FSA 22-06-06 - Foresight Function and Horizon Scanning – Annual Update to the Board

This paper is an annual update on work to develop and implement the FSA's foresight function.

1. Background

1.1 This paper is our annual update to the Board on work to develop and implement our foresight function. We began this work following recommendations on horizon scanning from the Science Council in 2019. As we said in our first update to the Board in 2020, we focused initially on applying horizon-scanning techniques to near-term issues, to inform our response to the pandemic. We then set up a permanent foresight function and in our 2021 update we were able to give the Board our first assessment of the challenges and opportunities for the FSA and the food system in the short to medium term (for example, up to 5 years hence). This paper updates the Board on how our function is operating and on progress since the last update as a prompt for discussion, and as such does not include any items for decision.

2. How Our Foresight Function Operates

2.1 In our foresight function, we use horizon scanning techniques to help us identify risks and opportunities in time to mitigate or harness them. The term 'horizon scanning' is often used to refer to understanding change at the far horizon, often thirty years or more. But our foresight function currently works to a much nearer time horizon (10 years or less) and in two main modes:

- **Strategic Foresight:** scanning the horizon and monitoring signals to discover current unknown unknowns (for example, potential new areas for disruptions and vulnerabilities in the food system) in the medium to long-term (for example 5 to10 years).
- **Strategic Insight:** synthesising knowledge on cross-cutting areas of emerging interest that are likely to impact in the near-term (for example, the next few years), through high-level scans and deep dives into identified unknowns (for example, the emerging variety of alternative proteins).

The same team also provides a **Strategic Incident Support function** to the FSA. When a strategic-level non-routine incident is called, we work to an immediate horizon to pull together insight from across analytical disciplines to help inform the FSA's response.

2.2 Since we built this function out from risks identified in Covid-19, much of our focus so far has been on strategic insights to inform our understanding of issues which are impacting on the food system in the near term. This work is bearing fruit; as described later in the paper, insight work that we put in train over the past two years is now helping the FSA to determine what action to take on issues like household food insecurity, or online food sales. We have also needed to devote significant time and resource to strategic incident support for the FSA's response to Covid-

19 and to the impact of the war in Ukraine on food supply chains. We know we will need to continue to have the capacity to support the FSA response to future shocks to the food system.

2.3 As the function becomes more established, we intend to devote more of our energy to looking out at the 5-10 year time horizon, and at broader sources of data for monitoring and the discovery of 'weaker' or earlier signals. Better advance warning of trends should support the FSA in our guiding principle to be innovative, to anticipate and respond to fast-moving developments in the food sector, allowing us to mitigate risks and capitalise on opportunities.

2.4 Our strategic foresight and our strategic insight work is closely linked. It begins with discovery. On an ongoing basis, intelligence and information is drawn together in the Science team from a broad range of sources including expert and stakeholder insights, business intelligence, open-source intelligence including media and social media listening, consumer, economic, political and market analysis, sampling and surveillance data and intelligence from our National Food Crime Unit (NFCU) and wider government, drawing on and complementing our other analysis functions (for example, economics or social research).

2.5 For strategic foresight, we often rely more on horizon scanning techniques such as developing scenarios, and on expert elicitation; for nearer term or faster moving issues we would look at market and surveillance data complemented by deep dives with experts from academia and industry, for example.

2.6 This discovery work helps us identify new areas and is considered several times a year by the Strategy Unit and by a group of senior leaders across the FSA. Through our foresight function, we produce an overall Strategic Assessment of the opportunities and risks for the food system and the FSA that is shared with the leadership of the FSA, including with the Board in closed session. This year's assessment is summarised in the Annex. As an iterative document the detail it contains is frequently updated, informed by the work described below. It is reviewed overall every two years.

2.7 The Strategy Unit then may choose to task the Science team with developing our insights by providing further evidence, for example:

- monitoring activity
- a further exploratory scan of a particular area, or
- a deeper dive into a specific topic.

If and when needed, Strategy Unit and the Science teamwork with others as appropriate to develop and assess options for the FSA's strategic and tactical response. The Annex outlines the current process.

2.8 Once possible topics have been identified through discovery work, we prioritise them for further analysis and action using four main criteria:

- impact of the issue on the FSA strategic priorities
- impact of the issue on operational priorities (for example, incident support)
- level of current knowledge and extent of known gaps
- required resources.

2.9 To give an example of the function in action, monitoring the sudden impact of the pandemic on food affordability (strategic incident support) identified a need for deeper evidence in 2020-21 on a) the lived experience for consumers and b) the variety of models among community food providers (strategic insight). In parallel, ongoing monitoring of the drivers of social and economic change (strategic foresight) identified future risks for consumers and for our strategic priorities due to projected lower incomes, higher cost of living and rising food costs. The Science team gathered and synthesised the evidence, which Strategy Unit have then reviewed and used to

inform discussions with colleagues across the FSA and in a separate Board paper today.

3. Implementation in 2021-22

3.1 Since the last Board update in June 2021 there have been several topics prioritised for activity across the organisation:

Emerging Technologies: Following the publication in 2021 of our high-level scan report into emerging technologies and their impact on the food system, we have tasked several further deep dives into:

- alternative proteins - report completed, implications of report currently being assessed
- personalised nutrition - report completed, implications of report currently being assessed
- the future of animal feed - for completion Q3 2022
- alternatives to plastics - for completion by Q1 2023
- 3D/4D printing of food - for completion by Q1 2023.

We also partnered with Deloitte on a project to examine how and when the FSA might apply a more anticipatory approach to change in the food system, and more systematically identify the characteristics of emerging changes that would significantly challenge our current regulatory and enforcement processes.

Impact of new operating models and changes in how food is bought and sold online: We published two high level scan reports outlining the emerging changes and potential risks and opportunities. The insights supported the prioritisation of the ABC Programme's Online Assurance workstream and were particularly useful in helping to map the consumer risk in different online sales routes, helping the Programme Team to determine which projects to pursue as priorities.

Impact of labour shortages linked to Covid and immigration restrictions: Following initial in-house analysis it was determined there was no FSA wide response required to the current labour shortages, but briefing was shared across the Agency and wider government for all teams to factor into their individual risk monitoring. This issue highlighted gaps in our systems thinking about potential disruptors in the food system to anticipate their effects on food regulation. We have commissioned high level scans of:

- the medium-long term impact of labour shortages
- where other disruptions and vulnerabilities in the food systems might appear, and
- how we might see early warnings of these.

Vulnerability analysis of the Future Delivery Model for meat inspection: an assessment was made of potential weak points in aspects of the Future Delivery Model to support the Operational Transformation Programme. This provided assurance and the opportunity to inform future development of the Future Delivery Model.

4. Developing the Foresight Function in 2022-23

4.1 A full review of the Strategic Assessment is planned in the coming year. This will include an extensive discovery exercise with academia and industry experts to both inform our existing insights and help us to identify more "unknown unknowns" for strategic foresight, a review of a wide range of sources of evidence, and a synthesis and consolidation of the learnings from the pipeline of deep dives commissioned this year. We are keen to develop our framework and broaden our networks, capabilities and sources of intelligence, particularly within industry.

4.2 While we have made progress on our insights and evidence base, more work is needed to ensure that we are developing and formulating the right questions, and that the organisation is

actually responding to the insights in its workplans and decision-making. The Strategy Unit, which leads on both tasking the foresight team and co-ordinating an organisational response, has taken on more resources to do so. We are currently reviewing the commissioning process to ensure that the insights and analysis produced have clear owners across the FSA and can be translated into recommendations for prioritisation and delivery. As part of our review of the commissioning process we will also review and formalise our prioritisation criteria.

4.3 This year we plan to develop and deliver further tools to help our colleagues apply more futures- and systems-focused thinking, starting with a bespoke toolkit of materials and training developed by partners at Oxford University to help the FSA understand the wider food system and foresee impacts up and down the chain. We hope in time to be able to provide a service to colleagues that tests proposed policy or operational decisions using a range of structured, creative and critical thinking techniques to help map complex problems and thrash out vulnerabilities, developed by Go-Science.

5. Capacity and Capability

5.1 Our analysts work with experts to provide in-house analysis and interpretation of the implications of findings for the FSA. We work closely with Go-Science and horizon scanning teams across Government through the Heads of Horizon Scanning Network. We are able to draw on the expertise of the Science Council and Scientific Advisory Committees. To boost capacity and build our evidence base quickly we have set up strategic partnerships in academia; this includes:

- a fellowship and strategic partnership with Oxford University/the N8 Agri-food consortium, co-funded by the UKRI SPF (on food system risks and issues)
- a fellowship with Queen's University Belfast (on the future of animal feed)
- a studentship with Cranfield University (on early warning signals), and
- working closely with the Institute for Manufacturing at Cambridge University to understand the pace and impact of new technologies.

5.2 We have worked closely with the Science Council to take advantage of the expertise available. We have agreed a collaborative way of working that ensures taskings are coordinated, and where expert support or assurance is required, it can be asked for at an early stage. Alongside our growing network of academic experts, this ensures access to the right sort of expertise.

5.3 Overall, we believe that we have sufficient capacity within the Science, Evidence and Research team, and the Strategy Unit, to continue operating and building the foresight function as described above. However, when a strategic level non-routine incident hits multiple parts of the food system – such as Covid-19 or the war in Ukraine, the focus of analysis shifts, rightly, to the near-term horizon in support of the incident. The analysis team has been diverted to providing immediate insights to support our incident response, contributing situation analysis on the impact of the ongoing sunflower oil shortages and longer-term risks to UK food supply, and monitoring public concerns in real time. This is at the expense of medium to longer term areas of focus and the fuller development of our monitoring framework.

5.4 We anticipate that this will be temporary but future such incidents will similarly limit our capacity. However, the greater challenge is often not the generation of insights but in the ability to prioritise implementation of the required action across an organisation focused on urgent and important issues now. Longer term, analysis and resourcing will be needed to support the proposed more anticipatory approach.

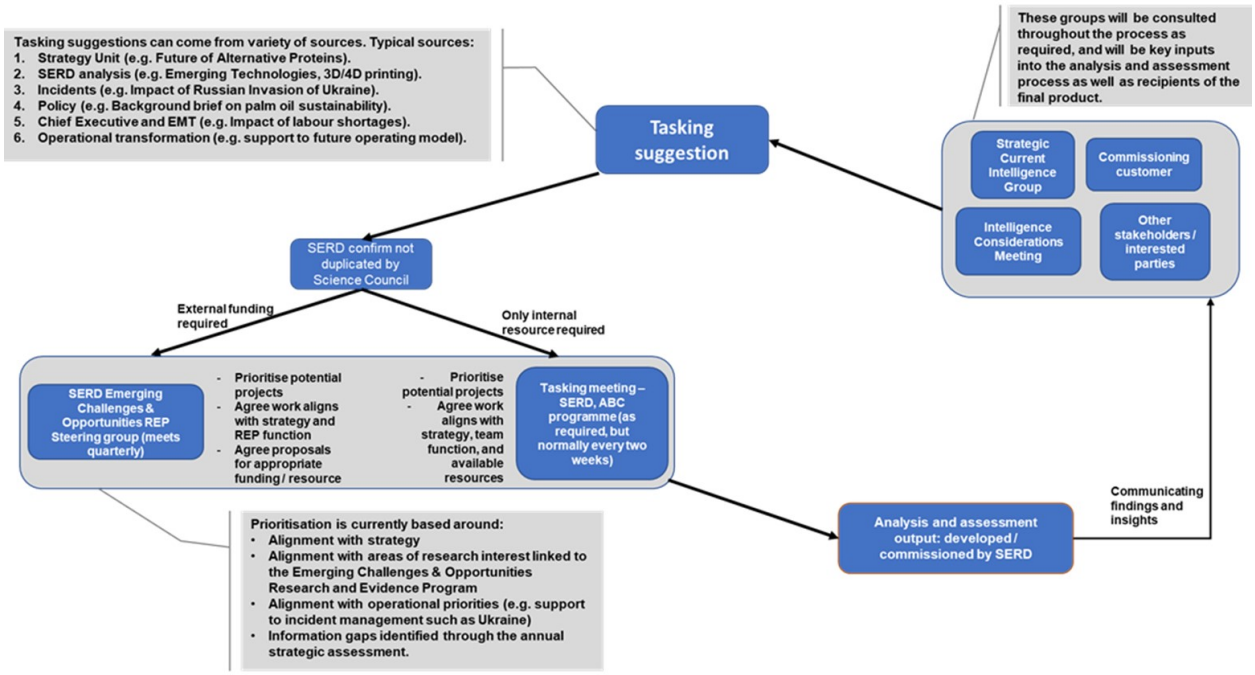
6. Conclusion

6.1 The Board is asked to:

- note this update on the implementation of our near and medium-term horizon scanning function.
- note the action taken so far in response to the insights gained from horizon scanning.

Annex

Figure 1: Summary schematic of FSA horizon scanning tasking and prioritisation process



Summary of identified emerging risks and opportunities

Now

Risks/Opportunities	Comment
Household food insecurity	Increased numbers of people in the UK who are unable to consistently access sufficient food for themselves or their families has increased, with further increases projected due to the increased cost of living and recent reductions in Universal Credit.
The impact of the UK exit from the EU	Changes to the conditions under which trade takes place, and potentially in terms of who we trade with. Differences in how migration and border controls function will impact on the food system, both in terms of labour and goods.
Evolving regulatory landscape	Increased scope for independent regulation and divergence within the UK and from EU, following the exit from the European Union Development of new food business models, particularly but not exclusively online An increasing range of technologies for food production Vertical supply chain shifting to a much more dynamic network of food supply.

Soon

Risks/Opportunities	Comment

Synthetic biology	Genetic modification has been available for some time, with the main barrier to its use in the UK being regulation, consumer acceptance and market conditions rather than technological barriers. Genetic editing is more recent and allows more targeting manipulation of the genetic properties of plants and animals.
Alternative sources of protein	Non-traditional and meat free sources of protein that are used in both animal feed and for human consumption. While there are a range of well-established meat alternative products, there are a number (such as insect and algae derived protein) that are particularly novel to the UK market and will require early consideration of both regulation and enforcement.
Alternatives to single use plastics in packaging	The use of a range of more sustainable materials for food packaging as alternatives to single use plastics. These can be direct functional replacements intended to be recyclable or compostable, but in some cases also offer functional improvements through monitoring of food degradation, or in some cases through nanomaterials and similar that actively extend the shelf life of food products.

Medium Term

Risks/Opportunities	Comment
Laboratory grown protein	Laboratory grown proteins are a subset of synthetic biology and consist of growth of animal and dairy products in a laboratory environment with the goal of mimicking the original product but without the potential animal welfare or sustainability issues and may (or may not) reduce food safety risks through their growth in a strictly controlled environment. The focus for development of new offerings tends to be on the cultivation of meat and dairy.
Impact of climate change	Much depends on how quickly measures can be taken to reduce carbon emissions. Likely to see increasing temperatures worldwide and more extreme weather conditions, and less predictable weather patterns. Disruption to food production in many parts of the world, as well as changes in the types of crops that can be grown, and the natural hazards (for example, pests and pathogens) that are prevalent.