

FROM “WHAT’S FOR DINNER?” TO “WHO DECIDES WHAT WE EAT?”
DISCUSSION DOCUMENT, INTERNET OF FOOD
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Abstract:

In a not too distant future the age-old question of “what’s for dinner” will be answered by algorithms in the hands of the next generation food system companies. Those algorithms will seize on data from all parts of the food system, including health data from the quantified self and will benefit from big data analysis of previous purchase patterns. This means that these algorithms, through food and with the power of digital influence methods, have the potential to govern our physical beings. After all – we are what we eat. In the hands of benign players, these algorithms can make both us and the planet healthy. In the wrong hands or with the wrong underpinning values, these algorithms can cause severe harm to people and planet.

The question of “What’s for dinner?” will thus be replaced by “Who decides what we eat?”. It is the most profound question that the tech revolution has asked to date. Tech and data will fuel transformation of the food system that will move trillions of euros and change the fate of nations. But will tech and data move the food system in the right direction?

At the core of the development lies two major questions:

1. What combination of market forces and policy leads to a future with good underpinning values and a good governance of the future food system?
2. How can we – through network design – direct the development so that the digital aspects of food do not end up in yet another silo, like search or social media, with potentially devastating, monopolistic consequences.

At the Internet Society Special Interest Group for Internet of Food we aim at:

1. Informing about the development so that necessary preparations can be made
2. Participate in the development of the future backbone protocols that will facilitate an open, free and transparent flow of information regarding an unlimited number of food objects, with individual IDs

Purpose:

This discussion document has been produced as a backdrop to a vital and critical policy discussion on the digital dimensions of food and the associated emergence of a new food system. It by no means exhausts every foreseeable direction for food in a digitized world, but serves as a starting point for a discussion on policy-related actions pertaining to food and the digital aspects of food.

Background:

Food is the planet's largest system, representing some 20% of global GDP, with 40% of the global workforce to be found in the food sector. In most places food represents not only nutrition, but a set of deeply entrenched values and cultural identity. All this stands to change when food now, as the last major industry, is undergoing a digital transformation that promises to shift trillions of euros and change the fate of nations. Understanding digital aspects of food and the underlying system that enables this transformation is therefore of vital importance for policy makers.

The Internet:

Over the last few decades the free flow of information enabled by the Internet together with ever greater computation power and data processing skills have led to the emergence of entirely new industries where new business models are created almost by the day. These new industries have been fuelled by massive investments and we have seen American phenomena such as Google, Apple, Facebook and Amazon make their mark on the world. They are now followed by their Chinese likes, such as Tencent and Alibaba. In common these new mega-companies have global ambitions, deep pockets and substantial political clout.

This new world dominance by a few has been possible because of the existence of protocols enabling global data traffic, AKA the Internet. It is not to overstate to say that backbone network design has been an involuntarily enabler of this development. Gathering data (or users) in silos, some players can actually "land-grab" the open Internet and build elaborate walled gardens – a fear from the early days of the web that many, wrongly, thought over and done with.

What's for dinner?

The ambition of providing a free and open Internet for the benefit of all is thus to some extent threatened. But nowhere do the potential effects raise concern as much as when it comes to food. Algorithm-based food decisions – where we are heading – puts our food decisions in the hands of the constructors of the algorithms.

When food goes online and we no longer only have our social networks and communication there, but also our food choices, we start to realize how important network design becomes for our biological existence. In short; our question "what's for dinner?" is being replaced by us asking ourselves "*who decides what we eat?*".

As we could see from the US elections, digital systems can be manipulated to manipulate us to make certain decisions. The more data you have, the more you can manipulate. What if

we have virtually unlimited data on us as individuals; what we eat, how we feel, our health, our economy, etc. – what type of recommendations could powerful data systems provide us with? The answer is simple: a lot.

In essence, the algorithms of the digital world are far more powerful at nudging people than ever the food retail giants of the physical world. If the oligopolies of the tech world are extended to the food world we therefore face a situation where a few global, data-driven giants decide what we eat. Either by recommendations, by providing “food-as-a-service” or by frankly just anticipating our needs and send us products based on our data patterns.

Increased service levels can of course be a good thing, given that the creator of the system or the algorithms are governed by sound values. But what if the values are subordinated to other goals, for example to change certain consumption patterns for the sake of profit maximization?

If a data-driven, global, food-equivalent of today’s tech giants can improve the bottom line by selling products that perhaps are not underpinned by good intentions only, will they do that? Can even good intentions stand up to shareholder value?

The question is therefore who should have the power over the food system of the future and what the balance should look like between market and policy-makers. Through the emergence of a data-centric, global food system where new players can be expected to arise and replace the old food system, power will shift at a rapid pace and traverse the world, much in the same way that much of the power over our social lives now already is controlled by Facebook, or by Google when it comes to the retrieving of information.

In short: can we rely on the market and self-regulation to give us the food system the planet and everyone on it needs?

If the answer is “no”, we need to do two things:

1. Activate policy-makers and policy-thinking
2. Engage in network infrastructural design that potentially can immunize the food system from – data-wise – ending up in yet another data silo due to the vast efficiencies of scale that the tech and data sectors so have proven it drifts towards.

The Internet Society Special Interest Group for Internet of Food is about both these points. Change, however, demands that policy makers start engaging with the question. The one thing that is certain is that it is the politicians who will have to sort the bill for a failed food system. That is already happening through health care and environmental damages at a staggering cost. What if these problems are aggravated? What if those failures be turned into something positive? The same can be said for the network design. The food use-case needs to seep into basically every process and is thus not only a business for this special interest group.

Philosophy:

As the digital aspects of food become more gradually more important it is important that they are supported by an infrastructural design that has as its philosophical underpinning such uncompromisable entities as the Human Rights and the SDGs

Is this important? Of utmost importance. You can argue for the fact that the data around a food object in the future might be more valuable than the food object itself, simply because such a product can be handled in online systems, whereas those without data cannot.

Any infrastructure supporting digital aspects of food must therefore be:

1. Free
2. Unlimited
3. Open
4. Secure

It must furthermore separate (if not in practice so at least conceptually) the use of data for handling the physical product (traceability, ownership etc.), from all the other data points that can be attributed to a food object or a group of objects.

Current systems such as the IP system (IP can mean Intellectual Property AND/OR Internet Protocol) or bar codes are either too expensive or too limited for what we need to achieve.

The suggestion is therefore that we start by finding a new way of putting an ID on potentially every individual food object out there: every grain of rice, or even beyond. Not that such an ID on every grain of rice would be practical to handle today, but conceptually we need to build for that.

Currently our suggestion is that use so called UUIDs (Universally Unique IDs), but it could also be other identifiers, even DNA (though the latter is still too expensive to use).

With such an ID available, data can be attributed to objects and enable the sorely needed transformation process of food.

Conclusion:

The food sector stands to change and that change will be driven by tech and data. It will be a major upheaval and if we fail to make sure that the new food system has beneficial values at its core, we risk both planetary and individual health.

With open and transparent data we can build the food system that will heal the planet and everyone on it. We need to ask ourselves who decides what we eat and for what purpose. The discussion needs to be had now, not later.

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