Shifting perceptions of risk
A guide to improving the understanding and communication of risk across society

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Risk is a term used in daily discussion across all levels of society. However, for scientists, policy-makers and businesses it is an important concept for informing and communicating decisions.

In my previous role as Minister for Public Health and Innovation, and in my current role as Chair of the Human Tissue Authority, an understanding of how the public perceive and respond to risk is essential to creating beneficial and trusted policies.

This document was informed by conversations between academics and practitioners. It has limitations in length and complexity, but I believe it is an excellent starting point for building understanding and collaboration across sectors which has been so lacking to date.

I know I will find it useful, and I hope you will too.

Huxley Summit
The Huxley Summit is a high-profile thought leadership event run by the British Science Association. It is named after ‘Darwin’s bulldog’, self-taught scientist Thomas Huxley who argued for Darwin’s theory of evolution against the Bishop of Oxford, Samuel Wilberforce, at the British Science Association’s (BSA) annual meeting in 1860. This was a pivotal moment in the public’s understanding of and opinion on evolution, and the Summit aims to provide a platform to debate key scientific and social challenges facing the UK in the 21st century.

The 2018 theme “Shifting perceptions: The challenges and opportunities of the Fourth Industrial Revolution” focuses on what causes public opinion of science and technology to change, why we should learn from the past to better prepare for the future, and how business, policy, and science organisations can respond to risk and uncertainty.

Who was involved
This guide was produced as a result of a roundtable discussion held in the run up to the Huxley Summit 2018. It is intended to engage policy-makers and businesses in conversations around perceptions of risk, to support organisations to improve their approach to communicating risk, and to suggest mechanisms for better policy-making. Thank you to the following organisations for their input in the development:

Behavioural Insights Team, Cass Business School, Diageo, Edelman Intelligence, Human Tissue Authority, Imperial College London, Lloyds Register Foundation, Prudential, RAND Europe, UK Accreditation Service, University of Oxford, University of Cambridge
**Why is thinking about risk important?**

When making decisions, organisations must deal with a large volume of information, including the statistical evidence of risks and benefits, plus the social, practical and cultural factors of the change they are proposing. In these situations, there needs to be a level of confidence about what information to prioritise, which opinion to trust, and that the decision taken is the correct one.

**What are the common challenges around risk?**

**Level of knowledge**
There are varying levels of understanding of what risk is and how it applies to regulation and decisions, especially in industry and government. In academia, where there is a higher level of knowledge of the evidence base, there is limited knowledge of its application. Gaps in knowledge often carry through in messages communicated to the public. This then lends itself to limited understanding within the wider population.

**Clarity of purpose**
Evidence and risks are often communicated simultaneously to try to inform and try to persuade the public. To be effective, there needs to be a distinction between the two, rather than trying to do both and subsequently being unclear about the purpose.

**Competing priorities**
Within both government and industry there’s a desire for better understanding and communication of risk in decision-making at high levels, but organisations are lacking the capacity to deliver this. Similarly, the reward systems for academia currently favour primary research. Therefore it is rare that academics with in-depth knowledge and skills are rewarded for work on evidence synthesis and meta-analyses that could contribute to a better policy process and more effective policies.

**Processes**
Processes such as setting up risk registers are commonly used for supporting decisions, however their prescriptive nature can reduce an organisation’s ability to be responsive. If an unpredictable scenario occurs, organisations may be left with limited options for how to proceed.

**What links risk and evidence?**
Synthesising evidence across disciplines and bringing together insights to inform policy can also improve the communication of risk.

*Good evidence synthesis removes the focus on “newness” of the research, and instead puts all available research into context and uses the entire evidence base to make decisions.*

The process outlined in recent work by Academy of Medical Sciences and the Royal Society suggests using meta-analyses by bringing together share parameters and can yield better results than selective referencing.

It recommends using a variety of sources and being aware of bias, while always keeping the four key principles in mind; Rigorous, Transparent, Accessible (e.g. open access of published work and data), Inclusive (engaging from the beginning).
What does clear risk communication look like?

We suggest when planning a campaign that includes communicating risk to the public, the following points are considered:

- **Have statistical clarity and be consistent:**
  - Provide a denominator and a reference point which people have an intuitive understanding of. For example, 1/1000 is easier for people to picture than 0.1%.
  - Try to present comparable options and don’t use relative percentages or odd ratios. For example: 4/1000 instead of 1/250.

- **Use images or infographics instead of or in addition to graphs when communicating with business and policy audiences.**

- **Include real terms and real-life examples where possible and compare the risk factor in question to other everyday life risks.**

- **Report uniformly on potential harms and benefits – give the same weight to all arguments.**

- **Make the parameters clear:**
  - Timescale
  - Uncertainties, including the level of uncertainty
  - Communicate that there are always winners and losers

- **Use a range of inputs to illustrate the acceptability of outputs (risk), as risk tolerance is not precise nor homogeneous.**
How could trust affect public perception of risk?

Trust in evidence and risk communication can be affected by many factors, but the intermediaries who carry the messages are particularly important for determining whether the information is trusted. Regular surveys such as the annual Edelman Global Trust Barometer show trust in academic expertise is consistently high, and that the intermediaries such as media, government, charities, and campaigners which commonly channel the view of experts are less trusted.

The rise of social media has led to more channels of communication dictating how people assess trust in information. A recent MIT study found that false news distributed on social media (specifically Twitter in this case) travel faster and further than truth. True stories build trust, but people are less likely to pass on that information as it tends to generate a much weaker emotional response.

Similarly, surveys have shown that a large portion of the public actively avoid media:

- ‘A third of the total population admit to consuming less news than they used to, and 1 in 5 say they are avoiding the news completely.’
  UK Edelman Trust Barometer 2018

- ‘Half of the global population state that they read news less than weekly.’
  Edelman Global Trust Barometer 2018

However, according to the 2018 findings ‘there has been a huge increase in trust in traditional media (61%), reaching levels not seen since 2012. There has also been a rebound in faith in experts and leaders.’

UK Edelman Trust Barometer 2018.

This indicates that consumers increasingly want to hear from reputable, well-researched sources: technical experts and subject matter experts have become more trusted, and “a person like me” is at an all-time low.

Trust or trustworthiness?

The evidence of trust provided by opinion polls is not always the most useful indicator of trust, since the relative ranking of sectors is very stable. Arguably, what organisations are seeking is not greater trust in their sector, but more directed trust towards those who are deserving. This is where the concept of trustworthiness – being visibly reliable, honest, and competent over a sustained period – is most important.
Where next for risk and trustworthiness?

The 2018 trends arguably indicate that people want good storytelling and want to be guided in times of uncertainty.

In the past 10 years there has been an emphasis on openness and transparency across all sectors. In some cases, this has made communicating risk more difficult, since simply providing information does not guarantee accessibility or relevance to the intended audience. Instead, intelligent accountability should be encouraged: accessible, usable, assessable, understandable.

The idea of trustworthiness is already being used in policy contexts and could be applicable in industry and for opinion-formers. For example, the latest Code of Conduct for Government Statistics commits to:

- Truthful, independent and impartial statistics
- Clear accountabilities and clarity over decision-making
- Effective business processes and appropriate resources
- Appropriately skilled, trained and supported people working on the statistics
- Good data security and management.

It is critical that journalists and opinion shapers obey principles of objective reporting, and never use flawed, misleading or incomplete presentations of risk.

Similarly, organisations who are highly trustworthy and are relied on to be trusted experts must be incentivised and encouraged to engage with the public and with intermediaries. This is especially the case for researchers, who often retreat from debate for fear of being misunderstood or misquoted.

What needs to be measured?

Tracking the effectiveness of risk communication is a valuable exercise if we want policies which foster a healthier, safer and more confident society. It is important to measure how effective regulations or guidelines are in changing behaviours. There is currently a gap in knowledge of the effectiveness of balanced communication about the benefits and harms of alternative policies. For example, there are few studies into instances where multiple policy options are presented to the public, with their respective benefits and harms. Impact measurement should inform a mechanism for timely action which responds to public attitudes and behaviours.
What is an organised approach to risk?

When making decisions about new technology or regulation there can be a tendency to try to understand risk too early.

Regardless of timescales, any discussion about risk needs to be framed by an understanding of the stakeholder’s level of knowledge about the decision and its potential outcomes; and how to best understand the likelihood of these outcomes.

How does an organised approach to risk work on short timescales?

In instances when communicating risk requires a rapid response, the most important step is knowing the context of the debate, and the schedule in which a decision is expected. Decision-makers should set up external support mechanisms comprising of users, industry, and expert groups, who can inform and support a quick response. The ideal scenario would be to build and maintain these relationships when there is no threat. External supporters should understand the time pressure and needs of decision-makers; that they might be receiving incomplete or inconsistent information to date, and they might not have access to the skills to fill in the gaps.

Choice of language has an impact on the way the risk is perceived, especially on short notice:

- Communication must be balanced and should not be apologetic about issuing rebuttals when the information is wrong.
- Responses need to chime with public values, and tell compelling stories with the evidence, so that the debate is not between statistics and emotions or individual case studies.
- Uncertainties can be included in communications — provided the messages are confident in their uncertainty, public trust is not lost.
- Opportunity must be part of the framing alongside the risks, to create a much more rounded starting point for debate.
How does an organised approach to risk work on long timescales?

As well as understanding and accounting for risk in an ad-hoc way, organisations should put in place measures that make them more resilient and able to respond to changes. This goes beyond individuals and processes, to have scenario plans in place, a trusted network, and an understanding of how they will be consulted.

When working in an area where there is more uncertainty around the potential applications and outcomes, different tools and approaches are needed for the problem. For example, around emerging technologies risk management tools might not be most appropriate at the initial stage of the discussion and a more participatory and deliberative approach is recommended. With the example of autonomous systems, many regulators lack understanding of the technical systems and so may not have the right tools to take a decision on how to regulate them.

It can take a long time for the narrative around new technologies to settle, and for positive outcomes to be widely acknowledged. Genetically modified organisms are an example of this: the initial debate was polarised and dominated by a few actors, so the applications and benefits of the technology took a long time to filter through to public consciousness.

The best approach is to engage early, and to be in a situation where the public response to the possible risks and opportunities have been anticipated. This allows more control over the context of future discussions and debates. Human fertilisation is good example of a topic where time was taken to consider the possibilities before the debate. The consultations that happened in the lead up to the introduction and regulation of the technology steered public conversations away from negative connotations.

How and when should the public be involved in discussions around risk?

It’s important to understand or pre-empt people’s likely values around the topic, and to use this to inform the approach and framing of risk. This is very relevant to current discussions about regulating technology. For example, research by Nuffield Council on Bioethics has shown that when a technology is seen to be unnatural people are less accepting of it. The examples of artificial intelligence and gene-editing could both be seen as unnatural, and therefore public consultation should be a priority.

Public consultation should not be a “broad brush”. It is important to understand sub-groups within the public, their likelihood to participate, and the differences between the groups who traditionally shape the debate, and those who would not usually engage.
What are the key actions to improve understanding and communication of risk?

- Use evidence synthesis to prepare the information to support decision-making around risk
- Communicate clearly, consistently, and with an awareness of societal values
- Be aware of who is communicating, and how trustworthy they are
- Create organisational structures that support trustworthiness and fast decision-making
- Engage with the public early and be aware that public opinion may not be conclusive
- Build long-term links between sectors in order to establish common understanding and language.

Recommended reading

Risk and Regulation Advisory Council ‘Response with Responsibility’
http://www.berr.gov.uk/deliverypartners/list/frac/index.html

Campaign for Science and Engineering ‘Improving the use of evidence in UK government policymaking’

POST Note ‘Communicating Risk’
https://researchbriefings.parliament.uk/ResearchBriefing/Summary/POST-PN-0564

Royal Society and Academy of Medical Sciences ‘Principles for good evidence synthesis for policy’

Behavioural Insights Team ‘Behavioural Government’
https://www.behaviouralinsights.co.uk/publications/behavioural-government/

Edelman Trust Barometer 2018
https://www.edelman.com/trust-barometer

Code of Conduct for Government Statistics

Nuffield Council on Bioethics ‘Ideas on Naturalness in public and political debates about science, technology, and medicine’

Food Standards Agency ‘Regulating our Future’
https://www.food.gov.uk/about-us/regulating-our-future