



Business Forum Report, November 2019

AI, food and ethics

What role should artificial intelligence play in fair food systems?

AI and food systems

Artificial intelligence (AI) is a “type of computer technology which is concerned with making machines work in an intelligent way, similar to the way that the human mind works.”¹

AI is being increasingly incorporated in food and farming alongside other technologies, in the UK and internationally. It can be applied in many forms, from machine learning, neuro-networks and data mining, to robotics, precision farming, behavioural analysis and food outbreak management. Before AI takes off (if it does), it is important to press the pause button and reflect on some of the ethical questions raised by some of its many applications.

AI was created to mimic the human brain, but humans and computers should be thought of as complementary. With that in mind, *what systems can we put in place for a beneficial symbiotic collaboration?*

Crucially, we cannot isolate AI questions from technology questions. Technology – and AI – is ultimately a tool, it is neither good nor bad, but it is not neutral (it has impacts, e.g. on farmers). Technology should be used for society with society.

AI, and more broadly technology, was created for the advancement of society but it comes with risks. It can exacerbate the failings of current food systems, cause job losses, or further divide north-south nations.

What and whose values are we embedding into AI and technology?

Current trends

Exclusive

Historically, science and technology have been dominated by the language and framing of few experts, with little space for external input or scrutiny. The way this is routinely done is by dumbing down information or removing decision-makers altogether when the opposite is needed. *Since AI can create inequalities, shouldn't it be a public good?* There is a risk that it would otherwise become even more elitist.

A silver bullet

Food and farming are facing unprecedented pressures all the while causing significant impacts (some good and some bad) on people, animals and the planet.

Technology is often used to avoid the real challenges that are difficult to tackle e.g. socio-economic changes.

Where is demand coming from?

Demand for technology solutions is largely driven by production, manufacturing and distribution, which mostly asks for automation and monitoring. It is not typically driven by the general public.

Data, data, data

There is an increase in data collection, but the technology (and AI) is only as good as the data that is collected. Most drivers and needs to data collection are led by a few large organisations rather than collective society.

Key ingredients needed

Trust

Trust is built through transparency, including of data. *Who owns the data and crucially who gets value from it?* Current data is held in silos but there is potential to (1) aggregate data on baseline measurements (e.g. soil health, waste, CO2 emissions) and (2) to preserve integrity and prevent emerging risk.

Trust is also built through intent, competence, values, and presence, in order for anyone to make a judgment.

What are our intentions with data? How could we get it to help farmers, whether large-scale or small-scale? How could we use it to help predict and prevent disease?

There is a tension however where the more that data is valued, the less likely it is to be given away freely. Therefore, the way data is used could go in multiple directions, which calls for the right collaborative governance. Having a collective set of values, guiding principles and needs will generate a much clearer goal for the sector.

Ethical guidance

What do we want our future food systems to look like? There is currently no organisation overseeing the implications of technology (and AI) systemically and systematically. *Who decides where and how technology is used?*

An important question to ask is whether large companies are the drivers of data collection and what the needs are. *How are needs being defined by their*

¹ Collins dictionary [\[link\]](#)

interest? How should that process be managed and how can collaborative governance be steered to what we want to see happening, in order that citizens can be heard? Otherwise we could end up with more of the (sometimes bizarre) foodstuffs that are currently being developed.

Fundamentally, it is about power and control, and whether the technology is being used to enhance the control of the powerful. The asymmetric nature between the large and small players takes us into politics. *As a society, do we want these decisions to be taken by a few big players?*

Collaborative technology governance

There is currently very little control or collaboration between those developing technologies and those needing a solution. Governance structures are needed, whether at organisational, national or global levels, to avoid, or at least minimise, irresponsible innovation.

There is a risk that AI and technology will increasingly be used as a hammer looking for nails. AI is goal-oriented but there is a need to: (1) clarify what those needs are (2) define it according to our common values, and (3) *then* assess whether technology and AI can be of use. This approach will open up the debate beyond a technology narrative.

Defining those needs is a big time and resource commitment, but academia could lead the way on this.

Reintegration

...with farmers as decision-makers

There is a trend of technology removing decision-makers, including farmers. Technology should make information easier to digest but not remove decision-making by humans altogether.

Many current farming systems have engineered out complexity because many find that hard to manage, hence they have gone down a route of specialisation. Some applications of AI may allow farmers to manage the complexity involved in moving to more agroecological systems and work with nature better.

...with agroecological practices

There are opportunities for technology to support agroecological methods. If decisions were taken to

move towards more heterogenous farming systems, *what data do we have* and assuming the data was available to manage that, that could be positive.

Is AI going to support a positive new future or just reinforce current problems? Will it enable that green future that we need, or just provide a sticking plaster over what we have today?

“It is much easier to deploy solutionist tech to influence individual behaviour than it is to ask difficult political questions about the root causes of these crises” – Evgeny Morozov

Public engagement

Consumers have values and citizens have values, but they are different. On a practical level, in a supermarket, we can think of how we reframe and trigger a different identity within that space, whether we make people feel empowered and create a community within that space. This needs to be done mindfully, as giving people too much information can be counterproductive. What constitutes useful information, and what does not? Ultimately, shifting responsibility (too far) to the individual risks only preserving the current system, with all its flaws, rather than reforming it.²

Live examples

There is an existential debate currently happening in the livestock industry, on red meat. There is technology geared towards alternative proteins, leading to a decoupling from the land. Interestingly, questions are raised as to whether it would be bad if protein were produced in an industrial estate setting if it meant leaving more space for rainforests. However, most meat is already produced in an industrial system. There is a need for a dialogue over the role of livestock production in a northern European landscape. If some do not want livestock, what we are choosing instead?

Ocado is one company that has significantly reduced its food wastage by using a combination of data analytics, machine learning and artificial intelligence to manage its produce. Other food businesses are exploring ways to tackle the sizeable problem of food waste – that can be so damaging to both the planet and profitability.

² Evgeny Morozov: 'We are abandoning all the checks and balances', *The Guardian* [\[link\]](#)

Where to next?

'Blind collaboration' was proposed as a potentially useful framework to encourage business collaboration on developing a governance framework. This framework simultaneously makes sure businesses can work with others in a way that keeps their identity secure and their property safe.

There is a need to address a larger ethical debate around new technologies e.g. meat grown in laboratories. Crucially, these debates should be broader than just about a particular AI technology in isolation, and take into consideration the broader questions that these technologies raise. Here, there are also lessons to be learned from previous technology debates, for example from GM.

There is increasing appetite for building a values-led society. There are increasing pressures on businesses to look at wellbeing and justice issues from the perspective of those who will be affected. The nervousness surrounding a lot of new advances come back to those core principles. If the values and intentions of those in power were clearly aligned with these values, it would surely unlock more potential and benefit society as a whole.

Key questions for leaders

- What problem are we trying to solve? Is technology and AI the only way to solve it?
- Who wants the technology and who needs it?
- What data is being collected and who owns that data?
- Is a particular technology supporting a positive new future or just reinforcing current problems?
- Will this technology enable that fairer, more sustainable and more resilient future that we need, or will it just provide a sticking plaster over what we have today?
- How we can explore collaborative governance in the arena of sustainability?

Further resources

1. [Ada Lovelace Institute: an independent research and deliberative body with a mission to ensure data and AI work for people and society.](#) – link [here](#)
2. [Internet of Food Things network](#) – link [here](#)
3. [Food Citizenship](#) – link [here](#)
4. [Harnessing the Power of Food Citizenship](#) – link [here](#)
5. [Putting Purpose into Practice](#) – link [here](#)
6. [Trust, Technology & Beyond Certification](#) – link [here](#)

This is a report of the Business Forum meeting on 19th November 2019. We are grateful to our speakers, **Hilary Sutcliffe**, Director of SocietyInside and **Professor Andrea Zisman**, The Open University. **Geoff Tansey**, Curator of the Food Systems Academy and Member of the Food Ethics Council, chaired the meeting. The views expressed in this report do not necessarily represent those of the Food Ethics Council, nor its members.

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