



Auditing algorithms: the existing landscape, role of regulators and future outlook - BCS Response

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This document

This is the BCS response to the two Digital Regulation Cooperation Forum (DRCF) discussion papers^{1, 2}

- ‘Auditing algorithms: the existing landscape, role of regulators and future outlook’.
- ‘The benefits and harms of algorithms: a shared perspective from the four digital regulators’

In our response we have focused on those aspects of the discussion papers where professional practice and professional bodies can make a significant contribution.

DRCF consists of the four digital regulators:

- CMA³, the Competition and Markets Authority
- FCA⁴, the Financial Conduct Authority
- ICO⁵, The Information Commissioners Office
- Ofcom⁶

Response to the DRCF discussion papers

BCS welcomes the recognition of the DRCF regulators that they have an influential role in shaping the algorithmic processing landscape to benefit individuals, consumers, businesses, and society more broadly. Which means it is important for the DRCF regulators to discuss what role, if any, they should play in regulating algorithmic processing of data in the industries that they regulate, and equally important that they engage with the wider community, including professional bodies, on how that could be done.

¹ <https://www.gov.uk/government/publications/findings-from-the-drcf-algorithmic-processing-workstream-spring-2022/auditing-algorithms-the-existing-landscape-role-of-regulators-and-future-outlook>

² <https://www.gov.uk/government/publications/findings-from-the-drcf-algorithmic-processing-workstream-spring-2022/the-benefits-and-harms-of-algorithms-a-shared-perspective-from-the-four-digital-regulators>

³ <https://www.gov.uk/government/organisations/competition-and-markets-authority>

⁴ <https://www.fca.org.uk/>

⁵ <https://ico.org.uk/>

⁶ <https://www.ofcom.org.uk/>

Innovation thrives on freedom and autonomy in the pursuit of a clear purpose and vision. The BCS view is that regulation should allow organisations as much freedom and autonomy as possible to innovate, provided those organisations can demonstrate they are ethical, competent and accountable when measured against standards that are relevant to the particular area of innovation.

In the BCS response⁷ to the government's consultation on 'Data – A New Direction' we said for regulatory frameworks to fulfil the ambitions in the National Data Strategy⁸, National Innovation Strategy⁹ and National AI Strategy¹⁰ they should:

- set out the underpinning principles that characterise responsible data driven innovation and how they build on the 'responsible data' pillar in the National Data Strategy
- include clear guidance on how regulators should support organisations develop governance that enhances their freedom and autonomy to innovate responsibly
- encourage the development and adoption of innovative digital technologies that will help organisations in (possibly international) supply chains work together responsibly.

The two discussion papers published by DRCF provide an in depth discussion of important principles and areas of focus for DRCF regulators to priorities that do significantly address the above themes, although there are some gaps that need further consideration. The remaining sections of this document cover these gaps.

1 Public trust

In deciding on the next steps to take DRCF regulators should be mindful that

- recent high profile examples of poor practice have left people distrusting algorithms used to make decisions about them¹¹, which government has recognised is likely to undermine future digital innovation, and means regulation should incentivise organisations to adopt and use such algorithms in ways that builds public trust
- any algorithmic processes that handles sensitive information about people should be treated as imperfect, which means regulation should ensure effective remediation mechanisms are a core component of the systems such algorithms are embedded in rather than treated as an optional add on
- they need to work with other relevant non-DRCF regulators, particularly in the health and care sector that is currently undergoing a wholesale digital transformation programme

For innovative technologies to be widely adopted the public need to have trust that organisations using algorithms to process their information to make decisions about them will take responsibility for their actions and fix things when they go wrong. If DRCF regulator's efforts are going to benefit individuals, consumers, businesses, and society in the

⁷ <https://www.bcs.org/media/8169/data-new-direction.pdf>

⁸ <https://www.gov.uk/government/publications/uk-national-data-strategy/national-data-strategy>

⁹ <https://www.gov.uk/government/publications/the-government-technology-innovation-strategy/the-government-technology-innovation-strategy>

¹⁰ <https://www.gov.uk/government/publications/national-ai-strategy>

¹¹ <https://www.bcs.org/articles-opinion-and-research/the-public-dont-trust-computer-algorithms-to-make-decisions-about-them-survey-finds/>

way they intend then it is important they work collaboratively with the wider information technology profession to build such public trust. BCS as the professional body for information technology would very much welcome the opportunity to work with regulators in building public trust.

Recommendation: DRCF regulators should work collaboratively with professional bodies and other non-DRCF regulators, for example in health and care, to develop and embed professional practice that will build public trust.

2 Regulator friendly algorithms

Computer scientists around the world have put a considerable amount of effort into working out how to analyse algorithms over many decades. It turns out for arbitrary algorithms this is an intractable problem. For analysis, or auditing, of an algorithmic system to become tractable requires it to be intentionally written in a way that makes it feasible to

- demonstrate it works as intended
- uncover unintended consequences

For an algorithmic system to be effectively auditable by regulators it also needs to be written so that

- it is standards compliant to enable effective use of state of the art analysis/auditing tools and techniques,
- auditable data about the algorithm is generated in a standardised way that can be readily assimilated by regulators

That means for DRCF regulators to do their job it will be imperative to work with those professionals that design algorithmic processing systems and standards to ensure they can be successfully audited against the principles laid out in the discussion papers. In other words, in future algorithmic processing systems will have to be designed to be regulator friendly, which will only happen with the cooperation of the information technology profession who create those algorithms. Again BCS would welcome the opportunity to work with regulators to ensure the right professional practice is developed that will support such aims.

Recommendation: DRCF regulators should work collaboratively with professional bodies to develop professional practice that leads to regulator friendly algorithms.

3 Better outcomes for people and planet, not just consumers

One of the cross cutting areas of mutual interest that DRCF regulators will collectively focus on as a result of their analysis is 'healthy competition to foster innovation and better outcomes for consumers'. This is an important area for regulators to address, but they should also be concerned with competition and innovation that leads to better outcomes for all those affected by algorithms, not just those who are consumers of algorithmic products or services.

The UK needs new technologies that are going to deliver sustainable economic growth, increased productivity, and that supports 'levelling up' across all the devolved nations. This will include new technologies that:

- Enable a culture of innovation throughout the workforce
- Enhance the purposeful autonomy and agency for citizens both old and young, workers in every sector and consumers wherever they live
- Facilitate collaboration between diverse and interdisciplinary teams throughout globalised supply chains
- Leads to productivity and growth that is sustainable for the whole planet

Recommendations:

The DRCF regulators should modify their original focus area to be:

- healthy competition to foster innovation and better outcomes for society and for the planet

The DRCF regulators should

- develop and use standardised evaluation mechanisms of the impact on responsible competition and innovation that an algorithmic system is likely to have.

These will be essential to ensure regulation supports the desired outcomes set out in the discussion documents.

4 Data science is still a nascent profession

Government [recognised](#) in the National Data Strategy that data science is a nascent profession. The Royal Society report¹² ‘Dynamic of Data Science’ recommended that professional bodies such as the BCS and the Royal Statistical Society work together to further professionalise data science. In response the Royal Statistical Society, BCS, the Institute for Mathematics and its Applications, the Operational Research Society, the National Physical Laboratory, and the Alan Turing Institute have formed the Alliance of Data Science Professionals, which is supported by the Royal Academy of Engineering and the Royal Society. Their joint work is leading to new standards that will provide a progression pathway to Chartered status for data scientists.

Recommendation: DRCF regulators should be actively engaging with the Alliance of Data Science Professionals to ensure they are up to date on the latest professional standards, and that regulation is future proof and is aligned with developing professional practice.

5 Global Standards - SFIA

The DRCF discussion documents point out that regulators must work collaboratively with global corporations and global supply chains, which means regulation has to be aligned with global standards that are widely recognised. Given that regulators will rely on professional practice which results in regulator friendly algorithms, they should ensure their efforts facilitate improved standards of professional practice that are easily adopted.

SFIA¹³ is a global employer led skills frameworks for information technology which, for example, has been adopted in Australia, New Zealand, Canada, Japan, and Saudi Arabia, etc.

¹² <https://royalsociety.org/-/media/policy/projects/dynamics-of-data-science/dynamics-of-data-science-skills-report.pdf>

¹³ <https://sfia-online.org/en>

Final - reviewed

It is also licenced by global standards bodies, such as for example the IEEE. SFIA is used by BCS to underpin standards for professional registration.

Recommendation: DRCF regulators should familiarise themselves with globally adopted, employer led skills standards, such as SFIA. They should ensure regulation facilitates enhancements to such standards leading to professional practice that produces regulator friendly algorithms.

Who we are

BCS is the UK's Chartered Institute for Information Technology. The purpose of BCS as defined by its Royal Charter is to promote and advance the education and practice of computing for the benefit of the public.

We bring together industry, academics, practitioners and government to share knowledge, promote new thinking, inform the design of new curricula, shape public policy and inform the public.

As the professional membership and accreditation body for IT, we serve over 60,000 members including practitioners, businesses, academics and students, in the UK and internationally.

We also accredit the computing degree courses in over ninety universities around the UK. As a leading information technology qualification body, we offer a range of widely recognised professional and end-user qualifications.