

How we support clients adapt to climate change

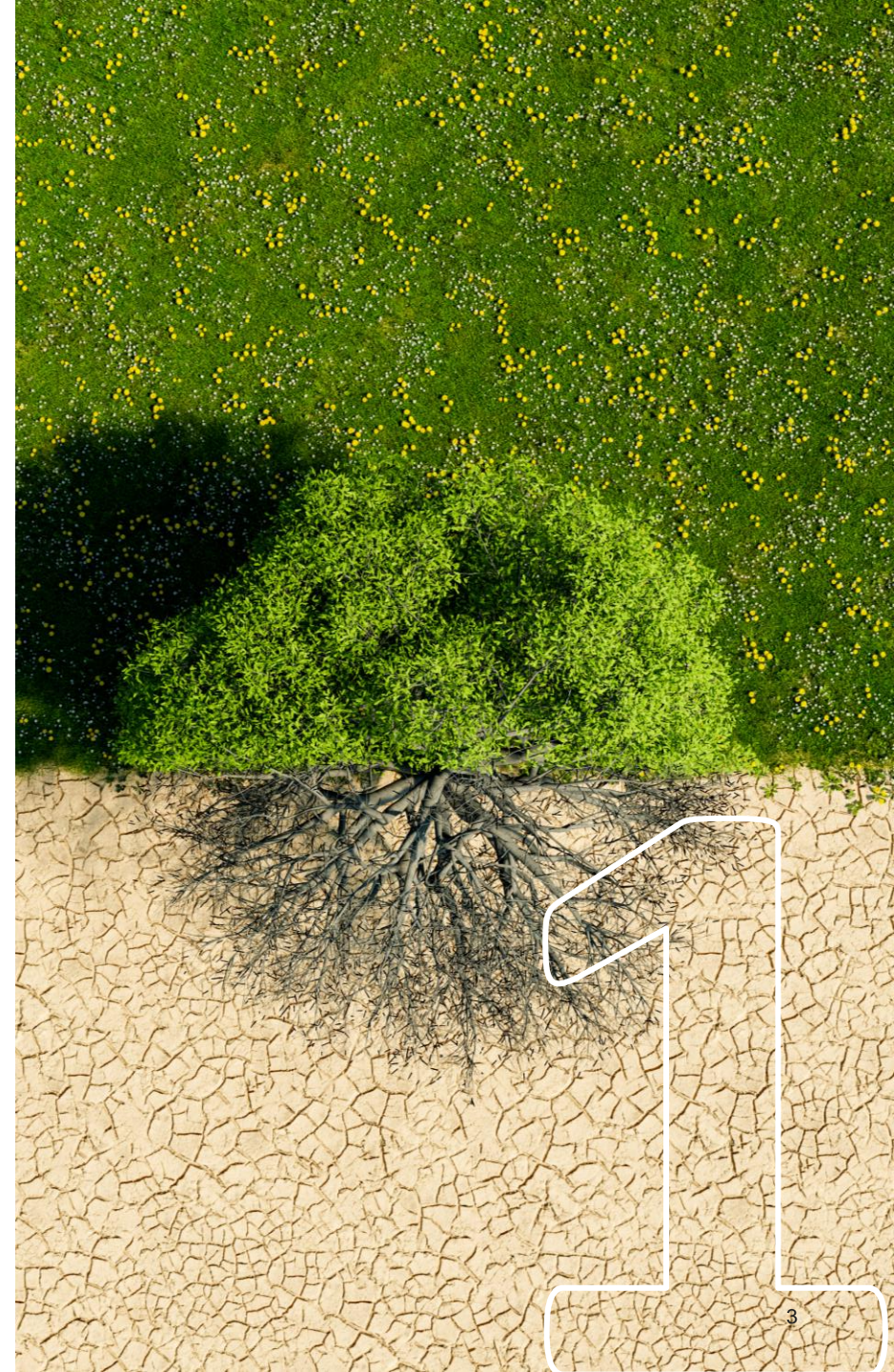
July 2024

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Agenda

Summary: Climate adaptation is becoming more critical for businesses to consider

- Effectively managing climate change requires two types of action:
 - Climate **mitigation** (reducing emissions to limit the extent of global warming), and;
 - Climate **adaptation** (increasing resilience to the physical impacts of a changing climate)
- Efforts to reduce CO2 emissions have not moved far or quickly enough to stop our climate from changing. We now need to adapt to the changed climate we are in by critically thinking where to invest, how to operate assets and how to build future financial resilience
- To do this, businesses need to think about what adaptation means for them because it helps **avoid economic losses and increase revenue and cost savings**. This cuts across the following considerations:
 - **Asset-level considerations** such as physical assets, operations & people, and emergency response
 - **System-level considerations** such as suppliers, customers, critical infrastructure, resources & ecosystem services, governments & regulators, capital providers and communities
- Marsh's approach combines **quantitative and qualitative analysis** across all of these adaptation considerations
- Marsh has a strong track record of creating resilience to extreme weather events for its clients, and garners further expertise and support from its affiliates – Oliver Wyman, Mercer and Guy Carpenter

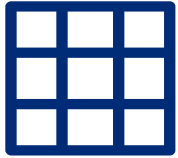


Why climate adaptation is important to your business



Yesterday's climate record is no longer fit-for-purpose

Integrating this understanding across decision making allows clients to more effectively manage physical climate risks



Where to invest & build?

Consideration of climate change needs to inform:

- Where to invest and build new assets?
- What design standards are appropriate and how much redundancy is required?
- Which networks are newly vulnerable, how critical are they to operations and revenue generation?



How to operate assets?

- Do asset management principles need to change if extremes happen 2x a year instead of 1 in 5 years?
- Does this provide the business case for asset improvement?
- How do clients and customers react to such interruptions?
- What impacts are there to your people?

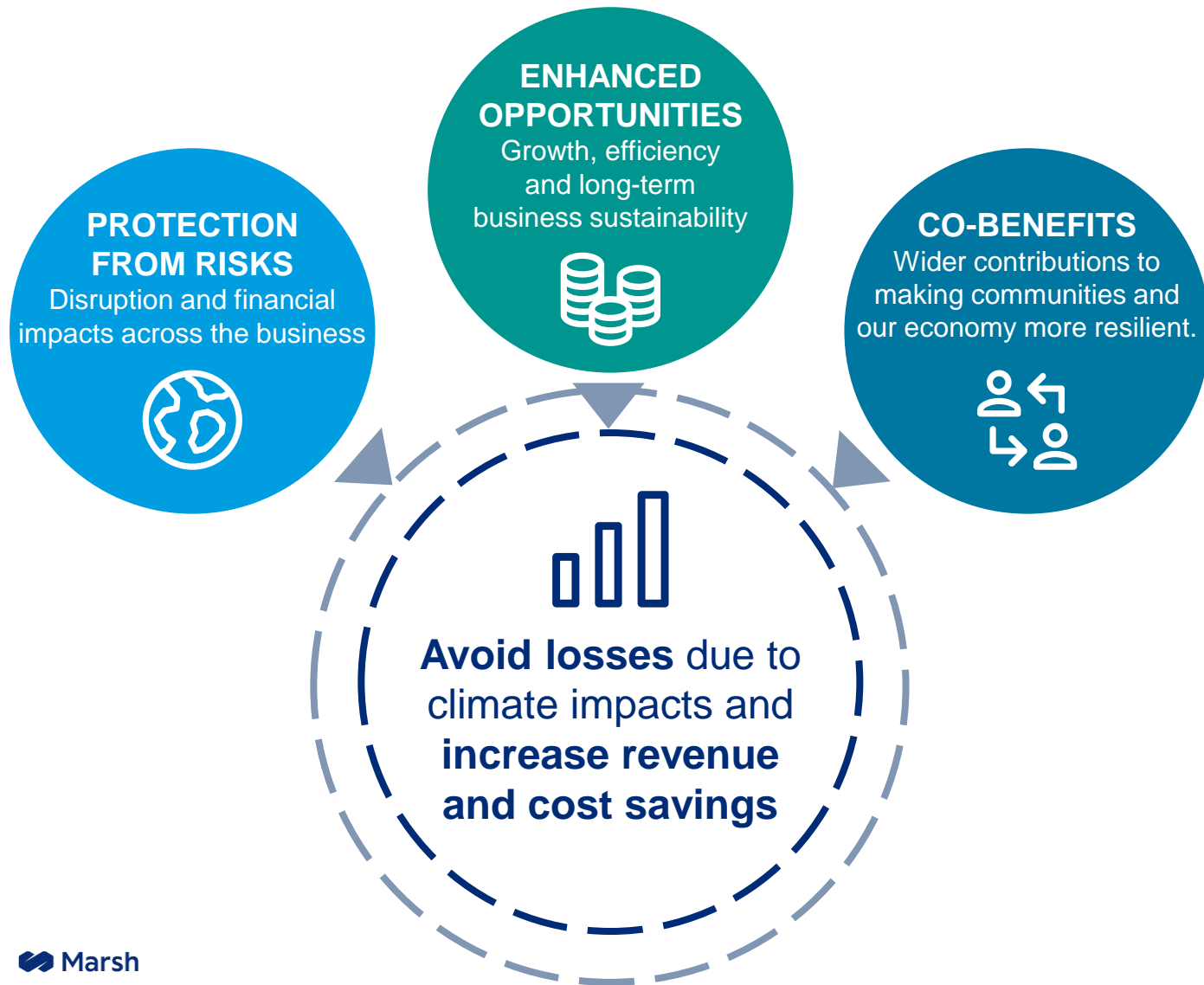


Future financial resilience

Vital to build climate-adjusted financial needs into determining insurance capacity requirements:

- What will the market bear?
- Can I afford to transfer that much?
- What else do I need to do in terms of resilience to balance costs?

Climate change adaptation helps businesses avoid economic losses and increase revenue and cost savings



Every \$1 invested in resilience and preparedness saves \$13: \$6 in damage & cleanup costs, and \$7 in economic savings¹

1. US Chamber of Commerce, *The Preparedness Payoff*

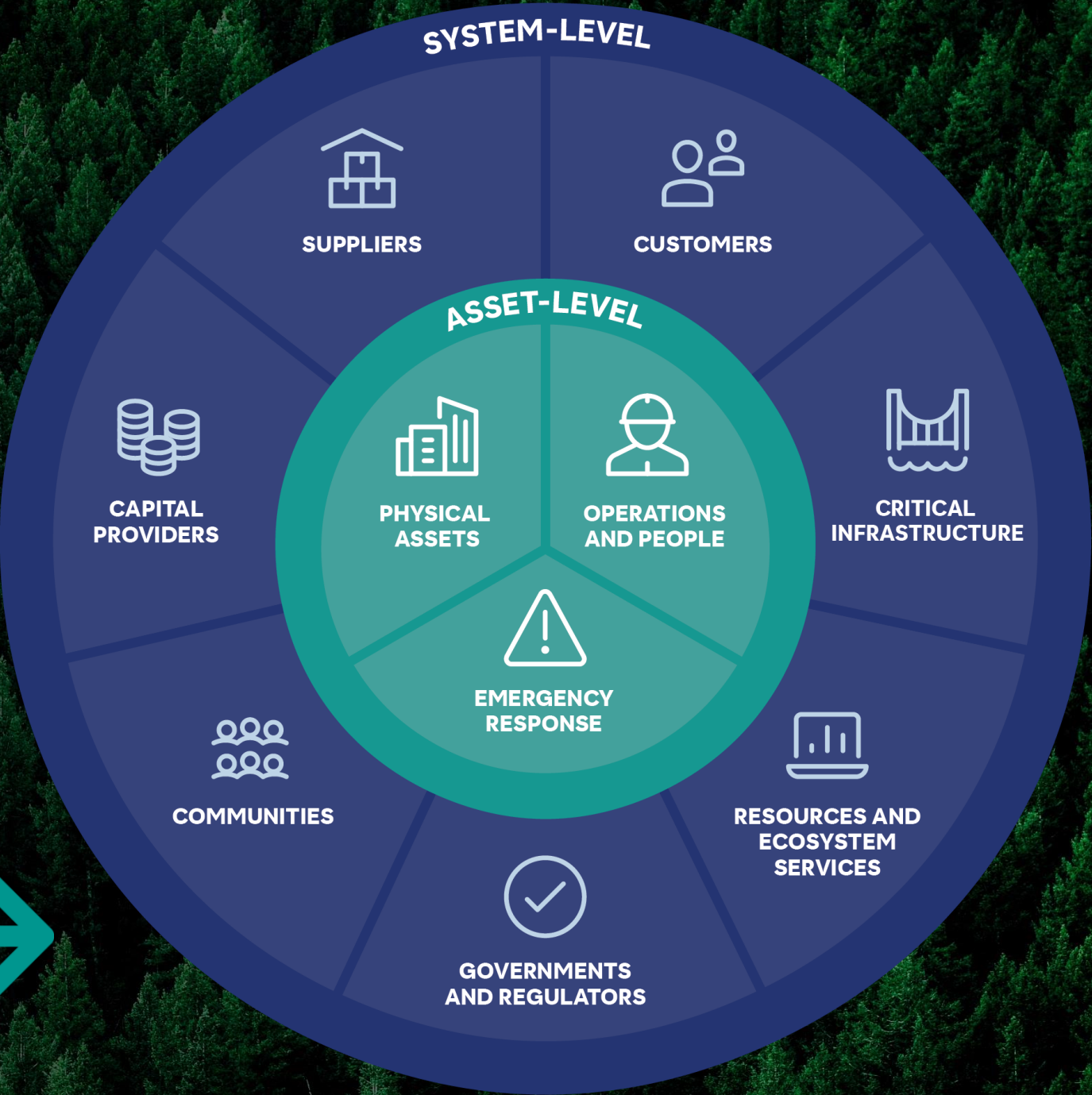
Marsh's Climate Adaptation Framework

Adaptation means that businesses are better prepared for physical risks from climate change, that they are not surprised by sudden unexpected shifts in climate patterns and that they can recover quickly and strongly from adverse events.



There are adaptation considerations at both asset- and system-level for businesses to action

Marsh Climate Adaptation Framework

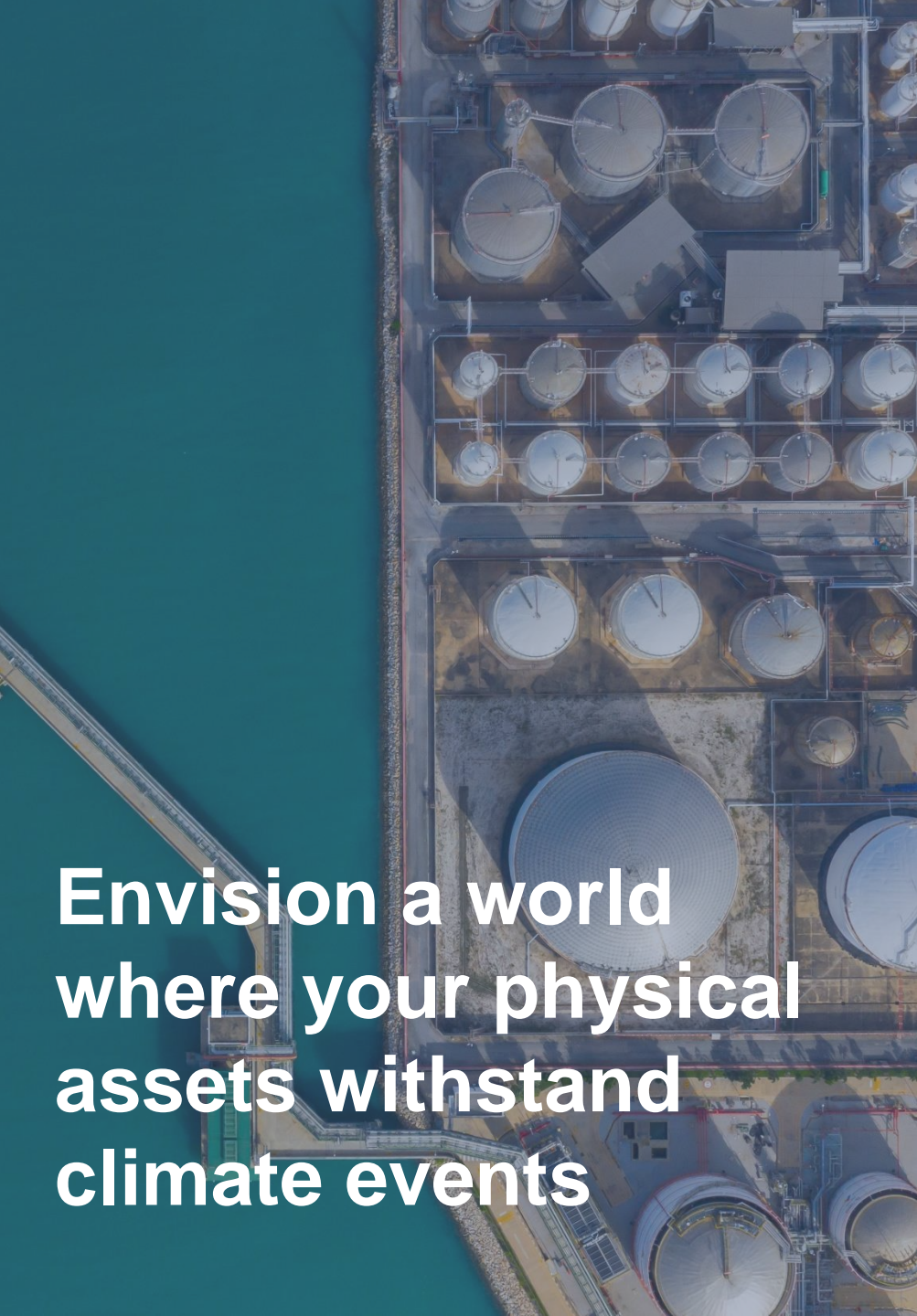


What are the adaptation considerations?

Asset-level		System-level	
Consideration	What is it?	Consideration	What is it?
Physical assets	<ul style="list-style-type: none"> How to protect your assets from physical damage 	Suppliers	<ul style="list-style-type: none"> How your suppliers are impacted by climate (and other risks)
Operations & People	<ul style="list-style-type: none"> How to manage your operations (employees, processes) considering a changing climate 	Customers	<ul style="list-style-type: none"> How your customers are impacted by climate change
Emergency response	<ul style="list-style-type: none"> How to prepare for both chronic and acute hazards How to ensure business continuity 	Critical Infrastructure	<ul style="list-style-type: none"> How the infrastructure (roads, waterways, utilities) that your business depends on is impacted under climate change
		Resources & ecosystem services	<ul style="list-style-type: none"> How the natural resources or other ecosystem services that your business depends on is impacted under climate change
		Governments & Regulators	<ul style="list-style-type: none"> How future policy, legal and social factors present risks or opportunities to you as a business
		Communities	<ul style="list-style-type: none"> How the local communities you employ from are impacted under climate change
		Capital providers	<ul style="list-style-type: none"> How capital providers (including insurers) expect adaptation implementation and plans

Asset-level approaches





Envision a world
where your physical
assets withstand
climate events

Physical assets adaptation

Selecting appropriate adaptation measures requires detailed cost-benefit analysis; performed right, it could save you \$MM

Data requirements to get started:

- ✓ Location data on your owned assets (typically contained in insurance property schedules)
- ✓ Building characteristics and, where available, existing resilience measures

Services available:

- Climate risk modelling
- Engineering site visits
- Risk Finance Optimisation (RFO)

1

Risk identification

- We collect available exposure and vulnerability data for your asset portfolio, and geolocate it
- Leveraging state-of-the-art climate risk models and data, we identify the climate hazards that your physical assets are exposed to

2

Risk & adaptation assessment

- We assess the financial impact of these climate hazards to your physical assets, without adaptation measures and then with adaptation measures, to determine the efficiency of adaptation solutions
- We assess the costs and benefits of each measure that could be implemented

3

Recommendations

- We provide tangible recommendations based on the outcomes of our cost-benefit analyses
- We create an adaptation pathway for your physical assets

Operations & people adaptation

Climate change will be the most significant force impacting global health; we can support you protect your people

Data requirements to get started:

- ✓ Site visit, survey & stakeholder interviews to determine key operations & production processes

Services available:

- Risk engineering surveys
- Stakeholder workshops that determine key business operations & processes

1

Risk identification

- We work with you to map your key business operations and procedures, considering productivity losses (time & cost) per asset / site
- Leveraging state-of-the-art climate risk models and data, we identify the climate hazards that your operations and people are exposed to, and then determine the likely secondary risks that may unfold (e.g. heatwave affecting workforce productivity)

2

Risk & adaptation assessment

- We assess the financial impact of these climate hazards to your operations & people, without adaptation measures and then with adaptation measures, to determine the efficiency of adaptation solutions
- We assess the costs and benefits of each measure that could be implemented

3

Recommendations

- We provide tangible recommendations based on the adaptation measures that will deliver the most benefit (e.g. employee health benefits)
- We co-develop a roadmap for implementing these measures that best meets the needs of your organisation



Envision a world where climate change does not impact your operations, nor your most important asset: your people

Envision a world where you're prepared for all climate eventualities

Emergency response adaptation

Robust emergency response measures can deliver significant competitive advantages as well as mitigate severity

Data requirements to get started:

- ✓ Location data on your owned assets (typically contained in insurance property schedules)
- ✓ Existing Enterprise Risk Management (ERM) documentation

Services available:

- [Risk engineering](#)
- [Climate risk modelling](#)
- [Enterprise Risk Management Services](#)

1

Risk identification

- We collect available exposure and vulnerability data for your asset portfolio, and geolocate it.
- Leveraging state-of-the-art climate risk models and data, we identify the climate hazards that are most material to your business.

2

Risk & adaptation assessment

- We assess what capacity your business has to respond to climate risks by understanding emergency response processes, mitigation measures, early-warning systems and other response mechanisms you have
- We assess the extent to which your existing measures are appropriate given the level of climate risk identified. We also consider additional measures you might take and the costs and benefits they would provide, were they implemented.

3

Recommendations

- We provide recommendations on either a) improving your existing processes on emergency response, or b) building climate-specific emergency response plans that factor in our assessment of how your business may need to respond
- We recommend potential additional insurance and risk management options available to you to further prevent, transfer or mitigate risks

System-level approaches

5



Envision a world
where climate change
causes no disruption
to your supply chain

Supply chain adaptation

\$1.6 trillion in missed revenue growth opportunities annually due to disruption¹; our capabilities can help you capture this

Data requirements to get started:

- ✓ Owned-asset & production facilities location data
- ✓ Any known data on suppliers tier 1 – n

Services available:

- Sentrisk
- Contingent Business Interruption insurance
- Parametric insurances

1

Risk identification

- Leveraging our proprietary, AI-driven capabilities within Sentrisk, we reveal the full extent of your supply chain and how physical goods move through this network.
- Leveraging state-of-the-art climate risk models and data, we identify the climate hazards that your supply chain assets and products are most exposed to.

2

Risk & adaptation assessment

- We quantify the risk this poses to your business in terms of business disruption and then model different scenarios to determine the various viable options available to you.
- We consider a range of supply-chain options, such as co-funding adaptation measures with suppliers, considering alternative shipping routes and/or developing new supplier relationships.

3

Recommendations

- We provide tangible recommendations to reduce your risk to climate change across the supply chain, ultimately reducing the possibility of disruption, and maximising production at your own facilities.
- We consider potential risk financing options such as (additional) business interruption, contingent business interruption, and other insurance solutions, as well as implementing robust risk management plans

Customer adaptation

Anticipating customer buying preferences, and ensuring no disruption in service due to climate change events is a strategic imperative

Data requirements to get started:

- ✓ Key customer segments by revenue

Services available:

- Stakeholder workshops that determine key customer segments
- Trade credit insurance

1

Risk identification

- We work with you to identify your key client segments from a strategic and commercial perspective
- We identify the key trends for your major client segments from a climate and adaptation perspective
- We determine likely future expectations that your customers may have to understand risks and opportunities

2

Risk & adaptation assessment

- We assess the financial impact of these customer trends and expectations to your business, without adaptation measures and then with adaptation measures, to determine the efficiency of adaptation solutions
- We assess the costs and benefits of each measure that could be implemented

3

Recommendations

- We provide tangible recommendations based on the most appropriate adaptation measures that will protect your business from risks, and capture opportunities with existing and new customers
- We consider potential risk financing options such as trade credit and other insurance solutions, as well as implementing robust risk management plans



Envision a world where your customers are drawn to you by the resiliency you've built to climate change

Critical infrastructure adaptation

Your business should be resilient to critical infrastructure failure — Marsh can ensure you're prepared for all eventualities

Data requirements to get started:

- ✓ Owned-asset & production facilities location data
- ✓ Any known data on tier 1 supplier

Services available:

- Climate risk modelling
- Stakeholder workshops that determine key critical infrastructure dependencies
- Insurance solutions (e.g. business interruption; trade credit)

1

Risk identification

- We identify the critical infrastructure that your business operations rely upon, such as roads, ports, rail and air freight in proximity to your business
- Leveraging state-of-the-art climate risk models and data, we identify the climate hazards that the critical infrastructure you rely on is exposed to, such as the impact of rising sea levels on ports

2

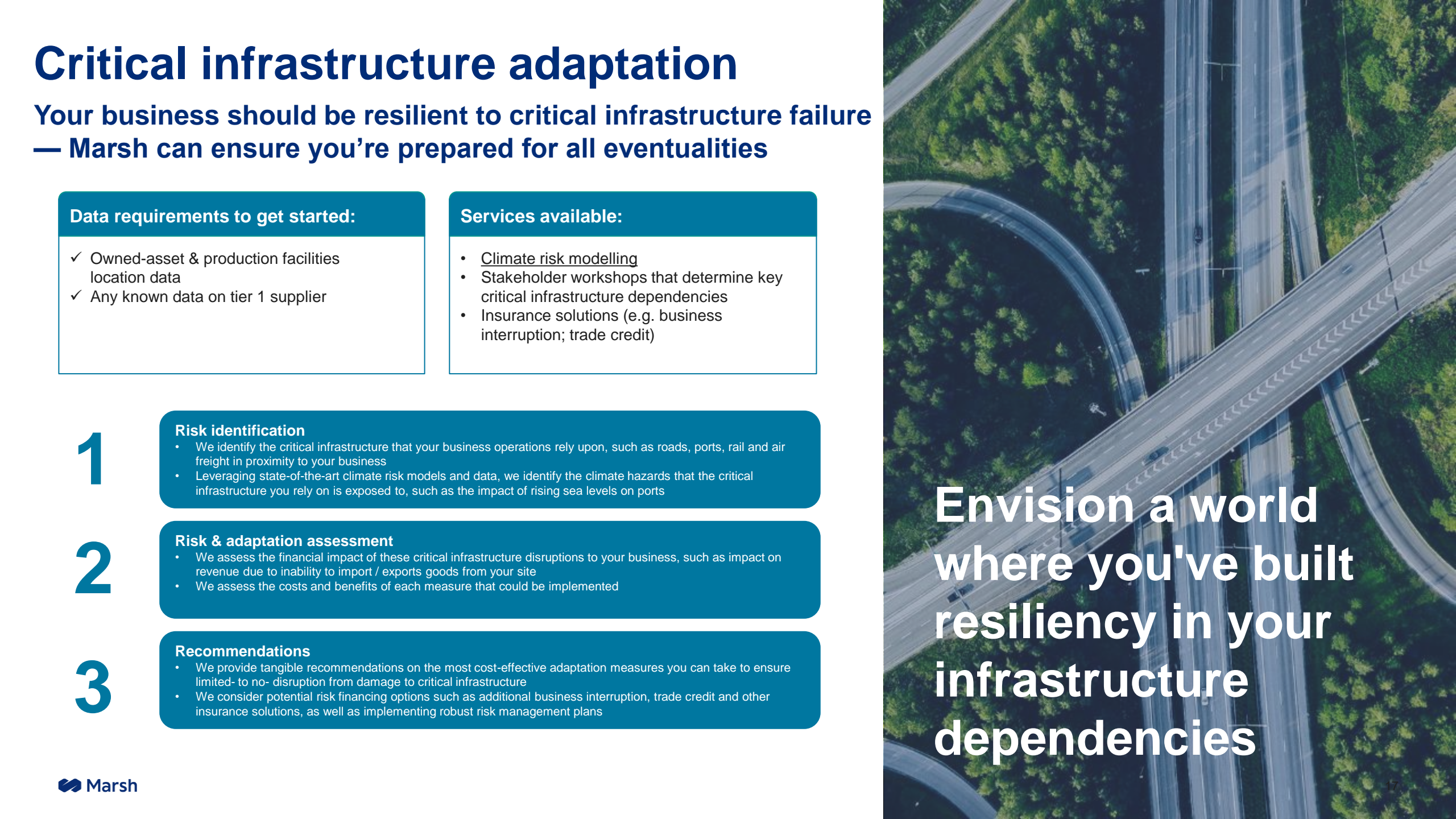
Risk & adaptation assessment

- We assess the financial impact of these critical infrastructure disruptions to your business, such as impact on revenue due to inability to import / exports goods from your site
- We assess the costs and benefits of each measure that could be implemented

3

Recommendations

- We provide tangible recommendations on the most cost-effective adaptation measures you can take to ensure limited- to no- disruption from damage to critical infrastructure
- We consider potential risk financing options such as additional business interruption, trade credit and other insurance solutions, as well as implementing robust risk management plans



Envision a world where you've built resiliency in your infrastructure dependencies



Envision a world
where you operate
sustainably with the
natural resources
you depend upon
and impact

Resources and ecosystem services

Adaptation involves becoming resilient to impacts on key resources and the ecosystem services you depend on

Data requirements to get started:

- ✓ Owned-asset & production facilities location data
- ✓ Data on key resources used at site or production facility (e.g. water; energy)

Services available:

- Nature risk modelling
- Stakeholder workshops that determine resource and ecosystem service dependencies

1

Risk identification

- We collect available data on your resource dependencies across your sites
- Leveraging state-of-the-art climate risk models and data, we identify the climate hazards that the ecosystem services are exposed to, such as the impact of drought on freshwater availability

2

Risk & adaptation assessment

- We assess the financial impact of these climate hazards to your ecosystem services, without adaptation measures, and with adaptation measures, to determine the potential measures available to you
- By performing this nature risk modelling, we assess the costs and benefits of each measure that could be implemented

3

Recommendations

- We provide tangible recommendations on the most cost-effective solutions available to you, and when you may need to act.
- We support you in considering the impact these changes may have on your insurance programme.



Envision a world where your business is positioned to reap the benefits of government and regulatory adaptation initiatives

Governments and regulators

More than 170 countries have national policies on adaptation to manage the risks of climate change impacts; we can help you take advantage of them

Data requirements to get started:

- ✓ List of key business operation jurisdictions

Services available:

- Stakeholder workshops that determine key governments and regulators in scope

1

Risk identification

- We analyse your business's key political landscape(s) and regulatory regime(s), down to the local government level
- We identify the key industry risks and focus points from a climate change perspective

2

Risk & adaptation assessment

- We assess the financial impact of current, and potential future government and regulatory initiatives on your business
- We assess the costs and benefits of each measure that could be implemented

3

Recommendations

- We provide tangible recommendations to reduce your risk and seize opportunities associated with government and regulatory adaptation initiatives

Community adaptation

We can help you evaluate community adaptation measures to derive co-benefits with the communities you operate in

Data requirements to get started:

- ✓ Location data of communities where your business operates

Services available:

- Climate risk modelling
- Workshops that consider community adaptation measures

1

Risk identification

- We work with you to identify the community hubs from which you employ staff for your business
- We also identify the community hubs in proximity to your operations
- Leveraging state-of-the-art climate risk models and data, we identify high-risk communities that may be impacted by climate risks

2

Risk & adaptation assessment

- We assess the potential climate risks that communities you have a vested interest in are exposed to
- We consider the various potential options available to you to address particular climate risks, such as assessing the co-benefits to the community of implementing particular adaptation measures

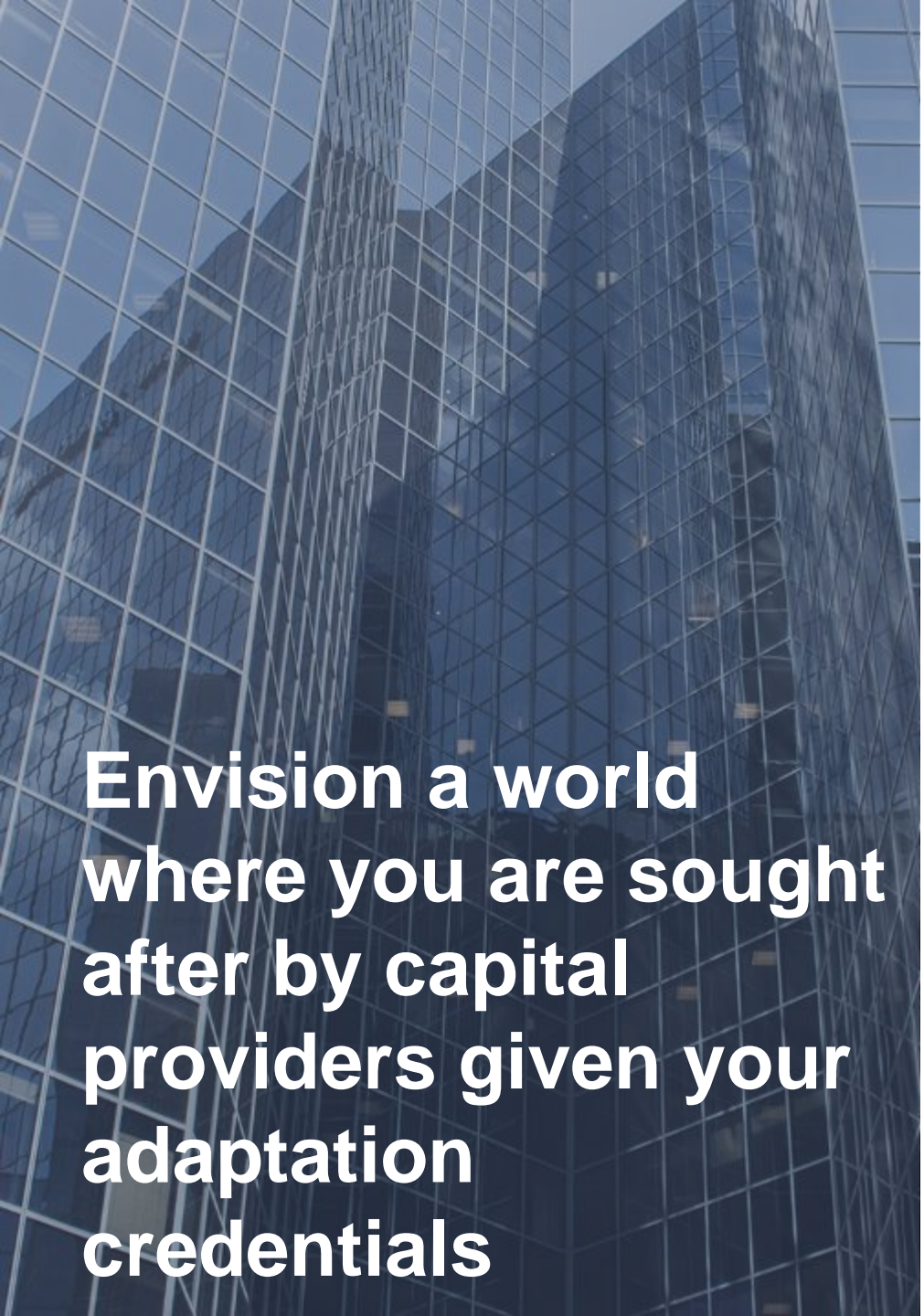
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Recommendations

- We provide tangible recommendations that consider community engagement and the costs and benefits to investing in communities from a climate risk management perspective
- We can propose a number of people- and community- based insurance solutions to support your involvement in community initiatives that build greater adaptation



Envision a world where the communities you employ from are protected and prosper under a changing climate



**Envision a world
where you are sought
after by capital
providers given your
adaptation
credentials**

Capital provider adaptation

Our capabilities can help you seize competitive advantages by anticipating the adaptation expectations of your capital providers

Data requirements to get started:

- ✓ List of current insurers and other capital providers

Services available:

- Insurer appetite database (Marsh Wiki)
- Stakeholder workshops that determine key capital providers

1

Risk identification

- We work with you to compile a comprehensive list of your relevant capital providers
- We compare the adaptation criteria of different providers and identify commonalities and differences
- We determine the macro-economic and policy head- and tail-winds, and how risks to your industry and business may arise

2

Risk & adaptation assessment

- We assess the impact these risks may have on your business; and conversely opportunities that you can seize by being proactive on adaptation measures
- We assess a range of adaptation options, evaluating them from a costs and benefits perspective

3

Recommendations

- We provide tangible recommendations and a roadmap that aligns your business with the adaptation expectations of your capital providers

- 6. Examples of our work**
- 7. Why work with us**
- 8. Our credentials**

Examples of our work

	Client A UK Investment Manager	Client B North American Real Estate Investment Company	Client C Middle East Utilities Company	Client D European Food & Beverage Company	Client E South Asian Infrastructure Company
Context	<ul style="list-style-type: none"> The client is a global investor with +15,000 assets seeking to establish a standardised physical resilience and DD process. 	<ul style="list-style-type: none"> The client develops or invests in industrial, office, residential, and retail sites globally. 	<ul style="list-style-type: none"> The client is a critical part of national (and international) climate action plans through operating one of the largest solar parks in the world. 	<ul style="list-style-type: none"> The client is an international food producer. 	<ul style="list-style-type: none"> The client develops tower infrastructure solutions for operators in the Southeast Asian market.
Client challenge	<ul style="list-style-type: none"> The client's in-house climate team needed external technical support to, backed up by written reports to inform their own strategy and business mandatory reporting. 	<ul style="list-style-type: none"> The client needed to understand its climate risk in a particularly exposed region of the world to inform its divestment strategy, insurance program, and disclosure requirements. 	<ul style="list-style-type: none"> The client needed to understand its physical risk exposure to ensure operational continuity and thereby meet its energy production commitments. 	<ul style="list-style-type: none"> The client needed to understand the short- and long-term yield risks for its key crop exposures from its suppliers. 	<ul style="list-style-type: none"> The client needed to understand the vulnerabilities of several of its critical infrastructure assets.
Marsh Solution	<ul style="list-style-type: none"> Marsh modelled the impact of different climate perils under a range of future trajectories through to the year 2100. We scored the client's portfolios covering multiple geographies and classes of risk (from property to pipelines). Marsh provided recommendations to improve resilience on both a site and a portfolio level, alongside detailed cost benefit analysis to aid decision making. We provided a bespoke 'resilience playbook' for the client's asset managers, with asset type and peril specific vulnerabilities, primary/secondary risk factors, current/future asset-level resilience and options for embedding resilient design at the site (e.g. adaptation options) 	<ul style="list-style-type: none"> Marsh modelled a detailed evolution of physical risks over the lifetime of the assets in question across different climate scenarios. Leveraging the initial modelling results, Marsh re-ran the modelling assessment with adaptation-adjusted vulnerability functions. Marsh provided recommendations on the most appropriate adaptation solutions with specific peril exposures in mind. 	<ul style="list-style-type: none"> Marsh modelled the clients' climate risks across its hardware, software, and emergency response systems. Identifying heat stress as the primary risk, Marsh worked with the client to identify appropriate measures based on the size of the costs and benefits of those recommendations. Marsh developed a practical adaptation implementation roadmap that the client was able to disclose to its external stakeholders. <p>Learn more about our work with this client here.</p>	<ul style="list-style-type: none"> Marsh assessed the short-term supply risks of the crops by analyzing a current crop yield map and conducting scenario analysis for future yield trends to identify patterns. Our team identified acute risks (river floods and earthquakes), provided real-time alerts, and estimated very high water stress in crop-growing areas, potentially making irrigation unfeasible or cost prohibitive. Marsh provided recommendations that enabled the client to make strategic decisions about its supply chain. 	<ul style="list-style-type: none"> Marsh produced a customized risk score for each asset by considering the individual characteristics of the asset and modelling its vulnerability to location-based hazards. Detailed risk projections were developed for each asset across six main perils and alternate scenarios. Marsh created a resilience approach for each peril set, with various climate adaptation pathways organized by their impact and implementation timeline.

Why work with us



Foundations in insurance

- Marsh is the world's largest insurance broker advising firms on traditional and alternative risk transfer solutions.
- We offer full "360°" risk management; other consulting firms cannot speak to risk transfer.



Operational Resilience Measures

- We have teams who can go on-site to assess risk and provide practical recommendations.
- We have 400+ risk engineers globally; workforce health and safety experts and climate resilience surveys embedded within standard site surveys.



Physical climate risk expertise

- We have a long history of understanding physical risks related to climate through natural catastrophe models.
- We have intimate knowledge of the leading physical climate risk vendors and can support you with selecting the right one based on your needs.



With Marsh, you get Marsh McLennan

- Through our one-enterprise approach, we can tap into a wealth of expertise across risk, strategy, and people.
- Oliver Wyman is the go-to partner for the UN's climate initiatives; Mercer has deep expertise on people strategy and responsible investment; and Guy Carpenter's catastrophe modelling tools are uniquely positioned to help you understand the impacts of potential climate scenarios on your business.

Our credentials

RECOGNITIONS



CarbonNeutral.com

Marsh McLennan is a certified **CarbonNeutral®** company as of September 2021.



For the fifteenth time, Marsh McLennan earned a perfect score on the **Human Rights Campaign's Corporate Equality Index**.



Marsh McLennan has been named to the **2023 Fortune World's Most Admired Companies** list. We placed in the top 200 overall and were cited as one of the most admired companies in the Property and Casualty Insurance industry.



For the fifth year in a row, Marsh McLennan has been named to the **Bloomberg Gender-Equality Index**.



Marsh McLennan was proud to be recognized as one of the **2022 World's Most Ethical Companies**.

PARTNERSHIPS



Marsh McLennan signed on to the **Principles for Sustainable Insurance (PSI)** in March 2022. See page 70 for our disclosures against PSI's four Principles.



Mercer was a founding signatory to the **Principles for Responsible Investment (PRI)** and continues to demonstrate leadership by scoring highly on the latest PRI annual assessment.



Marsh McLennan is an active participant in the **Sustainable Markets Initiative (SMI)** and joined leaders from some of the largest and most influential global insurance firms to form an Insurance Task Force.



Marsh McLennan signed on to the **Task Force on Climate Related Financial Disclosures (TCFD)** in 2020 to support climate risk disclosures. See our TCFD index on page 69.



Across our businesses, we support the framework development of the **Task Force on Nature-related Financial Disclosures (TNFD)** through our thought leadership and pro bono support.



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