principles on Digital Financial Inclusion*, as well as the IMF, the World Bank, and the International Network for Financial Education. As with the other dimensions of performance, the Düsseldorf meeting raised the bar further with 49 internal and 45 external references, respectively, and added non-economic institutions to the mix. For the first time at the ministerial level, the referenced external institutions at Düsseldorf included the International Telecommunication Union (ITU), Consumers International, and the United Nations Conference on Trade and Development, as well as the *Charter of the United Nations* and *Universal Declaration of Human Rights*.

At the leaders' level, the development of global governance witnessed an upward trend as well (see Appendix L). Specifically, there was an increased spread in and balance between references to both internal and external global governance institutions. Internally, the first two references were made at the 2009 Pittsburgh Summit to the FSB and G20 finance ministers and central bank governors. This rose to three at the 2011 Cannes Summit, all to the FSB. Five references were made at the 2015 Antalya Summit, to various G20 bodies as well as the Business 20 (B20). At the 2016 Hangzhou Summit, an impressive 31 references were made to internal institutions, including the *G20 High-Level Principles for Digital Financial Inclusion* and the Global Infrastructure Connectivity Alliance. Further progress was made at the 2017 Hamburg Summit, with 41 internal references to initiatives and plans including the *G20 Roadmap for Digitalization*, the #eSkills4Girls Initiative, and the G20 agriculture and labour and employment ministers.

Some broad trends can be identified. Importantly, the G20 increasingly called on the FSB to assist in digitalization governance. Yet the digital world barely was a topic of conversation among G20 finance ministers and central bank governors. Additionally, it was only in the last two summits in Hangzhou and Hamburg that the G20 began linking digitalization governance with its other activities, as seen through the recent surge in references to internal G20 reports, initiatives, and principles.

References to external global governance institutions also rose. The first six references were made at the 2011 Cannes Summit, to institutions including the Committee on Payment and Settlement Systems, the International Organization of Securities Commissions, and the World Bank. There were 12 references made at the 2013 St. Petersburg Summit, including five to the OECD and six to the World Trade Organization (WTO). At the 2016 Hangzhou Summit, 48 external references were made, including nine to the Organization for Security and Co-operation in Europe (OSCE), three to the UN, five to the IMF, two to the BCBS, and four to the ITU. This number increased to 53 at the 2017 Hamburg Summit, where 12 references were made to the OSCE, nine were made to the 2030 Agenda for Sustainable Development, and five to the GPFi.

Furthermore, most of the external institutions mentioned did not explicitly focus on issues in digitalization. The only digitalization-specific institutions included are the Digital TVET Tender Initiative, the Make-IT Initiative, and the ITU. This may indicate a gap in global digitalization governance in general, as there may not exist an adequate body of institutions to address the unique nature of the issue in the first place.

The G20 referenced external institutions predominantly of the economic and financial variety. Examples include increased mention of the OECD and the GPFi. Several new additions made at the 2016 Hangzhou Summit were also maintained, but not increased, at Hamburg. These include references to the World Bank, IMF, WTO, and International Labour Organization (ILO). Yet while relatively smaller in size, the Hamburg Summit's addition of the social aspects of digitalization is also apparent: for the first time in 2017, the G20 referenced UN Women in the context of digitalization's implications for gender equality. Additionally, the social aspects of digitalization were made clear at the earlier Düsseldorf ministerial meeting, which linked digitalization to human rights for the first time.

Overall, the G20's increased tendency to reference external institutions of global governance is also a recent phenomenon, having surged from three references in 2014 to 48 in Hangzhou and 53 in Hamburg, and 51 then 64 references at the ministerial level under the Chinese and German presidencies, respectively. This indicates an increased awareness of the digital revolution's impact on the international community and its activities. The unique features of the digital world require a coordinated effort from the entire international community. While the G20 economies may be key players in the digital future, their governance alone is insufficient to harness its benefits. The G20 thus recognizes the critical importance of collaborating with other relevant institutions to ensure that digitalization contributes positively not only to global growth, but also to social advance.

Causes of Performance

Kirton outlines six causes of G20 performance, all of which help to explain the G20's governance of digitalization. They are shock-activated vulnerability, multilateral organization failure, predominant equalizing capability, common characteristics, domestic political cohesion, and club participation.

Shock-Activated Vulnerability

The first cause, shock-activated vulnerability, is particularly relevant to the G20's improvement in its performance on digitalization. Importantly, digitalization is changing the global economy and people's everyday lives. Some of these shocks are beneficial: consumers and businesses now have access to higher-quality products and services. Entire industries have become more efficient, and new business models have been created. Digitalization does not just advance innovation in products; it also improves processes and organizational arrangements along the value chain, enabling productivity gains.²³ Interaction among machines through standardized, open interfaces may increase the efficiency of production systems by up to 30%.²⁴ Digital levers such as simulation tools, sensors, smart machines, and data-driven services can also drive productivity gains of 5% to 8% of total manufacturing costs.²⁵

Notwithstanding, digitalization also poses risks to states, people, and institutions. The digital revolution is unfolding at a pace that is faster than regulatory frameworks are evolving to address it. There is a lack of trust in the security of digital products for consumption and conducting business, which poses legitimate questions to economic security. If not addressed effectively, digitalization can undermine the resilience of the financial system, one of the G20's core missions, and challenge the future of economic growth. For example, digitalization contributes to increased theft from central banks and new means of money laundering and terrorist financing.²⁶ Politically, the use of ICTs also makes it easier for state and non-state actors alike to unfairly intervene in foreign affairs, as shown by Russian efforts to meddle in the 2016 US elections and, less successfully, in the 2017 German and French ones.²⁷

The Internet of Things (IoT) also creates new vulnerabilities. In particular, the market has prioritized device features over security, and when it comes to regulation, there is a "fundamental mismatch" between the way governments and technology work.²⁸ Cyber attacks cost the global economy around \$445 billion annually.²⁹ Greater connectivity thus underscores the need to create a more secure and trustworthy digital environment, while maintaining the internet's openness and respecting privacy rights.³⁰ Without ensuring an adequate level of protection in the digital world, the benefits and opportunities afforded by digitalization cannot be fully realized.

²³ Organisation for Economic Co-operation and Development, "Key Issues for Digital Transformation in the G20," *Organisation for Economic Co-operation and Development*, published January 12, 2017, <http://www.oecd.org/innovation/key-issues-for-digital-transformation-in-the-g20.pdf>.

²⁴ B20 Digitalization Taskforce, Digitalization for All.

²⁵ Ibid.

²⁶ Kirton and Warren, G20 Governance of Digitalization.

²⁷ Ibid.

²⁸ Barry Carin, "G20 safeguards vulnerabilities of digital economy, with financial sector focus," *G20 Insights*, published November 20, 2017, http://www.g20-insights.org/policy_briefs/g20-safeguards-vulnerabilities-digital-economy-financial-sector-focus/.

²⁹ Ibid.

³⁰ Ibid.

By 2030, 8 billion people and 25 billion smart devices are expected to be connected to one enormous network.³¹ While governments worldwide are developing cybersecurity strategies, most lack risk-based security performance and lack international alignment, hampering cross-border activities, undermining protection online, weakening access to intellectual property rights, inversely impacting incentive for innovation, and adversely impacting the growth potential of digitalization. On cross-border data flows, G20 members responded to security concerns with a proliferation of data localization requirements.³² Yet as previously mentioned, such requirements also challenge the effectiveness of digital technologies, make the internet less free and accessible worldwide, and prevent G20 efforts to spur innovation, job creation, and growth.³³

The global economy was also increasingly shaped by massive digital platforms, augmenting the power of platform operation. Specifically, American and Chinese platforms have become critical market players in the internet economy, posing a threat to competition by dictating the rules of the digital economy and excluding new competitors out of the market.³⁴ Additionally, there is a concern of regional digital protectionism. US president Donald Trump imposed higher customs duties to reduce America's trade deficit but allowed exports from European and Chinese manufacturing industries to access its market in return for Europe keeping its market open to US digital business models.³⁵ If other individual countries and groups of countries isolated their economies to develop an independent regional digital economy in response to US tariffs, consumers would be deprived of a broad selection of digital services for which there is currently no substitute.³⁶ Digital isolation would thus undermine the economy and the prosperity generated by open trade, fair competition, and the freedom to innovate. It would also contribute to a loss of welfare.³⁷

Additionally, the use of AI poses new challenges to the G20's ability to advance its core mission of making globalization work for the benefit of all. Manual labour is increasingly replaced by automation. In the next 15 to 20 years, 9% of jobs across the OECD could be automated and another 25% significantly disrupted.³⁸ Consequently, the key demographic in these occupations – the least educated – suffer the most, increasing inequalities between the rich and poor and undermining the G20's foundational goals. Furthermore, despite the digital environment becoming a key component of 21st-century infrastructure, approximately four billion people also still do not use the internet, thus making firms' ability to internationalize increasingly contingent on connectivity, especially in least-developed countries.³⁹

³¹ Angel Gurría, "G20 Summit: Session on Digitalisation, Women's Empowerment, and Employment," *Organisation for Economic Co-operation and Development*, published July 8, 2017, <https://www.oecd.org/g20/g20-summit-july-2017-digitalisation-womens-empowerment-and-employment.htm>.

³² Brzytwa, G20 Digital Economy Outcomes.

³³ Ibid.

³⁴ Friedbert Pflüger and Clark Parsons, "Digitalization for the people: An Agenda for more growth, better education and equal opportunities in the G20 countries," *Internet Economy Foundation*, published 2017, <https://www.ie.foundation/content/4-publications/170329-ief-policy-paper-en-g20.pdf>.

³⁵ Ibid.

³⁶ Ibid.

³⁷ Ibid.

³⁸ Gurría, G20 Summit.

³⁹ Ibid.

The consequences of AI usage are also not fully known, raising new ethical issues and questions. In addition to AI's potential impact on the workforce, the question of liability in scenarios resulting in harm based on automated decisions are important issues that ought to be addressed. The military applications of AI, such as autonomous weapons systems, could also change the nature of warfare.⁴⁰ This would pose serious challenges in holding perpetrators accountable violations of international law and could transform the nature of policing, with serious implications for protecting human rights.⁴¹ Yet concurrently, AI is still a nascent innovation and its potential must not be undermined by pre-emptive decisions.⁴²

The physical world is thus increasingly shaped by the digital world. At the forefront of this impact are global integration and social and economic growth. Seeing as the G20 accounts for 85% of the global economy, the G20 must work together and with other institutions to mitigate digitalization's risks and harness its benefits for all.⁴³

Multilateral Organization Failure

The second cause is multilateral organization failure. Importantly, digitalization has changed economic and social infrastructure faster than governing institutions have been able to adapt. Due to the unique characteristics of cyberspace, traditional organizations addressing offline employment, trade, development, and growth are ill equipped to regulate the online world.

While the ILO has attempted to recognize the changing nature of work in light of digital innovation through its Future of Work Initiative, its efforts have been primarily discussion-based and have yet to produce tangible, binding commitments.⁴⁴ In terms of cyberspace governance, the ITU – a 19th-century creation to regulate postal service, telegraphs, and telephones, has tried to fill the void but often succumbed to divisions between its members that advocate strong national government control and those that prefer private sector-led regimes.⁴⁵

The Internet Corporation for Assigned Names and Numbers (ICANN) has driven much innovation in this realm, yet it risks creating new problems of its own. In particular, ICANN's proposed model to comply with the EU's *General Data Protection Regulation* while simultaneously maintaining access to the WHOIS domain name registration database effectively ends the internet's operational transparency.⁴⁶ While ICANN recognizes that some of WHOIS's critical purposes include consumer protection, investigation of cybercrime, mitigation of abuse, and intellectual property protection, its proposed model fails to provide a "meaningful pathway" to use WHOIS in those ways.⁴⁷ Use of WHOIS would thus become nearly impossible. Little

⁴⁰ Amnesty International, "Recommendations to the G20 on Digitalization and Human Rights," *Amnesty International*, published 2017, <https://www.amnesty.org/download/Documents/IO3065772017ENGLISH.PDF>.

⁴¹ *Ibid.*

⁴² B20 Digitalization Taskforce, *Digitalization for All*.

⁴³ Berger et al., *It's Time for a Collaborative G20 Digital Agenda*.

⁴⁴ Kirton and Warren, *G20 Governance of Digitalization*.

⁴⁵ *Ibid.*

⁴⁶ Brian Winterfedt, "ICANN Proposed Interim GDPR Compliance Model Would Kill Operational Transparency of the Internet," *CircleID*, published March 6, 2018, http://www.circleid.com/posts/20180306_icann_interim_gdpr_compliance_model_would_kill_transparency_whois/.

⁴⁷ *Ibid.*

progress was made on these issues during ICANN's 61st Community Forum in San Juan in March 2018.⁴⁸

On digital trade, the WTO has attempted, but failed, to outline basic regulations. At the WTO's 11th ministerial conference in December 2017, the WTO did not agree to continue extending the moratorium on imposing duties on electronic transmissions, nor did it agree to commence discussion of new rules for e-commerce.⁴⁹ While the former decision was enabled by the WTO's consensus rule, the latter was a result of 70 of the WTO's 164 members opting instead to pursue the discussion outside of the WTO.⁵⁰

Traditional international legal frameworks to govern the non-digital aspects of these areas are similarly inadequate. Specifically, hacking, cyber espionage, and distributed denial of service attacks are ill addressed by the existing international law on armed conflict. The North Atlantic Treaty Organization (NATO) has attempted to fill this void by crafting the *Tallinn Manual*, a document explaining the ways in which the laws of war are applicable to cyberspace.⁵¹ However, the *Tallinn Manual* is non-binding and its broad interpretation of what constitutes "cyber armed force" and "cyber armed conflict" is challenged by many.⁵² Additionally, even with the *Tallinn Manual*, the world still needs modern equivalents to "standard railway track gauges, aircraft safety requirements, telephone standards, and the 1929 *International Convention for the Suppression of Counterfeiting Currency*."⁵³

The UN has also struggled to contribute to cyberspace governance. In 2017, the UN Group of Governmental Experts on Information Security (GGE) concluded its last round of deliberations on measures to address existing and potential threats in the sphere of information security. However, the GGE failed to arrive at a consensus outcome report, marking a sharp departure from the work of three prior GGEs that established and advanced a global conversation on international norms and confidence-building measures in cyberspace.⁵⁴ The format of the GGEs had previously emerged as a main international vehicle for discussing the rules of behaviour for states in cyberspace.⁵⁵ The GGE's failure leaves an unresolved international legal debate and raises questions over whether the debate is even going to be continued in the near future.⁵⁶

Given the G20's normative influence on the development of policy, it is a natural forum to influence the global governance of digitalization. Getting the G20 to agree on the particulars of digital trade, innovation, and technology could and did help to set the stage for norms that the aforementioned multilateral organizations and other global governance institutions would follow.

⁴⁸ Göran Marby, "Data Protection/Privacy Issues: ICANN61 Wrap-Up and Next Steps," *Internet Corporation for Assigned Names and Numbers*, published March 21, 2018, <https://www.icann.org/news/blog/data-protection-privacy-issues-icann61-wrap-up-and-next-steps>.

⁴⁹ Kirton and Warren, G20 Governance of Digitalization.

⁵⁰ Ibid.

⁵¹ Michael J. Adams, "A Warning About Tallinn 2.0... Whatever It Says," *Lawfare*, published January 4, 2017, <https://www.lawfareblog.com/warning-about-tallinn-20-...-whatever-it-says>.

⁵² Ibid.

⁵³ Carin, G20 safeguards.

⁵⁴ Elaine Korzak, "UN GEE on Cybersecurity: The End of an Era?" *The Diplomat*, published July 31, 2017, <https://thediplomat.com/2017/07/un-gge-on-cybersecurity-have-china-and-russia-just-made-cyberspace-less-safe/>.

⁵⁵ Ibid.

⁵⁶ Ibid.

Additionally, the G20's systematic annual meetings and tendency to follow up with previous commitments may create a sense of accountability for the external organizations that it calls upon for help.⁵⁷

Predominant Equalizing Capability

The third cause is predominant equalizing capability. Despite the G20 accounting for half of the world's internet users, not all G20 members are alike in their preparedness for IoT development. In 2016, the International Data Corporation (IDC) found that the US, Korea, and the UK were the three members most ready to benefit from the IoT. The US ranked first, scoring well on the ease of doing business, government effectiveness, innovation, cloud infrastructure, and technology spending as a percentage of GDP.⁵⁸ Korea, ranking second, had a modest GDP but scored well on IoT-specific spending and a business environment conducive to innovation and investment.⁵⁹ The UK ranked third, also scoring high on the ease of doing business, government effectiveness, regulatory quality, start-up procedures, innovation, and broadband penetration.⁶⁰ Australia also ranked fourth, and Japan ranked fifth. Nevertheless, the IDC found that GDP size alone is not the best predictor of a country's readiness for the IoT.⁶¹

On AI readiness, G20 countries also vary. The UK, US, and Canada ranked in the top three and France and Japan in the top seven.⁶² Korea and Australia also ranked in the top ten, and Germany ranked 13th meanwhile Italy was placed at 19th. However, no other G20 members ranked in the top 20.⁶³

G20 countries also vary in their ability to withstand cyber attacks. The Economist Intelligence Unit, sponsored by Booz Allen Hamilton, developed a Cyber Power Index to gain a better understanding of factors influencing cyber resilience globally. Overall, it found that the UK, US, Australia, Germany, and Canada exhibit the top "cyber power," illustrating that developed Western countries are "leading the way into the digital era."⁶⁴ In contrast, the leading emerging market countries of Brazil, Russia, India, and China ranked 10th, 14th, 17th, and 13th, respectively. One reason is the relatively larger depth of internet penetration in the top-ranked countries.⁶⁵

⁵⁷ Global Partners Digital, "Navigating Human Rights in the Digital Environment: The G20," *Global Partners Digital*, published June 2017, <https://www.gp-digital.org/wp-content/uploads/2017/06/navigatingtheG20.pdf>.

⁵⁸ International Data Corporation, "IDC Launches Updated G20 Internet of Things Development Opportunity Index Ranking," *International Data Corporation*, published November 2, 2016, <https://www.idc.com/getdoc.jsp?containerId=prUS41888616>.

⁵⁹ Ibid.

⁶⁰ Ibid.

⁶¹ Ibid.

⁶² Kirton and Warren, G20 Governance of Digitalization.

⁶³ Ibid.

⁶⁴ Economist Intelligence Unit, "Cyber Power Index: Findings and Methodology," *Cybersecurity Capacity Portal*, published 2011, <https://www.sbs.ox.ac.uk/cybersecurity-capacity/system/files/EIU%20-%20Cyber%20Power%20Index%20Findings%20and%20Methodology.pdf>.

⁶⁵ Ibid.

The Economist Intelligence Unit also found that clear cybersecurity plans are still absent in some G20 countries, including Argentina, Indonesia, Russia, and Saudi Arabia, and that prioritization of ICT access is higher in the developed world.⁶⁶ Further, the G20 countries still exhibit limited technological progress within key industries.⁶⁷

These numbers show that the G20 represents a diverse spectrum of readiness to embrace the digital revolution. In this light, it is uniquely suited to appreciate some of the key risks and advantages of digitalization across developed and developing countries.

Common Characteristics

The fourth cause is common and converging characteristics. While Kirton argues that participation in the G20 contributes to the increased democratization of its members, the reality is that democratic divergence is on the rise. According to Freedom House's 2018 report on *Freedom in the World*, the US has retreated from its traditional role as a champion of democracy, and American civil and political rights are on the decline.⁶⁸ Turkey is sliding into authoritarian rule, for the first time ranked as "not free" rather than "partially free," and right-wing populists with a "short shrift" for civil liberties gained popularity in France and Germany in 2017.⁶⁹ China and Russia also seized the opportunities posed by the retreat of democracies to increase internal repression and export their anti-democratic influence abroad, and Saudi Arabia was again listed as the "worst of the worst" in terms of civil and political rights.⁷⁰

Democracy's decline within certain G20 countries applies online as well as offline. In 2015, China also used for the first time its "Great Cannon," a separate censorship mechanism co-located with the Great Firewall, to launch a large-scale distributed denial of service attack on services designed to circumvent Chinese censorship.⁷¹ The governments of China, Turkey, and Brazil also increasingly turned to social media platforms to crush dissent.⁷² Further, the US Department of Trade recently discovered that the Chinese government has been systematically attacking the networks of American and foreign companies.⁷³ In November 2017, the US Federal Communications Commission also released plans to repeal key Obama-era regulations ensuring neutral and equal access to the internet, enabling internet service companies to charge users more to see certain content and even curb access to specific websites.⁷⁴ Even in Canada, the proposed

⁶⁶ Ibid.

⁶⁷ Ibid.

⁶⁸ Freedom House, "Freedom in the World 2018: Democracy in Crisis," *Freedom House*, published 2018, <https://freedomhouse.org/report/freedom-world/freedom-world-2018>.

⁶⁹ Ibid.

⁷⁰ Ibid.

⁷¹ Bill Marczak, Nicholas Weaver, et al., "China's Great Cannon," *Citizen Lab*, published April 10, 2015, <https://citizenlab.ca/2015/04/chinas-great-cannon/>.

⁷² Jeffrey Knockel, Masashi Crete-Nishihata, Jason Q. Ng, and Adam Senft, "Every Rose Has its Thorn: Censorship and Surveillance on Social Video Platforms in China," *Citizen Lab*, published August 10, 2015, <https://citizenlab.ca/2015/08/every-rose-has-its-thorn/>.

⁷³ Bill Gertz, "US trade report lays bare Chinese government cyber-espionage," *Asia Times*, published March 26, 2018, <http://www.atimes.com/article/us-trade-report-lays-bare-chinese-government-cyber-espionage/>.

⁷⁴ Cecilia Kang, "F.C.C. Plans Net Neutrality Repeal in a Victory for Telecoms," *New York Times*, published November 21, 2017, <https://www.nytimes.com/2017/11/21/technology/fcc-net-neutrality.html>.

National Security Act, Bill C-59, raises concerns including problems of oversight and independent control, state-sponsored hacking, and unreasonable mass surveillance.⁷⁵

Paradoxically, the G20's increased attention to digitalization thus occurred alongside a clampdown on cyberspace's openness.⁷⁶ China's tightening control of cyberspace preceded the unprecedented surge of attention dedicated to digitalization at the 2016 Hangzhou Summit, and the implications of Russian interference in the 2016 and 2017 leadership elections in the West unfolded over the course of the 2017 German G20 presidency. Thus rather than democratic convergence, G20 performance of digitalization is better explained by G20 members' common converging economic characteristics. Specifically, G20 members share a common capacity to influence the global economy. As they adapt to the changes that digitalization brings, so too will global economic growth respond in kind.

Domestic Political Cohesion

The fifth cause is domestic political cohesion. It posits that the G20's ability to govern digitalization is contingent on the degree of domestic political control and support that G20 leaders have at home.⁷⁷ This is partially accurate. Importantly, embracing the benefits of digitalization is simply smart economics. Digitalization can increase profits, productivity, and welfare. Consumers and businesses are thus generally supportive of national efforts to feel more of these benefits at home. Furthermore, under the Chinese presidency, digital innovation was a natural agenda item given President Xi Jinping's tight control of his government and emphasis on development, trade, and economic growth. Under the Germans, the country's emphasis on the social ramifications of digitalization processes – particularly the digital gender divide and digital skills and vocational training in the least-developed and developing countries – aligns naturally with the generally nature of its federal political spectrum.

Notwithstanding, the true support for G20 digitalization governance is hard to identify in more repressive G20 countries. For example, Russia championed the economic aspects of digitalization – with the 2013 St. Petersburg Summit providing the first explicit definition of the digital economy – but simultaneously used social media to crush dissent and interfere in political processes abroad. President Vladimir Putin particularly sees the borderless nature of the internet as a threat to Russia's domestic affairs by exposing the populace to otherwise inaccessible information and arming them against him. Additionally, in the US while President Trump's efforts to end net neutrality and crack down on “fake news” also met with partial support from the Republican electorate, they are widely condemned by the popular vote. Accordingly, domestic political cohesion does not fully account for the G20's 2016 surge in performance on digitalization.

Club at the Hub

⁷⁵ Miles Kenyon, “Joint Letter Concerning Bill C-59, National Security, and Human Rights,” *Citizen Lab*, published September 19, 2017, <https://citizenlab.ca/2017/09/joint-letter-concerning-bill-c-59/>.

⁷⁶ Kirton and Warren, *G20 Governance of Digitalization*.

⁷⁷ John J. Kirton, *G20 Governance for a Globalized World* (Farnham: Ashgate, 2013), 45.

The sixth and final cause is club participation. It argues that diversity and overlap in the G20 have led to a network of closely bonded individuals, making the G20 a core part of its members' identities and increasing the G20's efficiency as members have a stake in wanting it to succeed.⁷⁸ It appears only natural that as the world's leading economies the G20 has increasingly embraced the digital revolution, given its capacity to affect the future of global economic growth. Certainly, addressing digitalization helps to confirm the G20's status as the world's premier forum for global economic governance, by adapting to address emerging opportunities and vulnerabilities to the international system. While the G20's improved performance in the digital world undoubtedly suggests its members' significance as critical players in the global digital economy, it does not necessarily follow that they prefer to address digitalization through the G20 as a forum. Given the increased tendency to replicate sovereignty in cyberspace and failure of other multilateral organizations to secure the necessary support to act on decisions concerning digitalization, there is a possibility that some G20 members similarly appreciate their standing derived from being a G20 member while also being less inclined to address the more divisive but critical digital issues within the body.

Case Studies

The most recent G20 presidencies of China and Germany stand out for their recent and significant contributions to the G20's progressive governance of digitalization.

2016: China

The first critical case study is China's 2016 G20 presidency, which lasted from December 1, 2015, to November 30, 2016. It marked the start of the sharp improvement in the G20's performance on digitalization. The Chinese presidency, which marked the first time that a developing country hosted a G20 summit, operated under the theme, "Towards an Innovative, Invigorated, Interconnected, and Inclusive World Economy."⁷⁹ Digitalization was a natural component of this, especially given that key agenda items were future-oriented and included identifying new paths for growth and improving the international financial system to address new challenges.

As a major trading nation and proud developing country, China's contribution to digitalization governance was predominantly economic focused. Nevertheless, its presidency still promoted common G20 values of inclusiveness. Priorities for the digital economy were expressed in inclusive terms that balanced the interests of developed and developing countries, promoted regulation ensuring the free flow of innovation, and supported policies and dialogue to cooperate in extending the benefits of digitalization to all.⁸⁰

One key accomplishment of the Hangzhou Summit was the decision to create the G20 Task Force on the Digital Economy. In the *G20 Leaders' Communiqué*, the G20 recognized that

⁷⁸ Ibid., 48.

⁷⁹ Xi Jinping, "Message from Xi Jinping," *G20 Information Centre*, published December 1, 2015, <http://www.g20.utoronto.ca/2016/151201-xi-en.pdf>.

⁸⁰ Feride Inan, "What Did the G20 Accomplish During China's Presidency?" *The Diplomat*, published September 9, 2016, <https://thediplomat.com/2016/09/what-did-the-g20-accomplish-during-chinas-presidency/>.

global economic growth must be powered by new driving forces, to which digital innovation was one. Accordingly, G20 leaders committed to setting up an OECD-supported task force to advance the G20's innovation agenda on the digital economy.⁸¹ One of the key motivating factors for a digital economy taskforce was to ensure consistency in future G20 presidencies and promote continued progress in this field.⁸² The G20 Task Force on the Digital Economy ultimately helped to advance the 2016 *G20 Blueprint on Innovative Growth* and *G20 New Industrial Revolution Action Plan*, both of which outlined courses of action to harness digitalization's benefits and mitigate its risks.

The Chinese presidency also produced the *G20 High-Level Principles for Digital Financial Inclusion*, an updated version of the 2010 *G20 Principles for Innovative Financial Inclusion*. The principles affirmed digitalization's critical importance to the G20's foundational mission to make globalization work for all. They include 1) the promotion of a digital approach to financial inclusion, 2) balancing innovation and risk to achieve digital financial inclusion, 3) providing an enabling and proportionate legal and regulatory framework for digital financial inclusion, 4) expanding the digital financial services infrastructure ecosystem, 5) establishing responsible digital financial practices to protect consumers, 6) strengthening digital and financial literacy and awareness, 7) facilitating customer identification for digital financial services, and 8) tracking digital financial inclusion progress.⁸³

These eight principles were intended to serve as “a catalyst for action for the G20 to drive the adoption of digital approaches to achieve financial inclusion goals, as well as the related G20 goals of inclusive growth and increasing women's economic participation.”⁸⁴ They recognized the critical importance of using digital technologies to provide the financially excluded with quality financial products and services and serve as a reaction to the rapid evolution of digital financial services. The principles reflect the G20's realization that responsible digital financial services were critical to advancing individual and national welfare and a means of advancing the G20's priority commitments, such as helping low-income developing countries to advance financial inclusion in line with the goals of the 2030 Agenda for Sustainable Development.⁸⁵

Another accomplishment of the Chinese presidency was its launch of the G20 Digital Economy Development and Cooperative Initiative, which aimed to foster favourable conditions for digital economic development and address the digital divide.⁸⁶ Accordingly, the initiative identifies six priorities for cooperation in the digital economy: 1) expanding broadband access and improving its quality, 2) promoting investment in the ICT sector, 3) supporting entrepreneurship and promoting digital transformation, 4) encouraging e-commerce cooperation, 5) enhancing digital inclusion, and 6) promoting the development of micro, small and medium-sized enterprises.⁸⁷

⁸¹ G20 Leaders, “G20 Leaders' Communiqué: Hangzhou Summit,” *G20 Information Centre*, published September 5, 2016, <http://www.g20.utoronto.ca/2016/160905-communication.html>.

⁸² *Ibid.*

⁸³ Global Partnership for Financial Inclusion, “G20 High-Level Principles for Digital Financial Inclusion,” *G20 Information Centre*, published 2016, <http://www.g20.utoronto.ca/2016/high-level-principles-for-digital-financial-inclusion.pdf>.

⁸⁴ *Ibid.*

⁸⁵ *Ibid.*

⁸⁶ G20 Leaders, *G20 Leaders' Communiqué: Hangzhou Summit*.

⁸⁷ G20 Leaders, *G20 Digital Economy Development and Cooperation Initiative*.

The G20 also committed to encouraging multi-level exchanges to share views and promote digital economic cooperation, exchange best practices, and cooperate in training and research for the benefit of the G20's developing countries.⁸⁸

Whereas the *G20 High-Level Principles on Digital Financial Inclusion* outlined the G20's guiding approach to tackling the digital economy, the Task Force and Development and Cooperation Initiative marked the start of putting rhetoric into action. China's G20 presidency effectively began the G20's significantly improved performance on digitalization. It also lay the groundwork for Germany to build on this progress.

2017: Germany

The second critical case study is Germany's 2017 G20 presidency, which followed the Chinese and lasted from December 1, 2016, to November 30, 2017. Germany's G20 agenda focused on three themes: 1) sharing the benefits of globalization, 2) building resilience, and 3) improving sustainable livelihoods. "Harnessing digitalization" was framed under the first theme, recognizing the digital revolution as a driving force of inclusive growth with the capacity to contribute to reducing inequality worldwide.⁸⁹ Thus, what distinguishes the German presidency is its unprecedented emphasis on the social implications of digitalization, rather than merely its impact on global economic growth.

One key accomplishment of the German presidency was the inaugural meeting of G20 ministers responsible for the digital economy in Düsseldorf in April 2017. While there, G20 digital ministers and guest countries including Spain, Norway, Singapore, and the Netherlands discussed digitalization as a key element for strong, sustained, balanced, and inclusive growth in the world economy.⁹⁰ They identified three key fields of action: 1) shaping digitalization at a global level and harnessing the potential for growth and employment, 2) digital networking for industrial value creation and developing international standards, and 3) creating transparency and enhancing trust in the digital world.⁹¹

The Düsseldorf meeting produced a ministerial declaration, entitled *Shaping Digitalization for an Interconnected World*, and three annexes, including the *Roadmap for Digitalization: Policies for a Digital Future*, which outlined 11 key fields of digital policy and additional aspects of digitalization for the G20 to address in the future, *Digital Skills in Vocational Education and Training*, and *G20 Priorities on Digital Trade*. These documents contain several bold pledges including high-speed internet access for all by 2025, creating inclusive growth and new jobs through the digital economy, promoting lifelong digital learning, and reducing the digital gender

⁸⁸ Ibid.

⁸⁹ G20 Leaders, "G20 Leaders' Declaration: Shaping an Interconnected World," *G20 Information Centre*, published July 8, 2017, <http://www.g20.utoronto.ca/2017/2017-G20-leaders-declaration.html>.

⁹⁰ Federal Ministry for Economic Affairs and Energy, "G20 – Shaping digitalisation at global level," Federal Ministry for Economic Affairs and Energy, published 2018, <https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/g20-digitalisierung-global-gestalten.html>.

⁹¹ G20 Digital Ministers, "G20 Digital Economy Ministerial Declaration: Shaping Digitalisation for an Interconnected World," *G20 Information Centre*, published April 7, 2017, <http://www.g20.utoronto.ca/2017/170407-digitalization.html>.

divide.⁹² G20 digital ministers also recognized the potential for the digital economy to contribute to the realization of the goals of the 2030 Agenda for Sustainable Development.⁹³ Further, the ministerial declaration emphasized the importance of human rights online and recognized that “that freedom of expression and the free flow of information, ideas and knowledge, are essential for the digital economy and beneficial to development.”⁹⁴

Another accomplishment of the German presidency was the Hamburg Summit’s launch of the #eSkills4Girls Initiative to promote opportunities and equal participation for women and girls in the digital economy, particularly in low-income and developing countries. This marked the first time that the G20 linked digitalization to gender equality. In Hamburg, they recognized that more than 250 million fewer women than men are online worldwide and that an internet gender gap exists across all regions in the world, even increasing in developing countries to 16.8% since 2013.⁹⁵ Given the capacity for digital technologies to advance the economic, political, and social empowerment of women and girls, they thus endorsed the initiative wholeheartedly. #eSkills4Girls emphasized G20 members’ shared responsibility in building a gender inclusive digital economy and identified this as a critical prerequisite to realizing previous G20 commitments, including its goal to reduce the gender gap in labour force participation rates by 25% by 2025.⁹⁶

Conclusion

Despite over a decade of poor performance on digitalization, the G20 recently rose to the challenge. Under the German and Chinese presidencies, the G20’s overall performance on digitalization vastly improved. It is likely that the G20’s governance of digitalization will continue to progress in the future in a fashion that aims to prevent, rather than respond, to crisis. The G20 will likely continue to address the digital revolution, predominantly as a result of shock-activated vulnerability and multilateral organization failure. This is due to the close connection between the G20’s core missions of financial stability and making globalization work for all, and the ability of digitalization to simultaneously advance and undermine their realization.

The Argentine presidency, which began on December 1, 2017, has already taken steps to ensure that the G20 continues to address issues in digitalization in 2018. The three pillars of its presidency are 1) the future of work, 2) infrastructure for development, and 3) a sustainable food culture.⁹⁷ On the future of work, Argentina has recognized that rapid technological development significantly alters the dynamics of employment, welfare, education, and inequality, but also emphasizes the opportunity for digitalization to advance “fair and sustainable” development. On

⁹² Federal Ministry for Economic Affairs and Energy, G20 – Shaping digitalisation at global level.

⁹³ Ermert, G20 IT Ministers Want Access For All.

⁹⁴ G20 Digital Ministers, G20 Digital Economy Ministerial Declaration.

⁹⁵ G20 Leaders, “G20 Initiative “#eSkills4Girls:” Transforming the Future of Women and Girls in the Digital Economy,” *G20 Information Centre*, published July 8, 2017, <http://www.g20.utoronto.ca/2017/2017-g20-initiative-eskills4girls.html>.

⁹⁶ Ibid.

⁹⁷ G20 Argentina, “Overview of Argentina's G20 Presidency 2018: Building Consensus for Fair and Sustainable Development,” *G20 Information Centre*, published December 1, 2017, <http://www.g20.utoronto.ca/2018/2018-Overview-en.html>.

infrastructure for development, Argentina has highlighted the centrality of access to digital infrastructure for enabling people worldwide to seize the opportunities afforded by global economic integration.⁹⁸ Overall, the Argentine presidency is expected to continue building on the initiatives of its predecessors.

Beyond rhetoric, the Argentine presidency should make concerted efforts to put principles into practice. In addition to continuing to address digitalization's finance and economic implications, the G20 should focus on making hard commitments to realize its goals for the digital world and outline plans for implementation accordingly. Importantly, it should continue to recognize digitalization's implications for a variety of issue areas, including agriculture, gender, and climate change, and integrate digitalization-specific language into all areas of the G20's agenda, at both the ministerial and leaders' levels. Making meaningful progress on digitalization also requires the G20 addressing its less rosy aspects, where consensus is currently absent. Within the G20, there exists great divisiveness over the applicability of traditional regulatory frameworks to the online world. While finding common ground on these issues will be a challenge, the G20 must remember that digitalization's power to undermine its core projects and values should override tangential disagreement. Digitalization is not going away and will continue to change the way the world conducts business. It will also increasingly assume larger shares of GDP and become a critical prerequisite for economic growth, social cohesion, and trustworthy politics. As the world's premier economic forum and key responder to the forces of globalization, the G20 is an important setting to lead the international community through the digital revolution.

⁹⁸ Ibid.

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Appendices

Appendix A: Overall G20 Ministerial Performance on Digitalization, 1999-2017

Year	DPM CC	DELIB			DIR		DEC		DEL		DGG	
		Words		Doc	FS	GFA	# of CMT	% Overall	Compliance	# Measured	IN	OUT
		#	%									
1999	0	0	0	0	0	0	0	0	0	0	0	0
2000	0	0	0	0	0	0	0	0	0	0	0	0
2001	0	0	0	0	0	0	0	0	0	0	0	0
2002	0	0	0	0	0	0	0	0	0	0	0	0
2003	0	0	0	0	0	0	0	0	0	0	0	0
2004	0	0	0	0	0	0	0	0	0	0	0	0
2005	0	0	0	0	0	0	0	0	0	0	0	0
2006	0	0	0	0	0	0	0	0	0	0	0	0
2007	0	0	0	0	0	0	0	0	0	0	0	0
2008W	0	0	0	0	0	0	0	0	0	0	0	0
2008SP	0	0	0	0	0	0	0	0	0	0	0	0
2009	0	0	0	0	0	0	0	0	0	0	0	0
2010W	0	214	0.1026	0	2	0	0	0	0	0	2	2
2010BU	0	0	0	0	0	0	0	0	0	0	0	0
2011P	0	0	0	0	0	0	0	0	0	0	0	0
2011W	0	0	0	0	0	0	0	0	0	0	0	0
2011P2	0	0	0	0	0	0	0	0	0	0	0	0
2011W2	0	0	0	0	0	0	0	0	0	0	0	0
2011W3	0	0	0	0	0	0	0	0	0	0	0	0
2011P3	0	0	0	0	0	0	0	0	0	0	0	0
2012MC	0	0	0	0	0	0	0	0	0	0	0	0
2012W	0	0	0	0	0	0	0	0	0	0	0	0
2012MER	0	34	0.0373	0	0	0	-	-	0	0	0	0
2012MC2	0	0	0	0	0	0	0	0	0	0	0	0
2013MO	0	0	0	0	0	0	0	0	0	0	0	0
2013W	0	0	0	0	0	0	0	0	0	0	0	0
2013MO2	0	0	0	0	0	0	0	0	0	0	0	0
2013MO3	0	323	0.0777	0	0	2	-	-	0	0	1	6
2013W2	0	0	0	0	0	0	0	0	0	0	0	0
2014SY	0	254	0.2123	0	0	0	-	-	0	0	1	3
2014W	0	0	0	0	0	0	0	0	0	0	0	0
2014CA	0	0	0	0	0	0	0	0	0	0	0	0
2014ME	0	0	0	0	0	0	0	0	0	0	0	0
2014BR	0	0	0	0	0	0	0	0	0	0	0	0
2015I	0	0	0	0	0	0	0	0	0	0	0	0
2015W	0	0	0	0	0	0	0	0	0	0	0	0
2015A	0	0	0	0	0	0	0	0	0	0	0	0
2015A2	0	0	0	0	0	0	0	0	0	0	0	0
2015AN	0	65	0.0456	0	0	0	-	-	0	0	0	0
2015I2	0	0	0	0	0	0	0	0	0	0	0	0
2016SH	0	394	0.1659	0	3	1	8	0.1951	0	0	4	8
2016W	0	361	0.1640	0	6	1	6	0.1622	0	0	5	10
2016X	0	678	0.2808	0	0	1	5	0.1064	0	0	2	8
2016SH2	0	780	0.1878	0	0	2	-	-	0	0	3	11
2016BEI	0	0	0	0	0	0	0	0	0	0	0	0
2016CH	0	513	0.1545	0	6	2	4	0.1379	0	0	6	9
2016BEI2	0	218	0.0364	0	0	1	1	0.0400	0	0	3	5
2017BE	0	666	0.1477	0	0	0	1	0.0345	0	0	11	6
2017BB	0	192	0.0702	0	7	5	3	0.1071	0	0	9	13
2017D	0	6635	0.9523	4	0	46	89	1	0	0	49	45
2017BN	0	480	0.0641	0	0	1	7	0.0609	0	0	7	0
2017BE2	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	11,327	-	4	23	62	124	-	0	0	104	126
Average	0	222.0980	0.0529	0.0784	0.4509	1.2157	2.4314	0.0362	0	0	2.0392	2.4706

Notes:

Meetings listed in chronological order.

City codes are used to distinguish instances where multiple ministerial meetings in the same city. They are: Washington (W), Paris (P), MC (Mexico City), Moscow (MO), Merida (MER) Sydney (SY), Cairns (CA), Melbourne (ME), Brisbane (BR), Istanbul (I), Ankara (A), Shanghai (SH), Chengdu (CH), Xi'an (X), Beijing (BEI), Berlin (BE), Baden Baden (BB), Düsseldorf (D). and Bad Neunahr (BN).

Ministerial meetings that did not produce documents are excluded.

DPM: Domestic Political Management – measured by communiqué compliments (CC), the number of times a country or minister was positively mentioned

DELIB: Deliberation – measured by the number of words on the subject (#), the percent (%) of words and the number of dedicated documents to the issue (Doc.)

DIR: Direction setting – measured by the number of reference to the G20's core missions of financial stability (FS) and globalization for all (GFA)

DEC: Decisions – measured by the number of commitments (CMT) and the percentage of overall commitments (% overall)

DEL: Delivery – measured by compliance with priority commitments (Compliance) and the number of compliance reports (# measured)

DGG: Development of Global Governance – measured by the number of governance mechanisms developed within the G20 (IN) and the number of governance mechanisms developed outside of the G20 (OUT)

Appendix B: Overall G20 Leaders' Performance on Digitalization, 2008-2017

Year	DPM CC	DELIB			DIR		DEC		DEL		DGG	
		Words		Doc	FS	GFA	# of CMT	% Overall	Compliance	# Measured	IN	OUT
		#	%									
2008	0	66	0.0185	0	0	0	4	0.0421	0	0	0	0
2009L	0	0	0	0	0	0	0	0	0	0	0	0
2009P	0	277	0.0299	0	7	0	1	0.0078	0	0	2	0
2010T	0	212	0.0191	0	2	0	0	0	0	0	0	0
2010S	2	0	0	0	0	0	0	0	0	0	0	0
2011	0	424	0.0301	0	4	0	1	0.0035	0	0	3	6
2012	1	158	0.0124	0	0	0	1	0.0056	0.37	1	1	0
2013	0	926	0.0322	0	0	1	1	0.0036	0	0	2	12
2014	0	0	0	0	0	0	0	0	0	0	0	0
2015	2	739	0.0531	0	1	3	6	0.531	0.10	1	5	3
2016	4	3689	0.2277	1	8	28	101	0.4742	0.02	10	31	48
2017	4	5639	0.1623	2	18	33	88	0.1651	0	0	41	53
Total	13	12130	-	3	40	65	203	-	-	12	85	122
Average	1.0833	1010.8333	0.0488	0.25	3.3333	5.4167	16.9167	0.1027	0.0408	1	7.0833	10.1667

Notes:

DPM: Domestic Political Management – measured by communiqué compliments (CC), the number of times a country or minister was positively mentioned

DELIB: Deliberation – measured by the number of words on the subject (#), the percent (%) of words and the number of dedicated documents to the issue (Doc.)

DIR: Direction setting – measured by the number of reference to the G20's core missions of financial stability (FS) and globalization for all (GFA)

DEC: Decisions – measured by the number of commitments (CMT) and the percentage of overall commitments (% overall)

DEL: Delivery – measured by compliance with priority commitments (Compliance) and the number of compliance reports (# measured)

DGG: Development of Global Governance – measured by the number of governance mechanisms developed within the G20 (IN) and the number of governance mechanisms developed outside of the G20 (OUT)

Appendix C: G20 Leaders' Communique Compliments on Digitalization, 2008-2017

Member	2008	2009L	2009P	2010T	2010S	2011	2012	2013	2014	2015	2016	2017
Argentina	0	0	0	0	0	0	0	0	0	0	0	0
Australia	0	0	0	0	0	0	0	0	0	0	0	0
Brazil	0	0	0	0	0	0	0	0	0	0	0	0
Canada	0	0	0	0	0	0	0	0	0	0	0	0
China	0	0	0	0	0	0	0	0	0	1	0	0
France	0	0	0	0	0	0	0	0	0	0	0	0
Germany	0	0	0	0	0	0	0	0	0	0	1	0
India	0	0	0	0	0	0	0	0	0	0	1	1
Indonesia	0	0	0	0	0	0	0	0	0	0	1	0
Italy	0	0	0	0	0	0	0	0	0	0	0	0
Japan	0	0	0	0	0	0	0	0	0	0	0	1
Korea	0	0	0	0	0	0	0	0	0	0	1	0
Mexico	0	0	0	0	0	0	0	1	0	1	0	0
Russia	0	0	0	0	0	0	0	0	0	0	0	0
Saudi Arabia	0	0	0	0	0	0	0	0	0	0	0	0
South Africa	0	0	0	0	0	0	0	0	0	0	0	0
Turkey	0	0	0	0	0	0	0	0	0	0	0	1
UK	0	0	0	0	0	0	0	0	0	0	0	0
US	0	0	0	0	0	0	0	0	0	0	0	0
EU	0	0	0	0	0	2	0	0	0	0	0	1
Total	0	0	0	0	0	2	0	1	0	2	4	4
Overall	13											

Notes:

The unit of analysis is the sentence.

Appendix D: G20 Ministerial Deliberation on Digitalization, 1999-2017

Year	# words	% total words	# dedicated docs
1999	0	0	0
2000	0	0	0
2001	0	0	0
2002	0	0	0
2003	0	0	0
2004	0	0	0
2005	0	0	0
2006	0	0	0
2007	0	0	0
2008W	0	0	0
2008SP	0	0	0
2009	0	0	0
2010W	214	0.1026	0
2010BU	0	0	0
2011P	0	0	0
2011W	0	0	0
2011P2	0	0	0
2011W2	0	0	0
2011W3	0	0	0
2011P3	0	0	0
2012MC	0	0	0
2012W	0	0	0
2012MER	34	0.0373	0
2012MC2	0	0	0
2013MO	0	0	0
2013W	0	0	0
2013MO2	0	0	0
2013MO3	323	0.077	0
2013W2	0	0	0
2014SY	254	0.2123	0
2014W	0	0	0
2014CA	0	0	0
2014ME	0	0	0
2014BR	0	0	0
2015I	0	0	0
2015W	0	0	0
2015A	0	0	0
2015A2	0	0	0
2015AN	65	0.0456	0
2015I2	0	0	0
2016SH	394	0.1659	0
2016W	361	0.1640	0
2016X	678	0.2808	0
2016SH2	780	0.1878	0
2016BEI	0	0	0
2016CH	513	0.1545	0
2016BEI2	218	0.0364	0
2016BE	666	0.1477	0
2017BB	192	0.0702	0
2017D	6635	0.9523	4
2017BN	480	0.0641	0
Total	11,329	-	4
Average	222.0980	0.0529	0.0784

Notes:

Data are drawn from all official English-language documents released by the G20 ministers as a group. Charts are excluded.

"# of Words" is the number of digitalization-related subjects for the year specified, excluding document titles and references. Words are calculated by paragraph because the paragraph is the unit of analysis.

"% of Total Words" refers to the total number of words in all documents for the year specified.

"# of Dedicated Documents" is the number of documents for the year that contain a digitalization-related subject in the title.

Appendix E: G20 Leaders' Deliberation on Digitalization, 2008-2017

Year	# words	% total words	# dedicated docs
2008	66	0.0185	0
2009L	0	0	0
2009P	277	0.0299	0
2010T	212	0.0191	0
2010S	0	0	0
2011	424	0.0301	0
2012	158	0.0124	0
2013	926	0.0322	0
2014	0	0	0
2015	739	0.0531	0
2016	3689	0.2277	1
2017	5639	0.1623	2
Total	12130	-	3
Average	1010.8333	0.0488	0.25

Notes:

Data are drawn from all official English-language documents released by the G20 leaders as a group. Charts are excluded.

"#" of Words" is the number of digitalization-related subjects for the year specified, excluding document titles and references. Words are calculated by paragraph because the paragraph is the unit of analysis.

"% of Total Words" refers to the total number of words in all documents for the year specified.

"# of Dedicated Documents" is the number of documents for the year that contain a digitalization-related subject in the title.

Appendix F: G20 Ministerial Direction Setting on Digitalization, 1999-2017

Promoting Financial Stability

Value	2010W	2016SH	2016W	2016CH	2017BB
Financial system stability	2	2	5	4	5
Prevent future crisis	0	1	0	1	0
Stabilize impact of crisis	0	0	0	0	0
Resilience	0	0	1	1	1
Total	2	3	6	6	6
Overall	23				

Notes:

The unit of analysis is the sentence.

Inclusions: Financial system stability; prevent future crisis; stabilize the impact of crisis; manage the impact of the crisis.

Exclusions: General reference to a crisis; another crisis that is not the global financial crisis.

Globalization for All

Value	2013MO3	2016SH	2016SH	2016X	2016SH2	2016CH	2016BEI2	2017BB	2017D	2017BN
Inclusive growth/economy	2	1	1	0	2	2	1	4	27	1
Global growth	0	0	0	0	0	0	0	0	1	0
Equal	0	0	0	0	0	0	0	0	0	0
Poor/Poorest	0	0	0	0	0	0	0	0	6	0
(Most) Vulnerable/Underserved	0	0	0	0	0	0	0	1	8	0
All parts of the world/All people	0	0	0	1	0	0	0	0	4	0
Total	2	1	1	0	0	2	1	5	46	0
Overall	62									

Notes:

The unit of analysis is the sentence.

Inclusions: Inclusive growth; inclusive economy; global growth; equal; poorest; the poor; most vulnerable; vulnerable; underserved; all parts of the globe; all people

Exclusions: Least developed countries; broadly-shared growth; wide-spread growth.

Appendix G: G20 Leaders' Direction Setting on Digitalization, 2008-2017

Promoting Financial Stability

Value	2008	2009L	2009P	2010T	2010S	2011	2012	2013	2014	2015	2016	2017
Financial system stability	0	0	4	0	0	3	1	0	0	1	5	11
Prevent future crisis	0	0	3	1	0	0	0	0	0	0	2	1
Stabilize impact of crisis	0	0	0	0	0	0	0	0	0	0	0	0
Resilience	0	0	0	1	0	1	0	0	0	0	1	6
Total	0	0	7	2	0	4	0	0	0	1	8	18
Overall	40											

Notes:

The unit of analysis is the sentence.

Inclusions: Financial system stability; prevent future crisis; stabilize the impact of crisis; manage the impact of the crisis.

Exclusions: General reference to a crisis; another crisis that is not the global financial crisis.

Globalization for All

Value	2008	2009L	2009P	2010T	2010S	2011	2012	2013	2014	2015	2016	2017
Inclusive growth/economy	0	0	0	0	0	0	0	1	0	1	16	22
Global growth	0	0	0	0	0	0	0	0	0	1	4	2
Equal	0	0	0	0	0	0	0	0	0	0	0	1
Poor/Poorest	0	0	0	0	0	0	0	0	0	0	1	1
(Most) Vulnerable/Underserved	0	0	0	0	0	0	0	0	0	0	1	3
All parts of the world/All people	0	0	0	0	0	0	0	0	0	1	4	4
Total	0	0	0	0	0	0	0	1	0	3	28	33
Overall	65											

Notes:

The unit of analysis is the sentence.

Inclusions: Inclusive growth; inclusive economy; global growth; equal; poorest; the poor; most vulnerable; vulnerable; underserved; all parts of the globe; all people

Exclusions: Least developed countries; broadly-shared growth; wide-spread growth.

Appendix H: G20 Ministerial Decision Making on Digitalization, 1999-2017

Issue Area	2016SH	2016W	2016X	2016C	2016BE12	2017BE	2017BB	2017D	2017BN
Financial Regulation	7	6	0	4	0	0	2	0	0
Macroeconomic Policy	1	0	0	0	0	0	0	0	0
Agriculture	0	0	5	0	0	1	0	0	0
Energy	0	0	0	0	1	0	0	0	0
Taxation	0	0	0	0	0	0	1	1	0
Employment	0	0	0	0	0	0	0	35	7
International Cooperation	0	0	0	0	0	0	0	12	0
Accountability	0	0	0	0	0	0	0	8	0
Development	0	0	0	0	0	0	0	6	0
Infrastructure	0	0	0	0	0	0	0	3	0
Digital Economy	0	0	0	0	0	0	0	2	0
ICT	0	0	0	0	0	0	0	4	0
G8/G20 Governance	0	0	0	0	0	0	0	1	0
Gender	0	0	0	0	0	0	0	4	0
Trade	0	0	0	0	0	0	0	11	0
Total	8	6	5	4	1	1	3	89	7
% of all commitments	0.1951	0.1622	0.1064	0.1379	0.0400	0.0345	0.1071	1	0.0609
Overall	124								

Appendix I: G20 Leaders' Decision Making on Digitalization, 2008-2017

Issue Area	2008	2009L	2009P	2010T	2010S	2011	2012	2013	2014	2015	2016	2017
Financial Regulation	4	0	1	0	0	1	1	0	0	0	10	9
Development	0	0	0	0	0	0	0	1	0	0	7	10
Crime and Corruption	0	0	0	0	0	0	0	0	0	4	0	3
ICT	0	0	0	0	0	0	0	0	0	2	44	23
Macroeconomic Policy	0	0	0	0	0	0	0	0	0	0	5	0
Accountability	0	0	0	0	0	0	0	0	0	0	2	0
Trade	0	0	0	0	0	0	0	0	0	0	16	8
Labour and Employment	0	0	0	0	0	0	0	0	0	0	6	2
International Cooperation	0	0	0	0	0	0	0	0	0	0	6	4
Infrastructure	0	0	0	0	0	0	0	0	0	0	1	0
G8/G20 Governance	0	0	0	0	0	0	0	0	0	0	2	0
Microeconomics	0	0	0	0	0	0	0	0	0	0	2	0
Digital Economy	0	0	0	0	0	0	0	0	0	0	0	4
Food and Agriculture	0	0	0	0	0	0	0	0	0	0	0	5
Terrorism	0	0	0	0	0	0	0	0	0	0	0	1
Gender	0	0	0	0	0	0	0	0	0	0	0	18
Education	0	0	0	0	0	0	0	0	0	0	0	1
Total	4	0	1	0	0	1	1	1	0	6	101	88
% of all commitments	0.042	-	0.008	-	-	0.003	0.006	0.003	-	0.030	0.472	0.165
Overall	203											

Appendix J: G20 Leaders' Delivery on Digitalization, 2008-2017

Commitment	Argentina	Australia	Brazil	Canada	China	France	Germany	India	Indonesia	Italy	Japan	Korea	Mexico	Russia	Saudi Arabia	South Africa	Turkey	UK	USA	EU	Average
2012-65	1	1	1	0	0	0	0	1	-	0	1	0	0	0	1	0	0	0	1	0	0.37
2015-93	0	0	0	1	0	0	0	0	0	-1	-1	1	0	0	1	0	0	1	-1	1	0.10
2016-100	0	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	0	0	1	1	0.80
2016-104	1	1	0	1	1	1	1	1	1	0	0	1	0	1	0	0	1	1	-1	1	0.60
2016-105	0	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	0.90
2016-106	-1	-1	0	1	1	-1	1	1	0	0	0	-1	-1	0	0	0	0	-1	1	1	0.00
2016-159	1	1	0	1	0	0	0	1	-1	-1	-1	1	0	-1	-1	0	-1	0	1	1	0.05
2016-160	0	0	0	1	1	1	1	0	-1	0	1	0	0	1	1	0	-1	1	0	1	0.35
2016-161	1	1	1	1	0	1	0	-1	-1	0	0	1	-1	0	0	-1	0	1	-1	1	0.15
2016-163	1	1	-1	1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-0.7
2016-173	1	1	-1	1	0	1	1	1	0	0	0	1	0	0	0	1	1	1	1	1	0.55
2016-188	-1	1	-1	1	-1	-1	-1	1	-1	0	0	0	-1	-1	1	-1	-1	1	0	1	-0.2

Notes:

2012-65: We reaffirm our commitment that all standardized OTC derivative contracts should be traded on exchanges or electronic trading platforms, where appropriate, and cleared through central counterparties by end-2012, OTC derivative contracts should be reported to trade repositories and non-centrally cleared contracts should be subject to higher capital requirements. (Financial Regulation)

2015-93: We commit ourselves to bridge the digital divide. (ICT)

2016-100: [We endorse the G20 Strategy for Global Trade Growth, under which the G20 will lead by example to] harness trade and investment policy coherence, (Trade)

2016-104: [We endorse the G20 Strategy for Global Trade Growth, under which the G20 will lead by example to] and address trade and development. (Trade)

2016-105: We endorse the G20 Guiding Principles for Global Investment Policymaking, which will help foster an open, transparent and conducive global policy environment for investment. (Trade)

2016-159: [We are committed to unleashing the potential of the digital economy by providing favorable conditions for its development, including reaffirming the goal of ensuring the next 1.5 billion people are connected and have meaningful access to the Internet by 2020 in accordance with the Connect 2020 agenda, through] supporting entrepreneurship (ICT)

2016-160: [We are committed to unleashing the potential of the digital economy by providing favorable conditions for its development, including reaffirming the goal of ensuring the next 1.5 billion people are connected and have meaningful access to the Internet by 2020 in accordance with the Connect 2020 agenda, through] promoting digital transformation (ICT)

2016-161: [We are committed to unleashing the potential of the digital economy by providing favorable conditions for its development, including reaffirming the goal of ensuring the next 1.5 billion people are connected and have meaningful access to the Internet by 2020 in accordance with the Connect 2020 agenda, through] encouraging e-commerce cooperation (ICT)

2016-163: [We are committed to unleashing the potential of the digital economy by providing favorable conditions for its development, including including reaffirming the goal of ensuring the next 1.5 billion people are connected and have meaningful access to the Internet by 2020 in accordance with the Connect 2020 agenda, through] promoting policies that support MSMEs to use the ICT technology more effectively. (ICT)

2016-173: We commit to enhance the partnership between public and private sectors as appropriate...while recognizing the importance of the business sector among others in realizing the benefits of innovation and entrepreneurship. (Microeconomics)

2016-188: The role of youth and women in innovation and entrepreneurship for job creation should be highlighted and supported, and we commit to take steps to expand access to quality skills training and education. (Labour and Employment)

Appendix K: G20 Ministerial Development of Global Governance on Digitalization, 1999-2017

Internal References

Institution	2010W	2013MO3	2014SY	2016SH	2016W	2016X	2016SH2	2016CH	2016BEI2	2017BE	2017BB	2017D	2017BN
Financial Stability Board	2	0	0	3	5	0	0	4	0	0	4	0	0
G20/OECD BEPS Project	0	1	1	0	0	0	0	0	0	0	1	0	0
G20 SME Finance Action Plan	0	0	0	1	0	0	0	0	0	0	0	0	0
G20 High-Level Principles for Digital Financial Inclusion	0	0	0	0	0	0	0	1	0	0	1	1	0
G20 Financial Inclusion Indicators	0	0	0	0	0	0	0	1	0	0	0	0	0
G20 Action Plan on SME Financing	0	0	0	0	0	0	0	0	0	0	1	0	0
G20 Financial Inclusion Action Plan	0	0	0	0	0	0	0	0	0	0	1	0	0
G20 Strategy for Global Trade Growth	0	0	0	0	0	0	1	0	0	0	0	0	0
G20 Agricultural Chief Scientists	0	0	0	0	0	1	0	0	0	2	0	0	0
G20 Open Data Principles	0	0	0	0	0	0	0	0	0	2	0	0	0
Working Group on Agricultural Technology Sharing	0	0	0	0	0	1	0	0	0	1	0	0	0
Agricultural Market Information System	0	0	0	0	0	0	0	0	0	1	0	0	0
G20 Digital Economy Development and Cooperation Initiative	0	0	0	0	0	0	0	0	0	0	0	7	0
G20 Finance Ministers	0	0	0	0	0	0	0	0	0	0	0	2	0
G20 Task Force on the Digital Economy	0	0	0	0	0	0	0	0	0	0	0	4	0
G20 Blueprint on Innovative Growth	0	0	0	0	0	0	0	0	0	0	0	2	0
G20 New Industrial Revolution Action Plan	0	0	0	0	0	0	0	0	0	0	0	1	0
G20 Global Partnership for Financial Inclusion	0	0	0	0	0	0	0	0	0	0	0	1	0
Entrepreneurship Research Centre on G20 Economies	0	0	0	0	0	0	0	0	3	0	0	0	0
G20 Agriculture Ministers	0	0	0	0	0	1	0	0	0	3	0	3	0
G20 Employment Ministers	0	0	0	0	0	0	0	0	0	0	0	2	0
G20 Blueprint on Innovation and Growth	0	0	0	0	0	0	0	0	0	0	0	1	0
G20 Ministers Responsible for the Digital Economy	0	0	0	0	0	0	0	0	0	2	0	3	1
G20 Initiative to Promote Quality Apprenticeship	0	0	0	0	0	0	0	0	0	0	0	4	1
G20 Development Working Group	0	0	0	0	0	0	0	0	0	0	0	1	0
#eSkills4Girls Initiative	0	0	0	0	0	0	0	0	0	0	0	2	0
G20 Entrepreneurship Action Plan	0	0	0	0	0	0	0	0	0	0	0	1	0
ROADMAP for Digitalisation: Policies for a Digital Future	0	0	0	0	0	0	0	0	0	0	0	1	0
G20 Skills Strategy	0	0	0	0	0	0	0	0	0	0	0	2	1
G20 Initiative on Promoting Skills Development in for the Digital Economy	0	0	0	0	0	0	0	0	0	0	0	1	0
G20 Action Plan to Improve Measurement of the Digital Economy in Macroeconomic Statistics	0	0	0	0	0	0	0	0	0	0	0	1	0
B20	0	0	0	0	0	0	2	0	0	0	0	1	0
Global Infrastructure Connectivity Alliance Initiative	0	0	0	0	0	0	0	0	0	0	0	1	0
G20 Trade and Investment Working Group on Measuring Digital Trade	0	0	0	0	0	0	0	0	0	0	0	5	0
G20 Consumers Summit	0	0	0	0	0	0	0	0	0	0	0	1	0
Digitising Manufacturing in the G20 – Initiatives, Best Practices and Policy Approaches	0	0	0	0	0	0	0	0	0	0	0	1	0
G20 Policy Recommendations to Enhance Employability	0	0	0	0	0	0	0	0	0	0	0	0	1
G20 Principles for Effective Public Employment Services	0	0	0	0	0	0	0	0	0	0	0	0	1
G20 Policy Recommendations for promoting More Equitable and Sustainable Social Protection Systems	0	0	0	0	0	0	0	0	0	0	0	0	1
G20 Employment Working Group	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	2	1	1	4	5	3	3	6	3	11	9	47	7
Overall								104					

Note:

The unit of analysis is the sentence.

External References

Institution	2010W	2013MO3	2014SY	2015SH	2016W	2016X	2016SH2	2016CH	2016BEI2	2017BE	2017BB	2017D
Financial Action Task Force	1	0	0	0	1	0	0	1	0	0	0	0
Organisation for Economic Cooperation and Development	1	3	3	0	1	1	1	0	1	2	6	9
Global Partnership for Financial Inclusion	0	2	0	1	1	0	0	1	0	0	1	0
SME Finance Challenge	0	1	0	0	0	0	0	0	0	0	0	0
Alliance for Financial Inclusion	0	1	0	0	0	0	0	0	0	0	0	0
Basel Committee on Banking Supervision	0	0	0	3	2	0	0	2	0	0	0	0
International Organization of Securities Commissions	0	0	0	2	0	0	0	0	0	0	0	0
International Monetary Fund	0	0	0	1	2	0	0	2	1	0	4	5
Bank for International Settlements	0	0	0	1	2	0	0	2	0	0	0	0
World Bank	0	0	0	0	1	0	0	1	1	0	1	4
International Network on Financial Education	0	0	0	0	0	0	0	0	0	0	1	0
Global Research Collaboration Platforms	0	0	0	0	0	1	0	0	0	0	0	0
Troika	0	0	0	0	0	1	0	0	0	0	0	0
Consultative Group for International Agricultural Research	0	0	0	0	0	1	0	0	0	0	0	0
Global Forum of Leaders for Agricultural Science and Technology	0	0	0	0	0	1	0	0	0	0	0	0
Global Conferences on Agricultural Research for Development	0	0	0	0	0	1	0	0	0	0	0	0
Tropical Agriculture Platform	0	0	0	0	0	1	0	0	0	0	0	0
2016 Berlin Agriculture Minister's Summit	0	0	0	0	0	1	0	0	0	0	0	0
International Labour Organization	0	0	0	0	0	0	0	0	1	0	0	0
United Nations Food and Agriculture Organization	0	0	0	0	0	0	0	0	0	2	0	0
International Food Policy Research Institute	0	0	0	0	0	0	0	0	0	2	0	0
International Telecommunication Union	0	0	0	0	0	0	0	0	0	0	0	7
United Nations Conference on Trade and Development	0	0	0	0	0	0	1	0	0	0	0	6
World Trade Organization	0	0	0	0	0	0	9	0	0	0	0	10
International Trade Centre	0	0	0	0	0	0	0	0	0	0	0	1
Consumers International	0	0	0	0	0	0	0	0	0	0	0	1
2030 Agenda for Sustainable Development	0	0	0	0	0	0	0	0	1	0	0	2
United Nations	0	0	0	0	0	0	0	0	0	0	0	2
Total	2	6	3	8	10	8	11	8	5	6	13	45
Overall							126					

Note:

The unit of analysis is the sentence.

Appendix L: G20 Leaders' Development of Global Governance on Digitalization, 2008-2017

Internal References

Institution	2008	2009L	2009P	2010T	2010S	2011	2012	2013	2014	2015	2016	2017
Financial Stability Board	0	0	1	0	0	3	1	0	0	0	5	9
Finance Ministers and Central Bank Governors	0	0	1	0	0	0	0	0	0	0	0	3
G20/OECD BEPS Project	0	0	0	0	0	0	0	2	0	0	0	1
G20 Anti-Corruption Action Plan	0	0	0	0	0	0	0	0	0	1	0	0
G20 High-Level Principles on Integrity and Transparency in the Private Sector	0	0	0	0	0	0	0	0	0	1	0	0
G20 Anti-Corruption Open Data Principles	0	0	0	0	0	0	0	0	0	1	0	1
G20 Principles for Promoting Integrity in the Public Procurement	0	0	0	0	0	0	0	0	0	1	0	0
G20 Blueprint on Innovative Growth	0	0	0	0	0	0	0	0	0	0	3	0
G20 2016 Innovation Action Plan	0	0	0	0	0	0	0	0	0	0	1	0
G20 Innovation Policy Platform	0	0	0	0	0	0	0	0	0	0	1	0
2016 G20 Innovation Report	0	0	0	0	0	0	0	0	0	0	1	0
G20 New Industrial Revolution Action Plan	0	0	0	0	0	0	0	0	0	0	1	0
G20 Digital Economy Development and Cooperation Initiative	0	0	0	0	0	0	0	0	0	0	2	1
G20 High-Level Principles for Digital Financial Inclusion	0	0	0	0	0	0	0	0	0	0	2	2
G20 Financial Inclusion Indicators	0	0	0	0	0	0	0	0	0	0	2	1
G20 Action Plan on SME Financing	0	0	0	0	0	0	0	0	0	0	2	1
Business 20	0	0	0	0	0	0	0	0	0	1	2	0
G20 Strategy for Global Trade Growth	0	0	0	0	0	0	0	0	0	0	1	1
G20 Guiding Principles for Global Investment Policymaking	0	0	0	0	0	0	0	0	0	0	1	0
G20 New Industrial Revolution Report	0	0	0	0	0	0	0	0	0	0	1	0
Global Infrastructure Connectivity Alliance	0	0	0	0	0	0	0	0	0	0	1	0
Global Infrastructure Hub	0	0	0	0	0	0	0	0	0	0	1	0
G20 Entrepreneurship Action Plan	0	0	0	0	0	0	0	0	0	0	1	1
G20 Initiative to Promote Quality Apprenticeship	0	0	0	0	0	0	0	0	0	0	1	0
G20/OECD Report on Financial Literacy	0	0	0	0	0	0	0	0	0	0	1	0
G20 Financial Inclusion Action Plan	0	0	0	0	0	0	0	0	0	0	1	1
G20 Roadmap for Digitalization	0	0	0	0	0	0	0	0	0	0	0	2
#eSkills4Girls Initiative	0	0	0	0	0	0	0	0	0	0	0	6
G20/OECD/INFE Report on Adult Financial Literacy	0	0	0	0	0	0	0	0	0	0	0	1
G20 Africa Partnership	0	0	0	0	0	0	0	0	0	0	0	2
G20 Agriculture Ministers	0	0	0	0	0	0	0	0	0	0	0	1
G20/GPFI Financial Inclusion Action Plan	0	0	0	0	0	0	0	0	0	0	0	1
G20 Action Plan on 2030 Agenda for Sustainable Development	0	0	0	0	0	0	0	0	0	0	0	2
G20 Digital Economy Ministerial Declaration	0	0	0	0	0	0	0	0	0	0	0	1
Development Working Group	0	0	0	0	0	0	0	0	0	0	0	1
G20 Employment Track	0	0	0	0	0	0	0	0	0	0	0	1
Labour and Employment Ministers	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	2	0	0	3	1	2	0	5	31	41
Overall	85											

Note:

The unit of analysis is the sentence.

External References

Institution	2008	2009L	2009P	2010T	2010S	2011	2012	2013	2014	2015	2016	2017
Committee on Payment and Settlement Systems	0	0	0	0	0	1	0	0	0	0	0	0
International Organization of Securities Commissions	0	0	0	0	0	2	0	0	0	0	1	0
European Union	0	0	0	0	0	2	0	0	0	0	0	0
Organisation for Economic Cooperation and Development	0	0	0	0	0	0	0	5	0	0	9	12
World Trade Organization	0	0	0	0	0	0	0	6	0	1	6	1
Global Partnership for Financial Inclusion	0	0	0	0	0	0	0	1	0	0	3	5
United Nations	0	0	0	0	0	0	0	0	0	2	3	3
International Monetary Fund	0	0	0	0	0	0	0	0	0	0	5	4
Basel Committee on Banking Supervision	0	0	0	0	0	0	0	0	0	0	2	1
Bank for International Settlements	0	0	0	0	0	0	0	0	0	0	2	0
Financial Action Task Force	0	0	0	0	0	0	0	0	0	0	1	1
World Bank	0	0	0	0	0	1	0	0	0	0	3	2
United Nations Conference on Trade and Development	0	0	0	0	0	0	0	0	0	0	3	0
United Nations Industrial Development Organization	0	0	0	0	0	0	0	0	0	0	3	0
International Labour Organization	0	0	0	0	0	0	0	0	0	0	1	0
International Telecommunication Union	0	0	0	0	0	0	0	0	0	0	4	3
2030 Agenda for Sustainable Development	0	0	0	0	0	0	0	0	0	0	1	9
Technology Bank for Least Developed Countries	0	0	0	0	0	0	0	0	0	0	1	0
International Committee on Credit Reporting	0	0	0	0	0	0	0	0	0	0	0	1
Responsible Finance Forum	0	0	0	0	0	0	0	0	0	0	0	1
International Network on Financial Education	0	0	0	0	0	0	0	0	0	0	0	2
United Nations Women	0	0	0	0	0	0	0	0	0	0	0	2
Make-IT Initiative	0	0	0	0	0	0	0	0	0	0	0	1
Digital TVET Tender Initiative	0	0	0	0	0	0	0	0	0	0	0	1
United Nations Educational, Scientific and Cultural Organization	0	0	0	0	0	0	0	0	0	0	0	1
African Union	0	0	0	0	0	0	0	0	0	0	0	2
New Partnership for Africa's Development	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	0	6	0	12	0	3	48	53
Overall	122											

Note:

The unit of analysis is the sentence.