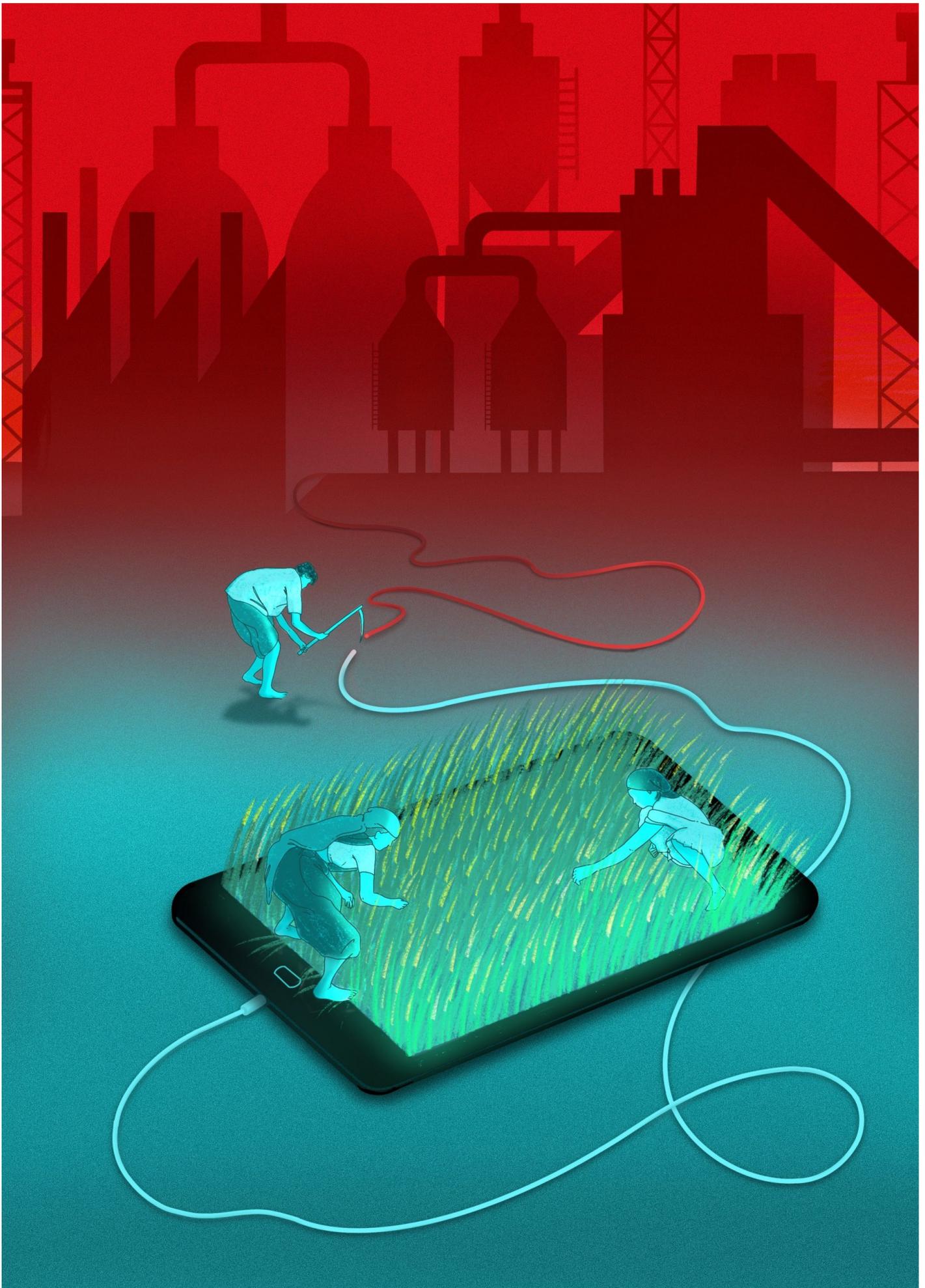




# Food for All or Feeding the Data Colossus? The Future of Food in a Digital World

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The Covid-19 pandemic has accelerated the global resource grab in our food and agriculture systems. The encompassing digitalization of the core ecological and social components of these systems is the new means of making vast profits. Approaches that claim precision through efficient utilization of resources are, in fact, forms of power grab by the data colossus – the world’s largest corporations such as Google, Amazon, Microsoft, and Alibaba – from the fields and fishing grounds of farmers and fisher folk. In response to these incursions, some groups of smallholder and peasant farmers have been either struggling to benefit in the fringes of digitalization or attempting to create their own open source alternatives. Ultimately though, the principles of food sovereignty can only be protected by democratic processes that challenge the monopolistic powers of these corporations. To develop alternatives to a corporate-controlled ‘fourth industrial revolution’ and regain control over our food and agricultural futures, we need to assert peasant farmers’ sovereignty over their data, promote agro-ecology and bottom-up technologies, and build a comprehensive global system of participatory technology assessment.



*Illustration by Mansi Thakkar*

Food and agriculture has always been a key battleground for the deployment of new technologies. The sector has often acted as a vehicle to win over to industrial models of production, the hearts, minds, stomachs, and pockets of people who produce food and those who consume it – which is everyone. It is also a big business. The World Bank estimates that the food system accounts for at least a tenth of the global economy, making food a natural target for technology titans seeking new speculative investment opportunities for the development and deployment of new technologies.<sup>1</sup>

Technology has transformed the global food system several times in the recent history and big technology firms (whether in chemicals, genetics, or machinery) have been especially active in exploiting this field. Far from being politically neutral, technology is always introduced within an ideological framing and advanced by powerful players who use it as a lever to shift or retain power in the food system and, thereby, over populations. As it was for industrial chemistry pioneers in the last century, so it is today for data colonialists who smell profits in the fields and the fishing grounds.

The power vested in technology to transform the global economic system has never been greater. The exponential technological changes ushered in by the so-called fourth industrial revolution have the potential to upturn all economic sectors including food and agriculture. This essay argues that any alternative to this corporate-led technological food future will have to contain strategies to counter this tsunami and challenge the ideologies behind it. These alternatives must centre the interests and livelihoods of peasant farmers, small farmholders, and indigenous communities who feed 70 percent of the world's population, and yet, have been perennially pushed to the margins by previous technological waves and their disruptive consequences for the food system.

The essay is structured as follows. In Section 1, we outline how mega-corporations have identified food and agriculture systems as sources of data and then proceeded to harvest this data for financial gains. Sections 2, 3, and 4 identify some of the most dangerous features of this data colossus. Finally, Section 5 proposes the strategies and components of an alternative new deal for food and agriculture based on a democratic process of technology assessment and the principles of food sovereignty.

While food producers traditionally consider seeds, breeds, soil, and cultural practices as the bedrock of the food system, corporate players are increasingly regarding data as the key strategic resource. A great mapping is underway, reimagining every aspect and challenge of the food system as a big data enterprise – from soil, climate, and genetic data, to logistics, trade, consumer, and health data. The streaming of big data from farm machinery, grocery shopping, or agro-biodiversity is now an increasingly valuable commodity in its own right, leading to the rapid economic ascendancy of data platforms in the agri-food industry and the ‘datafication’ of all aspects of food, agriculture, human health, environment, and other related domains.

Data surveillance, processing, and manipulation is transforming each ‘link’ across the food chain – beginning with breeding and genetic engineering strategies at one end, followed by data-mediated food logistics and commodity delivery systems in the middle, and digital consumer retail and health technologies at the other end.<sup>2</sup> But reframing the challenges faced by the food system as a ‘data problem’ only suits the interest of investors such as asset management firms with horizontal shareholding across the food chain.

To be sure, this overarching system of control enabled by the datafication of the global food system did not happen overnight. The decades-long struggles of family farmers in the Global North to defend their ‘right to repair’<sup>3</sup> was a subtle warning of the technological slavery that would come with the corporate takeover of data and technology on the farm. Farmer groups have cried foul on digital ‘turnkey’ agreements where the user of data-enabled tractors legally surrenders rights by the act of turning on the machine. They have locked legal horns with farm machinery giants to protect their right to repair farm machinery. In this digital Wild West, many governments and regulators have been persuaded to allow corporations to reap vast profits from e-commerce and digital trade without ever being required to pay taxes. In the post-pandemic economy, unmitigated corporate influence on the food chain, facilitated by big data surveillance, is being repackaged as the harbinger of food safety, health, and personalization benefits to end consumers, and production cost efficiencies to farmers and fisherfolk. Over time, platform companies can boost their profits by utilizing big data patterns and machine learning (often called artificial intelligence or AI) to redesign the entire food system. The result would be a food system stripped of all

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direct human relations with the soil, plants, animals, rivers, or the oceans, and mediated by data and data-driven business strategies.

Food systems contain both the complex and diverse living world of biology and the hyper-rationalized behavioral world of economics. It is at this interface that biodigital convergence – the interactive combination of digital technologies and biological systems – has emerged.<sup>4</sup> We see this trend in every step of the food chain – the development of robotic bees to aid pollination, the co-evolution of digital and biological technologies in the agricultural application of CRISPR-Cas9 technologies,<sup>5</sup> and synthetic biology microorganisms ‘programmed’ to secrete industrial proteins. Beyond the individual ‘apps’, a digitally-enhanced agro-ecosystem is being envisaged as a bio-digital system – a living, food-growing landscape shaped and nudged by robotic and data-driven machines.

Biodigital convergences across the food system are paving the way for new players, from sectors that are not traditionally associated with food and agriculture, to wield power over food production and consumption. This includes everything from digital technology platforms to companies manufacturing drones and hyperspectral sensors, and oil, energy, and finance majors that want to biodigitally reshape landscapes and farming practices, marketing them as climate change mitigation initiatives and reaping carbon credits to offset emissions from their fossil fuel-dependent businesses. These biodigital interventions will have profound and long-lasting impacts on the global food system, hunger, food sovereignty and farmers’ rights to seeds, and development. They will displace rural labor, undermine traditional and local knowledge systems, further marginalize farmers, and expand extreme industrial agriculture.

For agri-food giants, data strategies are not just a means to uncover and capture new efficiencies in food. These strategies form the basis for shifts in the economy toward ‘surveillance capitalism’<sup>6</sup> as data giants amass and leverage datasets from both food producers and consumers as a new form of capital. The agricultural and food data thus collected can be profitably combined with environmental, health, security, and consumer data to deliver real-time insights with exploitable value beyond the food

system. This means that the big names in food in the coming decades are most likely to be data processors. Amazon with its data trove, data-led insights, and AI capacity to understand the consumer grocery end of the food chain is now stepping into what its supporters call 'precision agriculture'. Its web services subsidiary is partnering with major seeds and agrochemical companies as well as genomic data initiatives like the Earth Biogenome project. Similarly, Alibaba is aggressively moving into the digital food and agriculture space through its 'ET Agricultural Brain'.<sup>7</sup> Meanwhile, giant agribusinesses such as Bayer (now incorporating Monsanto), Yara, and John Deere are reinventing themselves as data providers, crunching data generated from farmers' fields in strategic alliance with digital platforms.<sup>8</sup> Corporate behemoths in poultry and livestock have also embraced big data, machine learning, and the internet of things (IoT) to make their operations more 'efficient', which is often code for reducing dependence on human labor while maximizing profit at every stage.

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The industrial agricultural system, comprising long food chains that depend on fossil fuel, leaves food availability vulnerable to energy shocks and trade disruptions. The emerging data-dependent agri-food system will find itself confined by limitations and vulnerabilities arising from data infrastructures. On-farm data, consumer food data, genomic data, among others, will constitute an ever-larger driver of the data colossus enabled by massive networks of supercomputers, servers, data centers, fiber optic cables, and 5G wireless systems. No-holds-barred mining of lithium, copper, silicon, and other rare earth minerals necessary to create the infrastructure for this colossus

will increasingly place a hard physical limit on the ability of digital food systems to feed people. The possibility that deliberate cyberattacks, ill-designed algorithms, or network outages could cause food shortages in the digitally-mediated food chain is yet to be reckoned with, as is the vulnerability of our complex food system. With industrial farming and food provisions increasingly designed and directed by machine learning, the potential for unexplained (and unexplainable) points of failure in the food system is growing.

Energy and material limits on data systems will also drive interest in low-energy biological modes of computation, data transfer, and storage – such as molecular communication developed to process and carry digital information on biological and chemical molecules such as DNA or pheromones. Farmers and fisherfolk may find themselves recast as literal data farmers and synthetic molecular communication may interfere with natural ecological modes of communication and other mutually beneficial relationships between living things, such as gene flow and pollination processes.<sup>9 10</sup>

Biodigital investments are additionally flowing into biotech strategies that do not modify the food itself but, instead, either modify elements of agro-ecosystems such as soil microbes, weeds, and insects, or do not incorporate modified DNA into the final product such as ‘transient modification’, RNAi sprays, biosynthesis, and big data breeding strategies.<sup>11</sup> By avoiding the legal definition of genetically modified organisms (GMOs), these kinds of technologies could allow the industry to sidestep regulations that have safeguarded most consumers from genetically engineered foods for the last 25 years.

Corporations attempt to ‘nudge’ or persuade consumers towards specific behaviors – for instance, into accepting GMOs – while giving them the illusion of choice. During the pandemic, online sellers enticed consumers to save time and avoid social contact by using different ‘hyper-nudging’ techniques.<sup>12</sup> Such techniques include consumer-targeted discount e-coupons, products placed strategically at the online point of sale, and leveraging insights from a consumer’s shopping history in order to offer new products according to taste, lifestyle, and income.<sup>13</sup> Needless to say, these hyper-nudging techniques have very little transparency and even lesser regulatory limits on the purposes of algorithmically-driven desire-modification and to what end

The manipulation of consumer behavior can generate real-time profit opportunities in genetics or farm conditions. Technology platforms with interests across the food chain can leverage consumer insights to redesign seeds, farming patterns, and logistics in ways that maximize short-term profit at great cost to ecosystems, health, justice, and people's rights.

The future of our food system thus stands compromised. With technology companies making inroads into the system, digital technologies are at the forefront of shaping the present and the future of food and agriculture. As the digitalization tsunami sweeps across farming communities, landlessness, land grabbing, exploitative market relations, and the lack of social protections will likely worsen. The knowledge and agency of farmers and peasant families will be pushed further into the margins as robotic agriculture moves into their lands, obliterating the role of women farmers, wiping out livelihoods, and transforming economies. The underclass of people living in economically precarious circumstances in rural and urban areas will keep rising, exacerbating income and social inequalities.

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The trillion-dollar companies Amazon, Apple, Microsoft, and Alphabet have already become so powerful that governments and multilateral organizations like the United Nations (UN) heed their advice on public health, education, and digital cooperation policies. These firms and their political surrogates claim that digital technologies can solve the world's problems, ranging from diseases and aging to energy and food crises.

They echo the false promise of small-scale solutions – that utilizing big data, sensors, and machines could render diverse smallholdings and fishponds more profitable. Instead of giant autonomous combine tractors rolling across enormous fields, they advocate for swarms of small robots to be deployed in smaller disaggregated plots. Catchy labels like ‘climate-smart’ digital and genomically-enhanced agriculture are promoted as consistent with demands that industrial modes of production be replaced with more democratic approaches that give local communities more control. In reality, such shifts merely entrench the power of the already-dominant megacorporations that own these technologies and thus control the infrastructure of an increasingly digitalized food system.

Hyperbolic promises of ‘technology for good’, involving public-private partnerships such as the World Economic Forum (WEF), proclaim that digital technologies can deliver higher income, better living conditions, and more equitable status for peasants and smallholders in the post-pandemic world. And some small enterprises, farmers’ groups, and civil society organizations do indeed venture into harnessing the potential of digital technologies in good faith from their position in the fringes, relying on smartphones and open operating systems as tools for digital leverage. But more often than not, the pro-poor narratives are propagated by self-styled digital saviors and the vested interests behind these technologies.

Reversing the corporate capture of the global food system and reclaiming it for people and the planet calls for building an alternative new deal for food and agriculture. This is a task already being undertaken by some farmers’ groups and popular movements which are actively discussing alternative digital technologies, based on a set of premises different from those espoused by corporate interests. Ultimately, whether or not, how, and which technologies may be beneficial for peasant farmers, pastoralists, and fisherfolk on whose backs the global food system is built, will depend on the conditions, requisites, and sincerity in building this new deal. But at its core, it should take into account the following components:

## 5.1. Peasant farmers’ sovereignty over data

Data giants are already forcing a new, poorly understood reality upon food systems. There is an urgent need to interrogate and expose who controls and benefits from this evolving digital reality. Without a doubt, the digital food system is being reconfigured to benefit data processors, industrial agricultural giants, biotechnology players, commodity and grain behemoths, the global logistics machinery, and retail giants that are, in turn, gradually being swallowed by digital platform giants.

It is, therefore, more urgent than ever to talk about food sovereignty, the right of peasant farmers, peoples, and countries to define their agriculture and food policies in ways that establish direct, democratic control over how they feed themselves, and how they maintain land, water and other resources for the benefit of current and future generations. It is a vision that animates all food movements struggling for justice. In the post-pandemic world, where digital technologies are ubiquitous, peasants and smallholder movements globally will have to consider if farmers' control over data has a place in the tenets of food sovereignty. Some argue that limited digitalization could be useful in agriculture and is compatible with food sovereignty. This especially if peasant farmers decide to digitize information and data on their practices and resources for the benefit of their communities, based on free, prior, and informed consent and full knowledge. Others question whether this new, fleeting, and seemingly fungible 'economic commodity' approach to data and associated disruptions have any place in a resilient food system that privileges life processes, communities, and place.

Key to this debate is the recognition and defense of the central role of farmers and fisherfolk in creating the knowledge, relationships, and harvests that nurture the majority of the population, and that are now being reduced to data without their consent. Irrespective of whether farmers consciously generate these datasets, taking back control over data is critical to determining their community's future. These debates need to be part of a collaborative effort to reimagine and reconfigure digital relations in ways that can protect and advance the rights of peasants, smallholder farmers, women farmers, agricultural and food chain workers, cooperative markets, local breeders, and fishing communities.

Just as farmers' movements and civil society fight for seeds and associated knowledge to remain free from proprietary rights and enclosures, publicly-generated environmental data, genetic data, weather data, and agronomic data must, at the very

least, remain in the public sphere, free from enclosures or commercial exploitation. Some initiatives offer free and open source software in which algorithms and data are not proprietary, but controlled by those who create the data. These are steps in the right direction but not, in themselves, sufficient.

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A promising example of a redefined model for generating, developing, and sharing data – digital and otherwise – in the agriculture sector is the Farm Hack initiative, a global collaborative platform for exchange of knowledge and people-centred farm tools among farmers across the world.<sup>14</sup> The right to repair movement, of which Farm Hack is an example, is an important spoke in redefining the role of data in food systems and asserting people's right and control over data and data-driven technologies. Data tools in production systems should be regarded as a means for peasant farmers and smallholders to better understand their own environment, consider options, and develop skills, capacities, and potentials based on their needs and self-determination. However, even in such models, we need to ask who is doing the data aggregation, through which ideological lens, and what kind of power does the aggregator acquire in relation to farmers and the community.

Farmers and communities should expose and challenge ostensibly attractive deals and

free apps extended by technology companies to suck up knowledge and data to improve their algorithms and machine learning capacities. Google, for example, is distributing AI tools for crop identification to African farmers which, like its core search technology, does not make it clear that data from users – purportedly the recipients of a ‘free’ service – are being used to improve the company’s algorithmic capabilities. There is no agreement to return that value to the farmers whose crop data are being digitally pirated to improve neural nets in North America. Many agricultural technology start-ups are, with good intentions, establishing similar collaborations with communities and non-governmental organizations to generate big data that power proprietary algorithms. These collaborations are based on the premise that data is a free and worthless commodity at the extraction stage, but gains in value immeasurably once processed by algorithms developed by data colonialists.

If we are to counter such extractivist practices, the principle of free, prior, and informed consent to be sought from farmers and communities before collecting data from their fields and agricultural practices, should be inviolable. The terms ‘free’, ‘prior’, and ‘informed’, when taken seriously, would mean that the real costs and implications of engaging in data relations are transparently and fairly spelt out before farmers give their consent.

## 5.2. Agroecology and the fight for ‘wide tech’

Socially just forms of ecological food production that build on existing practices by smallholders and peasant farmers, often termed agroecology, are practiced by hundreds of millions of farmers who feed the majority of the world’s population.<sup>15 16</sup> These practices are developed by communities across generations through shared and collaborative knowledge systems that incorporate local, traditional, and indigenous knowledge and practices, in addition to being informed by institutional knowledge. While the pandemic has provided an opportunity for digital technologies to make significant inroads into our food systems, agroecological approaches, particularly those based on the principles of food sovereignty, are also growing in popularity and can provide a counterweight. However, bottom-up agroecological technologies and innovation including open source platforms – collectively referred to as ‘wide tech’ – need to safeguard against potential corporate appropriation that can undermine local innovators and prey on local knowledge and resources.

The fight for agroecology should be undertaken on all fronts, local to global. The UN’s

Food and Agriculture Organization (FAO) is an important and legitimate arena for such a fight. Over the past few years, civil society has made much headway in advancing the agroecology agenda at this forum. However, the misappropriation of the concept of agroecology is also underway, with industrial agriculture interests advancing their own corporate interpretation and lobbying for an expansion of agroecology deliberations to include 'other innovative practices' which are barely defined. It is only a matter of time before digital farming lobbyists start expounding the gospel of 'cyber-ecological' or 'robo-organic' farming. While peoples' movements have successfully pushed for a recognition of agroecology as an organizing framework for food systems, the corporate push for digital agriculture is now taking centerstage. The proposals to create a Digital Council for Food and Agriculture at the FAO and convening of a Food System Summit by the UN in 2021 are driven by agribusiness proponents who have elevated digital solutions as an organizing theme with agroecology as an add-on.

### 5.3. Cutting the bots out: Creating shorter food supply chains

Against this backdrop of increasing corporate concentration, globalization, and digitalization of the food system, has emerged a countervailing trend among food producers and consumers. Since the pandemic, many smallholder food producers in the Global South have reconnected with local consumers in the midst of disruptions in export markets and commercial supply chains during lockdowns.<sup>17</sup> Some surveys suggest that up to a third of consumers in the United Kingdom are buying more locally-produced foods.<sup>18</sup> Policy responses imposing social distancing during the pandemic have ironically fostered mutually supportive relationships between producers and consumers in many countries. Communities have witnessed the emergence of shorter supply chains through direct producer-consumer links, community-supported agriculture, and even systems of bartering. Disruption in jobs and livelihoods have also engendered social innovations and entrepreneurship across communities in various contexts, especially among women and youth. The flourishing mutual aid and stronger local networks often have a digital character, enabled largely by existing communication technologies and rudimentary, often non-proprietary, software for social collaboration and micropayment.

The counter-trend towards short supply chains and less industrialized systems could continue and even increase in the coming years, strengthened by demands for greater nutrition, diversity, a healthier environment, and mutual support among peoples

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However, given the huge amounts of capital being invested in the digitalized industrial food system, and the disregard for its ecological and social impacts, there is a real risk that an increasing proportion of the global food system will become locked into industrial models.

## 5.4. Interrogating techno fixes: Participatory technology assessment

Technology assessment (TA) is fundamental to the debate on fair, just, and ecologically sustainable use of digital technologies that serve the common good. Participatory TA is a process that enables people to evaluate new and emerging technologies and allows them to examine the interests and powers behind the introduction of new technologies, the ways in which they are applied, and their potential impacts on the environment and communities. The active involvement of civil society, indigenous peoples, local communities, farmers, fisherfolk, popular and social movements is fundamental in participatory TA, which is aimed at democratic control over technologies, grounded in the precautionary principle and the rights of communities to free, prior, and informed consent.

Respecting collective decisions to adopt or reject a technology or putting conditions on its development and application is a key element of TA. The process could focus on scientific research linked to the development of future technologies that may directly impact communities, as well as existing technologies that were imposed without such consent. It could foster food sovereignty and even conflict reduction in communities<sup>19</sup> through peasant agroecological approaches. It could provide a powerful platform for communities to examine the relevance of digital technologies in the food system, explore the desirability of non-digital options, and consider a variety of options and innovations beyond the technological sphere.

Innovation and technological developments can take many paths, each involving intrinsically political choices. Precaution requires an understanding of the real nature of uncertainty by avoiding the scientific error of mistakenly assuming safety or harm.

## Reclaiming our future in a way that is guided by precaution and democratic

accountability, rather than abandoning it to the data colossus, is not only possible, but also a moral imperative.

### Notes

<sup>1</sup> <https://blogs.worldbank.org/voices/do-costs-global-food-system-outweigh-its-monetary-value>.

<sup>2</sup> Pat Mooney, “Blocking the Chain – Industrial Food Chain Concentration, Big Data Platforms and Food Sovereignty Solutions” ETC Group, GLOCON, Inkota and Rosa Luxembourg Stiftung, 2018. <https://www.etcgroup.org/content/blocking-chain>.

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<sup>4</sup> Policy Horizons Canada (2020). “Exploring Biodigital Convergence”, 11 February 2020. <https://horizons.gc.ca/en/2020/02/11/exploring-biodigital-convergence/>.

<sup>5</sup> Zhu, H. et al (2020). “Applications of CRISPR-Cas in agriculture and plant biotechnology. Nat Rev Mol Cell Biol (2020). <https://doi.org/10.1038/s41580-020-00288-9>.

<sup>6</sup> Sam Bidle, “A Fundamentally Illegitimate Choice: Shoshana Zuboff in the Age of Surveillance Capitalism”, The Intercept, February 2020. <https://theintercept.com/2019/02/02/shoshana-zuboff-age-of-surveillance-capitalism/>.

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<sup>8</sup> ETC Group, “Plate Tech-Tonics”, November 2019. [https://etcgroup.org/sites/www.etcgroup.org/files/files/etc\\_platetechtonics\\_a4\\_nov2019\\_web.pdf](https://etcgroup.org/sites/www.etcgroup.org/files/files/etc_platetechtonics_a4_nov2019_web.pdf).

<sup>9</sup> Cotter, J., Kawall, K., Then C. (2020). “New genetic engineering technologies”. Report of the results from the RAGES project 2016-2019. [www.testbiotech.org/projekt\\_rages](http://www.testbiotech.org/projekt_rages).

<sup>10</sup> Lundgren, J. G., & Duan, J. J. (2013). “RNAi-based Insecticidal Crops: Potential Effects on Nontarget Species. *Bioscience*, 63(8), 657-665.

<sup>11</sup> Slade, AJ, Fuerstenberg, SI, Loeffler, D, Steine, MN, Facciotti, D. (Jan 2005). “A reverse genetic, nontransgenic approach to wheat crop improvement by TILLING”. *Nat Biotechnol.* 23 (1): 75–81.

<sup>12</sup> Nudge is a particular form of choice architecture that alters people’s behavior in a predictable way without forbidding any options or significantly changing their economic incentives. In Karen Yeung’s “‘Hypernudge’: Big Data as a Mode of Regulation by Design, *Information, Communication & Society*”, 20:1, 118-136, 2017. <https://doi.org/10.1080/1369118X.2016.1186713>.

<sup>13</sup> “The 9 best sites for online grocery shop in 2020”. Lifewire. <https://www.lifewire.com/groceries-online-3482646>.

<sup>14</sup> Farmhack website: <https://farmhack.org/tools>.

<sup>15</sup> Didarali, Z., & Gambiza, J. (2019). “Permaculture: Challenges and Benefits in Improving Rural Livelihoods in South Africa and Zimbabwe”. *Sustainability*, 11(8), 2219.

<sup>16</sup> Hirschfeld, S., & Van Acker, R. (2019). “Permaculture Farmers Consistently Cultivate Perennials, Crop Diversity, Landscape Heterogeneity and Nature Conservation”. *Renewable Agriculture and Food Systems*, 1-10.

<sup>17</sup> IIED, “How COVID-19 is impacting and changing East Africa’s agri-food systems”, August 2020. <https://www.iied.org/how-covid-19-impacting-changing-east-africas-agri-food-systems>.

<sup>18</sup> Forbes, COVID-19 Has Given Consumers Five New Reasons To Eat Local, July 2020. <https://www.forbes.com/sites/daphneewingchow/2020/07/30/covid-19-has-given-consumers-five-new-reasons-to-eat-local/#6171d45c3ccc>.

<sup>19</sup> McAllister, G., & Wright, J. (2019). “Agroecology as a Practice-Based Tool for Peacebuilding in Fragile Environments? Three Stories from Rural Zimbabwe”. *Sustainability*, 11(3), 790.

ETC Group is a small, independent civil society organization that monitors the impact of emerging technologies and corporate strategies on biodiversity, agriculture, and human rights. It has offices in Quebec in Canada, Davao in the Philippines, Mexico City and the UK.