Creating a Climate Risk Register for your Organisation

Overview

With the information gathered from Step 1 and your Step 2 climate risk assessment, you can now create a climate risk register. The climate risk register is the basis upon which you will build much of your climate action planning, decision-making and monitoring. Ultimately, defining and beginning to address these risks is the core driver for creating the adaptation actions in your climate plan.

The risk register describes what the main climate risks are for your organisation in the present day. It is also an important step in building a cohesive picture of your future and how your current vulnerabilities may be worsened over time.

There are two stages to developing the risk register. You will use the information developed previously in your 'Risk Assessment Worksheet', Parts A, B and C to do the following:

1. Develop your risk statements, which are composite statements defining the main climate risks for your organisation.
2. Complete the rest of the climate risk register template. For each risk there are a range of required pieces of information which are necessary for monitoring and reporting.

Your organisation may already have a risk register/framework which you can use to better integrate climate planning into your organisation. However, if you do not have one available Climate NI has created a Risk Register Template for you to use.

What is a climate risk register?

A climate risk register is a risk management tool, which can be used to improve the resilience of an organisation by making a database of its climate-related risks. These risks provide the basis upon which you can identify and prioritise actions, with the goal of making your organisation more resilient to current and future impacts of climate change. A climate risk register should generally include:

- Title of each organisational risk to weather related hazards, including a description of how it relates to functions, services, assets and/or investments, as well as an impact score
- Estimated timeframe for when the impact of each risk is due to become an issue needing action
- How risks or opportunities are likely to change over time

- Risk owners and other relevant organisations
- Links to risks identified in the latest UK Climate Change Risk Assessment.

The idea is to provide a sense of direction and purpose for your climate planning. You need priorities for action, and to know where you are most in need of a response. Developing a plan to make best use of resources based on an agreed series of issues can be very powerful, and don't forget, this is something you will come back to and refine over time.

Climate Hazard	Risk / Opportunity	Service Area	Inherent Likelihood	Inherent Impact	Total Inherent Risk Score	Timing of Risk & Impact			Current Controls (includes policies, plans and procedures)	Urgency Category (Within 5 Yrs)	Relevant External Actors
						≤ 5yrs	5-10yrs	≥ 10yrs			
Increased Temperature / Low Rainfall	(IT3) Increasing frequency of high temperatures and urban heat island effect impacting on vulnerable people requiring Council response	• Emergency Planning • Environmental Health • Health & Safety • Environment	4	4	16	✔	✔	✔		More Action	Public Health Agency WHSCT
	(IT4) Extreme heat exacerbating air quality problems leading to public health issues	• Environmental Health • Emergency Planning • Environment • Health & Communities	4	4	16	✔	✔	✔		More Action	Public Health Agency WHSCT
	(IT5) Changes in growing season, increased risk of pests/invasive species	• Environment • Capital Development • Health & Safety • Human Resources • Emergency Planning • Green Infrastructure & GI Plan	4	3	12	✔	✔	✔		More Action	DAERA NIFRS
	(IT6) Increasingly frequent spells of hot weather leading to greater use of public amenity and outdoor leisure facilities, impacting on green infrastructure and heritage	• Green Infrastructure • Heritage & Regeneration • Environmental Health • Waste Management • Environment	4	2	8	✔	✔	✔		Research Priority	HED

Figure 1: Example Climate Risk Register from Derry City and Strabane 2020-2024 Plan

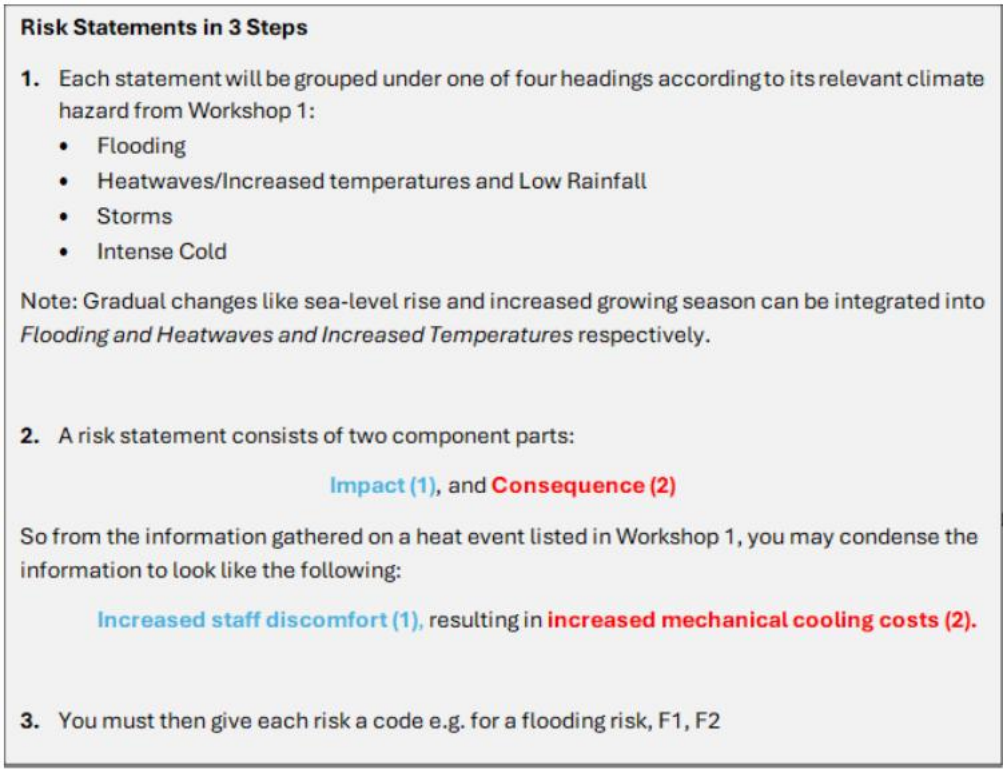
How do you develop a climate risk register?

Stage 1: Risk Statements

Using the various pieces of information about events, impacts and consequences gathered from your Risk Assessment Worksheet (Part B), you now group what you have learned into a series of risk statements. This means that you look at each hazard and create a short statement(s) which encompass the risk for your organisation (Figure 2).

These risk statements are then what is scored against in the risk register. Taken together, these risk statements tell the story of how your organisation is at risk from climate change.

There may be some opportunities from climate change for certain organisations, and you can also create a statement around these using a similar format.



Risk Statements in 3 Steps

1. Each statement will be grouped under one of four headings according to its relevant climate hazard from Workshop 1:
   - Flooding
   - Heatwaves/Increased temperatures and Low Rainfall
   - Storms
   - Intense Cold

Note: Gradual changes like sea-level rise and increased growing season can be integrated into *Flooding and Heatwaves and Increased Temperatures* respectively.

2. A risk statement consists of two component parts:

Impact (1), and **Consequence (2)**

So from the information gathered on a heat event listed in Workshop 1, you may condense the information to look like the following:

Increased staff discomfort (1), resulting in **increased mechanical cooling costs (2).**

3. You must then give each risk a code e.g. for a flooding risk, F1, F2

Figure 2 – Explanation of How to Develop a Risk Statement

Stage 2: Complete the Risk Register Template

Decide on How to Prioritise Risks

Now that your draft risk statements are developed, it is time to complete the Risk Register Template. This will be your first draft of the risk register which you can then validate with colleagues, particularly those with risk management or response roles.

You may find it most useful to follow the risk framework already used in your organisation to integrate climate planning as much as possible. For many organisations in Northern Ireland this tends to be a *likelihood x impact* system, and this is therefore the method we will use here. Also please refer to Appendix 1 for a 'Climate Adaptation Risk Register' Worked Example.

As mentioned earlier in this document, if you do not have pre-existing risk management resources available, you can use the Climate Risk Register Template made by Climate NI.

Completing the *NI Adapts* Risk Register

The *NI Adapts* Risk Register suggests you populate the following columns for each risk statement:

1. State the title of each risk or opportunity
2. Name the lead internal risk owner and relevant supporting departments

3. Assess the inherent risk (level risk without any consideration of current policies and actions already in place)
4. State any relevant ongoing policies or procedures in your organisation
5. Assess the residual risk (your level of risk after existing organisational policies and procedures are taken into account)
6. Assess the timescale in which this action needs addressed
7. Assess the future change in the level of the risk in a 2C and 4C world.
8. Provide the title of relevant similar risks from the latest Climate Change Risk Assessment
9. State any relevant external organisations important to addressing the risk

Note: Two further Steps 10 and 11 can optionally be completed after you have developed a draft action plan to help link the risk register and action plan together.

10. Describe which adaptation plan objectives are relevant to reduce each risk
11. Describe how the Climate Action Plan will further reduce the risk

Explaining Components of the *NI Adapts* Risk Register

Please download the **Risk Register Template** from the NI Adapts Website before reading this section. For each risk statement, complete the following information in the columns listed.

1. **Title of Each Risk or Opportunity**
   Include the title of each risk in the form of a Risk Statement (Impact and Consequence for functions, services, assets and investments), and a Risk Code (F).

2. **Lead Internal Risk Owner and Relevant Supporting Departments**
   Name the lead internal risk owner and list the departments for which the risk falls within their remit. This will be important in agreeing the action plan.

3. **Inherent risk**
   The inherent risk score will tell you the priority level of each risk statement for your organisation. Provide a score for both Likelihood and Impact to determine a Risk Score.

Likelihood x Impact = Risk Score

*The **Likelihood** is the probability of how often these risks will occur. Ranges from very low to high.*
*The **Impact** is the level of damage caused by a climatic event or trend. Ranges from very low to high.*

***Note:** It might be good practice to score uncertainties high rather than low, using the precautionary approach.*

You can draw on a range of sources for this work: You assessed the level of priority for each risk previously in your Risk Assessment Worksheet, you can use also use the LACS future projections as a guide. We also recommend doing this section collaboratively with colleagues.

The descriptions of impact in your risk matrix will be a key guide too. Your organisation will likely already have a Risk Matrix, which you should use to integrate more easily with other policies and plans.

Figures 3 and 4 (below) shows an example climate risk matrix kindly shared by an organisation in Northern Ireland. It provides a set of example descriptions about the levels of risk. These will vary by organisation, and we recommend discussing this with your corporate risk team to see how this can best be integrated with existing approaches.

Impact	**5 - High**	Property destroyed or not safe for use/fatality or multiple injuries; Financial loss >£500,000; Failure of key objectives; National media coverage;	**Medium 5**	**High 10**	**Critical 15**	**Critical 20**	**Critical 25**
	4 - Medium/ High	Serious damage to property/ Serious Injury; Financial loss £100,000 to £500,000; Failure of key service; NI Media coverage;	**Low 4**	**Medium 8**	**High 12**	**Critical 16**	**Critical 20**
	3 - Medium	Moderate damage requiring repair/ Injury requiring medical treatment; Financial loss of £10,000 to £100,000; Medium impact on achievement of objectives; Significant localised press coverage;	**Low 3**	**Medium 6**	**Medium 9**	**High 12**	**Critical 15**
	2- Low/ Medium	Minor damage/injury; Financial loss £1,000 to £10,000: Minor impact on achievement of objectives; Some localised press coverage;	**Very Low 2**	**Low 4**	**Medium 6**	**Medium 8**	**High 10**
	1 - Low	No damage/injury; Financial loss <£1,000; No impact on achievement of objectives; Minimal damage to reputation	**Very Low 1**	**Very Low 2**	**Low 3**	**Low 4**	**Medium 5**
Risk Matrix			May occur only in exceptional circumstances	Might conceivably occur at the same time	Could occur at some time	Will probably occur in most circumstances	Is expected to occur in most circumstances
			1 Low	**2 Low - Medium**	**3 Medium**	**4 Medium - High**	**5 High**
			Likelihood				

Figure 3: Example Climate Risk Matrix

Level of Risk
Critical
High
Medium
Low
Very Low

Figure 4: Example Risk Scoring Matrix

4. **Relevant Policies and Procedures in your organisation**
   Detail what policies and procedures are currently in place within the organisation to address the risk. These will be used to determine the difference between the 'Inherent Risk' in point 3, and the 'Residual Risk' in point 5, to see if current policies and procedures will be enough to have an impact on the score.

5. **Residual Risk**
   The residual risk is the level of risk that remains after current policies and procedures in your organisation have been accounted for. It is determined in the same way as inherent risk, using Likelihood and Impact to determine a Risk Score. This is the number which will provide your level of risk, which in turn can be included in reporting.

Likelihood x Impact = Risk Score

*The **Likelihood** is the probability of how often these risks will occur. Ranges from very low to high.*

*The **Impact** is the level of damage caused by a climatic event or trend. Ranges from very low to high.*

***Note:** It might be good practice to score uncertainties high rather than low, using the precautionary approach.*

6. **Timeframe where risk will be realised and require action**
   Are you currently experiencing this risk, or is it projected to become an issue in future?
   Note: Some risks (e.g. different types of flooding) may occupy more than one timeframe, and may indeed occupy all of them, just do your best to explain the priorities for your organisation.

   - Current (less than 5 years)
   - Medium (5 – 10 years)
   - Long (10 – 25 years)
   - Longer Term (more than 25 years)

   Keep in mind that early action has the potential for greatest benefits and return.

7. **How will this risk change in the future?**

   Considering your future scenarios, describe how this risk will change in both a 2°C world and a 4°C world. Use the information you gathered in Part C of your Risk Assessment Worksheet to determine if the risk level will:

   - Increase
   - Decrease
   - No Change

For example:

- If it is a heat-related risk, then since the projections show an increase in hot days by 2050, the risk would be deemed to 'increase'.
- Conversely, cold events will still occur, but will become less frequent, so the risk could be deemed to 'decrease'.
- Others may show no change.

Note: Consider this section not only based on the climate trends, but also on the vulnerabilities arising from the geography of further planned development, or an aging population. Even if there is uncertainty around a certain climate impact itself, you might be able to say that an older population will mean a higher number of more vulnerable people regardless.

8. **Title of relevant UK Climate Change Risk Assessment risks**
   If the risk is not directly taken from the most recent UK Government's Climate Change Risk Assessment (CCRA), then in this column you should identify to which CCRA risk(s) yours most closely aligns.

   Use the Risk descriptions in the National Summary for NI of the climate risks in the most recent UK Government Climate Change Risk Assessment (CCRA). The full UK Assessment can be found here.

9. **External Relevant Organisations**
   Detail whether management of the risk is fully within the control of your organisation. If management is dependent on other organisations, such as government departments, NGOs, community groups etc., state their name and describe the dependency.

Now you have developed your risk statements and filled in the template, the first draft of your risk register is complete. Don't worry about perfection at this stage; we recommend that you work with colleagues to sense check the risk register.

Optional: Cross reference Risk Register against Draft Adaptation Action Plan

This final section would be completed after you have developed a draft action plan. This can be helpful to ensure that all priority risks are being addressed by your proposed actions.

10. **Relevant adaptation plan objectives**
    Describe which of the objectives in your organisation's adaptation action plan are relevant to manage each risk. Try to provide the specific adaptation action(s) that will help manage the risk. This will help with reporting.

11. **How will Climate Action Plan further reduce the risk?**

    Provide an explanation for how the actions in your Climate Plan will further reduce the 'residual risk' score from point 5. Enter a score for both Likelihood and Impact to determine a Risk Score for what you hope the plan can achieve by the end of its term.

Appendices

Appendix 1: Climate Adaptation Risk Register – Worked Example

(Note: For conciseness, only the first 4 columns are given as examples. For a full worked example of all columns, see the Climate NI Risk Register Template.)

FLOODING RISKS

Climate Hazard: Flooding (Increased Precipitation and Sea Level Rise)					
Risk Statement (Impact and Consequence) and Risk Code (F)	**Relevant Internal Departments**	**Inherent Risk**			**Current Policies and Procedures**
		Likelihood	**Impact**	**Risk Score**	
Council Services (F1) Increased frequency and intensity of precipitation leading to increased flooding of council assets, particularly parks/cemeteries and costs to repair, retrofit and increases in insurance costs and additional resource.	Finance, Environmental Health, Leisure & Amenities (if flooded), Regen (if site is regen affected), Tourism (if event affected), Assets, Facilities Maintenance, Capital Works, Economic Development, Community Development, Planning and Building Control, Harbours & Marinas, Waste, Communications, Corporate Risk, Finance, H&S, HR. Recognition that there is work required at regional level regarding the mapping of at-risk areas and coastal erosion.	4	4	Major, Very Likely [16]	Regional planning policy and the Local Development Plan (LDP). Service Area Plans, Risk Assessments, Method Statements, Emergency Plan (Council member of NI/Regional Emergency Response Group): Policies and procedures already exist on the X drive (protected) - could be made available to key staff in each service area. Business Continuity Plan. These need to be well communicated. Use of pre-designed templates for social media messaging to ensure the team performs effectively. Comms part of a NI Comms Working Group to ensure consistency of messaging to ensure confidence and assurance in Council actions.
Community (F2) Increase flooding to cemeteries as a result of persistent rainfall emotional cost to families of those buried affected.	Parks, Communications	4	4	Major, Very Likely [16]	
Financial costs (F3) Increased frequency and intensity of precipitation leading to flooding of non-Council-owned sites - cost to respond through staff and emergency financial payments.	Finance, Assets, Environmental Health, Waste, Communications, H&S, Corporate Risk, Emergency Planning, Economic Development, Community Development, Finance	4	4	Major, Very Likely [16]	
Events (F4) Increased frequency and intensity of precipitation leading to increased flooding of Council events and tourist attractions resulting in postponement, cancellation, and closure. Financial loses and repair costs.	Finance, Events, Tourism, Facilities, Assets, Communications, Economic Development	4	3	Major, Very Likely [12]	
Emergency Planning (F5) Increasing frequency of flood events disrupting transport, energy, water, communication (Emergency Planning Response) infrastructure and local communities, requiring Council response and	Finance, Emergency Planning, Corporate Risk, H&S, Facilities, Assets, Community, Communications, Waste, Leisure, HR, Finance	4	4	Major, Very Likely [16]	

HEAT RISKS

Climate Hazard: Heatwave/Increased Temperatures and Low Rainfall					
Risk Statement (Impact and Consequence) and Risk Code (F)	**Relevant Internal Departments**	**Inherent Risk**			**Current Policies and Procedures**
		Likelihood	**Impact**	**Risk Score**	
Council staff (H1) Increased temperatures and frequency of hotter days leads to heat risk to staff - more need for cooling, staff days off, low productivity, PPE	All departments - particular focus on those frontline services such as street cleansing, waste collection and recycling centres. H&S, Corporate Risk, Harbours and Marinas	3	3	Significant, Likely [9]	Risk Assessments carried out. Staff provided with PPE. Relevant H&S policies Additional equipment needed e.g. air con.
Events (H2) Significant increase in number of visitors to local outdoor spaces, tourist attractions and events causing anti-social behaviour, litter and damage to the local ecosystem and increased strain on Council resources.	Finance, Facilities, Assets, Waste, Tourism, Regulatory Services, Insurance, Parks, Procurement (re food vendors, responsibility on vendors looked at during tender stage), Events team & Communications.	3	3	Significant, Likely [9]	Review existing policies/procedures to include risks to heat, partnership working arrangements. Current acceptable capacity of Council owned sites would manage potential increases. H&S Policies on capacity.
Biodiversity (H3) Changing temperatures and frequency of high temperatures resulting in death of trees, varying growing seasons - affecting mowing season, planting schedule, shift/seasonal working hours, increase risk of pests and other invasive species. Tree loss could cost financially to replace and could result in loss of carbon sink potential.	Finance, Parks, Facilities, Assets, HR, H&S	3	3	Significant, Likely [9]	Ongoing review of mowing and planting schedules. Risk assessments. Invasive species management NI wide. Budget – machinery/staffing overtime. Rainwater harvesting. Water butts. Tree Strategy (progressing in 2022 Woodland Trust) Procedure – hosepipe ban vs watering beds. Sustainable bedding, self watering baskets, boreholes etc.
Fire Risk (H4) Increasing days of high temperature resulting in very dry ground (including gorse) & combustibility of electronics at HRCs, combustibility of organic waste may increase risk of fire - this is an additional concern to site users for waste services, events and leisure/sport, more resources	Finance, Assets & Facilities, Tourism, Community, Waste, Emergency Planning, H&S, HR.	2	3	Moderate, Likely [6]	Waste collection frequency reviewed. Risk assessments e.g. HRC specific.

STORMS

Climate Hazard: Storms					
Risk Statement (Impact and Consequence) and Risk Code (F)	**Relevant Internal Departments**	**Inherent Risk**			**Current Policies and Procedures**
		Likelihood	**Impact**	**Risk Score**	
Council property (S1) Damage to Council property and assets - financial costs to repair and financial losses. Combined high tides and storm events causing flooding along coastlines and damage to buildings and infrastructure (including rock fall and trees falling) - immediate cost to Council through immediate clean up followed by repair costs.	Finance, Assets, Facilities, Waste, Harbours and Marinas, H&S, HR, Corporate Risk, H&S, Communications, Parks and Open Spaces, Leisure, Capital projects and Tourism. Unplanned, urgent works, e.g. Gobbins, Blackhead path, Cranny Falls (erosion), Harbours. Defence walls, slip ways (clearance). Contracted works delayed/exacerbated.	4	4	Major, Very Likely [16]	Planning, Building Regs, Control of Dangerous Buildings, British Standards, BREEAM/Ceequal, Capital Project Framework, Parks Emergency Closure Procedure. Planners looking at impact of coastal impact. Impact on tourism. Tree Strategy (under development). Annual tree survey and associated works.
Service Delivery (S2) Increased frequency and intensity of storms results in disruption to service delivery.	Facilities, Assets, Waste, Harbours and Marinas, H&S, Corporate Risk, Communications, Tourism, Parks and Open Spaces	4	4	Major, Very Likely [16]	Events Strategy Waste – Extreme weather procedures. These need to be well communicated. Use of pre-designed templates for social media messaging to ensure the team performs effectively. Comms part of a NI Comms Working Group to ensure consistency of messaging to ensure confidence and assurance in Council actions.
Community (S3) Increased frequency and intensity of storms will disrupt transport, energy, water and communications meaning that local communities will require council support and response.	Emergency Response, Facilities, Assets, Waste, H&S, Corporate Risk, Communications, Leisure & Community, Parks (operations), Marinas and Harbours	4	4	Major, Very Likely [16]	Regional planning policy and the local development plan. Service Area Plans, Risk Assessments, Method Statements, Emergency Plan (Council member of NI/Regional Emergency Response Group): Policies and procedures already exist on the X drive (protected) - could be made available to key staff in each service area. Business Continuity Plan.
Events (S4) Impact on events - damage to equipment, cancelling of events, impact on tourism, requirement for stronger structures - all a cost impact to the council and wider borough through loss of income and service to public.	Facilities, Assets, Events, Tourism, Harbours and Marinas, Communications, Finance, H&S, Corporate Risk, Leisure & Community, Parks and open spaces	3	3	Significant, Likely [9]	Events Strategy

Appendix 2: Risk Register Scoring Matrix – Worked Example

The potential impact is expressed in terms of severity of the consequences should a risk occur. The impact criteria are based on the following key areas.

Score	Strategic	Financial	Staff	Operational	Stakeholders
Major 4	Actual/potential adverse significant impact to the achievement of a number of Council corporate aims and objectives	Additional expenditure/Loss of service income including associated costs of >12.5% of revenue at corporate level	e.g. loss of key staff at SMT level, lengthy strike action, drop in morale due to loss of key staff	e.g. catastrophic fall in service levels, failure of major partnership, complete failure in service standards	e.g. affects all major stakeholders with long-term impact on public memory causing damage to reputation
Significant 3	Actual/potential adverse impact on a limited number of Council corporate aims and objectives and significant impact on specific service level priorities and targets	Additional expenditure/loss of service income including associated costs of between 5% and 12.5% of revenue at service level	e.g. significant loss of key staff at service level, strike action, drop in morale due to new delivery issues	e.g. significant fall in service levels, project deadlines not achieved, serious disruption in service standards	e.g. affects more than one group of stakeholders with widespread medium-term impact on reputation
Moderate 2	Medium impact on service level priorities and targets	Additional expenditure/loss of service income including associated costs of between 1.5% and 5% of revenue at service level	e.g. loss of a number of key staff at service level, health/illness epidemic, shrinking skilled labour market	e.g. moderate fall in service levels, major partnership relationships strained	e.g. affects more than one group of stakeholders but only short-term impact on reputation
Low 1	Minor impact on service level priorities and targets	Additional expenditure/loss of service income including associated costs of 1.5% of revenue at service level	e.g. limited staff lost at service level, ongoing absenteeism	e.g. small fall in service levels, some minor quality standards are not met	e.g. affects only one group of stakeholders with minimum impact on performance

Figure 5: Urgency Category from Derry City and Strabane 2020-2024 Plan (p.90)

Likelihood

The frequency of an event can be described as how often that event may occur.

Score	Likelihood	Likelihood Definition
4	Very Likely	Additional expenditure/Loss of service income including associated costs of >12.5% of revenue at corporate level
3	Likely	Additional expenditure/loss of service income including associated costs of between 5% and 12.5% of revenue at service level
2	Unlikely	Additional expenditure/loss of service income including associated costs of between 1.5% and 5% of revenue at service level
1	Extremely Unlikely	Additional expenditure/loss of service income including associated costs of 1.5% of revenue at service level