



Institute
and Faculty
of Actuaries

Centre for Data Ethics and Innovation consultation

IFoA response to Department for Digital, Culture,
Media & Sport

5 September 2018

About the Institute and Faculty of Actuaries

The Institute and Faculty of Actuaries (IFoA) is a royal chartered, not-for-profit, professional body. We represent and regulate over 32,000 actuaries worldwide, and oversee their education at all stages of qualification and development throughout their careers.

We strive to act in the public interest by speaking out on issues where actuaries have the expertise to provide analysis and insight on public policy issues. To fulfil the requirements of our Charter, the IFoA maintains a Public Affairs function, which represents the views of the profession to Government, policymakers, regulators and other stakeholders, in order to shape public policy.

Actuarial science is founded on mathematical and statistical techniques used in insurance, pension fund management and investment. Actuaries provide commercial, financial and prudential advice on the management of assets and liabilities, particularly over the long term, and this long term view is reflected in our approach to analysing policy developments. A rigorous examination system, programme of continuous professional development and a professional code of conduct supports high standards and reflects the significant role of the profession in society.



CDEI Consultation
Department for Digital,
Culture, Media & Sport
100 Parliament Street
London
SW1A 2BQ

5 September 2018

Dear Sir/ Madam,

IFoA response to Consultation Paper on Centre for Data Ethics and Innovation

1. The Institute and Faculty of Actuaries (IFoA) welcomes the opportunity to respond to the DCMS's consultation paper (CP) on the proposed Centre for Data Ethics and Innovation (CDEI). The IFoA's General Insurance Standards and Consultations Committee and insurance Boards have been involved in the drafting of this response. Members of the Committee and Boards are actively engaged in the development of data science techniques across the insurance industry.

General Comments

2. The IFoA welcomes the establishment of the CDEI, which we believe is necessary and timely. Data science is transforming processes for financial institutions, business in general, Government, consumers and wider society. Data science's potential comes from not only gathering ever more data, but also from the growth in analytic capability, and the ability to see people and processes in much more detail than before. Improved analytics are also identifying relationships which would otherwise remain hidden in data.
3. Data science has significant potential to promote innovation across a range of areas in which our members practice, including general, life and health and care insurance. However, as it delves ever deeper in our lives, data science raises significant questions over ethics and the public interest. These are challenges the IFoA have been considering in an insurance context for over 150 years – actuaries are the original data scientists.

Relevance of Data Science to Insurance and Actuaries

4. The CP sets out how data and Artificial Intelligence (AI) have the potential to improve lives in a diverse range of areas, including healthcare, transport and public services. As further illustration, it may also be useful to consider the potential of data science in insurance. Actuaries are already applying data science to a range of insurance developments, including telematics devices in motor insurance, wearable fitness devices in health and care insurance and advanced risk management in life insurance.

5. Insurers have long gathered data to understand the nature of the risks they are exposed to, and data science in conjunction with advances in computing power offers a step-change in risk analysis by being able to see these risks in much more detail, and on a continuous basis. This offers benefits to insurers and consumers alike, with the potential of better:
 - consumer targeting and product design;
 - risk assessment and pricing;
 - consumer engagement; and
 - claims management, including avoidance of fraud.
6. The rise of data science is however generating a range of potential concerns in insurance, whether unintended or otherwise. As insurers are able to see risks in finer detail, the level of cross-subsidy between policyholders could decline. It is also possible that some policyholders could find insurance harder or more expensive to obtain. There are wider issues relating to data ownership, transparency, ethical pricing and fairness. With personal data being gathered in increasing volumes, there is also a risk that insurers could be perceived as being overly intrusive, and acting in 'big brother' fashion.
7. One theme common to a number of these concerns in insurance is that the potential downside of data science could have a disproportionate impact on certain societal groups. For example, this could include individuals with an inherited genetic condition, or the less well-off.
8. Given the potential ethical and wider public interest issues arising from the increasing use of data science, it is important to consider the regulation of professionals working in this field, be they actuaries, data scientists, risk managers or otherwise. The IFoA regulates its members to ensure the public interest, whilst supporting business and innovation. As data science grows in importance, the IFoA will continue to review its regulatory framework to ensure that as public interest issues evolve, the regulation (and education) of actuaries remains fit for purpose.
9. We have answered each of the CP questions below from the perspective of what is in the public interest. If we can provide any wider input to the establishment of the CDEI please let us know: we would be delighted to help.

Q1. Do you agree with the proposed role and objectives for the Centre?

10. The IFoA supports the overall role and objectives of the CDEI. We agree that it is appropriate to encourage innovation in the use of data, as well as ensuring that data use is ethical. There is a parallel with the IFoA's strategy and our regulation of actuaries: we regulate our members (on a global basis) in such a way as to assure public trust, but also to support business and innovation.
11. We also agree that ethical use of data and innovation can often be mutually reinforcing: it is important to build and maintain public trust in data science.
12. The CP explains that the CDEI will build on and enhance the regulatory/ legislative data landscape. We consider this appropriate. However, we believe there is merit in reflecting on learnings from the recent introduction of the Data Protection Act 2018, as there may be a lead-time before any gaps and deficiencies in recent legislation become apparent.

13. As mentioned later in our response, it may also be necessary for the CDEI to react to the external data environment. As the DCMS will be aware, data science has had prominent and adverse press attention of late.
14. We agree that the CDEI's approach to data should be proportionate. There is a further parallel with the IFoA's strategy here: our regulation and development of standards is on the basis of careful assessment of risk and seeking to regulate fairly, and in a way that is proportionate, accountable, consistent, transparent and targeted.

Q2. How best can the Centre work with other institutions to ensure safe and ethical innovation in the use of data and AI? Which specific organisations or initiatives should it engage with?

15. The CP describes a diverse range of stakeholders with whom the CDEI could potentially engage in its work. The suggested approach is sensible: the IFoA collaborates with a wide range of stakeholders on a global basis, including regulators, industry, consumer groups and other learned societies in the development of our work in actuarial regulation, education and public and policy.
16. There is an international dimension to our stakeholder engagement, and we have found it useful to share learnings from across the world. This is clearly applicable in a data science context.
17. The IFoA considers regulation and matters of public policy from the perspective of what is in the public interest, and we recognise significant parallels between the CDEI's proposed remit in data/ AI generally, and our involvement in data science in the context of insurance. We would be delighted to explore opportunities for the IFoA to collaborate with the CDEI.

Q3. What activities should the Centre undertake? Do you agree with the types of activities proposed?

18. The proposed activities set out in the table within the CP provide a reasonable scope in our view. We agree with the point that the CDEI will need to be flexible to react to changes in the external environment: data science is likely to retain its high profile; it is also a rapidly evolving field.
19. We note that the CDEI's broad remit includes harnessing the potential of data science, as well as dealing with emerging ethical issues. We share the view that the CDEI's activities should have an appropriate balance between the potential benefits and risks relating to the use of data science. The CDEI should be responsive to the external environment, but this should not focus exclusively on 'firefighting' any downside, to the detriment of encouraging innovation.
20. Although the CDEI would be a UK advisory body, again we encourage efforts to engage with international debate on data science, given its global reach. An international dimension is included under the proposed agree/ articulate best practice role, but we believe international engagement would be a useful input across all three aspects of the CDEI's role.

Q4. Do you agree with the proposed areas and themes for the Centre to focus on?

Within these or additional areas, where can the Centre add the most value?

21. We believe that the proposed areas and themes set out in the CP are all worthy of attention and are directly relevant to the use of data science in insurance. To provide further insurance context, these are considered in turn:
22. **Targeting:** insurers can take advantage of new sources of data to better target intended customers to specific and potentially more suitable products. A more rounded view of consumers and their needs could also mean that they are not missing out on necessary cover. However, greater insight on consumers and their behaviour could potentially be abused, leading to conduct risk concerns. For example, allowing for sensitivity to price/propensity to shop around when setting insurance premiums could treat more 'loyal' customers unfairly.
23. **Fairness:** much of data science's potential in insurance relates to the greater insight possible in the insurance risk assessment process. More accurate and detailed risk assessment should allow insurers to set insurance premiums more accurately, and in greater alignment with the corresponding level of risk. This could increase insurance coverage or make it cheaper in *some* cases.
24. However, the converse could also be true: certain subsets of the general public could find that data science has an adverse impact on them in relation to the cost or availability of insurance.
25. We therefore suggest that a further general area the CDEI could consider is the impact of data science on the future cost and availability of products, including insurance. There should also be considerations of availability where insurance is compulsory, such as motor insurance.
26. There is a separate question over the ethical use of insurance rating factors. Although direct rating by factors such as gender and ethnicity is illegal, there is a risk that proxies for these factors could be used by profiling individuals via social media.
27. **Transparency:** there is a potential lack of transparency around data science and associated data analytics, and understanding what is behind the 'black box' can be challenging. Information asymmetries between insurers and consumers could also widen with greater use of data science. Related to the points made within the CP on fairness, there is a risk of prejudice (or bias) creeping into any risk profiling applied. Advanced insurance pricing models may rely on algorithms rather than explicit insurance risk rating factors, making the setting of the insurance premium less transparent.
28. Again the converse may also be true: greater clarity on risk could reduce the reliance on data analysts' prejudices by making risk analysis more data-led.
29. Related to issues over transparency, understanding what is behind an automated algorithm can be challenging, not least for consumers. However, it is becoming a challenge also for data scientists, where algorithmic decisions are increasingly automated. This then raises a question over the responsibilities of the different parties involved in insurance risk rating decisions made by such an algorithm.
30. **Liability:** we agree that the rise of autonomous systems will have an impact on who is responsible when things go wrong. One example relates to motor insurance, and the question

of who would be liable in the event of a traffic accident involving autonomous or semi-autonomous vehicles: the vehicle owner, or the software manufacturer.

31. **Data Access:** we also agree that it is very important to establish efficient data sharing frameworks in an ethical way.
32. **Intellectual Property and Ownership:** there is often significant intellectual property in the development of data science, and with this could be corresponding commercial sensitivities. This particular issue is one the CDEI will need to consider how it addresses.
33. Questions over data ownership in insurance include whether data gathered by technology is the property of the insurer or the consumer. This then impacts whether data can be transferred when consumers change provider, and whether individuals would be obliged to share pre-existing data when they change provider.
34. Related to data ownership is the issue of data privacy. Many consumers will place a value on their data privacy and lack of 'big brother' intrusion into their life. However, it is feasible that the less well-off might be more prepared to forgo data privacy in return for lower insurance premiums.
35. One area not mentioned within the CP and which we suggest should be considered further is cyber risk. This is an important emerging area of risk, and data science contributes to insurers' (and other data users') exposure to it, as increasing volumes of data are accumulated. In particular, the risks of data being lost, corrupted and stolen are important issues for user of data science applications to consider.

Q5. What priority projects should the Centre aim to deliver in its first two years, according to the criteria set out above?

36. We note the reference within the CP to the existing commitment to establish data sharing frameworks. Bearing this in mind but also noting recent controversy relating to data ownership, we suggest that questions over data ownership and transparency would be worthy of early attention. In particular, we also suggest that the CDEI consider encouraging progress over the 'explainability' of decisions made by algorithms, which relates to the transparency theme.
37. As noted in our response to Q3 above, when the CDEI considers project prioritisation, we suggest this has regard to encouraging innovation in data science, as well as addressing associated potential/ real ethical concerns.

Q6 Do you agree the Centre should be placed on a statutory footing? What statutory powers does the Centre need?

38. The IFoA agrees that it is important that the CDEI secures credibility in its work, and a statutory footing would provide a mandate for its proposed functions. Being seen as an independent advisory body will also be key to gaining credibility: being independent of relevant stakeholders will avoid the risk of being perceived as lobby organisation for one specific group of stakeholders. It is however important that the CDEI engages with a broad range of stakeholders.

39. As mentioned in the CP, we also recognise the importance of evidence-based decision making. This, together with transparency, will also be important in establishing public trust in the work of the CDEI.
40. The CP refers to the CDEI having the power to request information to provide an evidence base. It may also be useful to allow for access requests to organisations, and to foster the sharing of information between the CDEI and Governmental bodies where relevant.
41. We support the intention of establishing the CDEI on a provisional, non-statutory basis as soon as possible. It makes sense for the scope of the CDEI's statutory powers to be informed by the learnings from this initial provisional phase.

Q7 In what ways can the Centre most effectively engage stakeholders, experts and the public? What specific mechanisms and tools should it use to maximise the breadth of input it secures in formulating its actions and advice?

42. The IFoA strongly supports the intention of having a diverse and inclusive Board and staff for the CDEI. We believe this is particularly important in the context of data science/ artificial intelligence, and given the proposed remit of the CDEI. Our view is that having diverse skills and perspectives is a vehicle for innovation; it should also help develop the best approach to any opportunity or challenge by considering alternative approaches. Collaboration should also be helpful in learning from the experience of the diverse range of industries being impacted by data science.
43. We can envisage lack of diversity within the data science world increasing the risk of discriminatory bias becoming embedded within technology. Therefore, having a diverse Board and staff would help the CDEI be more alert to this risk.
44. The CP sets out a range of approaches to stakeholder engagement, including expert panels, round table discussions, consultations and commissioned research. The IFoA uses these approaches in different circumstances and we find them effective methods of gaining broad insight from a range of key stakeholders. We suggest the engagement approach used should depend not only on the relevant source of information, but also the audience being communicated to.
45. Further approaches to stakeholder engagement are referred to: i.e. citizens' juries and polling of options. These could also be useful to the CDEI, given the wide-ranging implications of data gathering on the general public, and the need to gain a broad range of views.
46. The CP explains that the Chair of the CDEI would be accountable to the Secretary of State for Digital. We suggest that a requirement for the CDEI to deliver reports on its activities to House of Commons DCMS Committee would also be useful in gaining cross-party scrutiny of the CDEI's activities.

Q8 How should the Centre deliver its recommendations to government? Should the Centre make its activities and recommendations public?

47. Operating in a transparent and open basis will be important in helping build public trust and confidence in the CDEI. As suggested in the CP, the default approach for the CDEI should be to make its reports and recommendations public. Although we acknowledge that there may be circumstances where this may be less appropriate, such as issues with a bearing on national security, it would still be useful to have a transparent policy in relation to such circumstances.

48. We recognise that the CDEI may need to work through diverging public/ industry views in forming its recommendations. The CDEI could do this in a transparent manner by setting out the reasoning for its recommendations, and acknowledging how competing views have been considered. As referred to earlier, in our work, the IFoA considers issues from the perspective of what would be in the public interest.
49. The CP suggests that the UK Government should publish its response to the CDEI's recommendations on an annual basis. We support regular engagement between the UK Government and the CDEI. However, as mentioned earlier, given the high profile of data science and its rapidly-evolving nature, we envisage circumstances where the Government may need to be more flexible in its response to the CDEI, such as on matters of particular and pressing public concern.
50. We also support engagement between the CDEI and the devolved Governments across the UK. This should help the CDEI consider any legislative and wider factors specific to Scotland, Wales and Northern Ireland in reaching its recommendations.

Should you wish to discuss any of the points raised in further detail please contact Steven Graham, Technical Policy Manager (steven.graham@actuaries.org.uk / 0207 632 2146) in the first instance.

Yours sincerely

Jules Constantinou

A handwritten signature in blue ink, appearing to read 'Jules Constantinou', with a horizontal line underneath.

President
Institute and Faculty of Actuaries