

## Final report from the Science Council Working Group on science capability and assurance and FSA response

Report by Steve Wearne

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### Summary

1. This paper:
  - presents the final report from the FSA Science Council's Working Group on Capability and Assurance (at Annex 1).
  - sets out the Executive's analysis of the Working Group's recommendations and its proposed response, including:
    - a framework for science assurance
    - actions we identify as priorities, with timelines where at this stage we have been able to define the additional work needed (detail at Annex 2).
2. The Board is asked to:
  - **consider** the Working Group's report and
  - **comment on and agree** the proposed FSA response to the recommendations, including the proposed framework for science assurance

### Discussion

3. The Science Council Working Group (WG) has provided its answer to the question set by the FSA in June 2016: *'To advise the Board on how it can be confident that FSA has access to the right science capability and is using science to the best of its ability.'* The WG's full report is at Annex 1.
4. The WG has made 42 recommendations across five themes it identifies as key to FSA's effective capability and use of science. It notes existing good practice and capability and its recommendations address areas it feels can be strengthened, to ensure FSA's capability and assurance are resilient and fit for the future.
5. The Executive welcomes the recommendations from the WG, which are tailored to the FSA and were developed with input from a wide range of FSA

staff. Our response to the WG's 42 recommendations is set out in full in Annex 2.

6. We recommend that the Board accepts the WG recommendations, subject to two qualifications that reflect developments in FSA's governance and organisation since the WG made its report (Annex 2 para 1).
7. Many of the proposed responses can be actioned within existing resources and priorities and this work is in hand, much of it within work on EU Exit. This includes significant developments in science capacity and capability, and governance of risk analysis. The discussion below focuses on three strategic and governance issues where the Board has a role and will wish to take a view:
  - leadership and culture
  - assurance on science
  - actions with implications for future resource and priorities
8. The Executive will provide a report to the Science Council on implementation of the FSA's response to the recommendations within 12 months.

### **Leadership and culture**

9. The WG highlights a need for leadership and culture that demonstrates that FSA values science and supports its use across FSA (R4.1)<sup>1</sup>. The Board's leadership is key in driving the culture and ambition for science at the heart of the FSA and holding the Executive to account for how this is delivered. This includes:
  - Setting the high-level governance framework with a clear role for science<sup>2</sup>;
  - Establishing the Science Council and commissioning its reports
  - Discussing 6-monthly science reports to the Board and challenging on use of science to support other proposals coming to the Board
  - Using high-level engagement to champion science and support its use

### **Assurance**

10. The WG identified a need for FSA to formalise its approach to science assurance, with clear expectations for the use of science and clear processes to check and show how it is working. The WG identified a series of actions

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<sup>1</sup> Responses are cross-referenced to the relevant WG recommendations using the WG's numbering.

<sup>2</sup> FSA 18/09/08: [https://www.food.gov.uk/sites/default/files/media/document/fsa-18-09-08-governance-report\\_0.pdf](https://www.food.gov.uk/sites/default/files/media/document/fsa-18-09-08-governance-report_0.pdf).

which will strengthen and support FSA's use of science; but the WG felt it was for FSA to develop the detail of the framework for science assurance. This aligns well with the Board's own direction over the past year.

11. A proposed framework for science assurance is set out below. It reflects the FSA's high-level governance and covers the FSA's capability and the identification, generation and sourcing, delivery and use of science across the FSA. It has two key goals:
  - i. to assure the relevance and quality of the science and evidence generated
  - ii. to provide transparency on how science and evidence was selected, generated and used.
  
12. The framework is based on a simple model, with three essential pillars, underpinned by guiding principle of 'constructive challenge':
  - **Strong internal governance:** focused on clear expectations and supporting processes to deliver science and its assurance.
  - **Independent review:** focused on how we access the best external expertise to review our science approaches, outputs and processes.
  - **Openness and transparency** about our work, its outputs and data, ensuring they are accessible and open to scrutiny, challenge and use for all.
  
13. The Board already set its new governance expectations and role in September 2018 (paper FSA 18/09/08).<sup>2</sup> In line with this, the new framework will strengthen science assurance through the following strategic initiatives:

Strong internal governance:

- Setting clear expectations for how science and its use should work.
- Implementation of a new organisational design to improve science management, accountability and internal governance, and recruiting in line with this.
- Clear procedures for internal quality assurance on science outputs and processes at all levels (project to portfolio to strategy) and for identifying and escalating any issues.
- Reviewing external science commissioning across the FSA, to ensure that we are identifying and accessing the right science from the right sources.
- Strengthening the use of science Programme Boards to develop their horizon scanning, prioritisation and evaluation functions.
- Periodic review of science capability and capacity to meet future needs.

- Board papers on specific issues to clearly lay out how science has been selected, sourced and used in developing the recommendations presented.
- Internal audit of processes and their implementation, reporting to ARAC.

Independent review:

- Strengthening our use of Scientific Advisory Committees (SACs), ensuring they have the capacity and capability to provide effective and timely review (and where appropriate, challenge) of the FSA's science and evidence (see paper FSA 18/12/11).<sup>3</sup>
- Reviewing processes to ensure they provide the FSA's CSA with the oversight and information he or she needs to provide confident assurance to the Board and challenge to the Executive on science activity across FSA.
- Developing clear processes that ensure anyone can raise concerns on FSA science directly with the CSA outside formal channels.
- Establishing external peer-review as a central component of our sourcing and use of science, including in the risk analysis framework (see paper FSA 18/12/11).<sup>3</sup>
- Commissioning external review of our science, both as 'deep dives' on specific areas, and periodically at the strategy/portfolio level. This would involve the Science Council as well as other external sources.

Openness and transparency:

- Ongoing timely publication of all our risk assessments and other scientific reports and outputs in ways that support transparency and use.
- Delivering open data: making our data publicly available as the norm.
- A greater focus on generating peer-reviewed publications as part of our work, especially where we work with external academic partners.
- Committing to making all our peer-reviewed papers Open Access.

14. The ongoing work to develop the FSA's approach to risk analysis<sup>3</sup> will support delivery of the framework by establishing:

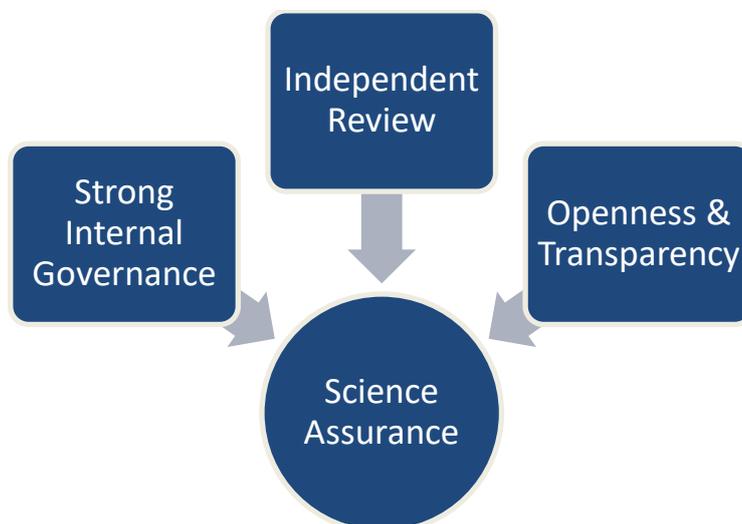
- clear expectations and supporting frameworks and processes for identification of issues, selection and delivery of the evidence needed, and use of this evidence to inform decision making and communication;
- clear roles and responsibilities for delivery and assurance at each stage; and

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<sup>3</sup> See Board Papers FSA 18/12/10 on risk and uncertainty and FSA 18/12/11 on risk analysis.

- clear checkpoints and published outputs, providing transparent evidence for assurance at key stages of selection, delivery and use of science.

Figure 1. The Science Assurance Framework



### **Actions to be reflected in discussions on future resource and priorities**

15. Actions likely to require additional or reprioritised resource will be reflected in future Business Committee discussions on resource and priorities: These include.

Programme spend:

- Sandpits and co-funds and larger, longer-term partnerships with researchers and their funders, employers and trainers.
- (Joint) funding of postdocs, internships and secondments.
- New opportunities to be identified by Science Council on horizon-scanning and data exploitation.
- Investments identified by science and organisational skills strategies.
- Tools and data to support assurance, for example external audit, research to develop and test ways to assess overall quality of evidence or to inform science and strategic prioritisation.

Staff resource (admin):

- Costs for increased internal and external engagement by FSA staff.
- Expanding science business partner roles.
- Staff resource to develop and deliver new research and its use for impact.

## Conclusions

16. The Board is asked to:

- **consider** the Working Group's report; and
- **comment on and agree** the proposed FSA response to the recommendations, including the proposed framework for science assurance.

**Annex 1 Science Council Working Group 1 Capability and Assurance final report**

This report is provided separately

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**Annex 2 Science Council Working Group 1 Capability and Assurance  
Proposed FSA response to recommendations in detail**

1. The FSA should welcome the report and accept the Working Group (WG) recommendations, subject to two qualifications that reflect developments in FSA's governance and organisation since the WG made its report:
  - i. Recommendation 5.4 (owners of activities across the FSA should be responsible for developing the assurance for their areas). Ownership is important, and we will involve all interested parties in developing assurance. Our approach will reflect our high-level governance,<sup>2,3</sup> including oversight by the Chief Scientific Adviser (CSA).
  - ii. The WG suggests that the CSA and CSA Team lead on implementing many of its recommendations. Our response reflects our high-level governance, and organisational changes including a new role of Director of Science, working with the Head of Science, with executive accountability for FSA's delivery and use of science. Assurance to the Board remains with the CSA.
2. The proposed responses are detailed below under five themes: cross-cutting; engagement and communication; identifying and accessing science; science capability; and assurance. These map broadly onto the WG's themes but reflect the fact that engagement is central to addressing several of the WG's themes.
3. Many of the proposed responses can be actioned within existing resources and priorities, and this work in hand, much of it within work on EU Exit, including significant developments in science capacity, capability and governance for risk analysis. In some cases, implementation would require new or reprioritised resource, and this will feed into discussions on future resource and priorities, on which the Board will take a view in March 2019. In a few cases, proposals relate to governance or strategic issues and which need further elaboration and subsequent discussion by the Board. We indicate below which actions fall in which of these categories.

4. In addition, work in hand covers existing priorities which have been previously discussed and agreed by the Board in relation to:
  - developing and implementing a strategic approach to science engagement (internal and external). This is fundamental to addressing many of the WG's recommendations across all aspects of our access to and use of science;
  - developing our use of strategic science and use of data; and
  - reviewing how we procure and commission science.

Theme	Proposed actions		
	In hand – already prioritised and resourced	To reflect in discussions on future resource and priorities	For further elaboration and discussion by the Board
<b>Cross-cutting [R0.1, 0.2, 4.1]</b> <sup>4</sup>	<p>This paper addresses recommendation R0.1 in setting out a plan to respond to the recommendations. If agreed, we will use this as the framework for tracking and reporting progress, including to the Council, addressing R0.2.</p> <p>Recommendation R4.1 on the need for leadership and culture that demonstrates that FSA values science and supports its use as a shared endeavour across FSA, is fundamental. FSA has always championed its science and current work will further strengthen the way we articulate and reflect this:</p> <ul style="list-style-type: none"> <li>• the high-level governance framework sets a clear role for science;</li> <li>• work on risk analysis builds on this by setting out and formalising the processes and responsibilities for identifying, delivering, using, communicating and assuring our use of science in risk analysis;</li> <li>• the Board discussing the FSA response to the WG's report;</li> <li>• developing the cycle of 6-monthly science reports to the Board, alternating high-level strategy and ambition with performance and delivery, with preceding discussion at EMT in each case;</li> <li>• new role of Director of Science to complement the existing role of Head of Science and with executive accountability for FSA's delivery and use of science.</li> <li>• the proposed responses below on engagement and communications, and on capability, will further strengthen science in FSA culture at operational level.</li> </ul>		<p>The development of the FSA's strategy from 2020 is an opportunity to review and if necessary further reinforce leadership and culture on science.</p>

<sup>4</sup> Responses are cross-referenced to the relevant WG recommendations using the WG's numbering.

<p><b>Engagement and communication</b></p> <p><b>[R1.1 to 1.8, 2.8, 2.10, 3.1, 3.3, 3.4, 4.4, 4.7, 4.10, 5.6]</b></p>	<p>A more strategic, structured and extensive programme of science engagement and communication are key to addressing many of the WG recommendations.</p> <p>The FSA Board has agreed an international strategy (FSA 18/06/10). Becoming more focused and strategic in our international engagement, will allow the FSA to concentrate our efforts in areas that make the greatest difference. This would include for example, our contribution to FAO/WHO joint expert science advice capability.</p> <p>Rick Mumford, Head of Science, is leading development of a strategic engagement plan for science, working with the FSA CSA Communications team. This will address the WG recommendations in a structured, prioritised way [R2.8], based on the outcomes we want from engagement (identifying, influencing and accessing external science; increasing FSA’s profile, leverage and reputation in science; and developing and supporting our internal capability). It will set priorities for the parties we need to engage with, externally and internally, and for the new and ongoing activities needed. The plan will be agreed, and implementation will have started by December 2018. It will be reviewed regularly. Work is underway on these initial priorities, with others coming on line in 2019:</p> <ul style="list-style-type: none"> <li>• Working with the Internet of Food Things network to develop further our use of digital and data technologies, alongside the Science Council’s new WG4 on data exploitation [R1.1].</li> <li>• Developing a science communications plan supported with new staff in the SERD [R1.2, 1.3, 1.5, 2.10, 3.1, 3.5, 5.6].</li> <li>• Creating an engagement network across the FSA to improve engagement and visibility of science and strengthen connections among teams and to encourage information sharing.</li> </ul>	<p>Increasing internal and external engagement may require additional resource in 2019/20 and beyond for staff time and associated costs such as travel, conference attendance, etc.</p>	
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	<ul style="list-style-type: none"> <li>• Making internal knowledge and documents more easily available, potentially making use of the FSA intranet<sup>5</sup>.</li> <li>• Developing ‘Science Business Partner’ roles to support effective internal engagement [R4.4, 4.8, 4.9, see ‘capabilities’ below].</li> <li>• Engaging with the National Food Crime Unit and Incident Response team to integrate enforcement intelligence into FSA’s science development [R4.7].</li> <li>• Engaging proactively with other regulatory agencies including Centre for Environment, Food and Aquaculture Science (Cefas), Animal and Plant Health Agency (APHA), Health and Safety Executive (HSE), Defra, Public Health England (PHE), Fera</li> <li>• Continuing to build relationships with key partners through engaging in relevant groups (e.g. Species Experts Groups and the Veterinary Risk Group – APHA) and constructive working arrangements on public and animal health incidents. [R4.8]</li> <li>• Engaging at CSA level on a potential joint project on food systems in the cross-government Strategic Priorities Fund [R2.8], and to promote recognition of the high scientific impact of work on the SACs in the Research Excellence Framework. [R1.4, 3.4]</li> <li>• Engaging at Chair and Executive level with learned societies to develop joint activities and promote and recruit to expert roles on the SACs. [R1.8]</li> </ul>		
<p><b>Identifying and accessing the science we need</b> <b>[R2.1 to 2.7, 2.9]</b></p>	<p>Work on risk analysis is addressing these recommendations in respect of the science we need for risk analysis, which is our immediate priority. This will develop clear processes, structures and tools for collective definition of problems, of the evidence needed to address them, and the plans to deliver this. [R2.1]</p> <p>The FSA is reviewing its processes for prioritisation and investment across all its activities, considering among other things how to ensure that science is properly considered alongside other investments [R2.2].</p>	<p>Expanding these approaches is likely to require additional resource in 2019/20 and beyond, as programme spend on new/larger projects, and possibly staff resource to support delivery of projects. This may include:</p>	<p>We will need to do more work to develop a clear system to identify the full range of future science needs to support FSA functions and objectives. There is also a wider question of how the FSA can be confident it has a good evidence base and</p>

<sup>5</sup> This will be informed by wider work to develop FSA’s knowledge Management.

	<p>CSA Team and Procurement are working to ensure and publicise that information on FSA's tenders for new science projects is open and easy to access [R2.3].</p> <p>We have strengthened governance of the Strategic Evidence Fund (SEF) with a Programme Board, which is reviewing the fund and its use to pilot new approaches [R2.4, 2.5, 2.6]. This includes:</p> <ul style="list-style-type: none"> <li>• piloting a 'sandpit' style event with the Science &amp; Technology Facilities Council</li> <li>• engagement with other funders to identify opportunities to co-fund work in their projects and calls where there is added value for FSA.</li> <li>• a research project to develop tools to assess value and impact of research to inform future prioritisation and evaluation of impact.</li> <li>• funding projects to inform the Science Council WG3 on horizon scanning and its new WG4 on data exploitation.</li> </ul> <p>We will discuss the Council's role in the SEF at the Council meeting on 12 December 2018 [R2.7].</p> <p>Work on internal engagement (see above) will help to generate a coherent picture of science needs across FSA to inform prioritisation.</p>	<ul style="list-style-type: none"> <li>• Wider use of sandpits and co-funds [R2.4]</li> <li>• Expansion of the SEF [R2.5, 2.6]</li> <li>• Larger, longer-term partnerships with other funders and partners [R2.8]</li> <li>• Joint sponsorship of postdocs, funding of internships [R2.9]</li> </ul> <p>The outputs from Science Council WG3 and WG4 (see above) will identify needs and opportunities to invest in new science and capability in HS/foresight and in data exploitation. These would feature in future bids and may need discussion by the Board.</p>	<p>rationale to inform and explain its decisions in setting its strategic priorities. We are co-funding cross-government work on consistent estimates and use of Value of Life Year (VOLY) measures to assign monetary values for life and health impacts in economic appraisal, which could inform such a framework.</p>
<p><b>Science capability</b> <b>[R3.1 to 3.3, 3.5, 4.2 to 4.9, 4.11]</b></p>	<p>As in other areas our immediate priorities focus on capabilities we need in relation to EU Exit. This work will deliver significant additional internal and external science capability through:</p> <ul style="list-style-type: none"> <li>• recruiting a significant number of new staff to science posts and in roles that use science in other parts of risk analysis [R4.2, 4.3] and updating induction to reflect science roles and use [R4.4]</li> <li>• recruiting to increase capacity and capability in the FSA's Scientific Advisory Committees (SACs) to provide independent expert advice on risk assessment.</li> </ul>	<p>Expanding access to external expertise may require new bids for investment.</p> <p>Longer-term, strategic engagement with researchers, funders, employers and trainers may require additional resource. Initial priorities</p>	<p>The question of how we will know we have the right science capability will be addressed in work on assurance and on FSA strategy from 2020.</p>

	<ul style="list-style-type: none"> <li>expanding and deepening our access to external expertise through other routes, through a register of experts and frameworks with organisations. This will focus initially on risk assessment and technical advice and extend through 2019 to cover all other areas of FSA need.</li> </ul> <p>We are bringing on-stream actions that respond to several recommendations as part of the SAC recruitment:</p> <ul style="list-style-type: none"> <li>co-ordinated, expanded induction for new and existing members [R3.2]</li> <li>a significant increase in fees for SAC members, from January 2019, after benchmarking against similar advisory roles in other departments [R3.5]</li> <li>an updated approach to managing interests for SACs and other external expert advisers which ensures it is robust and proportionate in ensuring we maintain access to expertise and in its demands on experts [R3.5]</li> </ul> <p>The FSA Chair has initiated a systematic approach to writing to senior employers of all SAC members to underline the value and impact of their work and of the support of employers for this [R3.3].</p> <p>Activities are underway to strengthen links between the National Food Crime Unit (NFCU) and the wider FSA, especially in surveillance, horizon scanning and data science [R4.6]. The NFCU is taking an active role in the surveillance programme, generating use cases to be explored and helping to direct the programme. As the Unit expands, there will be further opportunities for NFCU to share their expertise and experiences, by building internal awareness of the food crime threat (via engagement events and a regular slot on the FSA's corporate induction day) and through more specific knowledge exchange with specific parts of the FSA.</p>	<p>would focus on (co-) funding fellowships and interchanges. We would then look to develop larger/longer-term partnerships, to build shared capacity or address gaps in key areas. [R3.1]. This may lead to bids for new investments.</p> <p>As part of this work, an internal survey of science skills will be conducted to act as a benchmark for the expertise and experience found within the SERD team.</p> <p>We plan to expand the content of and support to the science business partner roles, and the supporting tools and material for this. [R4.4, 4.8 to 4.11]. This may require additional staff resource as an investment to fully realise the added value that a fully effective use of these roles can deliver.</p>	
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	<p>One example of work to improve the use of data from staff in the field [R4.5] is the roll-out of the blockchain project, using field data (CCIR and movement records) to provide information to farmers, and considering the inclusion of further datasets (such as weight, age, throughput) to develop benchmarking systems and identify trends. This technology can promote a more transparent environment where data held by FSA can benefit our science and be shared with stakeholders. In the future other datasets could be considered for inclusion in this work and in other horizon scanning, enforcement and engagement activities. An example of this could be the use of financial data to create a risk engine to better inform and guide local authorities and our inspection regime.</p> <p>Work on the FSA's People Strategy will analyse our broader, longer-term needs for internal capability, to inform a Strategic Capabilities Plan, which will set out the skills profile of the organisation and the steps needed to deliver the core skills and capabilities we need. The Plan which will be updated regularly and will inform future FSA strategy. [R4.2]</p>	<p>As noted above the Science Council's WG3 on horizon scanning and WG4 on data will lead to recommendations on how FSA can expand its capabilities in these areas and may require additional resource.</p> <p>Implementation of the FSA's Strategic Capabilities Plan could require additional resource in future years.</p>	
<p><b>Assurance</b> <b>[R5.1 to R5.6]</b></p>	<p>The WG noted that the FSA is already following frameworks and processes for assurance of its science. It identified a need for FSA to formalise its approach, making clear the expectations for the use of evidence in decision making, with clear processes to check and show performance in practice. Recommendations R5.1 to 5.6 provide useful advice to help us in addressing this need.</p> <p>The FSA's high-level approach to governance provides the frame for a more complete and transparent framework for science assurance.</p> <p>A proposed framework for science assurance and the high-level steps to develop and implement it are set out in the main paper (paras 9 to 13).</p> <p>Work on risk analysis<sup>3</sup> will build on this and address a significant part of the need by setting out:</p>	<p>Additional resource would be needed from 2019/20 on to elaborate and to develop tools and data to support assurance, for example: to research, pilot and evaluate ways assess the overall quality of evidence; to inform prioritisation of science needs; or to develop the process and inputs for wider strategic prioritisation. [R5.2].</p>	<p>We will need to do further work to develop and agree with the Board a complete framework for science assurance and the tools and data needed to service it.</p>

	<ul style="list-style-type: none"> <li>• expectations for the processes for identification and definition of problems, identification and delivery of the evidence needed to address them, the use of this evidence to inform decision making and communication. [R5.2]</li> <li>• roles and responsibilities for delivery and assurance at each stage, supported by Director of Science and Head of Science and with executive accountability for FSA’s delivery and use of science. [R5.2, 5.4]</li> <li>• clear checkpoints with systematic, published outputs (such as the final evidence ‘package’), supporting transparency and assurance, distinguishing between what the science says and how it is used in decision making. [R5.1, 5.2, 5.5]</li> <li>• supporting tools and guidance, incorporating existing material such as the Science Checklist [R5.3].</li> </ul> <p>Actions discussed in other themes above will also strengthen science assurance. Actions on culture and leadership and on understanding the capability we need will help set expectations and reporting against these. Actions on science engagement and communications will help support delivery against expectations.</p> <p>We will continue to participate in cross-government reviews and other exercises to assess science capability and performance, and our use of Internal Audit for internal review. We will report regularly to the Board in the our 6-monthly papers, covering alternately high-level strategy and ambition, and performance and delivery, with preceding discussion at EMT in each case. We will develop the scope and content of these reports as science assurance is further strengthened.</p>	<p>Resource could also be needed to commission periodic external audit or review as part of our science assurance.</p>	
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