Climate Risk Seminar

GIFT City, Gandhinagar

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Climate risk measurement and management

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Institute of Actuaries of India

1. Climate risk and its types

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Climate-related and environmental financial risks

Transition Risk

Policy & legal risk: Compliance costs; stranded assets; asset impairment; restrictions & limitations on carbon intensive assets; and asset depreciation.

Market & economic risk: Company or securities valuations; asset impairment; viability of certain business models; and credit rating implications.

Technology risk: Write-offs for investments in disrupted technologies; required investment in new technologies; and process change costs to accommodate new technologies.

Reputation risk: Damage to brand value or reputation resulting in lost revenue and additional expenditures e.g. corporate affairs, litigation etc.

Physical Risk

Acute physical risk: Short lived extreme weather impacts; disruptions to operations, transportation, supply chains etc; damage to physical assets and impacts on insurance liabilities.

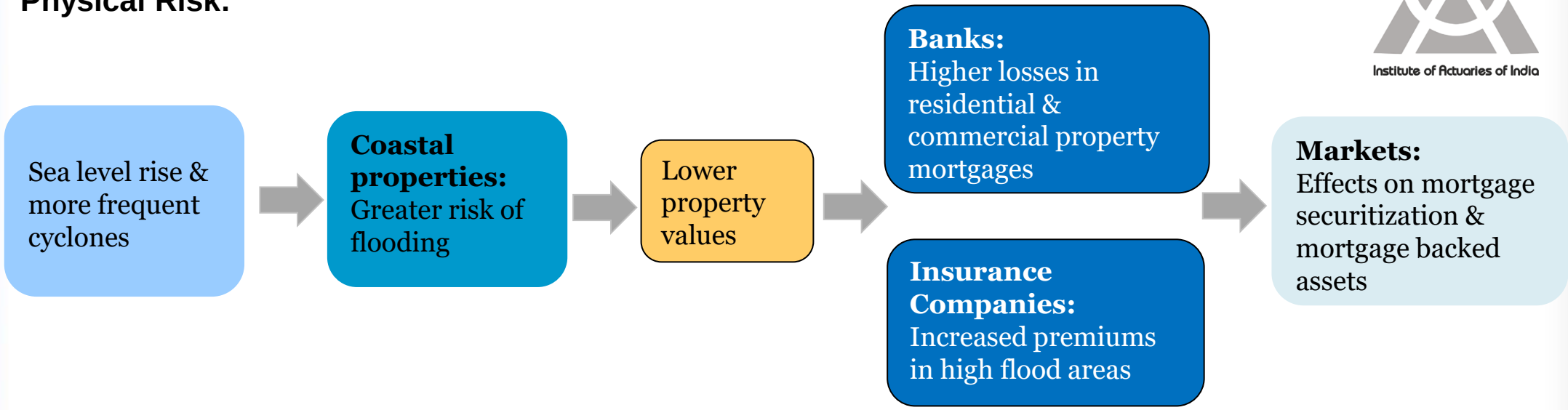
Chronic physical risk: Impacts due to slow insidious change such as increasing temperature or water stress; degradation or limitations on resource availability e.g. labour, natural resources etc.

Potential financial impacts

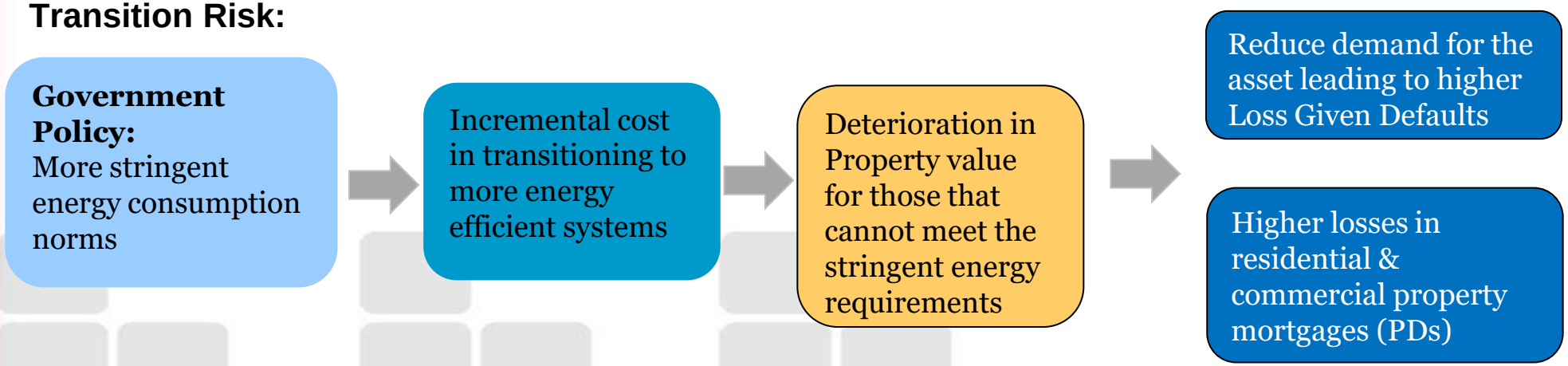
- Physical damage to assets
- Production disruption
- Supply chain disruption
- Changes in Input prices
- Changes in demand For products/services

Transmission of climate risk in Real Estate Sector

Physical Risk:

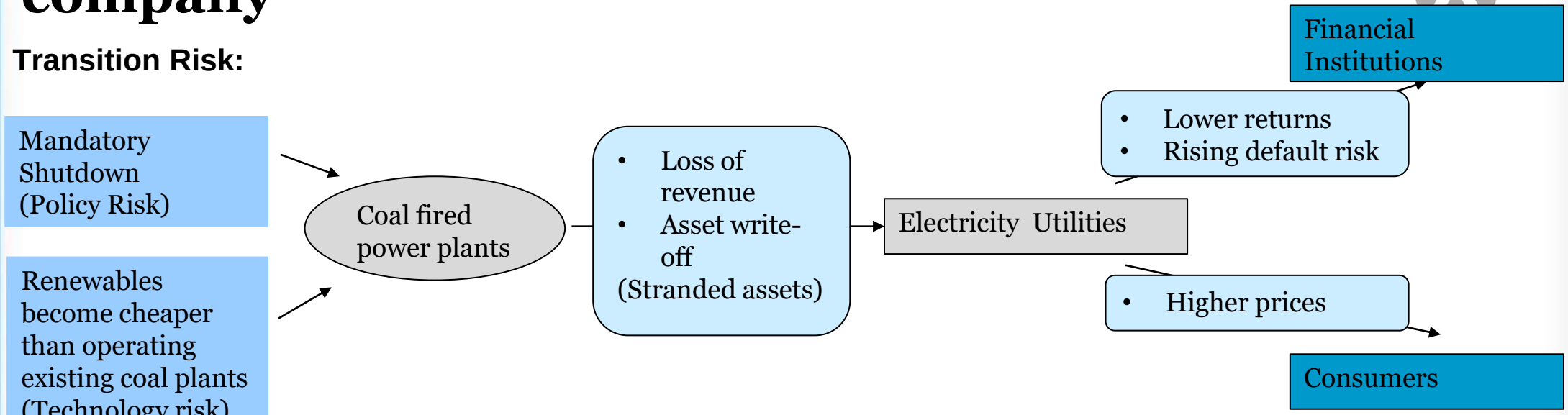


Transition Risk:

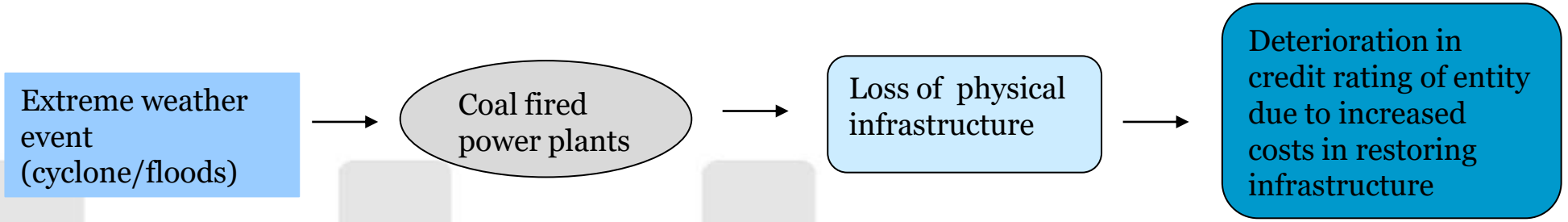


Transmission of Climate risk in Power generation company

Transition Risk:



Physical Risk:



2. Climate risk transmission to conventional risks

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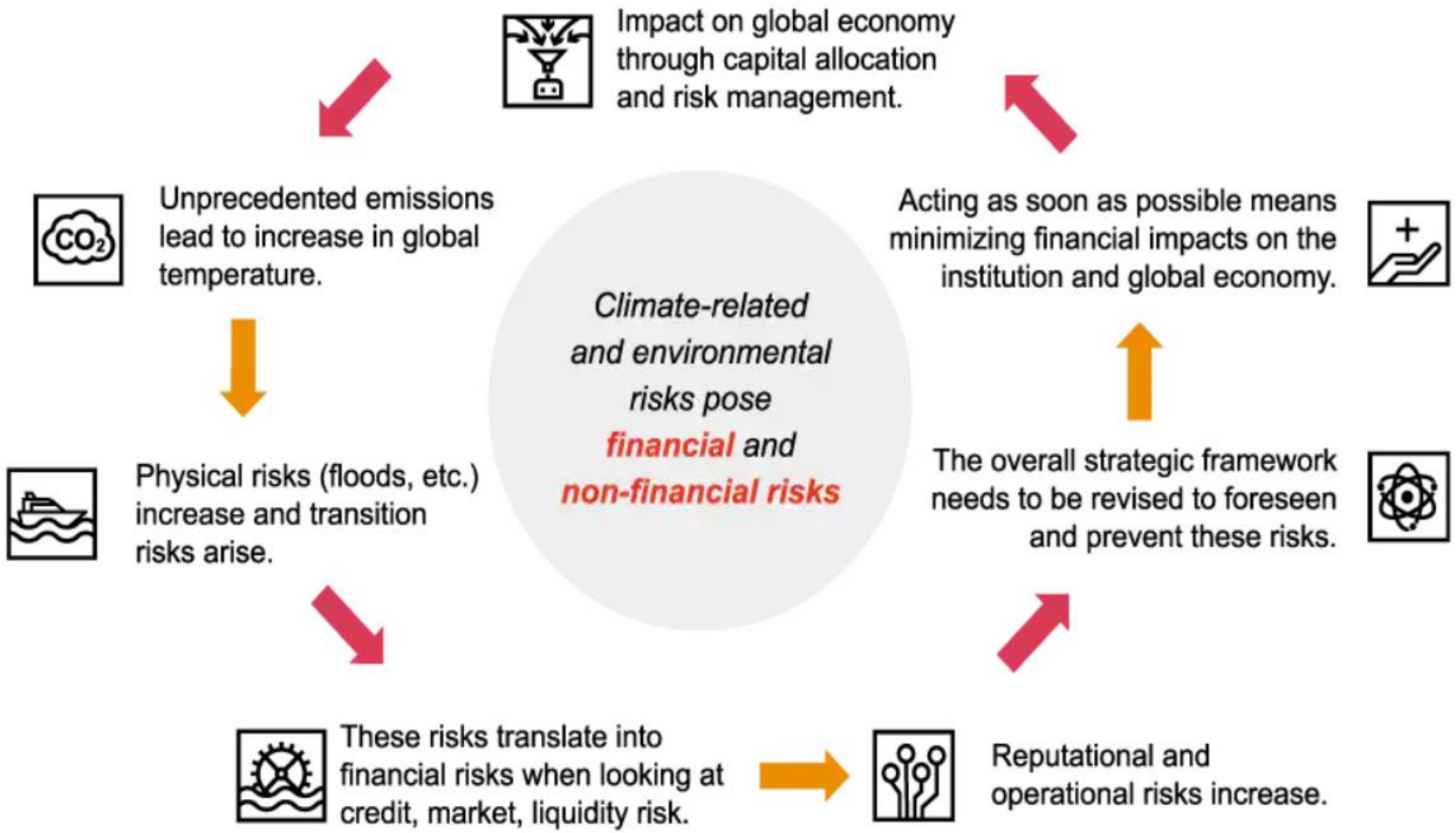
Background of Climate-related financial risks: The global economy view



Climate risk transmission to Conventional risks

	Risks	Channels of transmission	Risk Drivers
1	Credit Risk	**Physical Risk:** Acute & Chronic hazards **Transition Risk:** Policy, Technology, Reputation, Consumer preferences	Probability of default Loss Given default
2	Market Risk	**Reduced financial asset values,** potentially causing significant, abrupt price declines in areas where climate risk isn't priced in. Climate risk could also lead **to a breakdown in correlations between assets**	Stocks Currencies Commodity Prices
3	Liquidity Risk	Banks' access to stable sources of funding could be reduced as market conditions change. Climate risk drivers may cause banks' counterparties to **draw down deposits and credit lines**	Asset valuation Counterparty behavior Funding conditions
4	Operational Risk	**Increasing legal and regulatory compliance** risk associated with climate-sensitive investments and businesses	Failed internal processes Internal or external events
5	Reputational Risk	Increasing reputational risk to banks based on **changing market or consumer sentiment**	Failed internal processes Internal or external events
6	Liability Risk	Increased claims due to higher frequency and intensity of physical risks	Underwriting Claims

Source: BCBS, 2021: Climate risk drivers and their channels of transmission

Climate risk transmission to Conventional risks

Climate Risk

Physical Risks

- Chronic Risks: Changes in Temperature, Changes in Rainfall pattern, Sea level/ Tidal pattern changes etc.
- Acute Risks: Floods, Heat waves, Cyclones/ Hurricanes etc.

Transition Risks

- Policy & Regulation changes: Carbon Tax etc.
- Technology changes
- Consumer preference changes

Transmission Channels

Micro level impact

- Financial/ Budgetary impact on individual households
- Property damage, liability payments, valuation degradation
- Business disruption due to changing demand & supply cost

Macro level impact

- Increase in unemployment
- Impact on GDP
- Asset quality & capital depreciation
- Migration

Business Risks

Financial Risks

- Increase in Credit Risk
- Volatility in Market Risk
- Increase in Operational Risk
- Increase in Insurer Risk
- Gap widening in Liquidity Risk

Non-Financial Risks

- Reputational Risk
- Physical asset security Risk
- Compliance & Regulatory Risk
- Information security & Cyber Risk

Key elements of climate risk management framework

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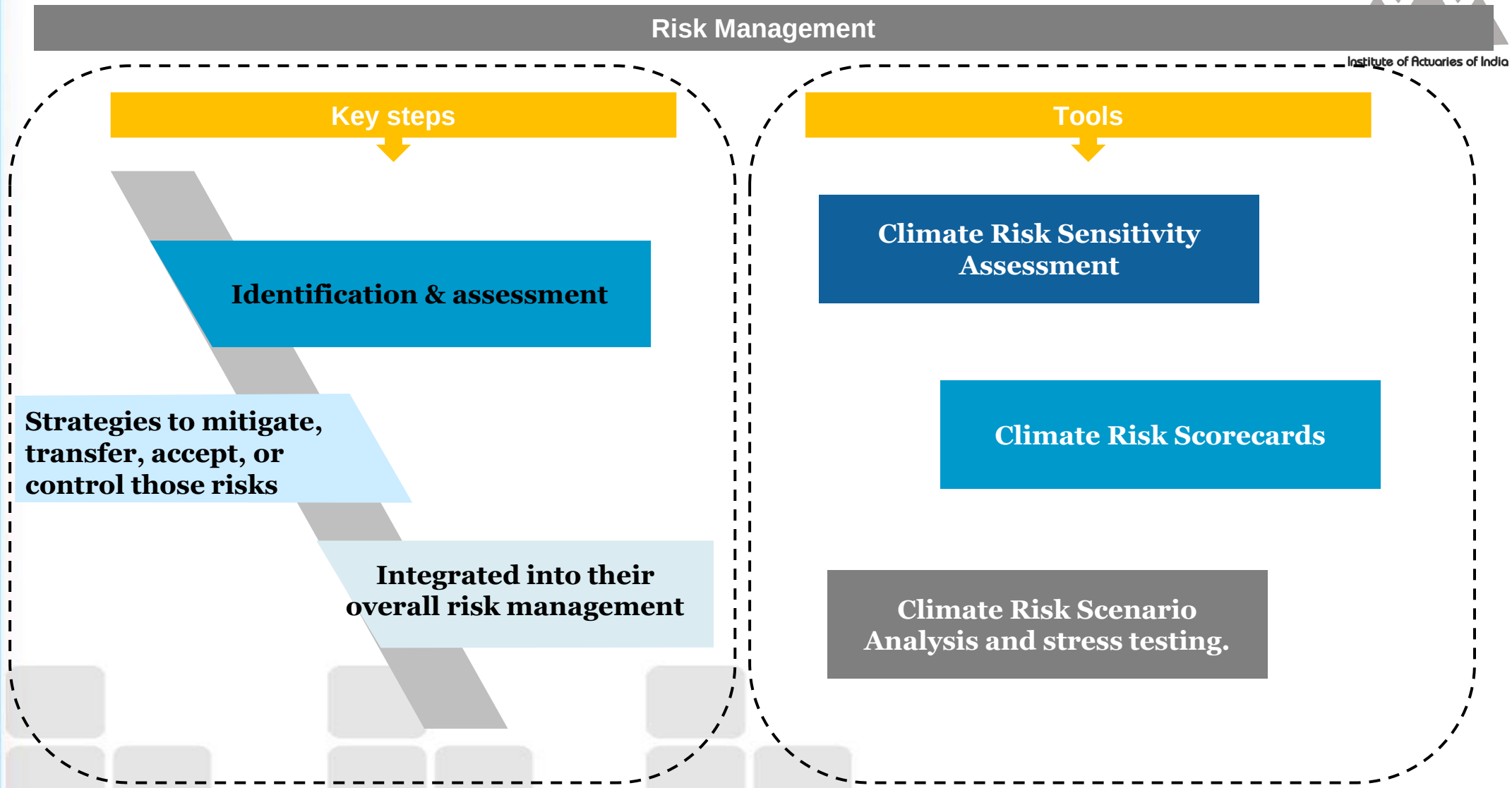
1. Governance	2. Strategy	3. Risk management	4. Metrics and targets
a. Describe the **board's oversight** of climate-related risks and opportunities.	a. Describe the **climate-related risks and opportunities** the organization has identified over the **short, medium, and long term**.	a. Describe the organization's **processes** for **identifying and assessing climate-related risks**.	a. Disclose the **metrics** used by the organization to assess climate-related risks and opportunities in line with its strategy and risk management process.
b. Describe **management's role** in assessing and managing climate-related risks and opportunities.	b. Describe the **impact of climate-related risks and opportunities** on the organization's businesses, strategy, and financial planning.	b. Describe the organization's **processes for managing climate-related risks**.	b. Disclose **Scope 1, Scope 2, and, if appropriate, Scope 3** greenhouse gas (GHG) emissions, and the related risks.
	c. Describe the **resilience of the organization's strategy**, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.	c. Describe how processes for identifying, assessing, and managing climate-related risks are **integrated into the organisation's overall risk management**.	c. Describe the **targets** used by the organization to manage climate-related risks and opportunities and performance against targets.

Climate Risk Measurement



3. Challenges in implementing climate related risks

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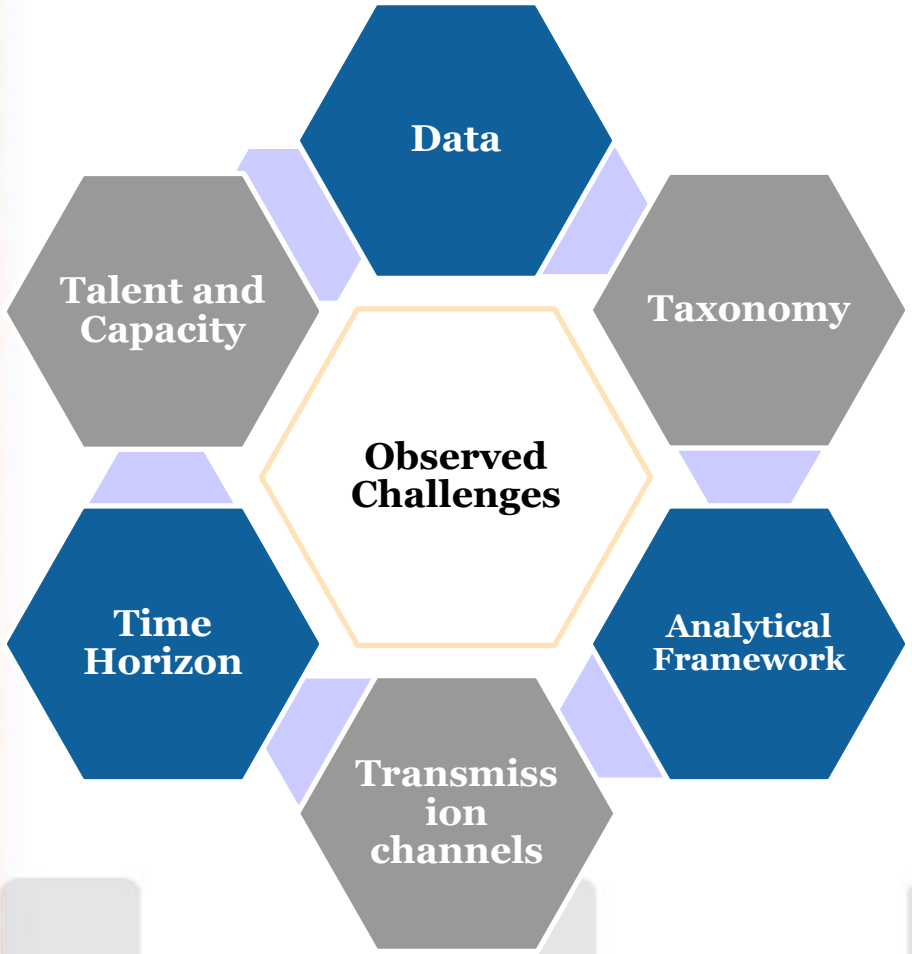
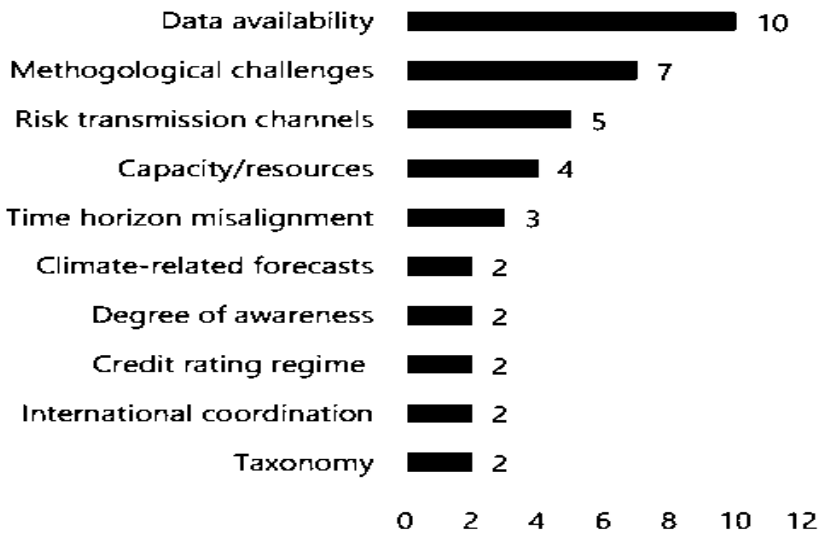
Challenges in implementing Climate related Risk for Banks

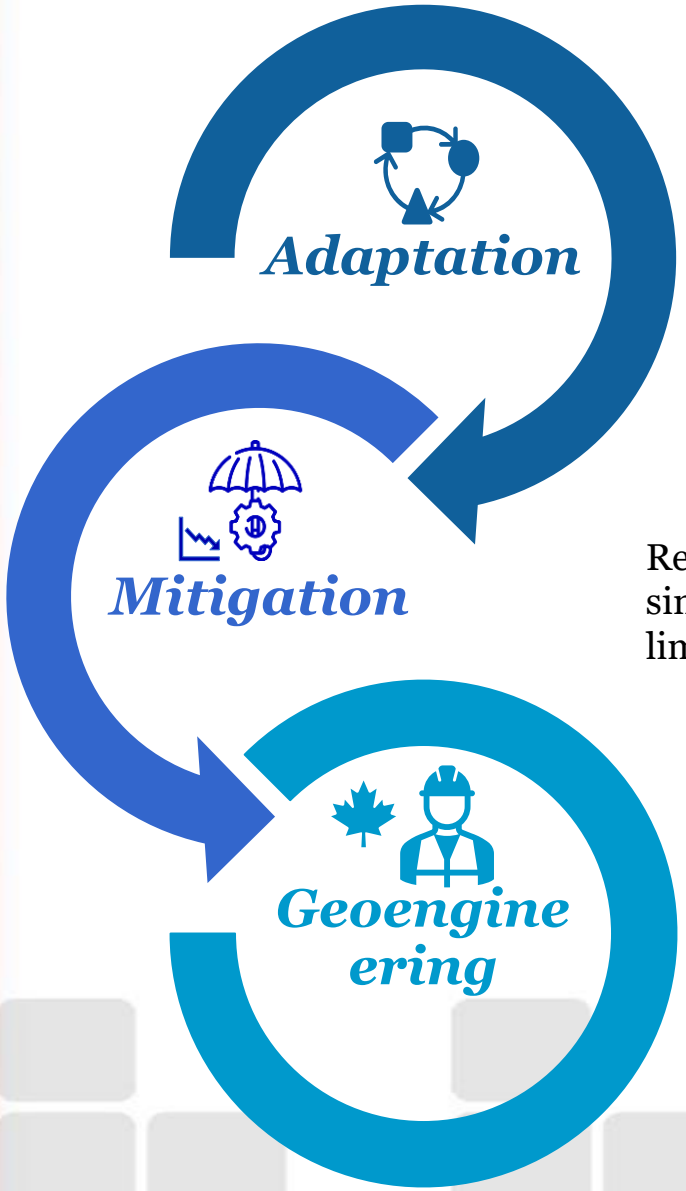


In April 2020 , the Basel Committee on Banking Supervision(BCBS) member's survey report concluded that the industry faces many operational challenges in developing a robust framework to assess climate related financial risks, with 'data insufficiency' and 'methodological challenges' topping the list.



4. Managing climate risk

Managing climate risk



Process of adjustment to actual or expected climate and its effects in order to either lessen or avoid harm or exploit beneficial opportunities

Reducing emissions or enhancing sinks of greenhouse gases (GHGs), to limit future climate change

Actively manipulating the climate systems in order to prevent the climate from changing despite continuing GHG emissions

Thank You