Food Standards Agency
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Evidence assessment and policy recommendations, May 2021

Executive summary

Report commissioned by
The Food Standards Agency (FSA)

https://doi.org/10.46756/sci.fsa.jbr429

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Evidence assessment and policy recommendations

Executive Summary

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Date: 31/05/2021

University of Cambridge Reference: A23162

Release: Version 1

Executive Summary

The food services sector has been evolving rapidly over the past decade, accelerated significantly by the ongoing Covid-19 pandemic, with significant investment and innovation across the world. This has led to an increasingly dynamic and efficient innovation ecosystem of food service business models and online solutions. The traditional linear model of food producers selling through wholesalers to brick and mortar retailers, restaurants and hospitality venues is increasingly being displaced by complex interactive digital ecosystems of online food services providers. Consumers are increasingly able to access food directly at various stages along the traditional value chain via interaction with digital platforms and rapid home-delivery networks, realising greater convenience, more variety in food products and services from a dynamic start-up scene, and overall enhanced value. FSA needs to stay abreast of these changes and develop regulatory responses to ensure these innovations are aligned with the public good and do not compromise food safety and public health.

This report presents a rapid evidence assessment of the implications of these innovations on the UK food buying and selling system over the coming years. This report is a synthesis of desk research based on a review of the academic and grey literature and assimilation of previous FSA reports. Analysis and review were undertaken using standard rapid evidence review protocols, and qualitative analysis where necessary.

Findings

This review identified five key trends in food buying and selling in the digital platform economy.

Online third-party platforms for food ordering and delivery

These are aggregating platforms that enable consumers to browse a range of vendor offerings, place orders online, and arrange on-demand delivery within a certain geographic radius. Some of these platforms are well established, with brands such as Deliveroo, Uber Eats, Just Eat, and others, being already global household names. They are expanding rapidly and extending their reach into other areas of the

food sector, including groceries deliveries, and provision of numerous new virtual restaurants. These platforms are enabling traditional brick and mortar businesses to easily enter the online economy and are facilitating a wealth of new entrants including online-only brands and home kitchens to enter the food sector.

Online Marketplaces connecting buyers and food vendors

Online marketplaces provide a venue for vendors to promote their products and services and act as an intermediary between buyers and sellers to facilitate transactions. These can be food marketplaces focusing exclusively on offering food products and services (e.g., focusing on speciality foods); Food event marketplaces offering culinary and experiential events such as supper-clubs and food tastings; General marketplaces where food and beverages are just a sub-set of the product range (e.g., Amazon); Social/open marketplaces that operate within a social media platform and facilitate peer-to-peer connections and exchanges; and Redistribution marketplaces that seek to redistribute surplus food from farmers, producers, retailers, restaurants and consumers to reduce food waste. These marketplaces are enabling a wide array of new entrants to participate in the food sector.

Direct producer/wholesaler to consumer commerce

The past five years has seen a steep rise in the number of food producers and wholesalers developing direct-to-consumer (usually online) sales channels. These innovations bypass traditional intermediaries, shorten supply-chains, and enable consumers to connect directly with producers such as local farms and specialty ingredient suppliers. Notable innovations in this space include farm drops (providing fresh produce direct from the farm), and a wide range of recipe boxes and meal boxes that are redefining the boundaries between traditional grocery shopping and ready-made meals and delivering an experiential aspect for consumers.

Dark kitchens

Dark kitchens, alternatively known as cloud kitchens or ghost kitchens, are large-scale restaurant style food preparation spaces that do not have a customer-facing store front and operate a B2B model by making the space available/outsourced to restaurants and brands that require extra capacity. They are typically located in low-cost but central areas in the urban environment, to enable rapid servicing of their

local markets. Facilities have minimal staffing levels, and are optimised for high through-put, with the ability to be reconfigured quickly and easily to react to emerging market trends. Dark kitchens may be wholly owned by an existing brick and mortar establishment to augment capacity, or as is increasingly the case, are online-only operating as virtual brands, multi-brand kitchens, or providing third-party food services to other operators under franchise models. Several major players are entering this market in the UK offering outsourced dark kitchens much like co-working spaces, enabling food entrepreneurs to enter the market with minimal setup costs and risk.

Rapid on-demand delivery solutions

The industry is building quick-commerce, or q-commerce solutions, that aim to cut on-demand delivery times to 15 minutes or less to make home-delivery the preferred choice for consumer food and convenience needs. This is being achieved through a combination of locally positioned restaurants and stores, leveraging dark kitchens and dark stores (centrally located fulfilment warehouses), and local courier networks. Use of innovative transport solutions such as e-scooters, autonomous robots and aerial drones are already being tested or are in operation offering rapid and low-carbon deliveries. These developments are transforming the traditional food buying and selling infrastructure into a dynamic network ecosystem of digital transaction hubs that will be able to quickly respond to novel consumer demands and trends across a wide range of sectors of the economy.

Longer-term trends

Looking forward over the next five years the existing literature reports that the current trends identified above are here to stay and will intensify, and continue to reshape business models and the food buying and selling ecosystem, augmented by several broader trends:

- E-commerce: continued strong growth in online services, and q-commerce.
- Ecosystem transformation: growth in convenience, discount, and specialty stores; major grocers to move further into take-away and home-delivery market; while delivery aggregators and platforms will move further into retail;

pureplay online players will look to develop offline services; direct to consumer commerce, and social commerce will continue to grow rapidly.

- Data analytics/AI: will deliver rapid technological advances, and big data will grow ever more important to the consumer experience and competitive advantage.
- Food as a service: including recipe boxes and personalised nutrition; and a growing focus on personalised nutrition.
- Health and sustainability: organic, nutrition, provenance, local, food waste reduction, and environmental performance.

Future new trends are expected to emerge from within the current ecosystem through dynamic interactions and network effects between each of these trends creating new entrants, and more leverage for some players while driving other players out of business. Traditional roles and business models will increasingly intersect, with producers, vendors and consumers interacting at multiple points in the value chain in a highly dynamic digital ecosystem. The buying and selling typologies identified in this report, while relevant over the short to medium term, may need to be reconceptualised in the years ahead to reflect these dynamics. Identifying the convergence points, the hubs and nodes in the system is key to policy design and implementation.

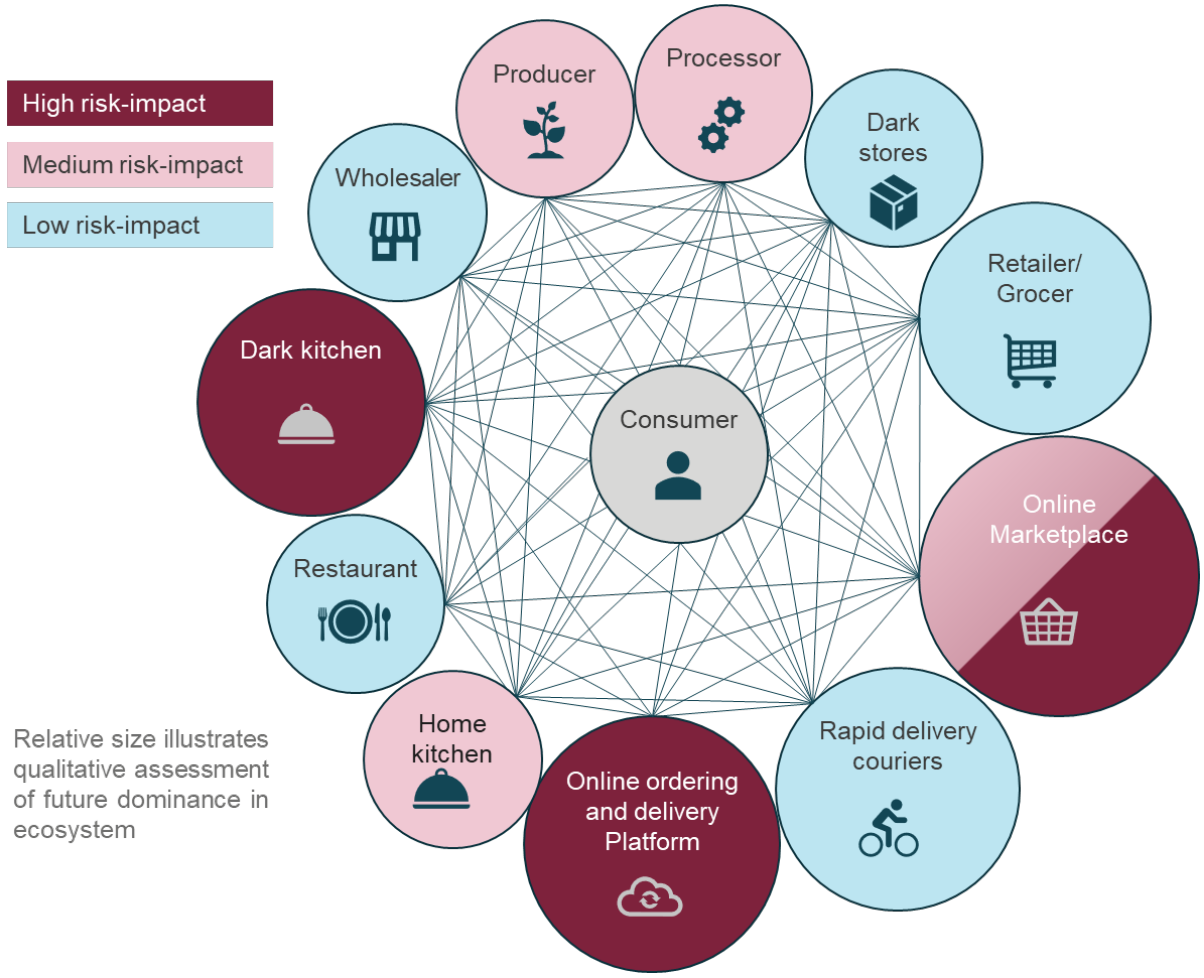
Implications for food safety and the regulatory framework

These innovations are bringing a broad range of benefits in terms of convenience, choice, and enhanced value for consumers, and are enabling an array of entrepreneurs to enter the market quickly and affordably to experiment and bring new product ranges to market. However, with so many new entrants and ad-hoc traders in the market, often with only a small virtual presence and operating from dark kitchens or home kitchens, monitoring and oversight becomes challenging. The risk of uncertified vendors, particularly small, local, and least-networked hubs, operating under the radar of FSA and local authorities is high in certain parts of the ecosystem and raises concerns over food safety and/or food fraud/crime. Across the ecosystem the larger actors hold sway and if producers bypass them through

emerging D2C or C2C channels, they may get away with selling the food without any registration and compliance with FHRS etc.

Furthermore, the increased complexity in highly networked supply chains increases the likelihood of systemic risks, and the potential for incidents at a small part of the supply chain to have far reaching consequences throughout the food supply system beyond the locality of the incident. Additionally, the rise and dominance of platform monopolies has the potential to reduce the power of regulators to intervene, and so reduce the regulators ability to protect society against these emerging risks.

As the food ecosystem evolves and digital platforms grow and D2C and C2C channels increase, the ecosystem will evolve further towards the networked value interaction model as illustrated below, where there is continuous dynamic interaction between all points of the network. The figure illustrates the nodes in the system most likely to gain dominance based on current information and provides a top-level assessment of the likely areas of food safety risk and their potential for large scale impact in the emerging ecosystem.



Representation of future value interaction network of the food system

(For simplicity figure does not illustrate the potential convergence and over-lapping of roles in the future network, and food sharing/distribution as well as other offline actors are not included)

Image shows the consumer in the middle of the network and then the following factors categorised by high, medium and low risk impact.

High risk impact:

- Dark kitchen
- Online marketplace
- Online ordering and delivery platform

Medium risk impact:

- Producer

- Processor
- Home Kitchen
- Online marketplace

Low risk impact:

- Wholesaler
- Dark stores
- Retailer/Grocer
- Rapid Delivery Couriers
- Restaurant

Recommendations

Focus on convergence nodes and hubs

The nature of emerging digital networks means there are key points where most new businesses and market entrants are expected to engage with the market where risk might be mitigated; namely:

- The major online delivery platforms and online marketplaces (hubs)
- Local specialist online delivery platforms and online marketplaces (nodes)
- Dark kitchen providers (nodes with potential to develop into hubs)
- Processing and gastronomy technology solution providers (system levers)

Platforms that are major nodes and hubs within the digital ecosystem effectively act as gatekeepers to the food system and are well positioned to fulfil a quasi-regulatory role in the sector, and through careful curation of vendors and ongoing monitoring can mitigate the risk for consumers from unsafe and fraudulent vendors. It is recommended that FSA should focus on these main convergence nodes, hubs and levers at major entry points into the ecosystem.

- By working with these platforms and dark kitchen providers, the FSA can create levers for compliance in the food ecosystem to ensure food hygiene standards are enforced, and safeguard against potential food fraud.

- Beyond monitoring and oversight, FSA should work with these nodes to develop enhanced training programmes, education for new food entrepreneurs, and perhaps consider developing new standards for dark kitchen operations to optimise processes for food safety.
- As restaurants and other food facilities adopt technology it emerges that software companies that specialise in tools for food buying and selling, selection, production, and processing (e.g., electronic point of sales systems, production control, inventory management and supply-chain management tools), are well placed to integrate compliance factors and traceability into their products. This creates an opportunity for FSA to work with these developers to make compliance a built-in element of standard food business software.

While focusing on these key system connectors (nodes, hubs and levers) will not address every non-compliant vendor, it should capture the majority, and certainly those with the larger potential for wider influence in the food system.

Risks are also identified in the more fragmented, obscure parts, or modules, of the food system, where there are concerns over new entrants without adequate food hygiene standards, food fraud, and traceability (such as consumer-to-consumer transactions on social media platforms). Mitigating these risks is more challenging but the impact of these vendors on the overall food system is likely to be low. For these segments of the market it is recommended:

- Focus on public awareness campaigns to educate vendors and consumers on the certification requirements and risks of non-compliance, and educate consumers on how to take more responsibility for buying decisions, their rights and what they should expect of vendors, and where to go to raise a complaint or concern over vendors.

Regulatory oversight

While the digital platform economy offers many new opportunities for the food sector, regulators should be cognisant of systemic issues platforms can present. As seen with digital platforms in other sectors, particularly social media platforms, weak

regulation can have significant implications. When attempting to implement standards in a digitally networked ecosystem there is a need for continuous engagement with the system. Unlike linear supply chains, digital platform ecosystems can rapidly create unforeseen novel network effects and challenges for regulation that might affect large parts of the food system. There is therefore a need for developing comprehensive analytical tools to enable FSA to continuously monitor and understand the impact of such changes on food safety.

Exactly because of the complexity and dynamics of the digital platform economy, robustness of the regulatory framework is essential for its ability to respond to challenges. As platforms increasingly move into new market areas, with overlapping roles, the responsibilities for food safety and consumer protection are likely to become blurred. Therefore, FSA should consider building similar approaches to those developed for cyber security and data regulation to ensure ground rules are set and food safety is an inherent part of the system.

In order to take the next steps towards developing the framework for a new approach to policy design for the digital food commerce sector we recommend the following considerations:

- Change the status of food platforms from technology companies to food business operators.
- Raise the status and visibility of food safety in the industry to compare with cyber security in the technology industry.
- Shift responsibility from vendors that are listed on those platforms to the platforms themselves (for allergens, hygiene ratings etc.).
- Currently most risk mitigating actions to be taken by platforms that trade in food in the UK are deemed to be voluntary. Consider making key measures obligatory which may help with enforcing others.

Further research

This review was based on the extant literature and is believed to accurately represent the latest views on the topic. However, the academic literature was found to be surprisingly sparse on the topic of digital platforms in the food sector, and there are notable gaps in the knowledge base. Several important areas for further

research are recommended to better understand the emerging risks and opportunities:

- Quantifying food safety risks arising from online platforms.
- How do curation and vendor monitoring practices of online platforms help to ensure food safety across vendor base.
- How does the business model/functionality of the platform impact on food safety for consumers.
- The impact of social media platforms on food safety and consumption.
- The boundaries of regulatory responsibility in the platform economy.
- How to build food safety into the ecosystem function – identifying parallels with information and data security regulatory models.

During this review three related trends were identified that seem potentially at odds with the future predicted evolution of these digital ecosystems and convenience-orientated home-delivery systems. These are:

- Public health and nutrition concerns around the convenience food culture.
- Chemical contamination from plastic packaging and microplastics.
- Environmental impact and sustainability issues with respect to carbon emissions, packaging waste and food waste.

FSA should consider how these issues might best be addressed in the future evolution of how food is bought and sold in the UK.

Summary

In summary, significant change is anticipated in the way we buy and sell food online over the coming years. As digital platforms and retailers increasingly move into new market areas, with overlapping roles, the responsibilities for food safety and consumer protection are becoming blurred. It is therefore recommended that FSA adopt a highly proactive anticipatory role in supporting industry to build food safety into its fabric from the start as novel business models and processes increasingly replace traditional ones. It is recommended to adopt a systems approach to regulation, perhaps integrating conceptual input from the field of network science to

capture the realities of an increasingly dynamic, interactive and networked food system.