

## Will Integrating Digital Technologies into the Food System Work?

Written by Alistair Fraser

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ALISTAIR FRASER, OCT 22 2022

It's possible to get the impression from media sources that a new wave of digital technology is sweeping the agricultural world, bringing farmers everywhere incredible new devices and services that will inevitably boost food production and just make everything on the planet so much better. There are, apparently, drones spraying chemicals only where it's needed, self-steering tractors and harvesters ploughing perfectly, and even robots lending a helping hand at harvest time. In the background, too, one might believe there are, or will soon be, smooth digital processes informing farmers, impartially helping them out using artificial intelligence, and then ensuring that produce is efficiently moved on along a 'smart' and possibly autonomous food chain. A future of 'precision agriculture' or sensor-rich 'smart farming' is supposed to be upon us.

Likewise, beyond the farm, there are stories suggesting robots will soon be flipping burgers or waiting tables; that drones will deliver our groceries; or that an Amazon or an Alphabet will soon give us customized dietary advice or even order food on our behalf based on analysis of our eating habits or gut health. We also hear about efforts – so-called 'innovations' – further downstream from the farm to convert data about food consumption into insights about what new line extensions to launch. Integrating digital technologies into the food system should enable food firms to calculate new ways to occupy our stomach space, even if it includes food products most of us could do without, not least in the context of rising rates of obesity and obscene levels of food waste (appallingly, in an era of growing rates of under- and malnourishment).

Governments, corporations, and start-ups are all contributing to this story of boundless technological progress via snazzy short videos released on social media channels or by generating easy-to-edit material for 'click bait' articles in online publications, including newspapers that should know better. And it's not all hype. 'Big tech' firms such as Amazon, Alphabet, and Microsoft *do* know the food and agricultural sectors offer ripe pickings for generating future profits. Smaller firms *are* emerging to offer new products that might generate new efficiencies. Governments certainly want their agricultural sectors to work more efficiently. And farmers and other food producers all over the world, including many of the world's poorest peasants, are already using some facets of contemporary digital technology. We *can* discern an agricultural 'digital shift' taking place, which maps onto wider developments in social life as so much action goes online. From 'seed to shit' – or, more politely, 'farm to fork' – new digital technologies are in play.

But exactly where all this action will lead remains unknown. An agricultural digital paradise, per the scenarios painted in stories about robots picking apples or autonomous drones eradicating pests, seems far-fetched, to say the least. A much more likely scenario is that digital technologies will be integrated into agricultural practice and the wider food system in problematic ways. So what sort of problems matter?

For one thing, there is concern that the rush to integrate digital technology into the food system is bound up with a 'data grab.' The data at issue are not only generated when farmers or their workers plant seeds or spray chemicals. Data are also produced when traders move food shipments; when food manufacturers promote new product lines; when retailers make sales; and when consumers mention products, likes, or dislikes on social media channels. Data provide information and possible knowledge about what to produce in the future and how, and where, to produce it. It makes sense to question what ag-tech firms or food firms generally might stand to gain when they imagine and

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pursue business models based on the notion that data is a new 'cash crop' that needs to be harvested, analyzed, and then used to develop new intellectual property.

For another, the risks of a data grab occurring are complicated by efforts on the part of some firms to 'black box' the software and hardware, so that only approved suppliers or technicians could repair tractors, say, or analyze what digital services are up to. Firms use their powers to define how technologies are rolled out and try (not always successfully) to dominate smaller players. One lesson: what ag-tech firms try at home today signals what they will be looking to do in emerging markets in the future (and should raise alarm bells about what start-ups are learning *they* should consider doing with new products).

To some participants, concerns about a data grab or large firms dominating farmers might simply be noise. But the worry for others is that the food system's digital shift amplifies the power of – and accelerates the move toward a food system oriented around – data analysts and computer scientists working for those firms with the greatest computational power. It's a process that should lead all of us to ask, 'What sort of food system will the Amazons and Alphabets produce? And, if they do become the big winners from this shift, what will happen to those who lose out?'

Connected to this, then, is the fact that the food system's digital shift occurs at a time when another grab, a land grab, is unfolding. Increasing inequality within countries, between countries, and between the world's richest few and its poorest masses has led to land grabs, often with decisions having been made 'over the heads of local people.' Such processes need to be understood alongside a growing sense, encouraged by economists in the World Bank, that land in many parts of the world just does not generate sufficient yields. The underlying argument is that a peasant in Zambia or Thailand either needs urgent (possibly now, digital) assistance to bring their yields closer to those achieved by capital-intensive agriculture in the US or western Europe or should be encouraged (by market or other forces) to sell to someone else who can. Yet, as Samir Amin asked almost twenty years ago, if further hundreds of millions of peasants are moved off their land, what will happen to them? Where, exactly, are they supposed to go?

The upshot from all this is that, if integrating digital technology into the food system is bound up with a data grab, which encourages further land grabs, and if the food system is transformed according to computational models developed to maximize the profits of 'big food-tech,' there is a need for critical scrutiny of what's taking place and examinations of what the consequences will be. In this regard, one likely consequence is that the same moves to satisfy investors keen to see food firms adopt digital technology and exploit data will also move us further away from the sort of food system that we actually need to develop. It is worth pointing here to arguments about the possibility – even the necessity – of creating an alternative food system that ensures sustainable food production, while remaining cognizant of, as Judith Butler argues in her *'The Force of Non-Violence'*, threats 'to the environment, the problem of the global slum, systemic racism, the condition of stateless people whose migration is a common global responsibility, even the more thorough overcoming of colonial modes of power'. Integrating digital technology into *that* sort of food system might still be an option if the digital shift can be twisted around to boost food sovereignty construction. Until then, the rush to integrate digital technologies into the food system seems like just another component of data colonialism.

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