

FSA Science Council Working Group Capability and Assurance (Working Group 1)

Advice and recommendations from the Working Group to the FSA

INTRODUCTION

1. THE QUESTION SET BY THE FSA:

- 1.1 The Science Council Working Group One (WG1) on Science Capability and Assurance has addressed the challenge set to the Council by the FSA Chairman at the Council's first meeting on 16 June 2017:

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

- 1.2 The drivers for this question were explained by the FSA Chairman and Chief Scientific Adviser at the Council's first meeting. They are set out in the Working Group's Terms of Reference.¹ In short, the FSA wants to reinvigorate science at the heart of the organisation. It aspires to be an excellent, modern, accountable regulator. To achieve this aim, the FSA needs to have a set of capabilities and processes to ensure it has access to the best available scientific evidence, analysis and advice, and uses these effectively to inform FSA policies and advice.

2. APPROACH TAKEN BY THE WORKING GROUP:

- 2.1 The WG has taken a two-phased approach. Phase one focused on how the FSA *identifies and accesses* the scientific evidence, advice and capabilities it needs. Phase two addressed how the FSA *uses* these inputs to inform its decisions and policies.

- 2.2 The WG considered information from the FSA which showed how it currently accesses and uses science throughout the 'policy cycle'². The FSA provided the Group with examples illustrating where science had been accessed and used in recent years and how successful this had been. This was supplemented by discussions with FSA staff at a Working Group meeting during Phase one, and at the start of Phase two through a series of interviews between the Working Group Chair and a range of FSA staff. This included staff who commission external research for FSA, do internal research, or use research evidence to inform FSA to support decision making. A list of interviewees is presented at Annex 1. The Working Group also considered the findings of an internal FSA staff survey, which the WG reflected were very similar to the findings of the interviews with the WG Chair and provided some internal validation to the findings from the interviews.

- 2.3 The WG identified five issues where there was a need for use of science within FSA

Issue 1	How the FSA identifies new ideas, new research groups, and external and internal expertise
Issue 2	How the FSA accesses the science it needs to inform its advice and policies
Issue 3	How the FSA works effectively with its Scientific Advisory Committees and external sources of expert advice

¹ <https://science-council.food.gov.uk/sites/default/files/wg1tor.pdf>

² The policy cycle covers the process from identifying issues, to scoping specific policy problems, identifying and assessing options, decision on action, implementation, evaluation and review.

Issue 4	How the FSA ensures it has the internal science capability to be effective in identifying, accessing and using science to inform decisions
Issue 5	How the FSA provides assurance that science acquisition and use are effective

- 2.4 In the first phase of its work the WG identified elements of good practice on the first three issues and used these and their expertise to provide recommendations on how the FSA could ensure high quality development and acquisition of science. These were reported to the Science Council at its second meeting in December 2017. In Phase two, issues 4 and 5 were addressed and again, recommendations developed through evidence gathering of FSA activities and discussion between the WG.
- 2.5 For each issue, the layout is:
- the background to advice and main observations
 - elements of good practice
 - recommendations for improvement and what they should achieve
 - where appropriate, suggestions for how to take recommendations forward

CONCLUSIONS AND RECOMMENDATIONS

- 3.1 The WG considered that that the FSA's desire to place science at the heart of all its activities faces challenge because it will require increased resources. This is especially relevant to exit from the European Union because this brings an increasing requirement for evidence sourced through the UK and FSA systems.
- 3.2 The WG stated that all the recommendations are important to have and maintain science at the core of FSA's work. Consequently, the recommendations have not been listed by priority, although those in bold are particularly relevant to underpinning science at the core of FSA activity.
- 3.3 The recommendations focus on principles and high-level objectives because FSA is best placed to decide how these should be operationalised now and in the future.
- 3.4 The recommendations involve both simple changes and also long-term, sustained changes. Engagement by FSA Board members and by the Executive Management Team (EMT)³ with science and its use in decision-making is an important part of embedding the changes into the FSA's culture. Many of the recommendations are for the CSA and the CSA's Team to lead, but effective implementation requires commitment from the whole of the FSA.
- 3.5 Addressing the recommendations now will help to ensure FSA's capability and assurance remain resilient and fit for the future.
- 3.6 In response to this report the WG request that:

R0.1. The FSA should develop an implementation plan setting out how it will address the recommendations from the WG, with clear responsibilities, timelines and resources.

R0.2. The FSA should provide a report to the Science Council on implementation of the WG's recommendations, within 12 months of submission of the WG's final report.

³ The EMT is the senior management of the FSA: Chief Executive and Directors, including the Chief Scientific Adviser

Issue 1:**How the FSA identifies new ideas, new research groups, and new external and internal expertise***Background:*

The Chief Scientific Adviser (CSA) and individuals in a range of groups in the FSA gave examples of how FSA has worked with other organisations to gain capability in new areas of research. A good example of identifying wholly new expertise was FSA's engagement with external experts to develop knowledge in data science. This was done through the CSA networking to identify expertise, and targeted funding to a known group to develop a partnership.

The WG recommended this approach to initiate FSA research in a new area. Once the FSA were familiar with an area and better known amongst the community, research could be called for in open competition.

Elements of good practice:

- Always make use of external expertise when trying to build capability in a new area
- Engage with the external scientific community through attendance at conferences, membership of external committees, networking events to highlight the FSA's science priorities, needs and activities, enhance the FSA's external scientific reputation and raise the prestige of external researchers who do work for the FSA

Recommendations

FSA should:

R1.1. Work directly with key people and organisations when developing a new scientific area within FSA. This is best done by the CSA and others making personal contacts to identify centres of excellence in the new area and commissioning research partnerships. As the area becomes mainstream for FSA, FSA should progress to using open competition for further research in the area.
R1.2. Improve communication of FSA's scientific activities – both internally and externally – to raise the profile of the science done to the relevant research community. This is best done by profiling FSA funded research done by FSA employees and external contractors at scientific conferences and impact events.
R1.3. Develop a structured approach to raise awareness of the science funded by and conducted by the FSA nationally and internationally. This could include use of posters, publications, social media and internet channels
R1.4. Capitalise on the high value of non-academic impact which is core to much of FSA funded research (on public policy, the economy, society, health, culture) to attract external scientists' interest in doing FSA externally funded research
R1.5. Produce a corporate slide-pack for FSA staff to use when presenting at meetings. This could focus on exciting science, past and future, and the role of the FSA.

The CSA and CSA's Team should:

R1.6. Increase FSA's engagement with early career researchers and their supervisors/mentors to build the FSA's network and cement relationships for the next generation of scientists to advise the FSA.
R1.7. Engage with 'impact officers' in Universities who can influence scientists in their organisations to engage with the FSA.
R1.8. Increase FSA's engagement with learned societies such as the Royal Society and Royal Academy for Engineering, and work with them on events, networking and research calls.

Issue 2

How the FSA can access the science it needs to inform its advice and policies

Background:

As for issue 1, the WG heard from the CSA about good practices, such as early engagement with key experts and research providers to develop new calls for research, and the use of the Strategic Evidence Fund⁴ to develop new ideas and approaches.

The WG advised that there is scope for FSA to:

- improve how it engages with external researchers to develop research needs and ideas
- develop the Strategic Evidence Fund (SEF) by piloting new approaches
- increase the FSA leveraging of science funding and capability

The WG noted that FSA science spend had fallen in recent years and that the FSA Executive had recognised the need to address this.

The WG observed that there is opportunity for FSA to raise the profile of its agenda and its research needs and to optimise its influence on the work of other funding sources, for example the Industrial Strategy Challenge Fund.⁵

Elements of good practice:

- Engage effectively with external researchers to develop good quality specifications for the research that FSA needs
- Advertise research calls widely to get a large number of tenders from the whole community in that particular research area

⁴ The FSA's Strategic Evidence Fund is a dedicated mechanism and budget to ensure FSA can fund innovative and strategic science work, looking more to the future.

⁵ Established under the UK government's Industrial Strategy, a long-term government plan published in November 2017 to boost productivity and earning power in the UK.

Recommendations

The recommendations under issue 1 are relevant for issue 2, in addition

The FSA should:

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| R2.1. Identify the full range of science that the FSA needs and the resource needed to deliver this, and ensure that this is properly reflected in decisions on resource prioritisation. |
| R2.2. Review its processes for prioritisation to ensure they ensure that science is prioritised appropriately alongside other types of investment. |
| R2.3. Ensure that the calls for research tenders are widely advertised and full calls are openly available (i.e. outside firewall/registration-only systems), modifying existing systems or creating new systems as needed. |
| R2.4. Develop FSAs use of iterative approaches and co-creation of research needs with external experts, for example, using sandpits ⁶ , when commissioning work in new research areas. |
| R2.5. Use the Strategic Evidence Fund to pilot new approaches to accessing science. |
| R2.6. Review the Strategic Evidence Fund to ensure it delivers effectively. |
| R2.7. Define the ongoing role of the Council to help develop FSA capability in this area and the Council's role in identifying new research areas appropriate to the FSA that could be supported through the Strategic Evidence Fund. |

The CSA and CSA's Team should:

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| R2.8. Develop and implement an engagement strategy for science. The objectives of this strategy should be to set out clear objectives and priorities for FSA's science engagement and to enable progress to be tracked. The objectives should include maximising the FSA's profile, influence and engagement with funders and providers of research. They should aim to capitalise on the potential to access, share and influence funding and science capability towards FSA priorities. For example: <ul style="list-style-type: none"> ○ Build partnerships and engagement with UKRI⁷ and other funders to ensure FSA is influencing research calls and leveraging funds ○ Build closer engagement with other Government organisations, including Public Health England and the Department of Health and Social Care, to align research needs. |
| R2.9. Use the improved approach to engagement to increase leverage of funding and expertise by funding shared PhDs, Doctoral Training Partnerships, IPAs (Industrial Partnership Awards) and contributing letters of support in industrial grant bidding. |
| R2.10. Develop FSA's advertising of its science needs to improve quality of science, by: <ol style="list-style-type: none"> i. Where appropriate, holding meetings to develop and/or notify people of research calls (for example, for large/long projects and/or in developing new areas) ii. Direct contact with impact officers, research officers and academics at Universities iii. Advertising calls in publications and networks. |

⁶ A sandpit is a group approach to formulating questions and developing ideas, working up details of a call specification and proposals in a research area, often with a commitment to funding where the activity includes potential contractors

⁷ UK Research & Innovation, which brings together research councils, Innovate UK and a new organisation, Research England

Issue 3:**How the FSA can work effectively with its Scientific Advisory Committees and external sources of expert advice***Background:*

The WG heard from the CSA and from FSA staff that the FSA has good existing capability to access external expertise but there are challenges. There are a number of functions which are likely to change in nature or volume with the UK's exit from the European Union, increasing FSA's need for expert advice. The available pool of experts for Scientific Advisory Committees (SACs) and external sources of advice in particular disciplines or career trajectories is reducing, and suitably qualified people may be less willing to serve in advisory roles.

Elements of good practice:

Develop the pipeline of new expertise for SACs by attracting people to expert roles. This includes improving the attractiveness of these roles by ensuring that their value is recognised by the experts themselves and their employers, UKRI and Research England (e.g. valued in the Research Excellence Framework, REF) and equivalent bodies in devolved countries. Another incentive would be to compensate individuals for their time appropriately, which is particularly important for self-employed individuals.

Recommendations:

The recommendations from Issues 1 and 2 around raising the profile of FSA to scientists at all stages of their career are relevant to Issue 3, in addition

The FSA should:

R3.1. Develop a systematic, targeted approach to engage with academics in relevant research areas to provide incentives. For early career researchers this might include fellowships e.g., with learned societies or the UKRI Future Leaders Fellowships scheme. In addition, there are several schemes where academics can spend some time in FSA e.g. Biotechnology and Biological Sciences Research Council's Flexible Interchange Programme.
R3.2. Offer greater support to work those working with FSA e.g. offer expert advisors mentoring on specific requirements of the advisory role.
R3.3. Engage with the universities and other employers of experts and communicate the value and impact of their staff acting as expert advisors to FSA.
R3.4. Engage in discussion across government on how central processes such as the Research Excellence Framework (REF) can better reward academics, institutions involved in advisory roles across government.
R3.5. Increase remuneration to those on committees who will lose income because of the current day rate or identify an alternative approach to make expert roles more attractive.

Issue 4:**How the FSA can ensure it has the internal science capability it needs to be effective in developing and identifying, accessing, and using science to inform FSA's decisions***Background:*

The WG observed that the main challenges for the FSA are to know what internal science capability it needs, and to access, support and use this capability effectively.

The WG agreed with the view of the CSA that the FSA science capability needs to produce new evidence and access all evidence within the organisation. This would ensure that science is developed or identified, accessed and used appropriately to inform decisions and advice.

Feedback from the CSA, the evidence from the interviews carried out by the WG Chair and the internal staff survey suggest that there are differences in how science is embedded and used across the FSA. Some FSA groups have scientific expertise and are aware of the need to use science and do so effectively. In other groups the understanding and use of science is patchy.

The WG heard that the science and analytics teams in the FSA had identified key staff to act as Business Partners (BPs), paired with specific groups in the FSA. Their role was to provide a single point of contact to help the group access the science providers, and to help FSA groups understand the science they might need and how to access it and use it effectively. The FSA questionnaire and interviewees both highlighted that BPs were effective in linking the providers and users of research and helped the latter access and use science more effectively. However, there was variation in the ability to access the BP and not all groups had a BP. The CSA's Team reported that all BPs had other roles and resource had constrained the availability of BPs to meet demand. For FSA to get the full value from BPs they would need to be consistent across all FSA groups and to be resourced to meet demand, including giving the BPs permission to prioritise this role within their complete job description.

Interviews with FSA staff also highlighted that there was an opportunity to make better use of data owned by FSA from inspection and monitoring. Analysis of such data could help engage the staff involved in data collection, improve data value and quality, answer existing questions and identify new challenges and questions. For example, the CSA noted that using data from meat inspection in abattoirs could add value for money to its collection. Given the investment in data science this new capability could be used as an early win.

Interviews highlighted there were opportunities to improve links with the National Food Crime Unit which used excellent approaches to analyse suspected dishonest activity that could be shared to help best practice in other groups in the FSA.

There is scope for improvement to reduce the variation in procurement and use of science across groups. This will be determined by the amount and type of internal resource the FSA has, and to how FSA makes use of this resource. Having more people working on science engagement (internally and externally) would enhance the FSA's ability to bring in new ideas and areas of expertise. The FSA should also consider if it can work more smartly to make better use of the resource available.

The WG noted that FSA works with other organisations within government to access expertise. Building collaborations and formalising arrangements by increasing mutual access to internal expert capacity in emergencies would help increase resilience.

The WG developed pictorial representations of the current flow of science information between different groups in the FSA and proposed a better or 'ideal state' (Annex 2). These are not intended to be comprehensive but to highlight that moving from the current to the 'ideal' state

would provide connections between all providers and users of science. To be effective these connections would need to be proactive, frequent, and with a fully two-way flow of information.

Elements of good practice:

Internal science capability in the FSA falls into three role types, listed below. Good practice will reflect having a sound understanding of how science is needed in each of these three roles, having the right amount of capability in each role, and joining them up to use them effectively:

- a. Specialist research roles for example performing risk assessments or economic analysis (science providers)
- b. Science roles for example defining and managing research projects, interpreting results, acting as science business partners (science providers)
- c. Science literacy in other roles: knowing when science is needed, how to access it and to work with science providers to use the outcomes effectively to inform decisions (science users).

Recommendations:

The FSA should:

R4.1. Have a culture and leadership in which it is clear that FSA values use of science across all areas. This should support a shared and reciprocal endeavour to identify, access and use science across FSA.
R4.2. Understand the nature and level of capability that different employees of FSA need.
R4.3. Ensure FSA has and continues to maintain the internal capability and capacity it needs.
R4.4. Ensure FSA has and continues to maintain intelligent users of science by a process of induction for new employees on its value and having suitably resourced Business Partners in FSA teams to support all staff.
R4.5. Improve the use of data from staff in the field in inspection and monitoring roles with the aim of: <ul style="list-style-type: none"> • improving quality of field data, making better use of data e.g. to identify patterns of risk over time, spatial differences in reporting across abattoirs • motivating and improving quality of data collection by field staff.
R4.6. Strengthen links between the National Food Crime Unit and the wider FSA (in particular work on surveillance, horizon scanning and data) to ensure that potential synergies and complementarities are fully exploited.
R4.7. Ensure FSA has a well-established collaborative approach with key partner organisations such as Public Health England and the Animal and Plant Health Agency, so that in emergencies the ways of working together are effective.

The FSA and the FSA Science Division should:

R4.8. Strengthen the FSA's use of science partnering systems to improve links between science providers and users. This should ensure coverage of all science and user areas, provide a resilient and effective network of teams and help preserve organisational memory.
R4.9. Ensure the Business Partner role is better supported.
R4.10. Explore ways to support knowledge sharing and engagement, such as online tools and platforms, networks and informal communities.
R4.11. Strengthen the internal profile of science with activities focussed on skills and understanding such as: shadowing, mentoring, rotating posts; surgeries (where staff are invited to drop in to ask questions of FSA experts); sandpits to develop ideas and share good practice; identifying and encouraging FSA staff who are effective at introducing others and brokering.

Issue 5**How the FSA can put processes in place which provide assurance that its science and evidence activities are operating effectively and with integrity***Background:*

The use of science within the FSA is an area that the WG did not have time to fully understand. The inputs from the CSA and FSA showed that FSA has a number of guidelines, frameworks and processes around assurance, but that these do not provide a complete, systematic overview of how well science is used practice, or complete confidence that the FSA would identify failures in use of science promptly.

The FSA has identified a need to strengthen its assurance and has identified four aspects on which assurance is needed: capacity, quality, relevance and use.

The Working Group suggested that the FSA's approach to the use of scientific evidence in decision-making should be formalised by setting out what should happen and being more transparent in showing what is done in practice. The FSA should look at what it might learn from other organisations and tools (such as NICE and GRADE in the health sector, although these operate in a different context to that of FSA's work).

Elements of good practice:

- Leadership from FSA that there is an expectation that science will be acquired and used with integrity
- A clear, agreed framework showing how processes that involve obtaining, creating and using science should work, that sets clear expectations and provides a reference for review and assurance of performance of the different parts of the FSA

Recommendations:*The FSA should:*

<p>R5.1. Develop a framework to be used for assurance of FSAs access and use of science. In developing the framework, the FSA should reflect the following points:</p> <ul style="list-style-type: none"> i. The framework and processes should be proportionate and should not be a barrier to FSA's seeking out and using scientific input ii. Assurance processes should address different levels of activity in different ways. This would include individual activities and tasks (such as a risk assessment); assurance on specific projects or decisions (such as a Board paper setting out proposals for decision), periodic reviews at the level of FSA as a whole (which could be internal and, every few years, external). It would also cover day-to-day oversight and quality control, and one-off audits either on random and/or targeted pieces of work or programmes iii. Assurance will need to be flexible and adaptable to future challenges and developments in the FSA's work.
<p>R5.2. Set out its approach to the use of evidence in decision making to make expectations clear and provide a reference against which to check and assure performance in practice. In implementing this recommendation, the FSA should:</p> <ul style="list-style-type: none"> i. consider approaches used elsewhere (for example NICE and the GRADE system)⁸, and assess whether these can be adapted to the FSA's context. It should also consider, and where appropriate reflect, previous work by the FSA, such as the reports with Heads of national Food Agencies in Europe on transparent use of risk assessment in decision making ii. distinguish between the processes for assessing what the evidence says, and those for ensuring that the evidence is properly considered and used in decision making iii. show how other factors besides the scientific evidence were taken into consideration in decisions.
<p>R5.3. Consider incorporating into the framework existing tools (for example the FSA Science Checklist).</p>
<p>R5.4. Ensure that the owners of the different decision processes using science and evidence in FSA are responsible for developing suitable audit programmes for their processes and specify what would a good audit would show. The CSA should have oversight of this process.</p>
<p>R5.5. Routinely document and publish the evidence trail, showing how science is used in practice in FSA decisions and advice.</p>
<p>R5.6. Develop and publicise internally examples of good practice to help establish a common understanding of what good use of science looks like, and maintain institutional memory.</p>

⁸ NICE: National Institute for Health and Care Excellence. GRADE (Grading of Recommendations Assessment, Development and Evaluation. a structured framework for decision making) is used in the health sector for assessments and decisions about health treatments and interventions

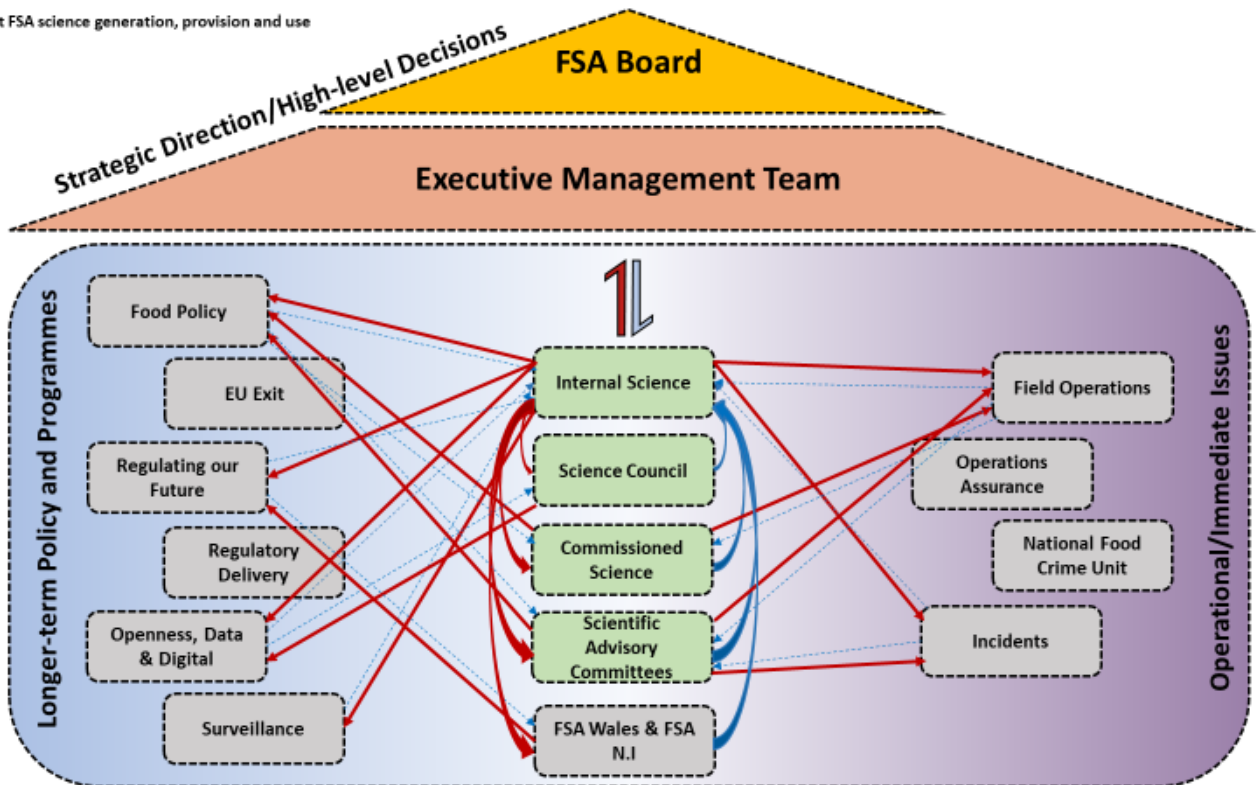
Annex 1 FSA staff interviewed by WG Chair

Note: FSA CSA Guy Poppy also attended these interviews

Roles in FSA	Staff interviewed
FSA Northern Ireland	Kirsten Dunbar
FSA Wales	Delyth Murray-Lines, Owen Jones
Food Policy	Mark Willis, Linden Jack, Stuart Armstrong
Regulating our Future Team	Leigh Sharpington
Surveillance	Bhavna Parmar, Rachel Mumford
Operational Vet Lead	John Lawrence
EU Exit Team	Carles Orri
Meat Hygiene	Milen Georgiev, James Ridsdale
Regulatory Delivery	Andrew Gangakhedkar, Mark Davies, Rachel Patrick, Angela Towers, Nicolette Harrison
Operational Delivery	Glen Leat, Carmel Lynskey
National Food Crime Unit	Giles Chapman

Annex 2. Diagrams of current and 'ideal' FSA science generation, provision and use

Current FSA science generation, provision and use



'Ideal' FSA science generation, provision and use

