

CHAPTER 2

# Error 404: Barriers to Digital Inclusivity

COVID-19 has accelerated and broadened the Fourth Industrial Revolution with the rapid expansion of e-commerce, online education, digital health and remote work. These shifts will continue to dramatically transform human interactions and livelihoods long after the pandemic is behind us. This change can provide huge benefits to societies—the response to COVID-19 is full of examples, from the ability to telework to the rapid development of a vaccine.<sup>1</sup> However, these developments also risk exacerbating and creating inequalities. Respondents to the Global Risks Perception Survey (GRPS) rated “digital inequality” both as a critical threat to the world over the next two years and the seventh most likely long-term risk.

## A widening digital gap can undermine an inclusive recovery

Individuals differ more and more in their digital autonomy and opportunities to earn a livelihood in the digital markets of tomorrow.<sup>2</sup> This widening digital gap can further weaken societal cohesion, already fraying in many countries, and undermine prospects for an inclusive recovery. Progress towards digital inclusivity is threatened by growing digital dependency and automation, information suppression and manipulation, and gaps in regulation and capabilities.

### Digital division

Digital division comes in many guises, from automated bias that can be manipulated to gaps in accessibility and capacity.

#### Automating bias and manipulation

Decisions historically made by humans—diagnosing health issues, choosing investments, assessing educational achievement and resolving legal disputes—are increasingly being made by sophisticated algorithms that apply machine learning to large data sets.<sup>3</sup> In the US criminal justice system, for example, algorithms are being used to

predict the risk of recidivism.<sup>4</sup> In the private sector, more businesses are turning to algorithmic management to track employee productivity.<sup>5</sup> Automating these decisions deepens biases when they depend on black-box algorithms developed using skewed historical data sets.<sup>6</sup>

The risks from automating bias are exacerbated by the amount of data now generated—predicted to nearly quadruple by 2025.<sup>7</sup> The sheer volume of data drives down the cost and ease of using algorithms for malicious or manipulative purposes. Individuals and non-state groups have access to algorithms that can spread dangerous content with unprecedented efficiency, speed and reach. Malicious actors are also becoming more capable of launching misinformation campaigns on a national and global scale—and because individuals and small groups are difficult to track and prosecute, it is harder for authorities to stop the spread of misinformation. The number of countries experiencing organized social media manipulation campaigns increased by 150% between 2017 and 2019.<sup>8</sup>

#### Accessibility and regulatory gaps

“Digital gaps”—the differential ability to access data and digital technologies—are widening between and within countries. Internet usage ranges from more than 87% of the population in high-income countries to less than 17% in low-income countries (see Figure 2.1).<sup>9</sup> Within countries, access to digital resources is stratified by socio-economic status—even in high-income countries. In the United Kingdom, vulnerable households have been forced to choose between sustenance and connectivity during the pandemic.<sup>10</sup>

Fissures in digital equality are exacerbated by political and geopolitical incentives. Some governments shut down internet access to control the flow of information and public discourse within and outside their borders,<sup>11</sup> or specifically to exclude foreign-based platforms.<sup>12</sup> The United Nations has called for “all governments to immediately end any and all blanket internet and telecommunication shutdowns.”<sup>13</sup> Still, 23% of countries ban or censor news,<sup>14</sup> which limits their citizens’ access to critical digital resources.

In countries where stark interventions are not a threat, government inaction has created risks to citizens. While nearly four-fifths of countries have implemented regulations on e-commerce and data protection,<sup>15</sup> government responses continue to be outpaced by the speed of digitalization.<sup>16</sup> Governments need to narrow the regulatory gap widened by new digital resources and technology’s growing influence over human interactions—or risk digital public goods concentrating in private actors.

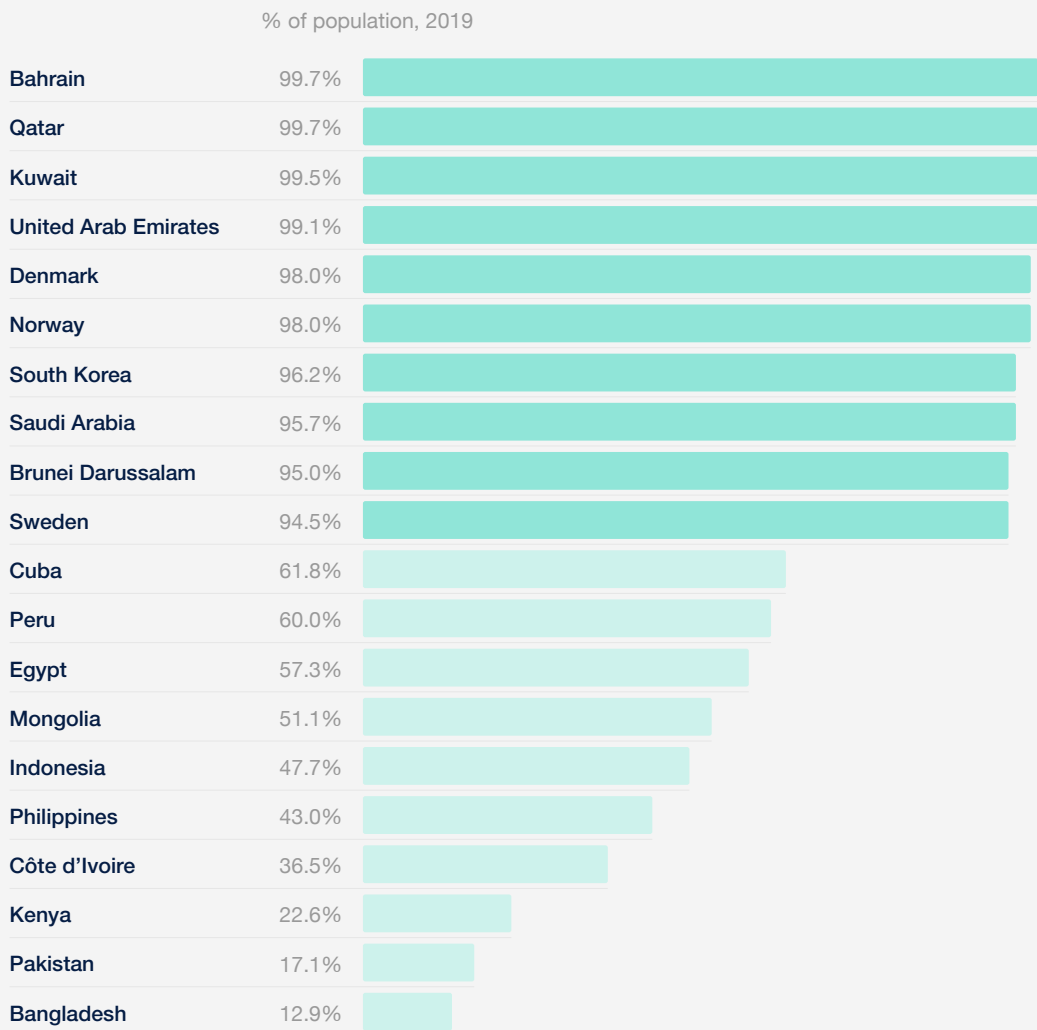
**Capacities trailing digitalization**

Automation was already reshaping labour markets, but the pandemic spurred an

economic crisis and a digital leap that shrank budgets and time frames needed to upskill and reskill workers. The World Economic Forum’s *Future of Jobs* report estimates that automation may displace 85 million jobs in only five years.<sup>17</sup>

In developed and emerging economies alike, the rapid shift to remote working is expected to yield long-term productivity gains,<sup>18</sup> but it risks creating new gaps between knowledge workers and those in hands-on sectors who cannot work remotely and may lack the digital skills and tools to find other employment in areas such as manufacturing, retail, and some

FIGURE 2.1  
**Internet Users,  
Select Countries**



Source: World Bank Open Data. "Individuals using the Internet (% of population)." [https://data.worldbank.org/indicator/IT.NET.USER.ZS?most\\_recent\\_value\\_desc=true](https://data.worldbank.org/indicator/IT.NET.USER.ZS?most_recent_value_desc=true), accessed 15 December 2020.

fields of healthcare. The rapid digitalization of human interactions and the workplace has also expanded the suite of essential digital skills—including communication, cyber safety and information processing<sup>19</sup>—beyond what was previously considered internet savvy.

and where livelihoods were hit hard by the COVID-19 crisis<sup>21</sup>—will likely need to prioritize keeping their existing job or quickly finding new employment over dedicating time and money to training.

**4x** ■ increase in data generated by 2025

Such expansion requires significant investment in upskilling and reskilling. However, public spending and policy-making capacity to reduce the digital skills gap will be limited after COVID-19—especially in low- and middle-income countries (see [Chapter 1, Global Risks 2021](#)). Employers facing loss of revenues or the risk of bankruptcy (see [Chapter 5, Imperfect Markets](#)) may also have limited capacity to offer financial support to employees. Vulnerable workers—especially in the informal sector, where 60% of the world’s workforce finds employment,<sup>20</sup>

## Disconnected societies

Societies are becoming more disconnected. Populations find themselves increasingly polarized and bombarded with misinformation, and the widening gap in digital ability risks the emergence of a digital underclass. A regulatory backlash to combat this outcome risks further disconnecting societies.

### Polarization and misinformation

A pervasive reliance on complex algorithms that exacerbate inequalities can damage individual well-being and amplify societal fractures. Automated assessments of criminal sentences may worsen results for vulnerable groups.<sup>22</sup> Within artificial intelligence (AI)-powered organizations, “code ceilings” (which dictate opportunities based on a business optimization function) may limit career opportunities for workers managed by algorithms.<sup>23</sup> And in health—as analysed in depth in previous

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editions of the *Global Risks Report* (see, for example, Chapter 6, False Positive, in the 15<sup>th</sup> edition of that report)<sup>24</sup>—skewed databases could lead AI to misdiagnose or mistreat patients. If left undetected or unaddressed, algorithmic discrimination—and the resulting societal divisiveness—could worsen exponentially as stronger computing capabilities boost the speed and reach of algorithms.<sup>25</sup>

## Reliance on algorithms that exacerbate inequalities can damage well-being and amplify societal fractures

Widespread falsehoods and conspiracy theories hinder civic debate and consensus on critical political, public health and environmental issues. “Infodemics” surrounding COVID-19, for example, have impeded efforts to stem the physical damage from the disease—false information that ingesting highly concentrated alcohol kills SARS-CoV-2 caused over 700 deaths and nearly 6,000 hospitalizations in Iran.<sup>26</sup> Misinformation could endanger a global recovery that hinges on the widespread vaccination. As one European diplomat commented, “disinformation will continue. Vaccination seems to be the next battleground.”<sup>27</sup> More broadly, disinformation and misinformation campaigns can erode community trust in science, threaten governability and tear the social fabric. According to the GRPS, “backlash against science” will heighten the risks of “climate action failure” and “infectious diseases” over the next decade (see Figure III, *Global Risks Network*).

Misinformation is increasingly threatening civil liberties and democracy.<sup>28</sup> “Post-truth” politics<sup>29</sup>—from deliberate manipulation campaigns to the unmitigated spread of conspiracy theories and fake news—are “amplifying hate speech; heightening the risk of conflict, violence and human rights violations; and threatening long-term prospects for advancing democracy”

as the World Health Organization has warned.<sup>30</sup> Yet blunt government attempts to combat misinformation can exacerbate the problem. Internet restrictions, for example, risk excluding whole societies from the global information economy, while more invasive control could infringe civil liberties.

### Digital underclass of workers

Widening gaps in digital literacy risk creating a digital underclass.<sup>31</sup> Workers excluded from digital resources will miss the educational and employment opportunities constantly created by the global digital economy: the World Economic Forum’s *Future of Jobs Report* estimates that, by 2025, 97 million new jobs may emerge from the division of labour between humans and machines.<sup>32</sup> The digital exclusion of billions of workers worldwide increases the risk of “livelihood crises” and is likely to exacerbate “social cohesion erosion”—two of the highest likelihood and highest impact risks of the next 10 years, according to the GRPS (see Figure II, *Global Risks Landscape*).

### User disenfranchisement and governance challenges

At a time when a growing number of human activities are going digital, individuals and institutions face a heightened risk of losing their digital autonomy.

Power is becoming more concentrated in markets such as online retail, online payments and communication services (see Chapter Chapter 5, *Imperfect Markets*).<sup>33</sup> “Digital power concentration”—the sixth most likely long-term risk according to GRPS respondents—could confine political and societal discourse to a limited number of platforms that have the capability of filtering information and further reducing the already limited agency of individuals and organizations over how their data are used.<sup>34</sup>

Stretched budgets will limit consumers’ options as they choose digital services and providers that best suit their new needs. Lack of competition between providers by way of offering stricter data privacy policies could prevent users from gaining more control over how their data are collected, used and monetized.<sup>35</sup> Users and consumers could also lose the power to negotiate or revoke the use and storage of data they have already shared, willingly



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or unwillingly.<sup>36</sup> As social identities become more defined by online identities, users will be increasingly at risk of exposure to targeted political manipulation, invasion of privacy, cybercrime, financial loss, and psychological or physical harm.<sup>37</sup>

#### **Regulatory techlash**

Governments across the world are ramping up protection for consumers and increasing regulatory pressures on digital markets in response to the potentially deleterious societal impacts of digital dependency and influence.

The European Union signalled, in its draft Digital Markets Act,<sup>38</sup> that it would be clamping down on anti-competitive behaviours.<sup>39</sup> In the United States, a congressional report on the risk of monopolization in digital markets also portends growing pressures on tech companies.<sup>40</sup> Meanwhile, regulations are tightening around providers' responsibility for illegal activities on their platforms—such as the spread of misinformation and malicious content. A regulatory “techlash” could confront major tech companies with large fines—up to 10% of global revenues in Europe—along with more governmental control and the possibility of breaking them up.

Stronger government intervention in digital markets can empower consumers and users by fostering more competition and regulating anti-competitive practices, but breaking up major platforms can also reduce services overall. Without platform

## **Regulatory “techlash” risks internet restriction, information censorship and cut communications**

benefits, smaller companies may not be able to reach less profitable markets, which would widen digital inequality. In more authoritarian contexts, a distinct threat remains that governments will attempt to take over major platforms and service providers—thus consolidating their power to restrict internet access, censor information and cut communications. Pathways to future economic and societal gains under these conditions would be severely imperilled.

## Updates required

The context, fairness and governance—not algorithms, AI or machines by default—underpinning the digital leap will determine whether the use and adoption of new technologies advances individual and societal well-being or widens the gap between the technological “haves” and “have-nots”. Already,

of digital technologies that safeguard user data, entitle online information accuracy and reward innovation.

Basic education and lifelong learning can increase digital literacy and play a critical role in closing digital divides. Increasing access to digital content is not enough. As AI, machine learning and biotechnology evolve, new users need to think critically about the supply and consumption of digital content. The World Economic Forum’s *Future of Jobs Report* shows that, already, the digital leap has propelled worker appetite for online learning and training on digital skills such as data analysis, computer science and information technology.<sup>44</sup> Employers have also risen to the challenge—during the second quarter of 2020, employer provision of online learning opportunities increased fivefold.<sup>45</sup> Similar opportunities exist in leveraging digital services to overcome existing and emerging inequalities in health accessibility, affordability and quality (see [Chapter 1, Global Risks 2021](#)). Throughout the pandemic, telemedicine in many countries has allowed patients to continue their treatment while minimizing the risk of COVID-19 transmission.<sup>46</sup>

Digital tools will benefit workers and employers alike—two-thirds of employers expect to see a return on their investment in upskilling and reskilling within one year,<sup>47</sup> while enhanced healthcare reduces business risks such as safety, continuity and reputation<sup>48</sup>—but so will more inclusive technology. More companies are working with civil society on the design and governance of technology and digital services. By integrating marginalized and vulnerable groups into technology development—including those of different ethnicities and genders—companies are reducing bias and promoting access to emerging technologies.<sup>49</sup> The business case for such collaborations is that they help to make technology more user-centric and easier to adopt. COVID-19 contact-tracing apps have already shown how open-source approaches and monitoring mechanisms can work even with proprietary code, helping to make technologies more inclusive and representative.<sup>50</sup>

# 85 million:

jobs that may be automated in five years

“collaborative intelligence” has been found to yield lasting productivity gains for both humans and technology, while automation for the sake of reducing workforces yields only temporary improvements.<sup>41</sup> Ensuring a smooth digital transition and mitigating the risks to social cohesion from digital divides will require managing innovation without stifling it—for example, insisting on security and privacy by design in the development of new technologies and digital services.<sup>42</sup> Impact studies could improve understanding of the implications of new technologies for societies and human rights.<sup>43</sup> Such approaches would require building public sector capabilities to assess the benefits and risks from an accelerated digitalization of social interactions; and to improve the regulation

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