Climate Change Adaptation Reporting in the UK
Mainstreaming best practice and harnessing the benefits
Summary

In February 2021, CIWEM supported by CCW and WRc ran the webinar: “Climate change adaptation reporting power best practice”.

The event sought to understand the degree of urgency for climate change adaptation and resilience action in the UK. Then, to examine how well the current approach is working, where organisations are delivering best practice and how this can be widened to include more organisations and sectors.

With the COP26 global climate change summit taking place this November this understanding is important in clarifying why planning to adapt is so important and beneficial for organisations across society and the economy.

Climate Change Committee chief executive Chris Stark, Met Office chief scientist and technology officer Professor Stephen Belcher, Defra head of climate adaptation policy Frances Pimenta and CCW director of policy, research and campaigning Dr Mike Keil set out the case for adaptation planning and the Government’s approach to driving it.

A range of reporting bodies – both current and future – then shared their experiences of how reporting has developed and evolved within their organisations to increase understanding and planning around climate risks, and how their sectors and organisations are looking to refine this in the 3rd reporting round. Our thanks to Kay Johnstone, Environment Agency; David Quincey, Network Rail; Daniel Johns, Anglian Water; Howard Perry, Severn Trent Water; James Rowe, Bank of England and Hannah Armitage, Financial Reporting Council.
Live audience Q&A and polling provided a picture of the perspective on adaptation reporting amongst a range of organisations. For some, it remained unclear why they should consider reporting. For others, reporting under the Task Force on Climate-Related Financial Disclosures was considered sufficient to flag and manage organisational climate risks. Elsewhere there was a desire for more guidance on how to report effectively, whilst others welcomed increased support and engagement by Defra in the 3rd reporting round.

Following discussion it was clear that participants doubted whether the necessary range of organisations are yet engaged with the process, particularly public bodies such as local authorities who play a fundamental role in adaptation and resilience.

Much may depend on how Government uses the latest reports to identify areas for targeted support or intervention to increase the pace of adaptation and developing resilience through the National Adaptation Programme. Resource was flagged by audience members as a constraint to planning and delivery. Climate change adaptation is yet another area where investment in a green recovery from the Covid-19 pandemic would benefit progress, or failure to invest is likely to hamper it.
Adaptation reporting

Conclusions and recommendations on best practice

A range of common themes flowed through the event, which underpinned the overall message that the need to adapt our economy, society and infrastructure to a different, and more hostile climate is real and pressing, and that progress in doing so is lacking:

‣ The urgency of building economy-wide engagement with climate risk, adaptation and resilience is underestimated.

‣ Many organisations are still not committed to reporting voluntarily. Government should reconsider whether reporting should become mandatory.

‣ Despite this, many organisations are achieving benefits to their organisational planning and customer engagement through the adaptation reporting process.

‣ The sequencing of adaptation reporting rounds should be modified so that it feeds into the Climate Change Risk Assessment (CCRA) and its Evidence Report.

‣ Sector regulators must get on board with driving adaptation.

‣ There is a need for more focus on complex, cascading risks and interdependencies as reporting becomes more refined.
The UK is regarded as an international leader in climate change governance. We were the first nation in the world to pass a Climate Change Act in 2008. In 2019 we were similarly leading in setting a target to achieve net zero emissions into law by 2050. This year, the UK will host the delayed COP26 conference, and one of the government’s priorities for the summit is to “put climate adaptation and resilience at the heart of everything we do”.

Whilst the Climate Change Act is rightly lauded for the way it sets legally binding ‘carbon budgets’ that establish a clear decarbonisation trajectory, it is less well known for its provisions on adaptation.

Clause 56 requires the Secretary of State to lay before Parliament a report on the risks posed by climate change to the country, at least every 5 years. This is the Climate Change Risk Assessment (CCRA), informed by an evidence report prepared at least 6 months prior by the Climate Change Committee (CCC).

The Climate Change Act also sets out a process through which various parties, known as ‘reporting authorities’ may be required to report on how well they are preparing for the impacts of climate change. Clause 62 confers power on the Secretary of State to direct a reporting authority to prepare such a report. This is commonly referred to as the ‘adaptation reporting power’.

Adaptation policy is a devolved matter – Scotland, Wales and Northern Ireland have their own adaptation programmes. However, the UK administrations are ‘committed to working as closely together to share best practice and develop UK initiatives where appropriate’.

In England, to date, there have been two rounds of reporting and a third is under way.

Because of historic greenhouse gas emissions, globally and nationally we are locked into a certain amount of climate change, regardless of the success of global decarbonisation efforts. We are already experiencing observed changes in our climate, which are only predicted to increase over the coming years and decades.

Adaptation is essential to the functioning of social, economic, and environmental systems. However, in its 2019 report to Parliament on progress in preparing for climate change, the CCC observed that “Government has failed to increase adaptation policy ambition and implementation through its latest National Adaptation Programme - despite the increasing urgency of addressing the risks from climate change.”

Whilst the UK is showing leadership on decarbonisation, we’re not matching that leadership and ambition on adaptation despite a pressing need.
The Met Office’s UK Climate Projections, most recently updated in 2018 (UKCP18), demonstrate that all areas of the UK are projected to experience warming. The global climate is changing, and the UK is exposed to a range of increased risks from the impacts of this.

The headline projections of UKCP18 are a “greater chance of warmer, wetter winters and hotter, drier summers”, with winter precipitation expected to increase significantly, and summer rainfall expected to decrease significantly. Summer rain is more likely to fall in intense storms.

The CCC identifies the following as the greatest risks to UK society and business:

- flood risk to communities and infrastructure;
- risk to health, well-being and productivity from high temperatures;
- risks of shortages to water supply;
- risks to natural capital, and
- risks to domestic and international food production and trade.

Interdependencies, or cascading risks, where impacts in one or more of these risk areas cause a chain of impacts across multiple sectors, are often the biggest risk to organisations.

The impacts of a changing climate are already being felt in the UK and are predicted to worsen – the need to adapt is undeniable and increasing.

Climate change mitigation has a single defined target – net zero emissions – which make it easier for necessary audiences to embrace. Adaptation, however, is harder to define than mitigation because it is complex and an unknown, moving target.

Floods

The CCC lists flooding as one of the greatest climate risks for the UK, both now and in the future, and the CCRA Evidence Report shows that not enough is being done to prepare for the impacts. Over 5.2 million homes and businesses in England are currently at risk from flooding, according to the Environment Agency. For every household directly affected during a large flood, about 16 people suffer knock-on effects from losses of utility services. Three successive storms in February 2020 resulted in thousands of households being flooded, as well as widespread travel disruption and large swathes of agricultural land being inundated.
Heatwaves

Warming will be greater in the summer than the winter, and hot, dry summers like the one we experienced in 2018 are set to become the norm by 2050, according to Met Office projections. Heatwaves of such frequency and intensity cause significant health impacts on vulnerable people. Recent heatwaves have resulted in higher death rates, and the average number of heat-related deaths in the UK is expected to be more than triple of 7,000 a year by 2050s.

Increasing the visibility of adaptation and resilience, as well as engaging and empowering decision makers and the public on what they can do would lead to higher awareness and understanding of the effects of climate change. These actions would place the UK in a better position to drive progress forward.

Governments both in the UK and globally must recognise some stark adaptation realities:

Achieving our net zero target by 2050 will not mean avoiding the impacts of climate change and the need to adapt to these.

Meeting the Paris Agreement target of limiting global temperature change to “well below 2 degrees, preferably 1.5 degrees (above pre-industrial levels)”, which we are not currently on track to achieve, means we will need to adapt to significant changes to our climate.

We should therefore be planning to adapt to a world that is 3°C or even 4°C warmer.
We’re making up for lost time on adaptation & adaptation reporting

The adaptation reporting power as set out in the Climate Change Act is not delivering the same level of progress in preparing for climate change as the provisions in the Act for decarbonisation. Chris Stark (Chief Executive of the CCC) argued at this webinar that “a 4-degree world is a very possible outcome...it really has to be considered and planned for, so why do we ignore it? Why is 2 degrees the planning assumption that is mostly considered when this is the optimistic outcome? It’s time to get real about what lies ahead “.

The UK is not prepared for a 2-degree change, which is the lowest modelled scenario, let alone a possible 4-degree world. The projected impacts of these scenarios for the UK were shared in Table 1.

Analysis of previous rounds of adaptation reporting power (ARP) submissions show that certain sectors, such as water and infrastructure, have good adaptation plans summarising the risks faced by them. But no sector is showing good progress in reducing those risks.

“A 4-degree world is a very possible outcome... It’s time to get real about what lies ahead “

- Chris Stark, Climate Change Committee
Most ARP reports to date have described the nature of risks well but have not built a picture of climate risks or opportunities at national, regional or sector level. Much more can and must be done to identify and prioritise the key actions identified through ARP submissions, and understand how national and regional-level coordination efforts can increase progress in priority areas.

Despite the growing appreciation of the urgency of addressing climate change during the past decade, there has been no net growth in adaptation reporting since the first round of reporting in 2012.

Concerningly, some 23% of organisations which reported in the first round (2010-2011) did not go on to report in the second cycle (2016). In addition, there are some obvious gaps in organisations that do not report, such as Lead Local Flood Authorities, who are responsible for managing the risk from local flooding – one of the biggest risks faced by the UK – and telecommunications.

This must be regarded as a failure of engagement on ARP.

The government’s focus for the third round (2021) is on consistent reporting with a common, sectoral approach. The current approach is a hybrid one, encouraging sectoral co-operation through workshops, and providing more guidance and sector specific templates. These are trying to encourage a greater emphasis on risk interdependencies.

Surprisingly given that adaptation reporting could act as a highly effective form of evidence gathering to inform the cyclical Climate Change Risk Assessment and Evidence Report, the ARP submission cycle is not aligned with the CCRA. This is a missed opportunity. Setting the deadline for ARP submissions two years ahead of the CCRA being presented to Parliament would lead to better scrutiny of submissions, and a better understanding of risk.

The ARP process should be at the heart of a better adaptation cycle in the UK, mimicking the effectiveness of the approach to emissions reduction.

<table>
<thead>
<tr>
<th>Observed change to date</th>
<th>Inevitable change by mid-century</th>
<th>2°C by 2100</th>
<th>4°C by 2100</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Average annual UK temperature</strong></td>
<td>1.2°C above pre-industrial levels.</td>
<td>0.6°C</td>
<td>0.7°C</td>
</tr>
<tr>
<td><strong>Heatwave occurrence</strong></td>
<td>10 – 25% chance of a ‘2018 summer’</td>
<td>50%</td>
<td>50%</td>
</tr>
<tr>
<td><strong>Average summer rainfall</strong></td>
<td>No significant long-term trend</td>
<td>11%</td>
<td>15%</td>
</tr>
<tr>
<td><strong>Average winter rainfall</strong></td>
<td>No significant long-term trend</td>
<td>5%</td>
<td>6%</td>
</tr>
<tr>
<td><strong>Heavy rainfall</strong></td>
<td>No significant long-term trend</td>
<td>10%</td>
<td>20%</td>
</tr>
<tr>
<td><strong>Sea level rise</strong></td>
<td>~16 cm since 1900.</td>
<td>3 - 37 cm</td>
<td>5 – 67 cm</td>
</tr>
</tbody>
</table>

Table 1: How prepared are we? Projected changes over this century. Adapted from: Climate Change Committee / CCRA2
We need mandatory reporting.

The adaptation reporting process lost momentum from the first round into the second as a result of it not being mandatory. The voluntary approach leading to a lack of senior level organisational engagement in the process also contributed to this. There has been some increased engagement with reporting in the most recent round, but when taken in the context of reduced engagement between reporting rounds one and two we are currently just making up for lost time.

There is a strong case, given the historic poor engagement, for making reporting mandatory going forward, at least to sectors particularly exposed to climate risks. Targeted mandatory reporting would demonstrate UK leadership on adaptation; critically important in this COP26 year, as well as embedding systemic climate change risk management into the ‘business as usual’ public and corporate planning frameworks of more organisations in the UK. A better understanding of the climate change risks would also enable increased collaboration on, and refinement of, resilience and adaptation solutions, especially where there are interdependencies between sectors.

A key message of discussions in this webinar is that mandatory reporting doesn’t have to be burdensome. Once embedded and normalised within organisational planning, it is a valuable tool enabling better understanding of risks. As well as improving the government’s understanding of the climate change-preparedness of UK plc and its infrastructure, it is beneficial for the reporting organisation too.

The ARP process functions as a basic stress test of businesses, containing all of the necessary analytical tools. It also enables organisations to reduce their vulnerability to climate change through a more planned and cost-effective response to identified risks. Interdependencies are often where the biggest risks overall lie and can be hard to predict. Engagement between interdependent reporting organisations can lead to better identification of possible failures and response should these failures materialise. Displaying climate adaptation credentials to the public as well as to investors can raise the issue of adaptation to Boardroom level, to ensure appropriate investment to deliver on the plans.

This experience is commonly recognised only once organisations have been on a journey and experienced the increased understanding of risk. This journey can take at least two reporting rounds so it is essential for many organisations to start soon. Experience indicates that some organisations may need to be directed to begin it rather than opting to do it voluntarily.
Enhancing and refining reporting

For those organisations who have reported on their preparedness for adaptation previously, ARP3 represents an opportunity to hone and refine the approach. For those new to the process, learning lessons from those who have done it before is potentially of significant value.

A common theme expressed by reporting bodies was the importance of engaging a wider audience of individuals or functions within their organisations, or stakeholders and external supply chains.

The fundamental benefit of this engagement was in the ability to achieve improved outreach that translates into wider understanding, acceptance and engagement with adaptation actions.

The Environment Agency advised that the Covid-19 pandemic had brought into focus the benefit of working together on solutions, and the ability to respond decisively and collectively to events. This is a principle and approach that is reflected in recent strategic direction by the EA, such as its recent Flood and Coastal Erosion Risk Management Strategy, which contains heavy emphasis on working with external partners to create climate resilient places.

Within reporting organisations themselves, building traction behind adaptation was proving effective in several different ways. During this third round of reporting, consideration was given to distinguishing areas of activity where transformational (as opposed to incremental change) was required. Urgency of action was also being more overtly considered in terms of the time required to deliver action against the time available to do so, which provides greater visibility for longer-term risks and helps to not deprioritise them.

Working together to build visibility, engagement and uptake
Network Rail provided another example of an organisation that was engaging its operational and local / regional teams more actively in the latest round of reporting, with an emphasis on the exercise not being centrally driven and produced. This approach showed a more effective understanding of the climate and weather risks on the ground in Network Rail’s ‘routes and regions’.

This understanding has not only been able to provide better input and information to overall organisational strategy, business targets and investment planning, but has enabled engagement with new areas of the organisation. The plan has enabled valuable discussions and understanding of local issues, resulting in these being reflected in an adaptive pathways approach.

Planning this round has been much more on the radar of the organisation’s executive team and Board who were closely involved with signoff. There is also growing recognition of the importance of adaptation in ensuring a resilient operation.

Adaptation reporting under ARP is new to the financial sector, but it is increasingly looking to understand the impacts of climate change on the risks faced by those organisations within it. The Bank of England’s Prudential Regulation Authority (PRA) had been invited by Defra in 2014 to prepare a report on climate change adaptation risks in the insurance sector. This identified three main areas of risk: Physical risks associated with weather events, transitional risks to businesses associated with the move to a low-carbon economy, and finally liability risks. Of these the most pressing and highest up insurers’ agendas were the physical risks.

Yet the remaining two could become significant in future.

The sector is increasingly collaborating to understand risks and develop strategies to manage them. This message was echoed by the Financial Reporting Council (FRC). Last year the FRC undertook an analysis of how company financial governance and auditing, as well as the investor community were considering climate change adaptation. The findings would be reflected in the FRC’s first ARP submission. They are aiming to influence and encourage cross-sector engagement, including linking with other financial regulators to coordinate and distil key messages around climate adaptation considerations for the financial sector.

The engagement benefit of reporting was taken further by Anglian Water, who consciously produced their adaptation report early in the timeframe so that it could be used as evidence by the Climate Change Committee in its process of informing the next Climate Change Risk Assessment. This underlines the benefit of improving the alignment of these reporting cycles so that the work undertaken by organisations feeds into and informs a national level understanding of risk and measures to manage and adapt to it.
Anglian Water considered adaptation to be critical to their operational resilience. The company is located in the driest part of the country, also a low-lying region with a dynamic, eroding coastline. They noted that “what carbon is to net zero, water is to adaptation”, with its management being central to managing the most critical risks identified by the CCC.

Public engagement was considered critical to the presentation of the company’s adaptation report, with a strong emphasis on visuals, and clear headlines on priority risks. Extensive use of case studies was made to bring risks and adaptation strategies to life, whilst using the company’s strong evidence-base. This was all designed to increase engagement with the plan and to raise awareness of the risks and range of adaptation measures, including place-based plans which identified areas of economic opportunity, to achieve cut through with Anglian Water’s customer base.

Customer engagement and communication are again a major theme for Severn Trent Water as they develop their plan. They noted that whilst fundamentally the climate change risks and areas of adaptation they have to address are very similar to those identified in the second ARP report, lessons learned from events since the previous report was written have led them to refine interventions. These include events such as hot weather and record water demand, which were in the company’s risk register.

They are also reporting annually through the Carbon Disclosure Project, not only on carbon reduction performance and measures, but also on climate change risks. This aids the process of understanding and raising the profile of adaptation across the company.

“What carbon is to net zero, water is to adaptation.”

- Daniel Johns, Anglian Water
Targeted engagement with customers has been particularly important in the years between the 2nd round of reporting and the 3rd round. These included developing more targeted communications strategies for those parts of the region which suffer most with such circumstances, i.e., hot weather and increased water demand. Severn Trent Water emphasised the importance of identifying fringe risks and interdependencies as well as the most obvious, core risks. Stress-testing plans through such less visible risks is a useful way of engaging wider parts of the organisation and understanding the robustness of plans.

Other events such as Brexit led to resilience planning which stood the company in good stead for dealing with supply chain and other disruptions arising from Covid-19, and this experience added further depth to its overall resilience planning approach.

Severn Trent Water’s investor community has also taken a far stronger interest in climate change risk in recent years, making engagement with them critical in securing the lowest possible cost of capital. This is reflected in wider interest within the company’s executive team. Central to building this support is effectively delivering measures contained in the most recent plan. Doing so demonstrates commitment to adaptation measures and fostering trust that planned measures will be implemented.
In-sector collaboration is highly beneficial

Knowledge exchange and collaboration between similar organisations within the same sectors is proving beneficial in helping to develop best practice. This is being supported and enabled by the sector templates developed by Defra, which build alignment in use of reporting document and risk assessment templates.

Within sectors there are adaptation and resilience groups involving operators and the relevant government agencies and regulators. Whilst the most immediate opportunities for knowledge exchange may lie within specific sectors, it is important that the wider, national-level ARP process includes opportunity for cross-fertilisation of knowledge and good practice between sectors. The Environment Agency set up the Infrastructure Operators Adaptation Forum to undertake this kind of role and this approach could be usefully replicated in other areas.

Additionally, there is greater scope and potentially considerable benefit in exploring international activity, particularly where organisational operating conditions might be similar, but climatic conditions are different, enabling an understanding of the extent of adaptation that might be required in future.

Within the financial sector there is an effort to ensure that messaging is consistent and coordinated. The Bank of England have reported on the insurance sector previously, and are now looking at broadening this horizon to wider activities.
Sector regulators need to drive adaptation planning more concertedly

Early in the lead-up to the COP26 climate change summit, the Government, and President of COP26 pledged to “put climate adaptation and resilience at the heart of everything we do”. This is a welcome commitment, but it is clear from reporting bodies that their various regulators have yet to fully translate it into strategic guidance for future investment planning.

It was noted that resilience has become considerably more visible as an issue that water regulator Ofwat is pushing, and it is a theme increasingly visible in planning within the sector. Ofwat indeed has a statutory resilience duty, established under the Water Act 2014. Its Resilience in the Round concept targets operational, financial and corporate resilience of companies.

Yet a clear priority in the previous business planning round, PR19, to reduce customer bills arguably impacted upon the extent of investment and range of adaptation and resilience projects that companies had approved. As CCW emphasised, customers not only value action on climate change, but are central to achieving adaptation. As a result, the adaptation reports represent an opportunity to show the ‘big picture’ and encourage behaviour change. In future price reviews, greater investment in adaptation is likely to be needed, so support from Ofwat (the regulator) will be essential.

“Customers not only value action on climate change, but are central to achieving adaptation.”

- Mike Keil, CWW
Evolution not revolution

Those organisations who have reported over the first two rounds and are doing so again have iterated their approach to progressively increase the engagement and impact of their reports, both inside their organisations and to outside audiences.

A fundamental principle of this was a process of evolution on how engaged – and ready to engage – an organisation is. There seems to be a fear (that can become a blocker) that choosing to report, and setting out the necessary plans, will require comprehensive transformational change. This is typically not the case.

Whilst recognising that there is an urgency to climate change action, including adaptation, much preparedness can be created by understanding resilience risks across core services and ensuring these are addressed by using stress tests. If additional transformational change is required, this can be planned (and achieved) over a longer timescale when compared to the reporting period.
Reporting as a means of changing behaviours

The aim of adaptation reporting is to understand organisational climate risks, how these are managed through programmes of investment in adaptation measures and where additional programmes might be needed, both now and in the future. There is also a role to improve engagement with stakeholders (including consumers and the public) as part of the process. Organisations taking part in the webinar were clear that increasing engagement and influence were most effective where risks were framed around corporate aims and objectives and defined using the same terminology. Understanding and effectively presenting the impact these risks can have on the ability to deliver these aims and goals was critical.

This requires the right technical input and scenario planning to act as risk screening tools. The aim would be that adaptation is not seen as an ‘extra’, but as a ‘business as usual’ activity.

It was considered beneficial to set risks in three contexts:

• ‘Raw’ risks – what they are, and their impact on the organisation;

• ‘Current resilience level’ risks - where the organisation is in terms of its present management of these risks, and

• ‘Future risks’ - where the organisation considers it adequate to be within a specified time horizon, e.g., 2025 / 2040, to plot a trajectory to manage and adapt to these risks.

Essential to this is an understanding that it will not be possible to adapt to manage all risks to reduce them to zero. As a result, an organisation should define a level of risk that is acceptable, cost-effective level to plan against.

Fundamentally, to be successful, adaptation reporting needs to translate complex information into a clear risk register. These risks should be recognisable, understood and manageable by the organisation.

Furthermore, the organisation should also be able to use this register to challenge and stress test its operations. This can be particularly beneficial when integrating the approach into critical parts of the business (i.e., operations and delivery) that may have specific climate risks associated with them.
Engaging supply chains

A logical extension to the principle of engaging all areas of organisational operation are the benefits that can be achieved by engaging the supply chain. Many risks are likely to be stored within supply chains so their acknowledgement and mobilisation within the plan is important. Many of the adaptation objectives set for an organisation could be aided through supply chain innovation.

It was noted that as decarbonisation becomes increasingly recognised and understood across the economy, this can be used to: drive innovation, to foster different ways of thinking, and to develop opportunities for adaptation. This process can be particularly fruitful where organisations have long-term relationships with their supply chains and can therefore share common agendas and goals.
Conclusions and recommendations

The urgency of building economy-wide engagement with climate risk, adaptation and resilience is underestimated.

We need to get real: despite welcome commitments on net zero we are currently on course for an increase in global temperatures of between 3°C and 4°C and are not planning for how we would adapt to such a reality.

Many organisations are still not committed to reporting voluntarily. Government should reconsider whether reporting should become mandatory.

Whilst some organisations – particularly those with direct responsibility for areas of the economy exposed to physical risks – are reporting and achieving benefits from doing so, others continue not to. Government should analyse sectoral response to the 3rd ARP round and carefully reflect on whether a mandatory approach is the only way to bring some sectors – particularly those involved with housing and local government – into the reporting cycle.

Despite this, many organisations are achieving benefits to their organisational planning and customer engagement through the adaptation reporting process.

Organisations that have learned from taking part in earlier reporting rounds (and have refined their approaches because of the lessons learned) are finding benefits in increased internal and external stakeholder engagement with climate risk. From operations to board level, there is improved involvement with understanding risks, developing management strategies, as well as increased stakeholder support for investing.
The sequencing of adaptation reporting rounds should be modified so that it feeds into the Climate Change Risk Assessment (CCRA) and its Evidence Report.

Presently, ARP reporting rounds close after the evidence gathering phase for the CCRA. Rescheduling rounds so that reports can feed into the Evidence Report produced by the Climate Change Committee would support the effectiveness of the overall cycle.

**Sector regulators must get on board with driving adaptation.**

In the past the lack of urgency attached to adaptation planning, reporting and investment has not been reflected by some sector regulators and has in some cases been undermined by other priorities. Regulators of all kinds must recognise the importance of adaptation and resilience and encourage and enable those organisations they regulate to engage more actively and invest proportionately.

**There is a need for more focus on complex, cascading risks and interdependencies as reporting becomes more refined.**

A key value in reporting is developing an understanding of those risks which can be readily addressed in the short-term, and those which either need longer-term programmes or are complex and involve a range of cascading risks. There is limited guidance on how organisations can model and understand such risks, and the scenarios they should apply to doing so.

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We are grateful for their support of this webinar