

# Digitalization and Technology and the G20

*Initial briefing for the C20-2024*



## EXECUTIVE SUMMARY

Artificial intelligence, semantic web, the internet of things, robotics, platform capitalism, hybrid war, privacy, data protection - the digitalization of life has reached unprecedented heights. However, 2.9 billion people in the world still don't have access to the internet<sup>1</sup>, after the connectivity boom imposed by the COVID-19 pandemic.

The spread of fake news and digital crimes have advanced at the same rate, posing the challenge of making the most of technologies and the digitalization of the economy on socio-political and cultural relations building an urgent path of digital sustainability and human rights respect.

It is from this perspective of combining social and technological expansion with the protection of fundamental rights that the C20 is meeting once again to influence the G20 discussions from the perspective of inclusivity and minimizing risks as priorities.

“The right to freedom of information is a globally accepted norm under the ICCPR, yet recent facts show that there are new challenges in the digital sphere. At least 182 internet shutdowns occurred in 34 countries, affecting the rights to access information<sup>2</sup>, while not all countries share the same concern to ensure the freedom of expression in the digital sphere<sup>3</sup>. In 2019, the Indonesian government shut down internet access in West Papua Province amid the conflict between civilians and military forces, causing local citizens to be isolated for days without access to information and journalists unable to report. Following the 2021 coup, the Myanmar military junta also shut down internet access for months and now racking up prices for public internet access. Meanwhile, in certain regions of Ethiopia, people have been living without internet access since 2020 after being cut by the local authority. What appears to be the same ground in these countries is the motive of the shutdown was being claimed as a necessary measure to prevent the flow of information which the authority would blame as the source of the conflict.”<sup>4</sup>

“Added another layer to these problems are mass digital surveillance, political buzzer groups, and doxing attacks against civil society actors. Up to 2022, not every country has the same level of legal protection on personal data privacy. The unequal treatments result in the inability to take the prosecutors responsible, especially when the allegation was directed at pro-government actors. These political buzzer groups have been linked as one of the causes that increase polarization in society.”<sup>5</sup>

“More in the privacy context, governments in Europe employ advanced technology to surveil their citizens for security reasons; however, according to the European Human Rights Court, mass internet surveillance breached human rights, specifically the right to

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<sup>1</sup> PNUD. Digital Strategy 2022-2025. Available: [https://digitalstrategy.undp.org/documents/Digital-Strategy-2022-2025-Full-Documents\\_ENG\\_Interactive.pdf](https://digitalstrategy.undp.org/documents/Digital-Strategy-2022-2025-Full-Documents_ENG_Interactive.pdf) [Accessed on 16/03/2024].

<sup>2</sup> Access Now. Report: Who shut down the internet in 2021? Available: <https://www.accessnow.org/internet-shutdowns-2021/> [Without access date]

<sup>3</sup> European Parliament. Digital technologies as a means of repression and social control. Available: [https://www.europarl.europa.eu/RegData/etudes/STUD/2021/653636/EXPO\\_STU\(2021\)653636\\_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/STUD/2021/653636/EXPO_STU(2021)653636_EN.pdf)

<sup>4</sup> C20 Working Groups. Bali: 2022.

<sup>5</sup> C20 Working Groups. Bali: 2022.

privacy<sup>6</sup>. In developing countries like Indonesia, India, and many others, the rights to privacy are often countered by doxing attacks, involving anonymous social media accounts which favor the ruling side. Such threats and attacks are often experienced by figures and groups who are critical to the elites — more often than not are HRDs or those representing vulnerable groups. These threats and attacks include but are not limited to smearing individuals and groups with black campaigns or creating hostile opinions against those who are opposing the status quo. Although advanced digital technologies may enable more civil participation during deliberative processes, no significant improvement in governance aspects is yet to be observed.”<sup>7</sup>

“The SCS phenomenon alarmed policymakers to decentralize their decision-making process and truly listen to the public interests. Decentralization may manifest in many ways but among others partnership with civil society organizations, arranging meaningful consultation, or allowing the procedure for citizens to propose their own version of laws and regulations through a petition system.”<sup>8</sup>

Since 2021 was announced the development of new perspectives in digital governance in line with the principles of the SDGs has been announced as a priority, but the digital divide remains deep, the energy transition is moving at a very slow pace due to the international attachment to fossil fuels, and tragedies that were predictable and controllable by technological monitoring processes continue to recur, in many cases aggravated by the climate crisis.

## INTRODUCTION

This paper is a brief summary of the accumulated debates and recommendations of the C20 in the 2021, 2022 and 2023 editions about digitalization and technological economy to support the working groups in this 2024 edition. So that we can move forward with advocacy actions with the G20 and, consequently, with a view to redirecting routes in order to fulfill the commitments of the 2030 Agenda.

On the following pages, we present the formulations accumulated by the C20 over the last few years and recommendations for achieving SDG. “Digital technologies directly benefit 70% of SDG targets, say ITU, UNDP and partners. The SDG Digital Acceleration Agenda, a global analysis of the connections between digital technologies and sustainable development, provides a roadmap for governments on their digital transformation journey”<sup>9</sup>.

The C20 also "highlighted that privacy and data protection, inclusivity in digitalization, and global equity in terms of benefits from digitalization and data flows, require priority consideration and should be addressed soon".

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<sup>6</sup> Amnesty International. Laws designed to silence: The global crackdown on civil society organizations. Available: <https://www.amnesty.org/en/documents/act30/9647/2019/en/> [Without access date]

<sup>7</sup> C20 Working Groups. Bali: 2022.

<sup>8</sup> C20 Working Groups. Bali: 2022.

<sup>9</sup> PNUD. Digital technologies directly benefit 70% of SDG targets, say ITU, UNDP and partners. Available:

<https://www.undp.org/pt/brazil/news/tecnologias-digitais-beneficiam-diretamente-70-das-metas-dos-ods-afirmam-uit-pnud-e-parceiros/> [Accessed on 16/03/2024].

“Digital transformation should provide solutions for people and opportunities for better life. The transformation should protect humans and humanity”.<sup>10</sup>

## OVERVIEW OF DIGITALIZATION AT THE G20 AND THE C20

The C20 Communiqué 2021 highlighted that digitalization could be social participation tool, effectivity of health services and education, labour instrument, but in order not to increase inequalities due to inequitable access to technology and digital literacy, "it must be well-governed with the robust participation of various stakeholders including civil society and women's organizations".

"Therefore, digitalization can strengthen the division of rich and poor, widening the urban- rural gap, increasing gender inequality, affecting people with disability, and other forms of vulnerability due to discrimination. We mention here that Artificial Intelligence (AI), which is an outgrowth of advances in digitalization, can greatly exacerbate these disparities, and needs greater policy attention from the G20 across policy domains".<sup>11</sup>

"The attention of the G20 to the role played by the processes of digitalization has been marked by the creation of the Digital Economy Task Force (DETF). The DETF, established in 2016, supports the work of the ministers with competence on issues related to the digital economy and highlights the central role of digital transformation in the broader content of economic and social development. In 2020 the G20 Saudi Arabia presidency set the following five priorities in the declaration of the digital economy ministerial meeting: Trustworthy AI, Smart Cities, Cyber Resilience in Global Economic Systems, Data Flows and Measurement of the Digital Economy.<sup>12</sup>

"The Italian Presidency in 2021 commits to develop new perspectives on digitalization and digital governance by setting broader priorities following some of the SDGs principles (people, prosperity and planet) based on the foundation set over the previous years. It focuses on rapid recovery from the COVID-19 crisis through enhancing the digital economy while bridging the digital divide and making digitalization an opportunity for all, with smooth and rapid energy transition and a focus on "smart cities".<sup>13</sup>

"While dealing with the role and the impact of digitalization processes, we must take in consideration multiple dimensions; from the way production and trade change, to the impact on the people involved in the productive process, to the transformation of relations among people and institutions on the way communication changes. As it was highlighted by the C20 in 2020, the processes of digitalization in the different sectors of human life, and in particular in the economy, must be considered in the context of human rights, individual and societal empowerment and well-being, extending far beyond the current agenda of productivity, trade and economic growth of nations through rapid technology innovation"<sup>14</sup>.

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<sup>10</sup> C20 Political Statement. Bali: 2022.

<sup>11</sup> C20 Communiqué. Italy: 2021.

<sup>12</sup> C20 Policy Pack. Italy: 2021

<sup>13</sup> C20 Policy Pack. Italy: 2021.

<sup>14</sup> C20 Policy Pack. Italy: 2021.

Naquela edição do G20, foi também estabelecido pelo C20 um rol de desafios relevantes a serem enfrentados prioritariamente, a saber: o paradoxo igualdade-desigualdade que a digitalização da vida oferece e a necessidade de avançar na perspectiva de garantia dos direitos humanos;

Digitalization offers opportunities in accelerating progress towards development, including in achieving SDGs. At the same time, it can perpetuate inequalities and digital divide between and within countries and different demographics. COVID-19 has widened these divisions. Currently, people's lives are mediated by digital technologies that are inequitably distributed by digital service providers that are monopolized by large transnational technology. We need to add that the current geopolitical tensions have been amplified by the conflicts around diverse trends of science and technology innovation, including digitalization and biotechnology. Despite the repeated call from G20 on human centrality and "leave no one behind", digitalization has been driven by transnational digital platforms that are beyond the control of democracy that is currently based on nation states.

At that edition of the G20, the C20 also established a list of relevant challenges to be tackled as a matter of priority, namely: the equality-inequality paradox offered by the digitalization of life and the need to advance from the perspective of guaranteeing human rights; ensuring gender equality and the empowerment of women; protecting children's rights; improving health systems and universal access; and the need to regulate transnational IT mega platforms, in defense of democratic governance and against the uncontrolled spread of fake news. All the assumptions are still valid in this edition of the C20, which is why we've reproduced them below.

"Basic human rights principles, including freedom of expression and association and protection of privacy, especially on line, are under threat, while the use of fake news poisoned the democratic discussion. Moreover, "Business and Human Rights" aspects are often ignored under the accelerated implementation of new digital technologies."<sup>15</sup>

"Digitalization could be employed as a tool to promote gender equality and women's empowerment by giving women and girls wider opportunities for jobs, education, information, and a wide range of services, including health care. However, the impact of COVID-19 shows us a different picture. Women and girls have been disproportionately affected by COVID-19; more women faced unemployment and precarious jobs with lower wages. More women and girls have suffered from gender-based violence, while even more have been burdened by care and housework due to "lockdown" measures for COVID-19 prevention. Many have less opportunities of education and training to gain digital skills and access to the internet and technological devices<sup>16</sup>.

"With adequate respect and protection of children's rights, digitalization can support children to secure the full range of their civil, political, cultural, economic and social rights. But current digitalization trends have failed to ensure protection of children's rights and existing inequalities have been increased. New ways to perpetrate violence against children grew, facilitating situations in which children experience violence and/or may be influenced to harm themselves or others. In addition, COVID-19 led to an

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<sup>15</sup> C20 Policy Pack. Italy: 2021.

<sup>16</sup> C20 Policy Pack. Italy: 2021.

increased risk of harm online, given that children spend more time on virtual platforms in “stay-home” circumstances.”<sup>17</sup>

“Digitalization has a profound opportunity to improve people’s health when people have more equitable access to digital technology, sufficient level of digital literacy and appropriate measures to protect personal health data. The principles of transparency, accountability and informed consent are more important in the context of digital health to strengthen the improvement of people’s health. In this context, we are facing the challenges of widening health inequality amplified by inequitable access to health-related digital technology and insufficient digital literacy, along with the division of rich and poor, urban and rural, gender, disability, and other diverse vulnerability. Insufficient protection of personal health data is a real threat of people’s lives. While AI has been gradually introduced into the digital health sector, there are significant challenges in using AI for health decision making because AI can amplify the discrimination and prejudice that exists in society through deep learning.”<sup>18</sup>

“The future health architecture needs to leverage the full benefits of digital technology and data to achieve public health outcomes that will leave no one behind, while mitigating any potential harm these new technologies may lead to, including widening inequalities. We note that ensuring appropriate privacy and security protections for health data for the sole use of public health purposes will assist in increasing public trust in healthier ecosystems. This will help countries deliver health and development solutions everywhere, and increase capacity and preparedness for rapid, effective, and quality responses while ensuring the continuity of essential and PHC.”<sup>19</sup>

“COVID-19 has accelerated the already gaping digital divide that prevents billions of people from accessing essential services, staying connected, and fully participating in the digital economy. Across all countries and contexts, there is extraordinary potential to leverage digital technologies and data to increase access to healthcare, build strong and resilient systems, and accelerate progress towards UHC. The G20 has an opportunity to invest in an equitable, inclusive and responsible digital transformation of health, particularly in low- and middle-income countries, connecting every health facility and household, and strengthening national health information systems, including civil registration and vital statistics (CRVS) systems<sup>15</sup>. In addition, digitalization of health data would provide the needed primary mechanism to access timely and transparent data during outbreaks, to prevent them from becoming public health emergencies of international concern (PHEIC), as we are experiencing with COVID-19.”<sup>20</sup>

“Democratic governance is at risk from misuse of technologies and concentration driven by transnational mega-IT platforms that are beyond control of current democratic governance systems based on nation states and global conventions. The power to promote global digitalization is mainly guided by capital. Tech giants can influence political life and the lack of regulation creates fertile grounds to foster misinformation and cyber attacks.”<sup>21</sup>

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<sup>17</sup> C20 Policy Pack. Italy: 2021.

<sup>18</sup> C20 Policy Pack. Italy: 2021.

<sup>19</sup> C20 Policy Pack. Italy: 2021.

<sup>20</sup> C20 Policy Pack. Italy: 2021.

<sup>21</sup> C20 Policy Pack. Italy: 2021.

C20 2023 highlighted: “Adaptive policies related to data governance accountability are essential in the context of emergencies. Both the development and deployment of the ID system carry potential risks imposed on people, processes, and technology. Thus, five principles are need attention in the implementation of the digital ID: privacy (by design and default), security, inclusivity, governance, and accountability.”<sup>22</sup>

In 2022 the C20's Working Group 7 – Digitalization and Technology – highlighted: “The pandemic has transformed the world's education system to a distinctive rise of distance learning, e-learning, and Education Technologies (EdTech) software applications that allowed the shift from physical to virtual classrooms during social restrictions. The shift to distance teaching and learning was the key immediate policy response to ensure the continuity of education despite school closures<sup>23</sup>. Online education and television were the most common modalities, which reach 80% to 90% of the school-aged population across G20 countries”<sup>24</sup>.

‘Many countries have adopted measures targeting disadvantaged children, including tailored teaching/learning materials, improved infrastructure, and flexible platforms. Countries have also introduced support measures for teachers, such as instructions regarding the use of online platforms, professional, psychosocial and emotional support, or teaching content adapted to remote teaching’<sup>25</sup>.

“Although blended learning continues to be a learning strategy after the pandemic, the transition hasn’t been easy for everyone. Adopting technology in education is not as simple as putting ICT in classrooms. For those schools and teachers without the benefit of such institutional support, integrating technology and making sure it is aligned with the curriculum and learning goals are challenging<sup>26</sup>. Teachers often find achieving curriculum targets and learning objectives difficult and overwhelming already, so integrating technology might result in extra burdens and pressures”<sup>27</sup>.

“In addition, the implementation of online education has exposed a huge ‘digital divide’ across the globe. For poorer and marginalized families, an internet connection is still considered a luxury. Learners from poor families, learners with disabilities, and learners from rural and remote areas are often left behind due to the lack of access to digital learning tools and technological devices. While more than half of low-income countries carried out online learning in primary and secondary education, only about one-tenth of households in the least developed countries have internet access at home<sup>28</sup>”<sup>29</sup>.

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<sup>22</sup> C20 Policy Pack. Nova Délhi: 2023.

<sup>23</sup> G20 Italy. Report on Blended Education and Educational Poverty. Rome: G20 Education Working Group Italian Presidency 2021. Available: <https://unesdoc.unesco.org/ark:/48223/pf0000380190> [Accessed on 26/06/2022].

<sup>24</sup> C20 Working Groups. Bali: 2022.

<sup>25</sup> C20 Working Groups. Bali: 2022.

<sup>26</sup> UNICEF. Learning Recovery: Post-Covid 19. Bangkok: UNICEF East Asia and the Pacific Regional Office (EAPRO). Available: <https://www.unicef.org/eap/media/10886/file/Learning%20Recovery:%20Post-COVID%2019.pdf> [Accessed on 04/07/2022].

<sup>27</sup> C20 Working Groups. Bali: 2022.

<sup>28</sup> UNESCO (2020). Inclusion and Education: All Means All. Available: <https://unesdoc.unesco.org/ark:/48223/pf0000373718> [Accessed on 13/09/2020].

<sup>29</sup> C20 Working Groups. Bali: 2022.

“Furthermore, the disparity in the digital divide between the rich and poor countries is in stark contrast, with 87% of children and young people in rich countries having internet access at home while less than 6% in poor countries. The total number of children and young people who do not have internet access at home is approximately 900 million<sup>30</sup>. In the case of adults and youth, the recently adopted Marrakech Framework for Action (MFA) at the Seventh International Conference on Adult Education (CONFINTEA VII) states that many countries still struggle to reach adequate literacy levels, including digital literacy, and to bridge the considerable gender gap<sup>31, 32</sup>.”

“While more than half of low-income countries carried out online learning in primary and secondary education, only about one-tenth of households in the least COVID-19 also created a ‘perfect storm’ of conditions that fuelled a rise in child sexual violence and abuse across the globe<sup>33</sup>. The extensive use of the Internet has led to the rise of technology-facilitated violence<sup>34</sup>. School closures and social restrictions have increased children’s unsupervised screen time, and evidence suggests that more younger children than ever before have been introduced to digital platforms. Since the pandemic, some countries in Europe have seen a 50% increase in child sexual abuse online, while the Philippines has seen a staggering 265% increase. India and Australia, on the other hand, have also experienced increases in searches and reports of child sexual abuse materials of 95% and 129% respectively<sup>35, 36</sup> until the middle of 2021.

The C20 argues that the use of digital technologies in education must be accompanied by strong child protection mechanisms and safety measures to guarantee the preservation of privacy in EdTech, with laws and regulations for the private sector including the need to pay attention to inequalities of gender, race or ethnicity and people with disabilities. “According to a Human Rights Watch report, 89% of 164 EdTech products observed seemed to engage in data harvesting practices that put children’s rights at risk<sup>37</sup>. These products had the capacity to monitor children without their or

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<sup>30</sup> UNICEF and ITU. How many children and young people have internet access at home? Estimating digital connectivity during the COVID-19 pandemic. Available: [https://data.unicef.org/wp-content/uploads/2020/11/How-many-children-and-young-people-have-internet-access-at-home-2020\\_v2.pdf](https://data.unicef.org/wp-content/uploads/2020/11/How-many-children-and-young-people-have-internet-access-at-home-2020_v2.pdf) [Accessed on 04/07/2022].

<sup>31</sup> UNESCO. CONFINTEA VII Marrakech Framework for Action Harnessing the transformational power of Adult Learning and Education. Seventh International Conference on Adult Education (CONFINTEA VII), Marrakech. Available: [https://www.uil.unesco.org/sites/default/files/medias/fichiers/2022/06/FINAL%20MarrakechFrameworkForActionEN\\_06\\_21\\_22\\_0.pdf](https://www.uil.unesco.org/sites/default/files/medias/fichiers/2022/06/FINAL%20MarrakechFrameworkForActionEN_06_21_22_0.pdf) [Accessed on 26/06/2022].

<sup>32</sup> C20 Working Groups. Bali: 2022.

<sup>33</sup> WeProtect Global Alliance. Global Threat Assessment 2021: Working Together to End Sexual Abuse of Children Online. Available: <https://www.weprotect.org/global-threat-assessment-21/> [Accessed on 05/05/2022].

<sup>34</sup> UNICEF. Addressing Technology-Facilitated Child Sexual Exploitation and Abuse in the Face of COVID-19. Available: <https://www.unicef.org/documents/addressing-technology-facilitated-child-sexual-exploitation-and-abuse-face-covid-19> [Accessed on 05/05/2022].

<sup>35</sup> WeProtect Global Alliance. Global Threat Assessment 2021: Working Together to End Sexual Abuse of Children Online. Available: <https://www.weprotect.org/global-threat-assessment-21/> [Accessed on 05/05/2022].

<sup>36</sup> C20 Working Groups. Bali: 2022.

<sup>37</sup> Human Rights Watch. “How Dare They Peep into My Private Life?”: Children’s Rights Violations by Governments That Endorsed Online Learning During the Covid-19 Pandemic. Available: [https://www.hrw.org/sites/default/files/media\\_2022/06/HRW\\_20220602\\_Students%20Not%20Product%20Report%20Final-IV-%20Inside%20Pages%20and%20Cover.pdf](https://www.hrw.org/sites/default/files/media_2022/06/HRW_20220602_Students%20Not%20Product%20Report%20Final-IV-%20Inside%20Pages%20and%20Cover.pdf) [Accessed on 26/06/2022].



their parent's consent. They directly sent or granted access to children's personal data to 199 advertising companies. Let alone digital technologies, it is estimated that 9.7% of people aged below 18 years old are in need of assistive technology or 4.3% excluding spectacles.<sup>38,39</sup>

"The G20 Rome Leaders' Declaration also recognized that the role of technology is significant, specifically in the context of the digital economy<sup>40</sup>. Moreover, one of the G20 2022 presidency focuses is promoting sustainable and inclusive economic development through MSMEs participation and digital economy<sup>41</sup>. Thus, the accessibility to technology should be inclusive and non-discriminative. The inclusiveness of digitalization, such as digital identity, is also a dream that should be realized. Keep in mind that now digital identity is the crucial aspect to access many public and private services. The absence of that identity surely will affect the enjoyment of other human rights<sup>42</sup>. So, it is important to ensure that digital identity is accessible for vulnerable groups such as indigenous groups, disability, women, youth, and elderly people."<sup>43</sup>

"The minimization of risk on digital transformation should also be addressed based on each priority. Therefore, the G20 forum must take action to tackle these problems and promote a development agenda that is consistent with personal data protection and inclusiveness".<sup>44</sup>

"The pandemic escalated the digital transformation of various sectors, mainly health. The COVID-19 pandemic has revealed the shortcomings of pre-existing governance models in every region of the world and the need to move towards a model of public health crisis management "through health data". The COVID-19 pandemic has increased the demand for access to timely, relevant, and quality data. This demand has been driven by several needs: taking informed policy actions quickly, improving communication on the current state of play, carrying out scientific analysis of a dynamic threat, understanding its social and economic impact, and enabling civil society oversight and reporting."<sup>45</sup>

"Moreover, the global leaders in the Davos Agenda 2021 have made it clear that COVID-19 has given way for digital identification in alleviating worldwide risks of health, movement, travel, and trade during the pandemic era. As 66% of people lack trust in data-enhancing technologies, digital ID puts back the trust as well as transparency to strengthen private-public cooperation through a more sustainable and secure digital ecosystem. This goal can only be achieved if the global leaders commit themselves to maintaining human-led approaches to the system necessitating a strong

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<sup>38</sup> WHO and UNICEF. Global Report on Assistive Technology. Available: <https://www.unicef.org/media/120836/file/%20Global%20Report%20on%20Assistive%20Technology%20.pdf> [Accessed on 04/07/2022].

<sup>39</sup> C20 Working Groups. Bali: 2022.

<sup>40</sup> G20 Rome Leaders' Declaration, para. 46.

<sup>41</sup> G20 Presidency of Indonesia. Available: <https://g20.org/> [Accessed on 27/01/2022].

<sup>42</sup> See: Rina Chandran, "Fears of vaccine exclusion as India uses digital ID, facial recognition", Reuters, April, 15th 2021. Available: <https://www.reuters.com/article/us-india-health-coronavirus-trfn-idUSKBN2C217V> [Accessed on 27/01/2022].

<sup>43</sup> C20 Working Groups. Bali: 2022.

<sup>44</sup> C20 Working Groups. Bali: 2022.

<sup>45</sup> C20 Working Groups. Bali: 2022.

as well as inclusive identity governance to enhance the full, meaningful participation of affected communities within the digital environment.”<sup>46</sup>

“This technological-driven approach to maintaining health data during the global crisis can be witnessed everywhere around the world. For Europe and France in particular, the health crisis has revealed a long “technological innocence”. Despite a strategic awakening, questions remain about their ability to cooperate effectively and move towards a common digital space in health. In addition, as seen in many regions in Asia, European countries embrace this novel situation through a vaccine passport policy in which people’s health data are collected in an app-based platform resulting in a pool of data for tracking and tracing individuals’ health status.”<sup>47</sup>

“In the United States, the pandemic has created tensions around the health data governance model—particularly on the articulation between the federal government and state authorities. Changes are announced by President Joe Biden, which tend towards a model of global regulation of personal data. Finally, the COVID-19 crisis has accelerated the rise of digital companies, which are now positioning themselves on the entire value chain of health data, from its raw collection via connected objects to its mass processing for insurance purposes. They now have all the levers in hand to economically value this massive data with the help of artificial intelligence.”<sup>48</sup>

“Based on the research we conducted in Pontianak, West Java, and National Level, data integration and interoperability principles have not been implemented properly. At the regulation framework, though there are regulations related to data governance (e.g., One Data) are in place but not yet integrated. Interoperability is one of the principles in data governance that has not been implemented properly at all levels of government. While at the institutional capacity dimension, each region also limited human resources in data collection which influences the burden of health care facilities while at the accountability dimension, especially the necessary improvement is being made internally rather than through discussion with the public.”<sup>49</sup>

“The use of digital identification is not native to the COVID-19 crisis. Previously introduced in the World Bank’s Identification for Development (ID4D) Program, digital ID addresses the major concerns within sustainable development to provide legal identity for all. However, the system divides the world into two poles; one being reluctant to support the discriminated deployment and another being supportive of its potential in rebuilding the gaps. Indonesia has long introduced the digital ID system through the e-KTP program in which more than 30 elements of personal data, including sensitive data, are collected for a range of purposes, from population administration to social and health programs. Currently, e-KTP data is integrated into tracking and tracing policy, which is navigated similarly to those of Europe and other Asian countries, with a lack of good data governance and inclusive principles to data processing.”<sup>50</sup>

“Using the most common definitions of data governance as part of general practice in information technology; data governance is the processes, policies, standards, organization, and technology needed to manage and ensure the availability, accessibility, quality, consistency, audit, and security of data within an organization. Good governance

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<sup>46</sup> C20 Working Groups. Bali: 2022.

<sup>47</sup> C20 Working Groups. Bali: 2022.

<sup>48</sup> C20 Working Groups. Bali: 2022.

<sup>49</sup> C20 Working Groups. Bali: 2022.

<sup>50</sup> C20 Working Groups. Bali: 2022.

must include the principles of openness, accountability, participation, transparency, coherence, effectiveness, as well as respect for privacy and perform the necessary data protection. Good data governance helps the public sector to structure responses, allocate resources, and measure the effectiveness of interventions—which is much needed during a crisis.”<sup>51</sup>

“In addition, data governance should also consider the concept of data justice. Linnet Taylor proposes at least three pillars as the basis of a notion of international data justice: (in)visibility, (dis)engagement with technology and anti-discrimination<sup>52</sup>. These pillars integrate positive with negative rights and freedoms, and by doing so challenge both the basis of current data protection regulations and the growing assumption that being visible through the data we emit is part of the contemporary social contract.”<sup>53</sup>

“The usage of the Universal Verifier must not discriminate and accommodate conditions experienced by countries with specialized needs and solutions that support (human, financial and technical) must be accorded by developed G20 countries and beyond to ensure its interoperability. As such, interoperable and open-source systems that are non-proprietary and inclusive of digital and non-digital systems are essential to ensure that developing countries have access to training and technologies to build and strengthen infrastructure needed. In addition, the global pooling of resources must be done in collaboration with the Quadripartite Alliance on One Health to ensure that animal health infrastructure is included, including animal health professionals.”<sup>54</sup>

“Also, the consolidation of power in cross-border data flows (CBDF) is raising various concerns on both privacy and unequal distribution of benefits.”<sup>55</sup>

“The internet should represent the cultural and linguistic diversity of the world. This is best represented by the internet without barriers to accessing locally-relevant content in local languages. Despite the broad reach of internet access, much of the content on the internet is created by and for large, homogenized groups. This phenomenon is even more concentrated due to the consolidation of large parts of our communication taking place on a limited number of platforms. The reach of the internet should mean that new people can contribute to and discover knowledge on the internet every day, but we must be ready when those previously underrepresented communities come online.”<sup>56</sup>

“Free online knowledge has historically been controlled by those in power, leaving vast perspectives, cultures, and experiences either skewed or largely unwritten. We see these gaps in the coverage of women and nonbinary people, the LGBTQI+ community, people with disabilities, Indigenous peoples, and people of colour. To reflect all the world’s knowledge and achieve knowledge equity, we must have participation from all in the bottom-up creation of online knowledge that will enable collaboration. This can only be achieved if internet platforms do not use any business model that may favour one kind

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<sup>51</sup> C20 Working Groups. Bali: 2022.

<sup>52</sup> TAYLOR, Linnet. What is data justice? The case for connecting digital rights and freedoms globally. Available: <https://journals.sagepub.com/doi/full/10.1177/2053951717736335> [Without access date].

<sup>53</sup> C20 Working Groups. Bali: 2022.

<sup>54</sup> C20 Working Groups. Bali: 2022.

<sup>55</sup> C20 Working Groups. Bali: 2022.

<sup>56</sup> C20 Working Groups. Bali: 2022.

over the other or prevent information (or users) from moving outside their ecosystems or compromising users' privacy."<sup>57</sup>

"Privacy is inseparable from the ability to contribute to free knowledge. To enjoy open and free knowledge on the internet, freedom of expression needs to be protected. So that all users can express their opinion without fear of reprisals or censorship. In addition, Copyright rules should encourage freedom of expression online, not restrict it. No one should fear any reprisal for the content they contribute online."<sup>58</sup>

"Open source is one of the options in the digitization process in many sectors and is a technology transfer process that can be utilized by many countries, especially developing countries that are lagging in various facilities and technology utilization. Open source is an important support facility in providing various public services such as education, health, administrative services, and others that continue to grow. The massive use of public data through open-source requires guarantees of rules or legal certainty in protecting and regulating data use, both related to personal data and public data in general. Because of the gap between the scale and impact of big tech business activities, and society's ability to manage any adverse consequences that flow from these, the United Nations Guiding Principles on Business and Human Rights (UNGPs) should be utilized to set the regulations for for-profit and big tech companies. Data collection by big tech companies, which is currently carried out without protection and control, can open up space for data breaches and invasion of user privacy."<sup>59</sup>

"One of the efforts in technology transfer needed by developing or less developed countries is to ask for local regulations for content, both in physical and non-physical forms. The prohibition on the transfer of source code, where the source code is part of the technology, is one of the obstacles to the technology transfer process. Protection on behalf of Intellectual Property rights (IPR) as well as company trade secret rules has been a significant factor in the barriers to technology transfer. The abolition of these rules and the use of open-source, especially for public services, must become rules that apply globally. Source code that is protected in the IPR rules and trade rules has serious threats in it that have an impact on the state, society, and individuals. The need for source code disclosure is related to many issues such as tax violations, patent monopoly, especially those related to software, retrieval, and disclosure of both private and public data, related to criminal issues, discrimination, and others that continue to develop. Even if protected source code must be carried out, there must be rules that ensure that the source code can be accessed by trusted authorities when needed. So that it can be guaranteed, at least, a source code that is friendly to a disability, friendly to gender equality, racism, and discrimination, and strengthens democracy."<sup>60</sup>

"Maintain access to information and support free expression online, particularly during elections, protests, and periods of conflict. Access to the internet is a human right. Intentional disruptions to internet access such as localized shutdowns, website blocking and throttling of access to social media or communications platforms impact individuals' economic, social, political, and civil rights. Governments should refrain from banning online platforms. No one should fear any reprisal for the content they

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<sup>57</sup> C20 Working Groups. Bali: 2022.

<sup>58</sup> C20 Working Groups. Bali: 2022.

<sup>59</sup> C20 Working Groups. Bali: 2022.

<sup>60</sup> C20 Working Groups. Bali: 2022.

contribute online, as the internet should be the platform for collaboration including those from the global south.”<sup>61</sup>

“Referring to the previous recommendations for 2021, 2020 and 2019, C20 2022 reiterated the defense of quality education for all, "with the use of equitable technological modalities, to prepare learners for decent work and better life in the post-pandemic future".<sup>62</sup>

The C20 emphasize also need of technological neutrality in digital ID, guaranteeing the full, effective and meaningful participation of diverse groups, including underserved and underrepresented communities such as people with disabilities and indigenous groups, ensuring that they have the right to define the system that best suits them. And that cross-border data flows should be based on a comprehensive rights-based, social and economic justice, approach that includes all three generations of human rights – civil/political, social/economic, and the right to development – to ensure equity and justice nationally and globally.

#### Annex I. G20 Resolutions on Digitalization and Technology<sup>63</sup>

Year	Type	G20 Host City/Country	Main Issues Discussed	Digitalization and Technology
2008	Summit	Washington/US	First G20 high-level summit. It addressed the Global Financial Crisis and the mechanisms to mitigate the after effects of the meltdown. Later that year, the world would witness QE as a monetary policy.	Digitalization and technologies were not mentioned.
2009	Summit	London/UK	Tentative coordinated effort to respond to the global financial crisis. Reform of the international financial system comes back to discussions.	Para 27, 29, 31, 44 and 47: “We will make the transition towards clean, innovative, resource efficient, low carbon technologies and infrastructure.” (...) “through the use of targeted cash transfers and other appropriate mechanisms. This reform will not apply to our support for clean energy, renewables, and technologies that dramatically reduce greenhouse gas emissions.” (...) “Accelerated adoption of economically sound clean and renewable energy technology and energy efficiency measures diversifies our energy supplies and strengthens our energy security.” (...) “ake steps to facilitate the diffusion or transfer of clean

<sup>61</sup> C20 Working Groups. Bali: 2022.

<sup>62</sup> C20 Working Groups. Bali: 2022.

<sup>63</sup> The G20 was created as a meeting of Ministers of Finance, in 2008 it raised to the level high-level summit.

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				energy technology including by conducting joint research and building capacity. (...) “kets, active labor market policies, and quality education and training programs. Each of our countries will need, through its own national policies, to strengthen the ability of our workers to adapt to changing market demands and to benefit from innovation and investments in new technologies, clean energy, environment, health, and infrastructure.” (...) “We direct our Ministers to assess the evolving employment situation, review reports from the ILO and other organizations on the impact of policies we have adopted, report on whether further measures are desirable, and consider medium-term employment and skills development policies, social protection programs, and best practices to ensure workers are prepared to take advantage of advances in science and technology.”
2009	Summit	Pittsburg/US	The Global Financial Crisis and stability dominates the discussions of the leaders but there were at least mentions of the other themes of the Sustainable Development Agenda and its then Millennium Development Goals.	Para 23: “Over four billion people remain undereducated, ill-equipped with capital and technology, and insufficiently integrated into the global economy.” (,,) “Its focus on food security through enhancements in agricultural productivity and access to technology, and improving access to food, in close cooperation with relevant specialized agencies;” (...) “This reform will not apply to our support for clean energy, renewables, and technologies that dramatically reduce greenhouse gas emissions.” (...) Accelerated adoption of economically sound clean and renewable energy technology and energy efficiency measures diversifies our energy supplies and strengthens our energy security.”
2010	Summit	Toronto/CA	The summit was dominated by the financial crisis and its resolution.	“We agreed to consider measures and mechanisms to address non-cooperative jurisdictions based on comprehensive, consistent and transparent assessment, and encourage adherence, including by providing technical support, with the support of the international financial institutions (IFIs).”
2010	Summit	Seoul/SK	The financial crisis and Reform of international financial architecture were the main themes.	“To support our efforts toward meeting these commitments, we call on our Framework Working Group, with technical support from the IMF

Year	Type	G20 Host City/Country	Main Issues Discussed	Digitalization and Technology
				and other international organizations, to develop these indicative guidelines, with progress to be discussed by our Finance Ministers and Central Bank Governors in the first half of 2011; and, in Gyeongju, our Finance Ministers and Central Bank Governors called on the IMF to provide an assessment as part of the MAP on the progress toward external sustainability and the consistency of fiscal, monetary, financial sector, structural, exchange rate and other policies. In light of this, the first such assessment, to be based on the above mentioned indicative guidelines, will be initiated and undertaken in due course under the French Presidency”
2011	Summit	Cannes/FR	The Great Recession once more domains the agenda.	“To pursue these objectives, we adopted an action plan to support the development and deepening of local currency bond markets, scaling up technical assistance from different international institutions, improving the database and preparing joint annual progress reports to the G20.”
2012	Summit	Los Cabos/MEX	The specters of the financial crisis still loomed over the summit in Mexico. Growth, economic stabilization and jobs were major worries. Educational challenges are mentioned again, but always linked to job creation, rather than the priority of the issue itself.	Digitalization and technologies aren't mentioned.
2013	Summit	St. Petersburg/RU	Discussions focused on economic growth and the fight against corruption.	Para 50: “The growth of the digital economy also poses challenges for international taxation.”
2014	Summit	Brisbane/AU	The main focus was on growth.	Digitalization and technologies aren't mentioned.
2015	Summit	Antalya/TR	Discussions focused on economic growth and resilience under a context of a major migration event caused by civil war in Syria that spilled over to neighboring countries with the presence of ISIS, a Jihadist group.	Para 26: “We commit ourselves to bridge the digital divide. In the ICT environment, just as elsewhere, states have a special responsibility to promote security, stability, and economic ties with other nations. In support of that objective, we affirm that no country should conduct or support ICT-enabled theft of intellectual property, including trade secrets or other confidential business information, with the intent of providing competitive advantages to companies or commercial sectors. All states in ensuring the secure use of ICTs, should respect and protect the principles of freedom from unlawful and arbitrary interference of privacy,

Year	Type	G20 Host City/Country	Main Issues Discussed	Digitalization and Technology
				including in the context of digital communications”
2016	Summit	Hangzhou/CN	<p>The focus was mainly on growth, as vision, integration, innovation, market openness, and inclusiveness. Digitalization and technologies gain more evidence in the summit debates. Leaders looked forward to welcoming and encouraging "efforts by the United Nations, UNCTAD, UNIDO, ILO, IMF, ITU, OECD, World Bank Group and other international organizations to develop new indicators for important policy issues, such as trust in the digital economy, e-commerce, cross-border data flows and the Internet of Things, as feasible, relevant and appropriate." In addition to the expectation that "international bodies, including the OECD and interested members, will step up efforts to measure the digital economy in macroeconomic statistics by conducting a voluntary survey of national statistical bodies on "good practices" and organizing and hosting a workshop for statistical professionals and companies active in the digital economy on providing data to measure the digital economy."</p> <p>In addition to the leaders' declaration, the texts <b>G20 Digital Economy Development and Cooperation Initiative</b><sup>64</sup> and <b>G20 High-Level Principles for Digital Financial Inclusion</b><sup>65</sup> were welcomed as agreed documents. In addition, <b>G20/OECD INFE - Ensuring Financial Education and Consumer Protection for All in the Digital Age</b><sup>66</sup> was published.</p>	<p>Para<sup>s</sup> 10, 11, 14, 18 e 30: "We therefore endorse the G20 Plan for Innovative Growth as a new agenda covering cross-cutting policies and measures in the areas of innovation, the new industrial revolution and the digital economy." (...) "We will organize a G20 Task Force, to be supported by the OECD and other relevant international organizations, to take forward the G20's work on innovation, the new industrial revolution and the digital economy, subject to the priorities of future G20 presidencies, ensuring continuity and consistency with the results achieved so far and promoting synergies with other G20 lines of work." (...) "To unlock the potential of the digital economy, we have adopted the G20 Digital Economy Development and Cooperation Initiative, which builds on our work started in Antalya. We will seek to promote favorable conditions for its development and bridge the digital divide, including through increased, better and cheaper broadband access and information flows that strengthen economic growth, trust and security, while ensuring respect for privacy and the protection of personal data, investment in the ICT sector, entrepreneurship, digital transformation, cooperation on e-commerce, greater digital inclusion and the development of micro, small and medium-sized enterprises (MSMEs). We reaffirm paragraph 26 of the Antalya Communiqué, commit to policies supporting the prevalence of an open and secure environment and recognize the key role of adequate and effective IP protection and implementation in the development of the digital economy. We welcome the efforts of OECD, IMF and other</p>

<sup>64</sup> G20 Information Centre. G20 Digital Economy Development and Cooperation Initiative. Available: [http://www.g20.utoronto.ca/2018/2018-08-24-digital\\_ministerial\\_declaration\\_salta.pdf](http://www.g20.utoronto.ca/2018/2018-08-24-digital_ministerial_declaration_salta.pdf) [Accessed on 16/03/2024].

<sup>65</sup> G20 Information Centre. G20 High-Level Principles for Digital Financial Inclusion. Available: <http://www.g20.utoronto.ca/2016/high-level-principles-for-digital-financial-inclusion.pdf> [Accessed on 16/03/2024].

<sup>66</sup> OECD. G20/OECD INFE - Ensuring Financial Education and Consumer Protection for All in the Digital Age. Available: <https://www.oecd.org/finance/g20-oecd-report-on-ensuring-financial-education-and-consumer-protection-for-all-in-the-digital-age.htm> [Accessed on 16/03/2024].



Year	Type	G20 Host City/Country	Main Issues Discussed	Digitalization and Technology
				national and international organizations to measure the digital economy and recognize that more relevant research and exchanges are needed." (...) "We endorse the G20 High-Level Principles for Digital Financial Inclusion, the updated version of the G20 Financial Inclusion Indicators and the Implementation Framework of the G20 Action Plan on SME Finance. We encourage countries to consider these principles when defining their broader financial inclusion plans, in particular in the area of digital financial inclusion, and to take concrete actions to accelerate progress on access to finance for all." (...) "We welcome the B20's <sup>67</sup> interest in strengthening digital trade and other work and take note of its initiative to launch an Electronic World Trade Platform."
2017	Summit	Hamburg/GE	The focus was on "sharing the benefits of globalization".	<p>"Digital transformation is a driving force of global, innovative, inclusive and sustainable growth and can contribute to reducing inequality and achieving the goals of the 2030 Agenda for Sustainable Development. To this end, we need to bridge digital divides along multiple dimensions, including income, age, geography and gender. We will strive to ensure that all our citizens are digitally connected by 2025 and especially welcome infrastructure development in low-income countries in that regard. We will promote digital literacy and digital skills in all forms of education and life-long learning. We recognise that information and communication technology (ICT) plays a crucial role in modernizing and increasing efficiency in public administration. We recognise the important role that SMEs and start-ups play in the development of a full range of new and innovative business models and will promote better access to financial resources and services and a more entrepreneurial friendly environment.</p> <p>We aim to foster favourable conditions for the development of the digital economy and recognise the need to ensure effective competition to foster investment and innovation. We will continue to promote effective cooperation of all stakeholders and encourage the development and use of</p>

<sup>67</sup> Business 20 (B20) is the forum for the business community of the G20 countries.

Year	Type	G20 Host City/Country	Main Issues Discussed	Digitalization and Technology
				<p>market- and industry-led international standards for digitised production, products and services that are based on the principles of openness, transparency and consensus and standards should not act as barriers to trade, competition or innovation. They can promote interoperability and security in the use of ICT.</p> <p>Trust in digital technologies requires effective consumer protection, intellectual property rights, transparency, and security in the use of ICT. We support the free flow of information while respecting applicable legal frameworks for privacy, data protection and intellectual property rights. The G20 Roadmap for Digitalisation will help us guide our future work.</p> <p>We are committed to help ensure a secure ICT environment in which all sectors are able to enjoy its benefits and reaffirm the importance of collectively addressing issues of security in the use of ICTs.</p> <p>We will constructively engage in WTO discussions relating to E-commerce and in other international fora with responsibilities related to various aspects of digital trade to foster digital economy development and trade. We will sustain and improve, as appropriate, predictable and transparent frameworks on digital trade. Intensified and concerted action is needed to enhance the ability of developing and least developed countries to more fully engage in digital trade.” (...) “Digitalisation offers the opportunity for creating new and better jobs, while at the same time raising challenges regarding skills, social protection and job quality. We therefore recognise the need to educate and train people with the necessary skills for the future of work, the importance of opportunities to re- and upskill throughout their working lives, and assist them to successfully adapt to change, in accordance with each member’s domestic social framework.” (...) “We are also working on enhancing tax certainty and with the OECD on the tax challenges raised by digitalisation of the economy. As an important tool in our fight against corruption, tax evasion, terrorist</p>

Year	Type	G20 Host City/Country	Main Issues Discussed	Digitalization and Technology
				<p>financing and money laundering, we will advance the effective implementation of the international standards on transparency and beneficial ownership of legal persons and legal arrangements, including the availability of information in the domestic and cross-border context.” (...) “Digitalisation and access to ICT serve as powerful catalysts for the economic empowerment and inclusion of women and girls. Access to STEM (Science, Technology, Engineering and Mathematics) related trainings and occupations is therefore key to establish an enabling environment for women’s empowerment. We welcome the launch of the #eSkills4Girls initiative to promote opportunities and equal participation for women and girls in the digital economy, in particular in low income and developing countries (see Annex).” (...) “In order to harness the potential of ICT, we stress the need for strengthened cooperation on ICT in agriculture and underline the importance of access to high-speed digital services for farmers and of adequately serving rural areas.”</p>
2018	Summit	Buenos Aires/AR	<p>In addition to the mention in the Leaders' Declaration, two ministerial working group declarations are part of the summit's resolutions: <b>“Ministerial Declaration. G20 Digital Economy Ministerial Meeting (24 August)”</b> and <b>“G20 Policy Guide. Digitization and Informality: Harnessing Digital Financial Inclusion for Individuals and MSMEs in the Informal Economy, GPFI”</b></p>	<p>Para<sup>s</sup> 07, 09, 10, 12, 13, 26 and 30: “We remain committed to building an inclusive, fair and sustainable Future of Work by promoting decent work, vocational training and skills development, including reskilling workers and improving labour conditions in all forms of employment, recognizing the importance of social dialogue in this area, including work delivered through digital platforms, with a focus on promoting labour formalization and making social protection systems strong and portable, subject to national law and circumstances. We will continue to foster cognitive, digital and entrepreneurship skills, and encourage the collection and exchange of good practices.” (...) “To equip our citizens to reap the benefits of societal and technological innovations we will promote coordination between employment and equitable quality education policies, so we can develop</p>

Year	Type	G20 Host City/Country	Main Issues Discussed	Digitalization and Technology
				<p>comprehensive strategies that promote key competences such as learning to learn, foundation and digital skills, in a lifelong learning perspective from early childhood. We acknowledge the need to foster evidence-based innovative pedagogies and methods for all levels of education.” (...) “To maximize the benefits of digitalization and emerging technologies for innovative growth and productivity, we will promote measures to boost micro, small and medium enterprises and entrepreneurs, bridge the digital gender divide and further digital inclusion, support consumer protection, and improve digital government, digital infrastructure and measurement of the digital economy. We reaffirm the importance of addressing issues of security in the use of ICTs. We support the free flow of information, ideas and knowledge, while respecting applicable legal frameworks, and working to build consumer trust, privacy, data protection and intellectual property rights protection. We welcome the G20 Repository of Digital Policies to share and promote the adoption of innovative digital economy business models. We recognize the importance of the interface between trade and the digital economy. We will continue our work on artificial intelligence, emerging technologies and new business platforms.” (...) “We commit to promoting women’s economic empowerment, including by working with the private sector, to improve labour conditions for all, such as through access to quality and affordable care infrastructure and parental leave, and reducing the gender pay gap. We also commit to promote women’s access to leadership and decision-making positions, the development of women and girls’ digital skills and increasing their participation in STEM (Science, Technology, Engineering and Mathematics) and high-tech sectors.” (...) “We endorse the G20 Financial Inclusion Policy Guide, which provides voluntary policy recommendations to facilitate digital financial services, taking into account country contexts and the Global Partnership for Financial Inclusion Roadmap</p>

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				<p>which outlines a process to streamline its work program and structure." (...) "We will continue to work together to seek a consensus-based solution to address the impacts of the digitalization of the economy on the international tax system with an update in 2019 and a final report by 2020." (...) "We urge the digital industry to work together to fight exploitation of the internet and social media for terrorist purposes."</p>
2019	Summit	Osaka/JP	<p>In addition to the mention in the Leaders' Declaration, two ministerial working group declarations are part of the summit's resolutions: "<b>G20 Ministerial Declaration on Trade and the Digital Economy (June 8-9)</b>" and "<b>Work Program to Develop a Consensual Solution to the Tax Challenges Arising from the Digitalization of the Economy</b>".</p>	<p>Paras 01, 08, 10, 11, 12, 16 and 23: "We, the Leaders of the G20, are meeting in Osaka, Japan, on June 28-29, 2019, to join forces to tackle the main global economic challenges. We will work together to promote global economic growth, while harnessing the power of technological innovation, in particular digitalization, and its application for the benefit of all." (...) "We welcome the G20 Ministerial Declaration on Trade and the Digital Economy in Tsukuba. We strive to create a free, fair, non-discriminatory, transparent, predictable and stable trade and investment environment, and to keep our markets open. International trade and investment are important drivers of growth, productivity, innovation, job creation and development. We reaffirm our support for the necessary reform of the World Trade Organization (WTO) to improve its functions." (...) "Innovation is an important driver of economic growth, which can also contribute to advancing the achievement of the SDGs and strengthening inclusion. We will work to achieve an inclusive, sustainable, safe, reliable and innovative society through digitalization and promoting the application of emerging technologies. We share the notion of a future human-centered society, which is being promoted by Japan as Society 5.0. As digitalization is transforming every aspect of our economies and societies, we recognize the critical role played by the effective use of data as an enabler of economic growth, development and social well-being. Our aim is to promote international policy discussions to harness the full potential of data." involvement. We also reaffirm the importance of inter(...) The cross-border flow of data,</p>

Year	Type	G20 Host City/Country	Main Issues Discussed	Digitalization and Technology
				<p>information, ideas and knowledge generates greater productivity, greater innovation and better sustainable development, while raising challenges related to privacy, data protection, intellectual property rights and security. By continuing to address these challenges, we can further facilitate the free flow of data and strengthen consumer and business confidence. In this respect, both national and international legal frameworks need to be respected. This free flow of data with trust will seize the opportunities of the digital economy. We will cooperate to encourage the interoperability of different frameworks and affirm the role of data in bridging the gap between trade and the digital economy, and we take note of the ongoing debate in the framework of the Joint Declaration Initiative on e-commerce, and reaffirm the importance of the Work Program on e-commerce in the WTO." (...) "To further promote innovation in the digital economy, we support the sharing of good practices on effective policy and regulatory approaches and frameworks that are innovative as well as agile, flexible and adapted to the digital age, including through the use of regulatory testing environments. The responsible development and use of Artificial Intelligence (AI) can be a driving force to help advance the SDGs and realize a sustainable and inclusive society. To foster public trust in AI technologies and fully realize their potential, we commit to a human-centered approach to AI and welcome the non-binding G20 AI Principles, drawn from the Organisation for Economic Co-operation and Development (OECD) Recommendation on AI. Furthermore, we recognize the growing importance of promoting security in the digital economy and addressing security gaps and vulnerabilities. We affirm the importance of protecting intellectual property. Together with the rapid expansion of emerging technologies, including the Internet of Things (IoT), the value of an ongoing discussion on security in the digital economy is growing. We, as members of the G20, affirm the need to continue working on these urgent challenges. We reaffirm the importance of bridging</p>

Year	Type	G20 Host City/Country	Main Issues Discussed	Digitalization and Technology
				the digital divide and promoting the adoption of digitalization among micro, small and medium-sized enterprises (MSMEs).
2020	Summit	Riyadh/ SA	In the middle of the COVID-19 pandemic, the debate on guaranteeing the universal right to digital skills and equipment is listed among the priorities of world leaders. In addition to the mention in the Leaders' Declaration, two ministerial working group declarations are part of the summit's resolutions: <b>"Extraordinary G20 Digital Economy Ministers' Statement - April 30"</b> and <b>"G20 Digital Economy Ministers' Declaration - July 22"</b>	Para <sup>s</sup> 12, 19, 25: "We look forward to the standard setting bodies engaging in the review of existing standards in light of these reports and making adjustments as needed. We look forward to the IMF's further work on macro-financial implications of digital currencies and so-called 'global stablecoins'" (...) "Connectivity, digital technologies, and policies have played a key role in strengthening our response to the pandemic and facilitating the continuation of economic activity. We take note of the Policy Options to Support Digitalization of Business Models during COVID-19. We acknowledge that universal, secure, and affordable connectivity, is a fundamental enabler for the digital economy as well as a catalyst for inclusive growth, innovation and sustainable development. We acknowledge the importance of data free flow with trust and cross-border data flows. We reaffirm the role of data for development. We support fostering an open, fair, and non-discriminatory environment, and protecting and empowering consumers, while addressing the challenges related to privacy, data protection, intellectual property rights, and security. By continuing to address these challenges, in accordance with and all individuals, especially vulnerable groups, and we also encourage networking and sharing of experiences between cities for the development of smart cities." (...) "We welcome the recent progress in addressing the fiscal challenges arising from digitalization and support the ambitious work programme consisting of a two-pillar approach developed by the Inclusive Framework on BEPS." (...) "We commit to continuing to support the education and training of girls and women, including the provision of quality primary and secondary education, better access to STEM (Science, Technology, Engineering and Mathematics) education and awareness raising to eliminate gender stereotypes. In order to bridge the digital divide between men and

Year	Type	G20 Host City/Country	Main Issues Discussed	Digitalization and Technology
				women, we will continue to improve girls' and women's access to digital technology, with special attention to the needs of people living in poverty and rural areas. We reaffirm the importance of taking action to eradicate all gender-based violence, abuse and harassment, including in the digital context."relevant applicable legal frameworks, we can further facilitate data free flow and strengthen consumer and business trust. We recognize the importance of working with stakeholders to connect humanity by accelerating global internet penetration and bridging digital divides. We recognize the importance of promoting security in the digital economy and welcome the G20 Examples of Practices Related to Security in the Digital Economy. We will continue to promote multi-stakeholder discussions to advance innovation and a human-centered approach to Artificial Intelligence (AI), taking note of the Examples of National Policies to Advance the G20 AI Principles. We welcome both the G20 Smart Mobility Practices, as a contribution to the well-being and resilience of smart cities and communities, and the G20 Roadmap toward a Common Framework for Measuring the Digital Economy" (...) "We also endorse the G20 High-level Policy Guidelines on Digital Financial Inclusion for Youth, Women, and SMEs prepared by the Global Partnership for Financial Inclusion (GPFi). We welcome the 2020 G20 Financial Inclusion Action Plan, which will guide the work of the GPFi for the next three years".
2021	Summit	Rome/IT	There has been a leap in the debate on the priority of investment and support for the development of TICs, which is reflected in the overview above.	Summary in this document
2022	Summit	Jakarta/ID	Priority of investment and support for digitalization and technologies is reflected in the overview above.	Summary in this document.
2023	Summit	New Delhi/IN	Priority of investment and support for digitalization and technologies is reflected in the overview above.	Summary in this document.



**Annex II. C20 Recommendations on Education.**

Year	C20 Host City/Country	Recommendations
2018	Buenos Aires/AR	<ul style="list-style-type: none"> <li>- Assessment systems with national sovereignty by the states that allow analyzing the impact of technological developments in the labour world;</li> <li>- Inclusive policies that allow an effective exercise of Digital Citizenship, avoiding the discrimination of collectives in relation to technological access based on compliance with the G20 2017 commitment to guarantee universal connectivity by 2025;</li> <li>- Provide for continuous training and responsible transition by companies so that, together with the States, they provide financial and technical support, as well as training and improvement opportunities for affected workers.</li> </ul>
2019	Osaka/JP	<ul style="list-style-type: none"> <li>- Improve access and provide incentives to encourage marginalised populations and adolescent girls into the fields of science, technology, engineering, arts and mathematics (STEAM) and work to bridge the gender digital divide by implementing the measures outlined in the 2018 G20 Digital Economy Ministerial Declaration (Annex Paper 2);</li> <li>- G20 should design innovative “STI for SDGs” that are considered and context-specific. It is imperative to understand the wider cultural context of a country or a community, and accessible technologies should be implemented in line with the local curriculum, instead of introducing a one-size-fits-all type of curriculum everywhere.</li> </ul>
2020	Riyadh/SA	<ul style="list-style-type: none"> <li>- Provide educative programs to deliver information and guidance regarding ECCE to families and care circles;</li> <li>- Adopt global standards, framework and implementation strategy to enable coordinated improvement, monitoring and reporting of Digital Skills on a national &amp; global scale;</li> <li>- Utilize digital intelligence global standards framework for digital literacy, skills, readiness and digital citizenship education. Such as the Coalition for Digital Intelligence comprising the OECD, IEEE and DQ Institute in association with the World Economic Forum Digital Intelligence (DQ) framework;</li> <li>- In response to the speed gap between technology and education, it is critical for G20 to develop a global plan to coordinate digital skills initiatives to enhance the level of digital skills through training, assessment, and certification using the suggested global standards;</li> <li>- Focused investment toward building skills required for digital economy must be made in an inclusive manner across regions, sectors, genders, and age groups;</li> <li>- The discourses of Global Citizenship Education and Digital Citizenship Education converge in a way that serves the goal of fostering the competencies of the modern resilient and multi-skilled worker. These basic skills as well as coding and other ICT skills should be core aspects of formal education;</li> <li>- In line with Bridging the Gender Divide and Entrepreneurs &amp; MSMEs in a Digital Context, the G20 should commit to a focus on digital skills learning for women and MSMEs;</li> <li>- Coordinate governments and work in coalition with IGOs, NGOs, and ICT and EdTech providers on short and long-term investment in the expansion of ICT infrastructure and technologies to ensure access for all youth to ICT enabled education, to be accessible across borders in terms of content and access to skilled online teachers;</li> <li>- Commit to providing access to quality online education to children in underserved communities to address digital justice and reduce the digital divide affecting women, young people in low income families and marginalized groups;</li> <li>- Promote state regulation of the digital private sector during times of crisis in order to achieve optimal educational outcomes. Regulate the accreditation of online learning providers and programs to ensure quality and to serve the employability needs of young people entrusted to its pedagogy;</li> <li>- Ensure the inclusion of Online Protection Tools in ICT service providers and child online protection legal framework that allow for monitoring and control of young people’s access to inappropriate materials and content and enhance safety measures from internet threats, cyber-bullying and predators (Ronchi, E. and L. Robinson, 2019);</li> </ul>

Year	C20 Host City/Country	Recommendations
		<ul style="list-style-type: none"> <li>- Support the development of nation-level Child Online Safety policies and practices including training parents, educators and children, and monitor the state of national Child Online Safety Index (COSI);</li> <li>- Provide programs for families regarding utilization of technology in education and child protection against cyber risks and digital addiction;</li> <li>- Embed Global Citizenship Education Development (GCED) and Education for Sustainable Development (ESD) in formal, informal and non-formal education settings, to equip young people with the tangible competencies of a modern global worker (ILO, 2018), and the knowledge, skills, values and attitudes needed to promote peace, justice, human rights, cultural diversity and social cohesion;</li> <li>- GCED/ESD to be structurally included as foundational competencies as a cross-curricular priority across all learning areas. Develop policies to ensure GCED/ESD is embedded in broader educational cultures and mainstreamed at all levels in formal, informal and non-formal education;</li> <li>- Ensure evaluations of GCED/ESD interventions are consistent with values of GCED/ESD itself, with monitoring processes involving multiple stakeholders;</li> <li>- Reform teacher training &amp; competency frameworks to reflect contemporary methods that promote analyzing, literacy and numeracy;</li> <li>- Build the capabilities of teachers to include critical, GCE and digital eLearning pedagogies, in a learner-centered approach where young people are empowered learners and as stakeholders for sustainable societies and encouraged to think of themselves as individuals, as members of collectives and as mediated by institutions in their interactions with the world;</li> <li>- Teachers to foster digital agency, critical construction of knowledge and self-learning design, to better equip young people to make sense of the vast information flow available digitally and discern real vs fake information, beneficial vs harmful behaviour (OECD, 2018);</li> <li>- Safeguard that GCED/ESD policies, curriculum and pedagogies incorporate and emphasize the value of local and indigenous knowledge and cultures so as not to erode indigenous languages and cultures. Promote participatory programmes for learners and educators to engage in their communities and society, actively seeking partnerships and programs across diverse geographical locations and cultures;</li> <li>- Ensure programs balance national goals with global participation and understandings</li> <li>- Utilize the Global Guidelines for Early Childhood Education and Care in the 21st Century (Childhood Education International), as framework for nations' development of inclusive, rights-based approach to policies, legislation &amp; strategic action plans governing this area.</li> </ul>
2021	Rome/IT	<ul style="list-style-type: none"> <li>- The G20 should also commit to work with WHO and other stakeholders to develop and adopt a global framework on the use of health data as a public good whilst protecting individual rights and the confidentiality of personal data;</li> <li>- To ensure policy makers and researchers can prevent, detect, and respond to emerging health risks, while also leveraging digital transformation to improve and enhance healthcare, and be developed through an inclusive process and grounded in globally agreed principles of equity and human rights;</li> <li>- To closely govern the role of, and investments in Big Tech<sup>16</sup> so that their practices are aligned to, and do not undermine global health goals, equity, and human rights.</li> </ul>

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2022	Jakarta/ID	<ul style="list-style-type: none"> <li>- Prioritize the inclusion of children, youth, and adult learners affected by discrimination and inequalities — those who are economically deprived, girls/women, disabled, forcibly displaced, living in rural and slum urban areas, in conflict or humanitarian crises, and all other minorities;</li> <li>- To meaningfully engage civil society for crafting progressive internet ecosystem regulation as a safeguard of human rights protections;</li> <li>- Construct new social contract to unite and protect an Artificial Intelligence World Society;</li> <li>- To develop a just global digital and data governance framework with an independent, representative multilateral mechanism, backed by an international treaty (based on human rights, including economic rights);</li> <li>- Develop digital connectivity infrastructure and deliver offline and online learning facilities for equal access to education by (I) providing creative approaches to overcome the digital divide, involving multi-layered stakeholders and; (II) facilitating learners with no/limited access including persons with disabilities in the digital setting;</li> <li>- Strengthen safe blended learning strategies for an uninterrupted education system by (I) developing flexible and accessible learning modalities with formal, informal, and non-formal education systems, including free, reused, refurbished, low-cost, low-tech and no-tech solutions; (II) providing free and open access to technologies, tools and materials and; (III) building the capacity of teachers, learners, parents/caregivers, to effectively use devices and mitigate the risks using online education tools;</li> <li>- Ensuring the digital inclusivity of health data systems with (I) harmonization of regulations and mechanisms for public access/participation in data checking; (II) Data policies that consider the reliability and interoperability of data across different sectors at multiple levels; (III) Digital identification based on a strong regulatory framework that provides clear roles and responsibilities of every actor and emphasize the application of user value and human-led systems;</li> <li>- Facilitate learners with no or limited access to digital technology including those with special needs in the digital setting, income-deprived families and families in remote areas (e.g., by providing assistive technology, guaranteeing schools with connectivity and reliable digital infrastructure etc.);</li> <li>Strengthen public education systems and enforce strict regulatory frameworks for private sector involvement in education to prevent the corporate capture of digital learning and to develop supporting infrastructure;</li> <li>- Develop flexible learning modalities with formal, informal, and non-formal education systems, including free, reused, refurbished, low-cost, low-tech and no-tech solutions; Provide free and open access to technologies, tools, and materials for the equitable and inclusive quality education of all, especially the most marginalized learners;</li> <li>- Data policy needs to consider the reliability and interoperability of data across sectors at multiple levels. Digital identification should be based on a strong regulatory framework that provides the clear roles and responsibilities of every actor, and more importantly, such frameworks need to emphasize the application of user value and human-led systems;</li> <li>- Digital rights mainstreaming in every data processing;</li> <li>- The implementation of data governance needs to build an integrated system and regulation which could be implemented at any level of government;</li> <li>- Address the inequality of benefits distribution by supporting the capacity of developing countries to develop the policy framework and infrastructure for a data-driven economy. Countries are currently at different levels of readiness in terms of capacity to harness the benefit of cross-border data flow for development;</li> <li>- Discussions on global data flow, including at G 20, have begun to recognize issues of privacy, but they must equally recognise issues of economic rights to data of individuals, workers, groups, communities and small businesses, in which area policies and laws are beginning to be developed in some places;</li> <li>- Integrating a human rights-based approach to cross-border data flows, addressing all three generations of human rights. Given its multidimensional nature, it is thus crucial for policymakers to strike a balance between the economic and non-economic aspects. UNCTAD's 2021 Digital Economy Report calls for a Global Data Governance Framework which takes note of both economic and non-economic aspects of data;</li> <li>- Rather than enforcing a sweeping data localization policy, data should be appropriately categorized based on legal and human rights requirements. It is essential to establish a robust data protection framework, which puts the control over personal</li> </ul>

Year	C20 Host City/Country	Recommendations
		<p>data back to individuals as data subjects, and develop elaborate frameworks for economic rights over data for individuals, workers, groups, communities and small businesses;</p> <ul style="list-style-type: none"> <li>- Moreover, it is essential to emphasize that an effective enforcement mechanism to protect the right to privacy is in place, through an independent data protection authority, as well as developing and enforcing economic rights to data;</li> <li>- Ensure the global digital and data governance and framework should not be governed by any international trade rules (WTO or bilateral and regional FTAs). Therefore, we need to develop a just global digital and data governance and framework as a global public good with an independent, representative multilateral mechanism, backed by an international treaty (or human rights treaty);</li> <li>- Maintain access to information and support free expression online, particularly during elections, protests, and periods of conflict. Access to the internet is a human right. Intentional disruptions to internet access such as localized shutdowns, website blocking and throttling of access to social media or communications platforms impact individuals' economic, social, political, and civil rights. Governments should refrain from banning online platforms. No one should fear any reprisal for the content they contribute online, as the internet should be the platform for collaboration including those from the global south;</li> <li>- The use of digital platforms, such as one in more mature democracies, is a viable option to overcome the lack of participation issue. The meaningful policy-making process must at the very least not only guarantee that inputs from civil society actors be heard and well considered, but also ensure equal accessibility for persons with disabilities and other vulnerable groups. If used properly, digital technologies provide almost everyone with the opportunity to actively participate in the decision-making process while respecting the problem of the digital divide between those with limited access to technology and those who are not. More importantly, the idea to maximize the use of digital platforms should be implemented with respect to the non-discriminatory principle.</li> </ul>
2023	New Delhi/IN	<ul style="list-style-type: none"> <li>- Implement their obligations under international human rights frameworks to address security concerns of the internet in accordance with their international human rights obligations and ensure protection of freedom of expressions, association, and privacy;</li> <li>- Operationalize the Guiding Principle of Business and Human Rights;</li> <li>- Ensure women and girls, as well as LGBTQI+, indigenous people, people with disabilities, and people with diverse vulnerabilities have equitable access to opportunities to gain digital skills, internet and other technological devices. Digital empowerment for girls has to be promoted when they start in schools;</li> <li>- Scale up efforts to ensure that women and girls in all their diversity possess digital skills and have access to internet and technological devices, therefore bridging the gender digital divide;</li> <li>- Place digital security firmly at the center of the engagement within the process of digitalization: curtail the spread of abuse in digital platforms and networks through regulatory bodies and task forces;</li> <li>- Ensure the participation of women and girls, as well as other marginalized communities, in the ICT sector to work towards the elimination of the gender and racial bias found in AI, such as in algorithms;</li> <li>- Promote multi-stakeholder partnerships, global partnerships of "like-minded" public, private and third sector actors to manage digitalization processes;</li> <li>- States should prohibit by law the profiling or targeting of children of any age for commercial purposes on the bases of digital record of their actual or inferred characteristics;</li> <li>- Practices that rely on neuromarketing, emotional analytics, immersive advertising in virtual and augmented reality environments to promote products, applications and services should be prohibited from engagement directly or indirectly with children; States should implement safety and protective measures in accordance with children's evolving capacities;</li> <li>- G20 should commit to work together with WHO and other health stakeholders to develop and adopt a global framework on the use of health data as a public good, whilst protecting individual rights and the confidentiality of personal data;</li> <li>- G20 nations are urged to consider the proactive role that values and norms play in protecting human rights, seamlessly integrating them into the social fabric, reflected in</li> </ul>

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		<p>the principle of Antyodaya where the well-being of the last woman standing in the queue should always be considered when making policy decisions;</p> <ul style="list-style-type: none"> <li>- Health related digital technology should be used to enhance the potentiality of grass-roots communities on data collection and health service delivery, including civil registration and vital statistics systems;</li> <li>- G20 should commit to strengthen governance on digital technologies and data, to respond to the urgent need for a participatory, inclusive, transparent global and regional mechanisms for the evaluation of digital technologies before they are developed and deployed;</li> <li>- G20 should promote the transformation of the model of digital governance mechanism from a centralized model to a different paradigm led by synergy and cooperation that respects the sovereignty of individuals and communities. Personal data transfers should be protected at least at the level required by international human rights law. At the domestic level, data-driven, data-intensive systems that collect and process biometric data and those aimed toward mass surveillance should be avoided. The use of facial recognition and remote biometric recognition should be banned when they are used for surveillance in publicly accessible spaces people can't avoid;</li> <li>- In order to mitigate the negative impacts of AI and machine learning systems to people and society, governments and the private sector should pursue at all stages of the AI system life cycle under the principle of proportionality, do-no-harm, safety, scrutiny, fairness and non-discrimination, sustainability, privacy and data protection, human oversight and determination, transparency, explainability, responsibility and accountability;</li> <li>- G20 should ensure full labor rights for platform workers, including protection of these workers against isolation and fragmentation. Occupational safety should be fully protected and comprehensive social protection must be ensured. In the context of the COVID-19 pandemic, dramatic improvements in the wages and working environments of essential workers, care workers and others are needed.</li> <li>- Aligned with the UN, governments and all stakeholders should support further actions, including investment, to improve broadband access and connectivity in the Global South, especially LDC to close the digital divide, with significant consideration on digital divide along gender. E-commerce platforms should be provided by the state and public authorities, as is the case of physical markets in towns and villages provided by local authorities. Governments and Stakeholders should promote public-private cooperation and dialogue to develop enabling environments and ecosystems for widespread economic participation. Significant consideration is needed on the issues such as ICT infrastructure, access and cost, digital skills and literacy, digital rights, data protection and privacy and targeted policy frameworks on cybersecurity, taxation, and data flows;</li> <li>- Develop human-centred design principles for all aspects of education/training/skill development;</li> <li>- Promote Digital Public Goods and Digital Commons for inclusive, affordable, and customizable Digital SDG solutions;</li> <li>- Promote digital literacy and hygiene among marginalized and vulnerable communities. Strengthen digital accessibility and bridge the Digital Divide including vulnerable populations, low-literate populations, and persons with disability, and provide access to digital technologies, the internet, devices, and curricula in the local language;</li> <li>- Provide comprehensive training to individuals on responsible technology use, addressing issues of misuse and abuse, while fostering critical thinking, problem-solving, digital literacy, and ethical skills.</li> </ul>

**Obs:** All documents related to the G20 can be found at <http://www.g20.utoronto.ca/summits/index.html> and the documents produced by the C20 can be found at <http://www.g20.utoronto.ca/c20/index.html>