SUMMARY

1. This paper gives an annual update on the FSA’s science, its acquisition and use, including:
   a) details of the FSA’s science investment;
   b) progress on expanding the overall scientific capability and capacity of the FSA, including internal staff, Scientific Advisory Committees and the Register of Specialists;
   c) updates on external partnerships, both existing and developing;
   d) the impact of our research programmes with key case studies; and
   e) proposed future priorities.

2. The Business Committee is asked to:
   - discuss the progress made in developing the FSA’s science capability and capacity;
   - discuss the current, past and forecast future science spend and resource, and developing priorities, in preparation for the Board’s substantive discussion on the 2020/21 budget; and
   - comment on future priorities and direction.

INTRODUCTION

3. Science sits at the heart of everything that the FSA does, providing a fundamental evidence base to inform delivery of the FSA’s statutory responsibilities and to shape its strategic priorities, as an excellent, accountable, modern regulator.

4. This annual update to the Business Committee sets out the progress made in improving the FSA’s science capability and capacity and discusses the potential future trends and priorities.

5. This largely retrospective report complements the annual strategic discussions at the March 2019 Board meeting, which were informed by reports from the FSA Chief Scientific Adviser (CSA) and the Chair of the Science Council

6. Since the previous annual report in September 2018, the FSA has significantly enhanced its access to external scientific advice, increased multi-disciplinary capability and capacity across the Science, Evidence and Research Directorate

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1 See relevant papers for March 2019: https://www.food.gov.uk/about-us/fsa-board-meeting-march-2019
(SERD), and improved the FSA’s overall science assurance process.

7. SERD has developed a four-part strategic plan for the next three years and proposes future priorities which would continue to improve the FSA’s approach to the acquisition and use of science (Figure 1).

![Figure 1: The four priority areas within in the Science, Evidence and Research Directorate’s three-year strategic science plan.](image)

**Figure 1: The four priority areas within in the Science, Evidence and Research Directorate’s three-year strategic science plan.**

**EVIDENCE AND DISCUSSION**

8. This section provides a detailed overview of the four areas that FSA science teams have focused on over the past year:
   - internal capability and capacity;
   - access to external expertise to deliver research;
   - building science partnerships; and
   - improving science assurance.

9. Case studies that exemplify the impact of FSA science on the delivery of the Department’s remit are provided in Annex 1. Further data on the different aspects of FSA science spend and resource are provided in Annex 2.
Internal capability and capacity

10. In preparation for EU Exit and to strengthen the FSA’s risk analysis process, the capacity of SERD has expanded significantly, with a total projected growth of 33% between September 2018 and September 2019. This increase has most notably focussed on improving critical capability for microbiological and toxicological risk assessment. However, SERD has also strengthened its cross-cutting capability across the FSA’s wider evidence needs, including economics, statistics and social science, which also support risk management and operational delivery.

11. As part of this increased capacity, SERD has brought together the CSA and Scientific Methods and Laboratory Policy teams to create a new ‘Science Strategy, Capability and Research (SSCR) Unit’, under the senior leadership of a new Grade 6 post. This creates three strategic units within SERD, each responsible for a specific area of SERD’s deliverables (Figure 2).

![Figure 2: Overview of the SERD’s new strategic unit structure](image)

Access to external expertise to deliver research

12. Science research is critical in informing and improving the FSA’s strategic thinking and resilience. This importance is reflected in the forecast increase in 2019/20 science research spend compared to 2018/19, reversing a declining trend seen over previous years (Figure 3 and Annexe 2, Table 1).

13. Overall the total spending for science, evidence and research in FSA is forecast at £13.9 million for 2019/20 compared to £10 million in 2018/19. This increase has kept track with the increase in FSA’s overall budget in preparation for EU Exit (Figure 3 and Annex 2, Table 1).

14. The key drivers and trends behind this forecast increase, each linked to EU Exit readiness, are:
   - the increased capability and capacity of the FSA’s Scientific Advisory Committees and their supporting Secretariats;
   - increased investment and capability to improve the FSA’s strategic
surveillance, improve horizon scanning, and inform response to incidents; and
• capability to rapidly deliver priority research projects to deliver evidence needs.

15. Our external research projects are instrumental in providing evidence to inform policy formulation and operational delivery in areas such as understanding consumer behaviour and horizon scanning for new technologies. Annex 1 provides three example case studies of the benefit and impact external research is providing to the FSA.

![Figure 3: External science spend, and total science spend as proportion of FSA budget 2013-19](image)

**Building science partnerships**

16. Over the past year the FSA has improved its external science engagement and developed partnerships with a range of external stakeholders, creating new partnerships and leveraging funding to deliver the FSA’s priorities. These include:

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3 Science spend is categorised as core, investment or strategic, as below:

- **Core**: Science capability vital to support FSA response activities. Examples include: statutory monitoring, scientific surveys and provisions to National Reference Laboratories.
- **Investment**: Prepares and informs the FSA’s thinking and delivery. Examples include: the FSA’s Scientific Advisory Committees and surveillance.
- **Strategic**: The development of research partnerships, prediction of long-term trends, and trialling of new technologies. For example, cross-cutting research programmes delivered with external stakeholders and horizon scanning such as the Bio0based materials and 21st Century Abattoir projects in Annex 1.
• Providing evidence and support to the Defra-led National Food Strategy\(^4\), to ensure food safety, consumer trust and consumers’ other interests in relation to food are each integral to the development of the view across UK Government of what our food system should look like.

• Through the CSA, working jointly with Defra and DHSC to provide Governmental steer to the proposed UK Research and Innovation Strategic Priorities Fund programme, “A Food Systems Approach for Healthy People and a Healthy Planet”. It is anticipated that the FSA will have an ongoing Programme Board advisory role. In time, it is expected that this programme will help connect the research community to the evidence needs identified within the Government’s National Food Strategy.

• Building on international relationships to renew or create bi- or multi-lateral arrangements such as our ‘Scientific Work Programme’ for areas of shared strategic interest with New Zealand’s Ministry of Primary Industries.

• Building use and impact of the CSA-led Strategic Evidence Fund.

• Piloting a hub model in the social science team which provides a central point of contact to facilitate research alignment across a programme – an approach now being considered for other FSA programmes, such as antimicrobial resistance. Expanding our use of studentship placements at both undergraduate and graduate level to inject fresh perspectives, enthusiasm and capacity, strengthening links to universities and attracting future talent to the work of the FSA – we are developing a more systematic approach through University Networks, rather than ad hoc relationships with single institutions.

### Improving science assurance

17. The FSA has significantly strengthened the capability of the FSA’s Scientific Advisory Committees (SACs), with 35 new experts being recruited across the Committees, improving our access to independent scientific advice.

18. The FSA has previously found recruiting to the SACs challenging. This most recent campaign drew on the advice provided to the FSA by the Science Council’s working group and had excellent support from key externals stakeholders and the FSA communications teams to develop and deliver an engaging and effective campaign, with further lessons learnt for the future.

19. The total cost of the FSA’s use of SACS and the Science Council in 2018/2019 was £1,028,426 (Table 2, Annex 2), an increase of £314,677 from 2017/18. This reflects the increase in workload and Secretariat support to SACs, especially that for the Committee on Toxicology of Chemical in Food, Consumer Products and the Environment (COT), which will be responsible for supporting a significantly increased number of risk assessments, repatriated following EU Exit. We anticipate a further increase in overall expenditure next year as the new Joint Expert Groups (JEGs) start to meet, providing specific risk assessment advice on regulated products.

\(^4\) See: [https://www.nationalfoodstrategy.org/](https://www.nationalfoodstrategy.org/)
20. Once the new SAC and JEG structures have embedded, the FSA will undertake a review of these and their operation.

21. The FSA has increased the membership of Register of Specialists to over 200 experts. The Register allows the FSA to commission ad hoc pieces of work, such as peer-reviewing reports, from a pool of enthusiastic, pre-approved experts quickly and efficiently, enabling the rapid development and delivery of evidence as the FSA needs it.

22. The new risk analysis process has been embedded into our ways of working, with the CSA overseeing assurance of the risk assessment and evidence elements of the process. The process is underpinned by new guidance, which will be shared with the SACs in order to test and assure our approach.

Future priorities for consideration

23. Over the next year, SERD proposes the following areas of work:

24. **Be prepared for the future** Continue to build and integrate our scientific evidence, surveillance and capability through:
   - incorporating the recommendations arising from the Science Council’s report on horizon scanning\(^5\) into ways of working; and
   - leading on the development of a high-level sampling strategy for the FSA.

25. **Build science excellence** Grow and develop new capabilities and make the FSA a ‘go to’ choice for career scientists:
   - engage with the Cross-Government Science Capability Review being carried out by the Government Office for Science (GO-Science) and HM Treasury, building on our existing strength; and
   - build engagement with the Government Science & Engineering (GSE) profession, managed by GO-Science, and encourage SERD staff to become members. We will deliver and facilitate learning and development sessions to further skills, capability and professional memberships, and ensure SERD staff have access to the training they need to develop their skills and expertise.

26. **Make Risk Analysis Work** Continuous improvement of our approaches to risk assessment and to science and evidence assurance:
   - an iterative development of the Risk Assessment Guidelines and their incorporation into FSA work practices, ensuring a consistent and up-to-date approach to risk analysis across the FSA; and
   - using the improved SAC capability to inform risk assessment and embedding the new Joint Expert Groups, into the process for regulated products assessment.

27. **Grow our influence and impact** Improve our science communications strategy and international engagement through:

\(^5\)See: [https://science-council.food.gov.uk/sites/default/files/fsascwg3finalreport.pdf](https://science-council.food.gov.uk/sites/default/files/fsascwg3finalreport.pdf)
showcasing the information and advice we provide, building confidence among our external stakeholders; and
continuing to build national and international relationships through groups such as the International Food Safety Regulatory Economics Working Group and the International Social Science Liaison Group, and impactful bilateral collaborations.

28. These priorities will help us further develop the science and evidence underpinning for our ambition to be an excellent, accountable, modern, regulator.

CONCLUSIONS

29. Over the last year the scientific capability and capacity of the FSA, our access to independent scientific advice, and our approach to science assurance have seen substantial development.

30. We have proposed a three-year strategic science plan, to cement the position of the FSA as a leader among our international regulatory peers in how we acquire and use science.

31. The Business Committee is asked to:
   • discuss the progress made in developing the FSA’s science capability and capacity;
   • discuss the current, past and forecast future science spend and resource and developing priorities, in preparation for the Board’s substantive discussion on the 2020/21 budget; and
   • comment on future priorities and direction.
Annex 1: Case studies of science impact in 2018 and 2019

**Food and You Survey**

The FSA has been running ‘Food and You’ on a biennial basis since 2010. This Survey is an Official Statistic, measuring consumers’ self-reported knowledge, attitudes and behaviours on a range of food-related issues.

The most recent Wave 5, was published in April 2019. Secondary analysis included the development of two new composite measures, measuring trust in the FSA and trust in the food supply chain.

To exploit the data further, the FSA plans a ‘Data Hack’ for November bringing together data scientists, academics and policy makers who will be asked to address specific policy questions with support of the Food and You dataset and others. We are also investigating consumer segmentation, to help understand the attitudes and behaviours of different types of consumers. This will help inform policy decision-making and targeted consumer messaging.

Looking forward to Wave 6, the FSA will be making changes to the way data is collected through implementing recommendations provided by the Advisory Committee for Social Science (ACSS). The Survey will be moving away from face-to-face interviewing towards a web-push methodology (online survey with paper follow-up) which we hope allow increased sample sizes in Northern Ireland and Wales in particular.

**Bio-based Food Contact Materials**

A substantial increase in the range of bio-based materials available is anticipated. In response to environmental and associated consumer pressure, greater use of these materials by the food industry is foreseen, but what are the implications of such alternative materials on food safety?

The FSA supported a focused workshop in April 2019, to gather the latest evidence on the using bio-base material in food manufacturing. This successful event brought together 100 participants from the UK industry and academia with expertise in the development, evaluation and impact assessment of bio-based food contact materials. The workshop was an integral part of an FSA project reviewing evidence related to potential unintended consequences of replacing oil-based plastic food contact materials.

The FSA has also established an interdepartmental special interest group to regularly review advances in bio-based material applications in the food chain.

**The 21st Century Abattoir**

FSA have partnered with the Science and Technology Facilities Council Food Network+ to explore the introduction of new technology, data systems and advanced analytical methods into the abattoir environment. A sandpit event is planned for October, bringing together STFC’s multidisciplinary experts, with industry partners and FSA Field Operations and SERD colleagues.

Over the two-day event, proposals for pilot projects will be developed, exploring how FSA’s inspection process architecture could be augmented with technology to achieve less-invasive inspection techniques, expedite the generation and sharing of real-time inspection data and improve animal welfare, delivering a more efficient, more secure and more traceable meat supply chain. FSA Strategic Evidence Fund seed-funding will be matched by STFC, to fund several co-selected and designed pilots.

This project is a cross-Directorate endeavour, ensuring it is closely aligned with, and shares a vision with the Operational Transformation team’s efforts.
Annex 2: Further information on FSA spend and resources on science capacity and capability

Table 1: Breakdown of 2018-19 external science spend

<table>
<thead>
<tr>
<th>Year</th>
<th>Core</th>
<th>% of Total Science</th>
<th>Investment</th>
<th>% of Total Science</th>
<th>Strategic</th>
<th>% of Total Science</th>
<th>Total Science</th>
<th>Of which NI</th>
<th>Of which Wales</th>
</tr>
</thead>
<tbody>
<tr>
<td>2019-20 (forecast)</td>
<td>6.3</td>
<td>45%</td>
<td>6.1</td>
<td>44%</td>
<td>1.5</td>
<td>11%</td>
<td>13.9</td>
<td>1.4</td>
<td>0.1</td>
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<tr>
<td>2018-19</td>
<td>6.3</td>
<td>63%</td>
<td>2.6</td>
<td>26%</td>
<td>1.1</td>
<td>11%</td>
<td>10.0</td>
<td>1.3</td>
<td>0.1</td>
</tr>
<tr>
<td>2017-18</td>
<td>6.5</td>
<td>59%</td>
<td>4.1</td>
<td>37%</td>
<td>0.5</td>
<td>5%</td>
<td>11.1</td>
<td>1.2</td>
<td>0.1</td>
</tr>
<tr>
<td>2016-17</td>
<td>8.4</td>
<td>67%</td>
<td>3.5</td>
<td>28%</td>
<td>0.7</td>
<td>6%</td>
<td>12.6</td>
<td>1.5</td>
<td>0.2</td>
</tr>
<tr>
<td>2015-16</td>
<td>9.0</td>
<td>54%</td>
<td>6.7</td>
<td>40%</td>
<td>1.0</td>
<td>6%</td>
<td>16.6</td>
<td>1.7</td>
<td>0.8</td>
</tr>
<tr>
<td>2014-15</td>
<td>9.8</td>
<td>49%</td>
<td>10.5</td>
<td>52%</td>
<td>-</td>
<td>-</td>
<td>20.2</td>
<td>1.7</td>
<td>0.3</td>
</tr>
</tbody>
</table>

Table 2: 2018-19 spend on Scientific Advisory Committees

<table>
<thead>
<tr>
<th>Programme</th>
<th>Programme spend</th>
<th>FSA support</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Committee on Toxicity of Chemicals in Food, Consumer Products and the Environment (COT)</td>
<td>£41,196</td>
<td>£427,973</td>
<td>£469,169</td>
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<td>Advisory Committee on the Microbiological Safety of Food (ACMSF)</td>
<td>£24,600</td>
<td>£127,156</td>
<td>£151,756</td>
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<td>Advisory Committee for Social Science (ACSS)</td>
<td>£11,336</td>
<td>£51,840</td>
<td>£63,176</td>
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<tr>
<td>Advisory Committee on Novel Foods and Processes (ACNFP)</td>
<td>£17,172</td>
<td>£116,850</td>
<td>£134,022</td>
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<tr>
<td>Advisory Committee on Animal Feedingstuffs (ACAF)</td>
<td>£15,058</td>
<td>£26,264</td>
<td>£41,322</td>
</tr>
<tr>
<td>FSA Science Council</td>
<td>£67,493</td>
<td>£101,488</td>
<td>£168,981</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>£176,855</strong></td>
<td><strong>£851,571</strong></td>
<td><strong>£1,028,426</strong></td>
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