



THE FUTURE OF CARBON MANAGEMENT

Saïd Business School, Oxford University

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COMPANY OVERVIEW

- Verdantix is an independent analyst research firm
- Our research and advisory services focus on climate change, sustainability, energy and carbon management
- We provide data and analysis to senior executives, change leaders and sustainability entrepreneurs
- Verdantix conducts global research and is headquartered in London
- Founded in 2007, Verdantix has over 200 clients ranging from small ventures to global multinationals
- We are hiring for Analyst roles and have an internship programme
- Email applications to: dmetcalfe@verdantix.com

OUR STRATEGIC PERSPECTIVE ON CLIMATE CHANGE

Uncertainty

10 year market transition

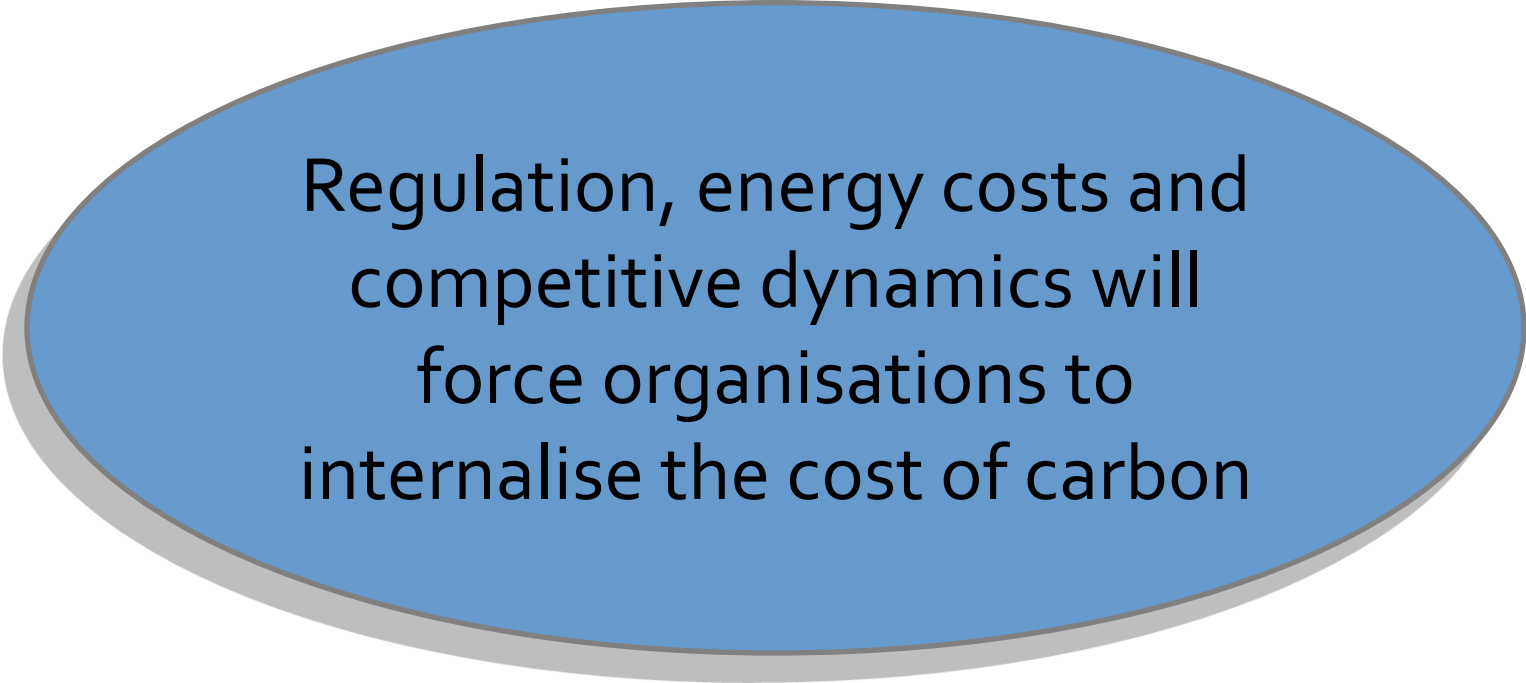
Ambition

When will climate change have a material financial impact on my business?

**INFORMATION
GAP**

What strategies and investments should we pursue to maximise our opportunities and manage risks?

THEME



Regulation, energy costs and
competitive dynamics will
force organisations to
internalise the cost of carbon

AGENDA

- What are today's carbon management challenges?
- What is the destination for carbon management strategies?
- Which factors affect the speed of movement towards the final destination?

1. WHAT ARE TODAY'S CARBON MANAGEMENT CHALLENGES?

CHALLENGES TO PUSH AHEAD WITH CARBON MANAGEMENT

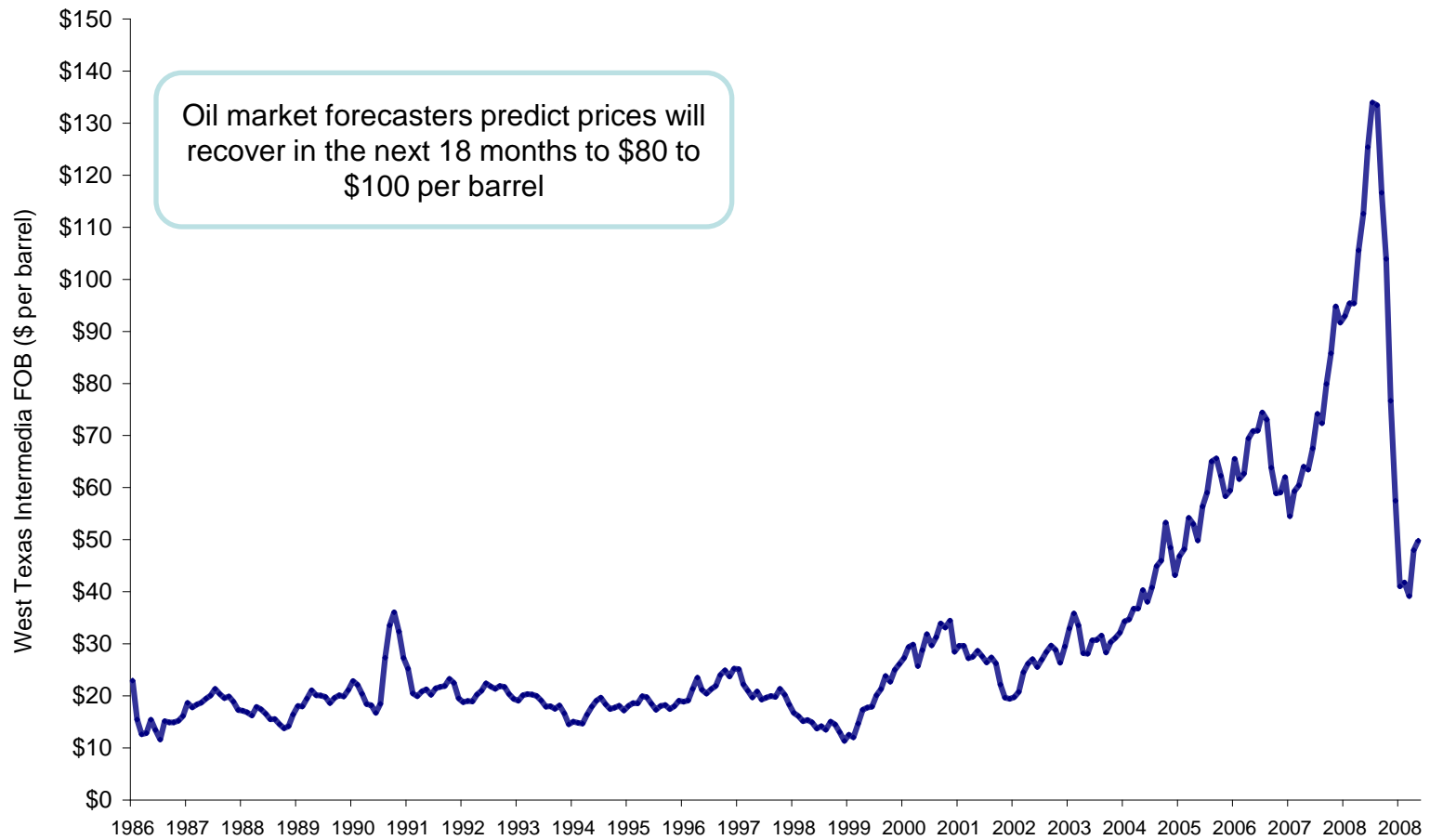
1. Regulatory uncertainty
2. Energy cost/carbon price uncertainty
3. Customer behaviour uncertainty
4. Limited problem ownership
5. Lack of established governance
6. Embryonic business processes

PRE-COPENHAGEN REGULATORY UNCERTAINTY

	Baseline	2020	2050	Status
AUSTRALIA	1990	25%*		Blocked
CANADA	2006	20%	60-70%	Stalled
CHINA				No plans
INDIA				No plans
NEW ZEALAND	1990	10-20%	50%	Contingent
RUSSIA	1990	10-15%	50%	Contingent
SOUTH KOREA	2005	+8% / -4%		Contingent
USA	2005	17%	80%	Stalled

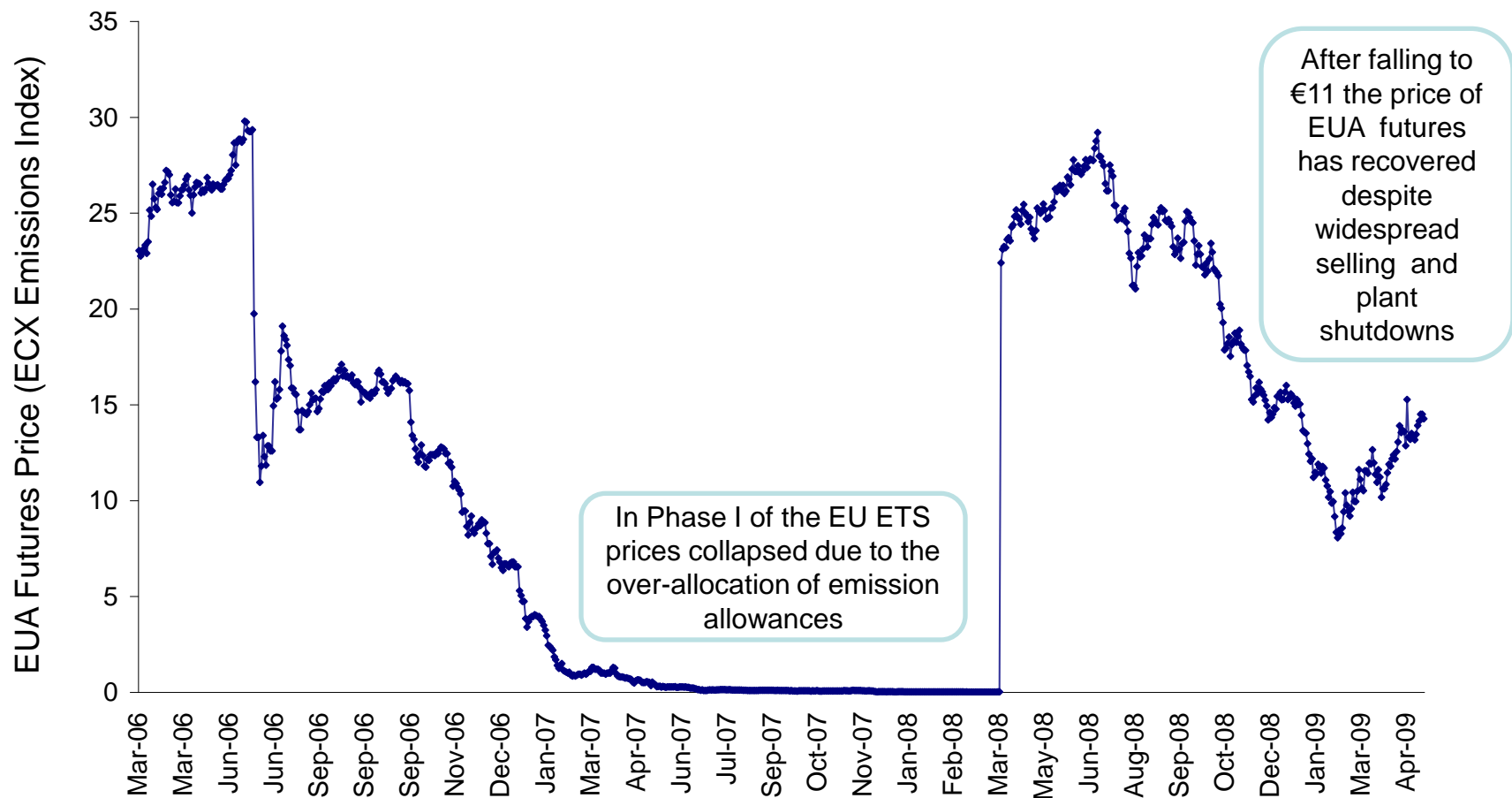
* Contingent on specific conditions being met in a UNFCCC deal at Copenhagen

OIL PRICE UNCERTAINTY

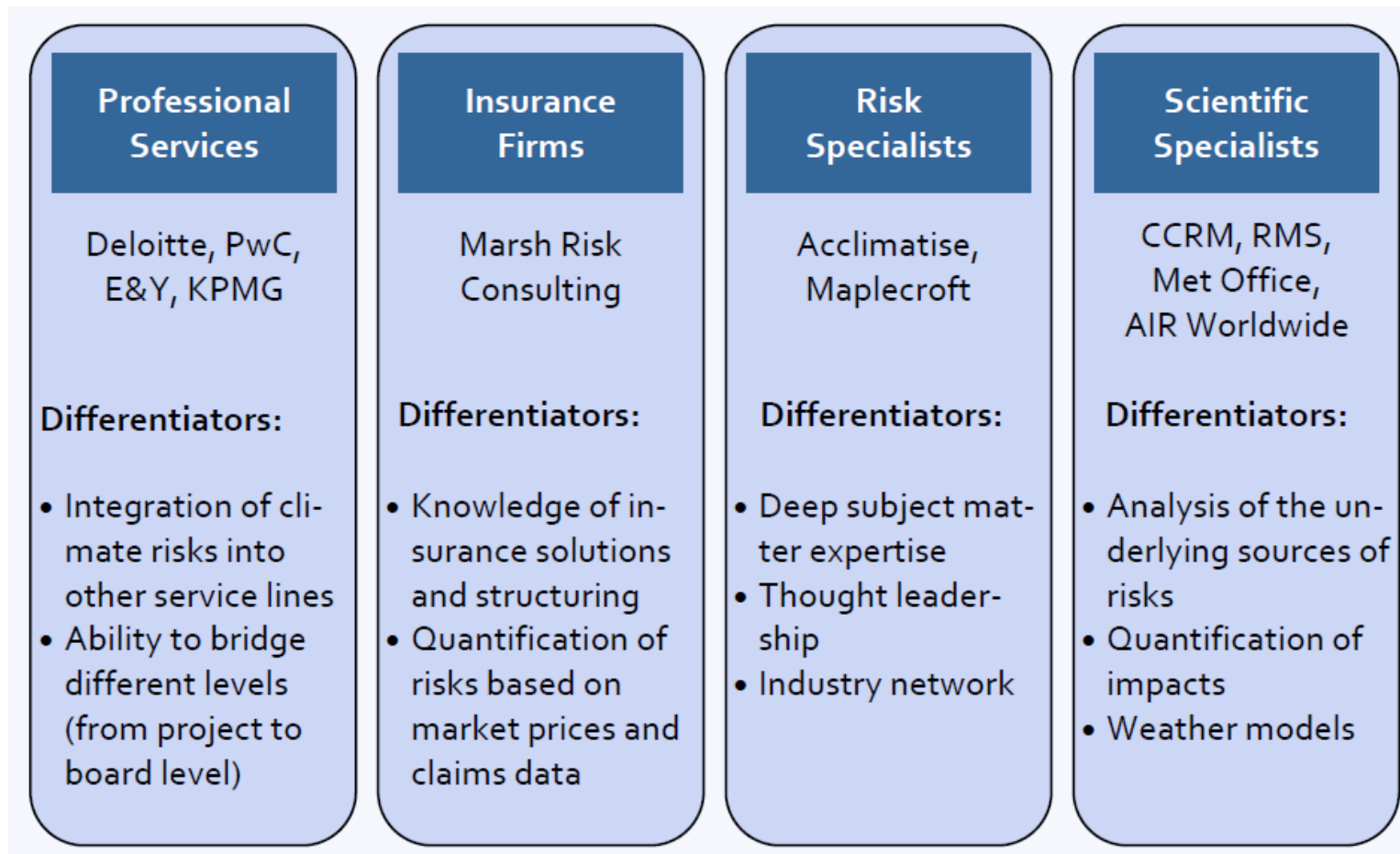


Source: US Energy Information Administration

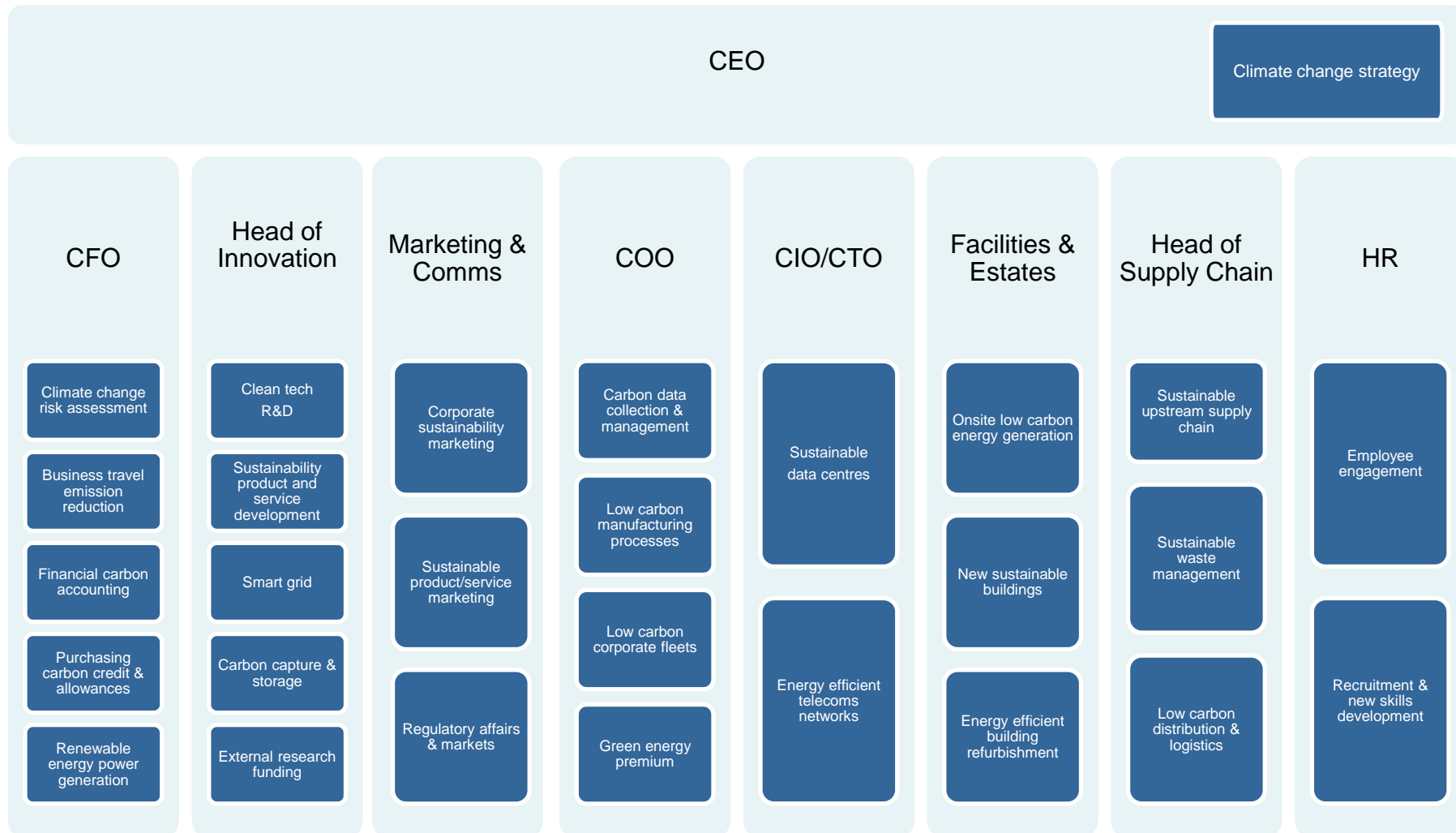
CARBON PRICE UNCERTAINTY



CARBON MANAGEMENT NOT ON THE RISK REGISTER




CLIMATE CHANGE INITIATIVES LACK GOVERNANCE



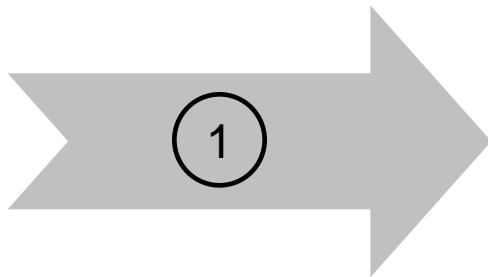
2. HOW WILL CARBON MANAGEMENT EVOLVE BETWEEN NOW AND 2012?

FIRMS NEED TO INTERNALISE THE COST OF CARBON



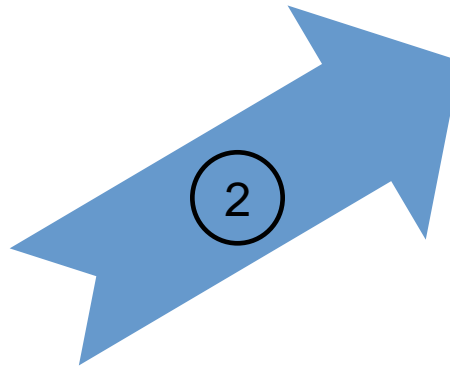
Firms need to envision their business in a 2020 economy where economic decisions are significantly affected by carbon costs

THREE CARBON MANAGEMENT STRATEGIES



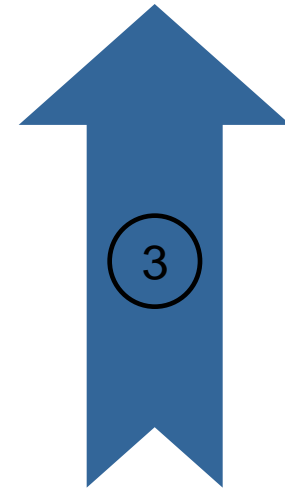
RELUCTANT COMPLIERS

Wait and see what government and competitors do before making investments



OPPORTUNISTIC FOLLOWERS

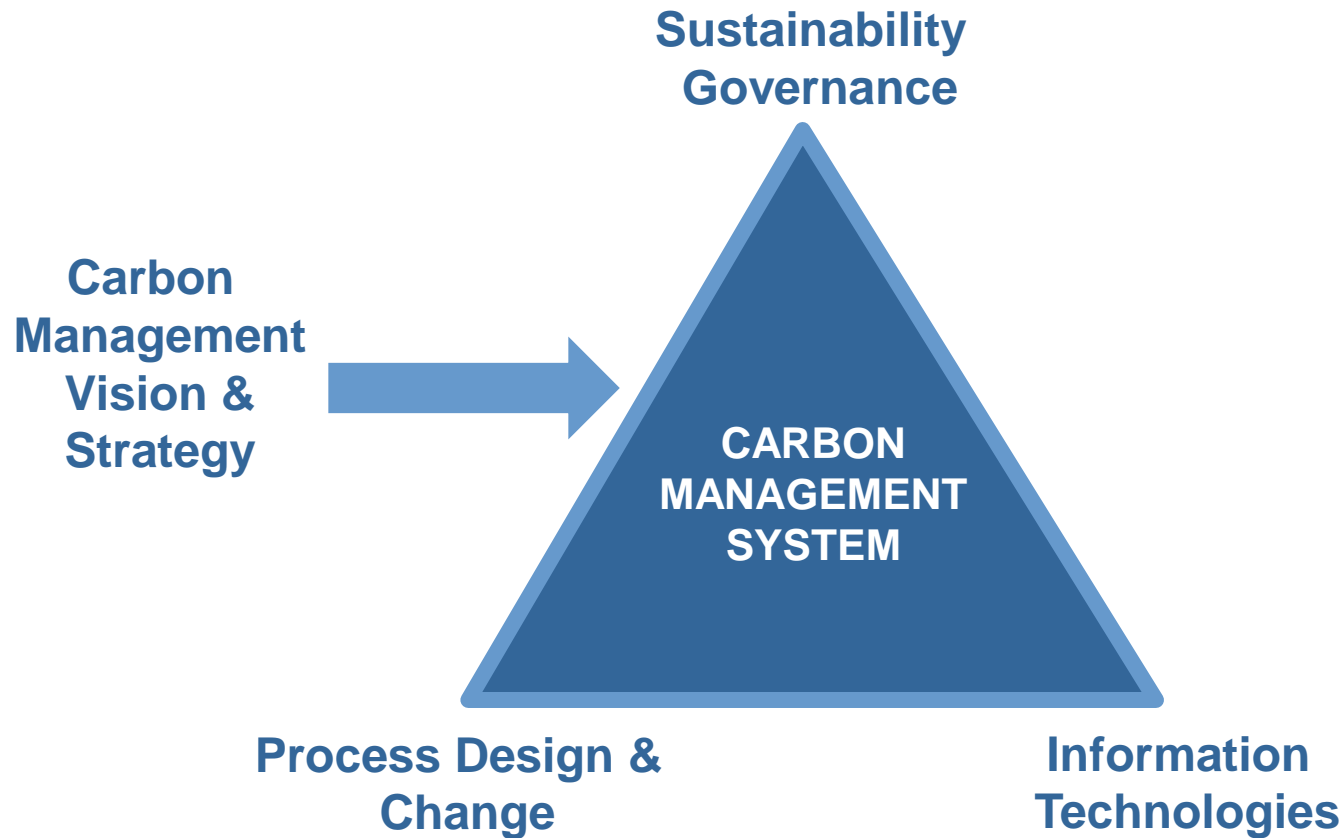
Benchmark the carbon management strategies of peer organizations and keep up with the pack



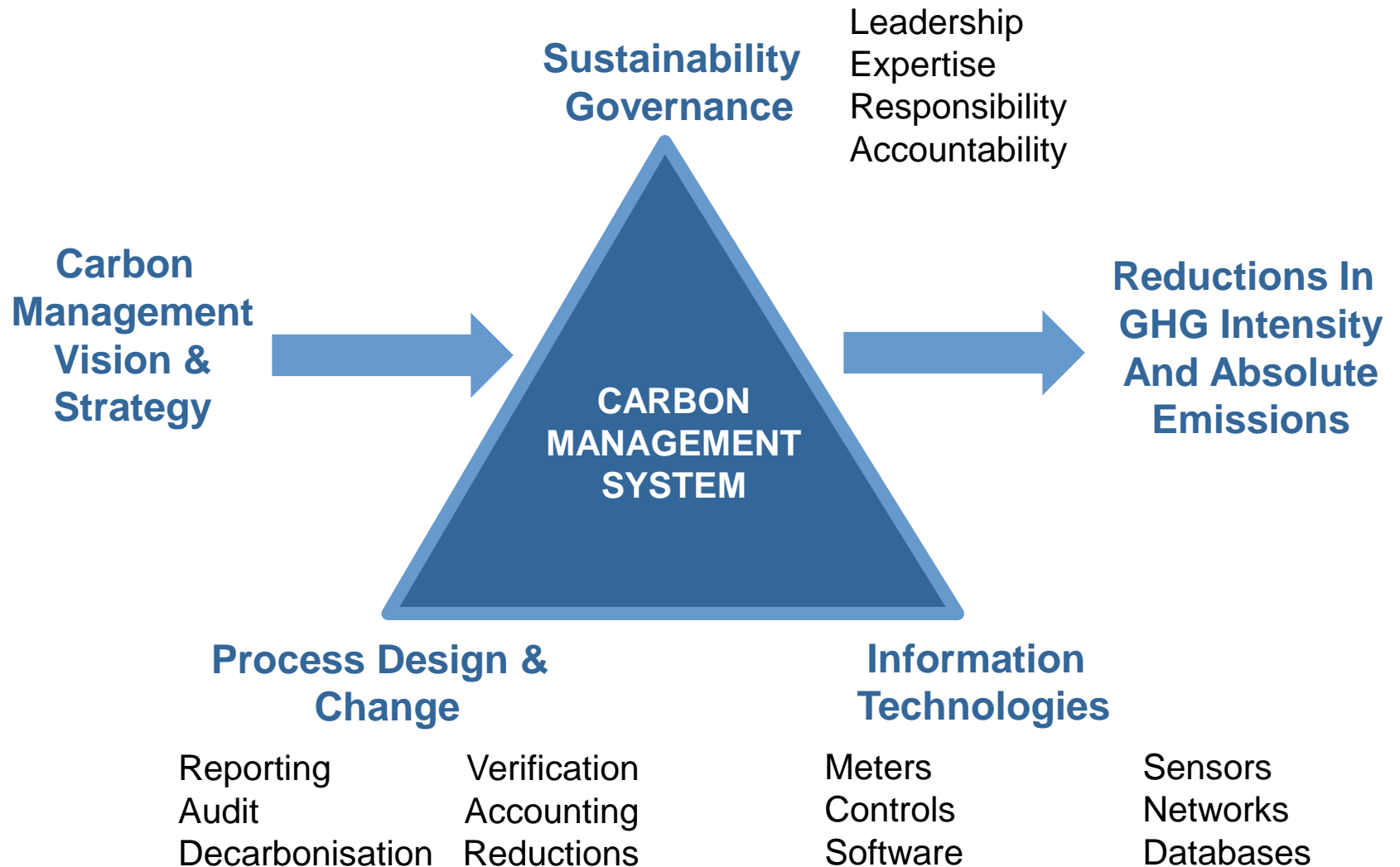
SUSTAINABILITY LEADERS

Define and implement a comprehensive carbon management plan that leads your peer group

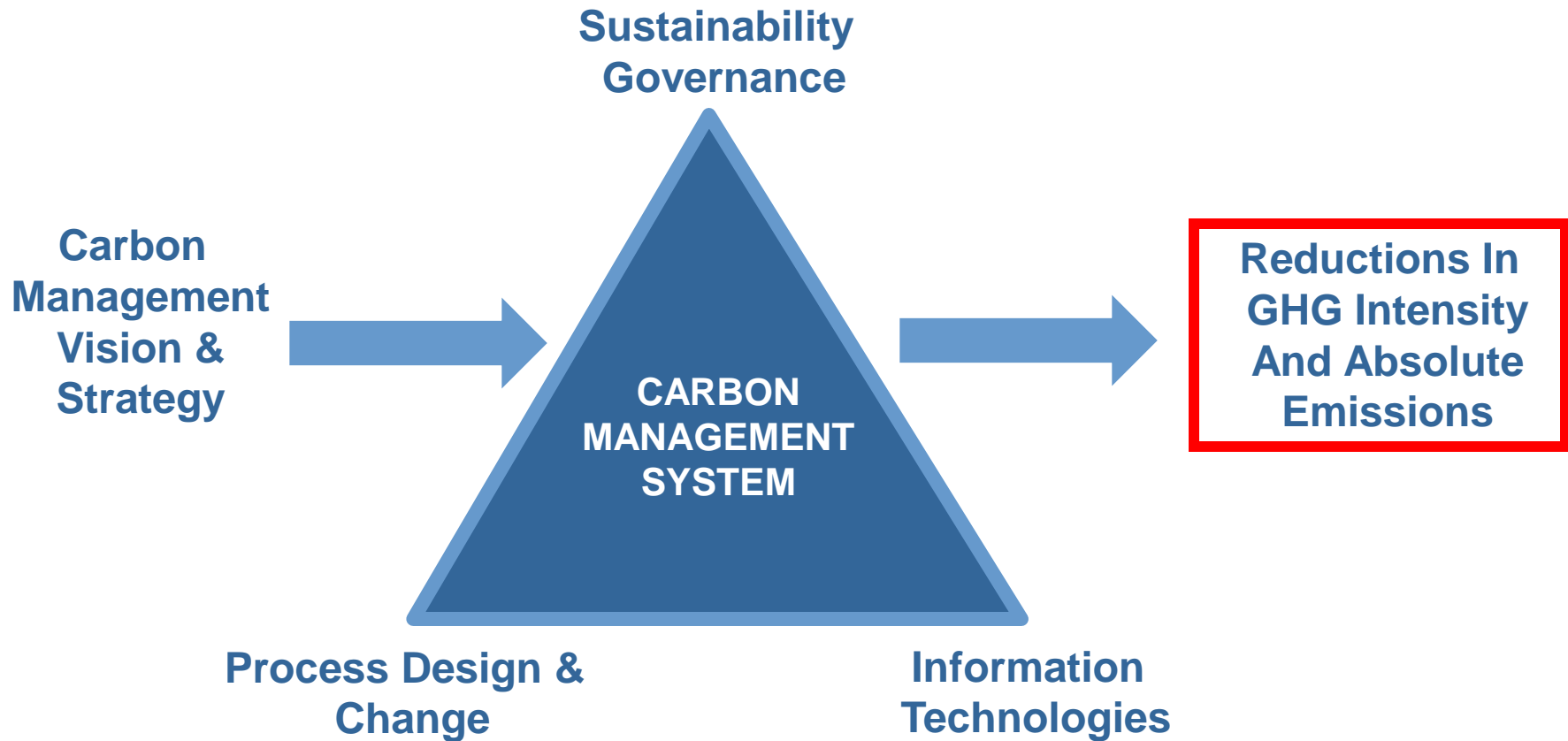
CARBON MANAGEMENT SYSTEMS



CARBON MANAGEMENT SYSTEMS

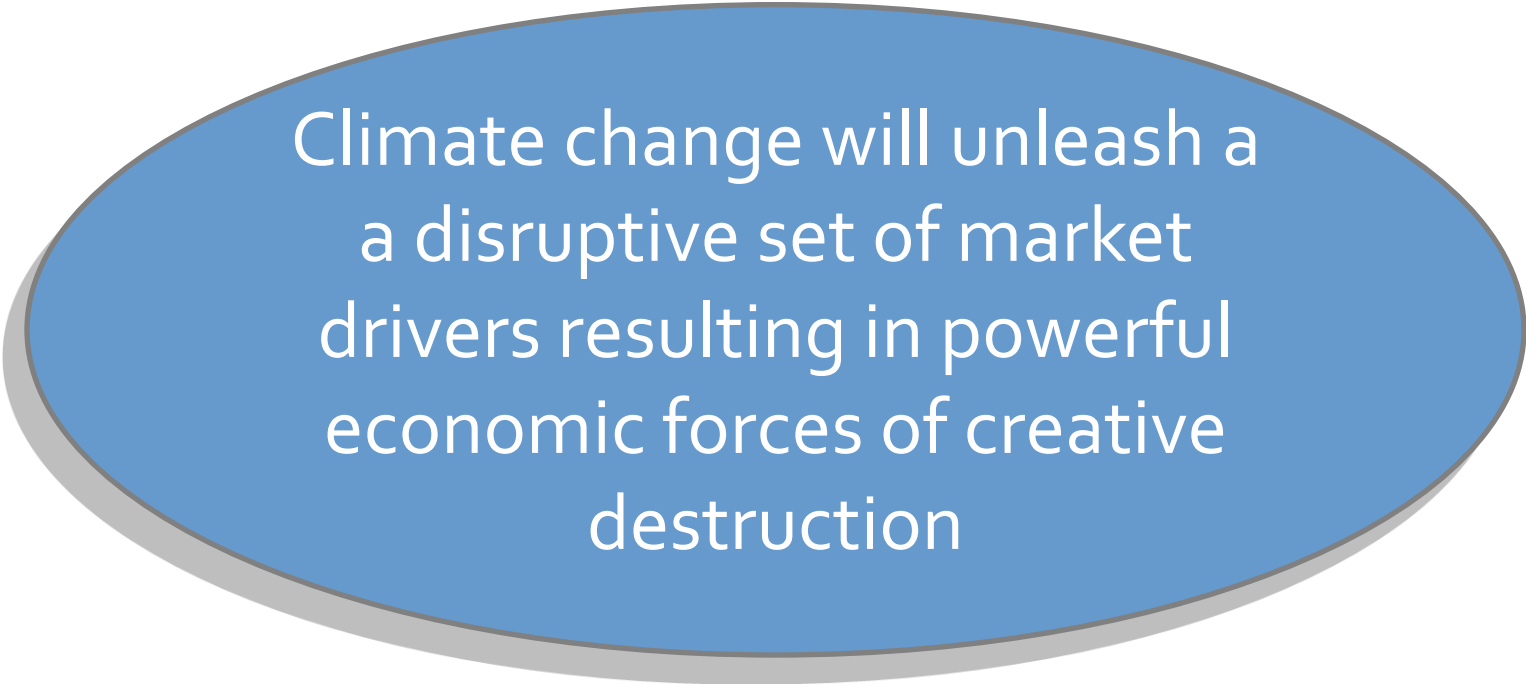


CARBON MANAGEMENT NEEDS TO TARGET REDUCTIONS



3. WHAT BUSINESS OPPORTUNITIES DOES CARBON MANAGEMENT CREATE?

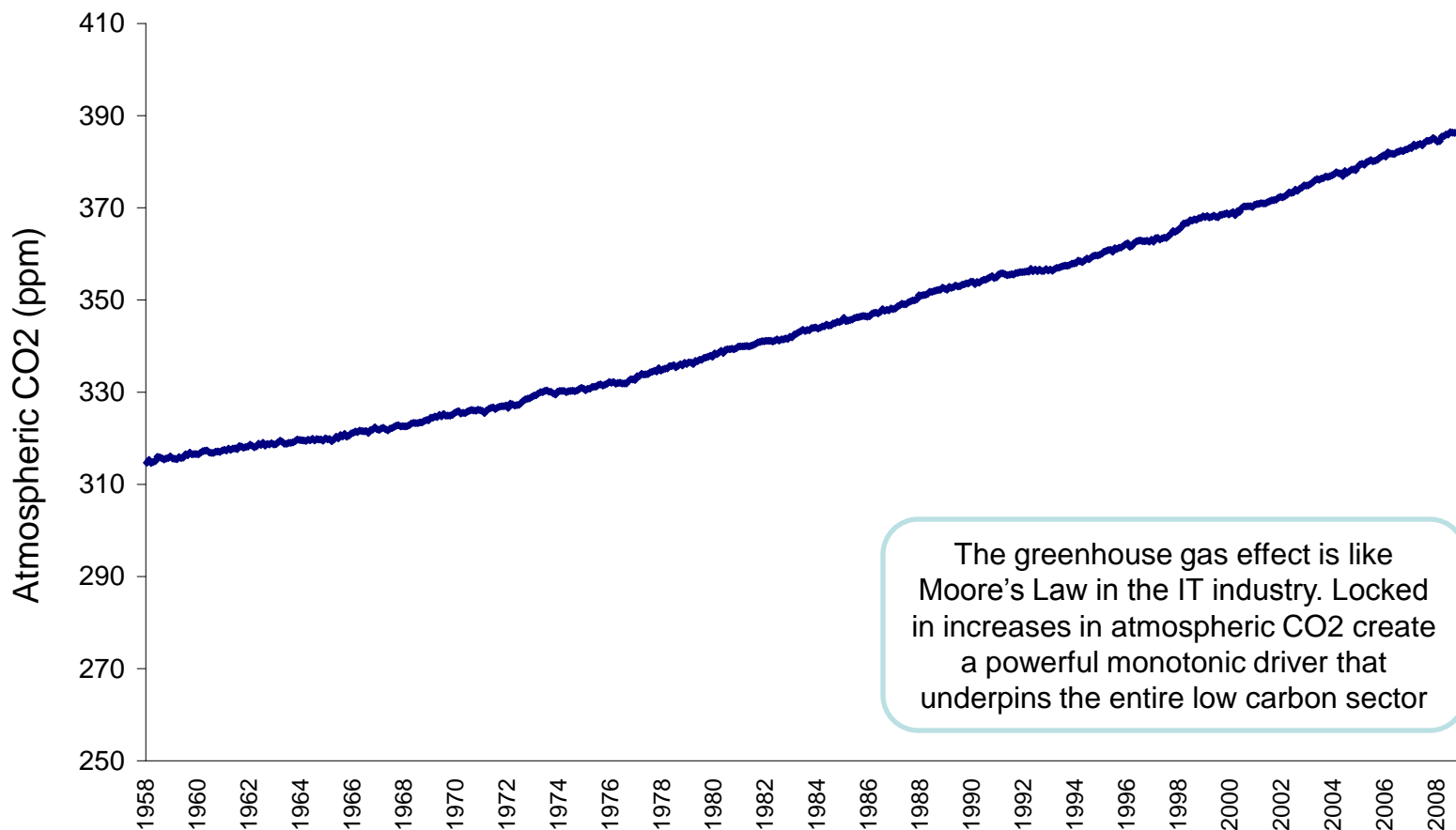
TIME TO DIG UP THE SCHUMPETER CHAPTER



Climate change will unleash a
a disruptive set of market
drivers resulting in powerful
economic forces of creative
destruction

THE INESCAPABLE ATMOSPHERIC CO2 TREND

Atmospheric CO2 concentrations have reached 390 ppm. Locked in growth means adaptation to climate change of $>2^{\circ}\text{C}$ is required

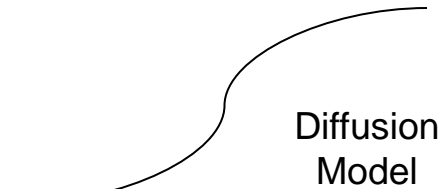


Source: Mauna Loa Observatory, US National Oceanic and Atmospheric Administration

A QUICK LOOK AT CHANGE DRIVERS

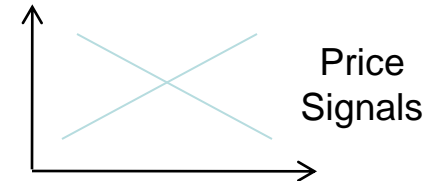
INNOVATION

- Web & Internet
- Mobile telecoms
- Combustion engine



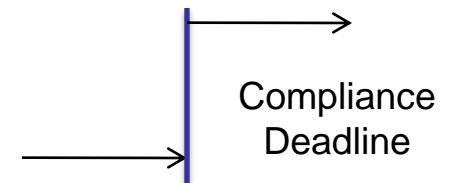
MARKETS

- Natural resources
- Industrial products
- Consumer goods
- Construction



COMPLIANCE

- Health & safety
- Waste management
- Hazardous substances



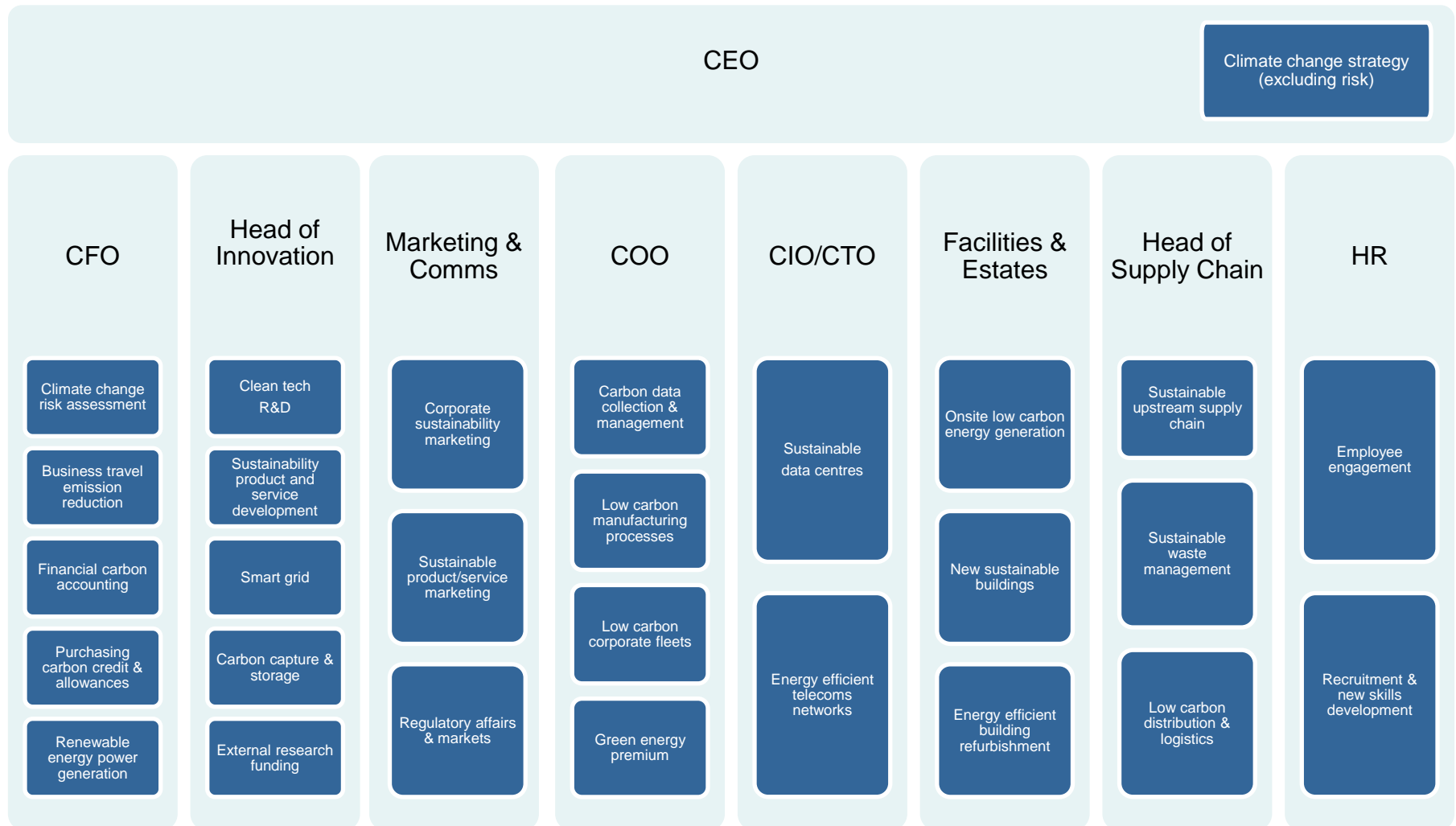
RANDOM EVENTS

- Y2K
- War destruction
- Natural catastrophe



Exogenous Shock

CLIMATE CHANGE INITIATIVES OFFER NEW OPPORTUNITIES



FRANCE TELECOM / ORANGE CLIMATE CHANGE STRATEGY

TYPE OF CHANGE	EXPECTED BENEFIT		
	Risk & Brand Management	Cost Reduction	Revenue Generation
	Business As Usual Green IT Marketing CDP Reporting	Data Centre Efficiency	Telepresence Sustainability Consulting Remote Metering
	Product Innovation Responsible Product Adjustments		Fleet Management (M2M) Sustainability Extensions Intelligent Buildings
	Operational Change Carbon Footprint Measurement Carbon Emissions Reduction	Building Energy Efficiency Waste Management	
	Cultural Change Upgraded CSR Role Embedded Sustainability Sustainability KPIs		
Strategic Innovation			Sustainability Leadership Strategy

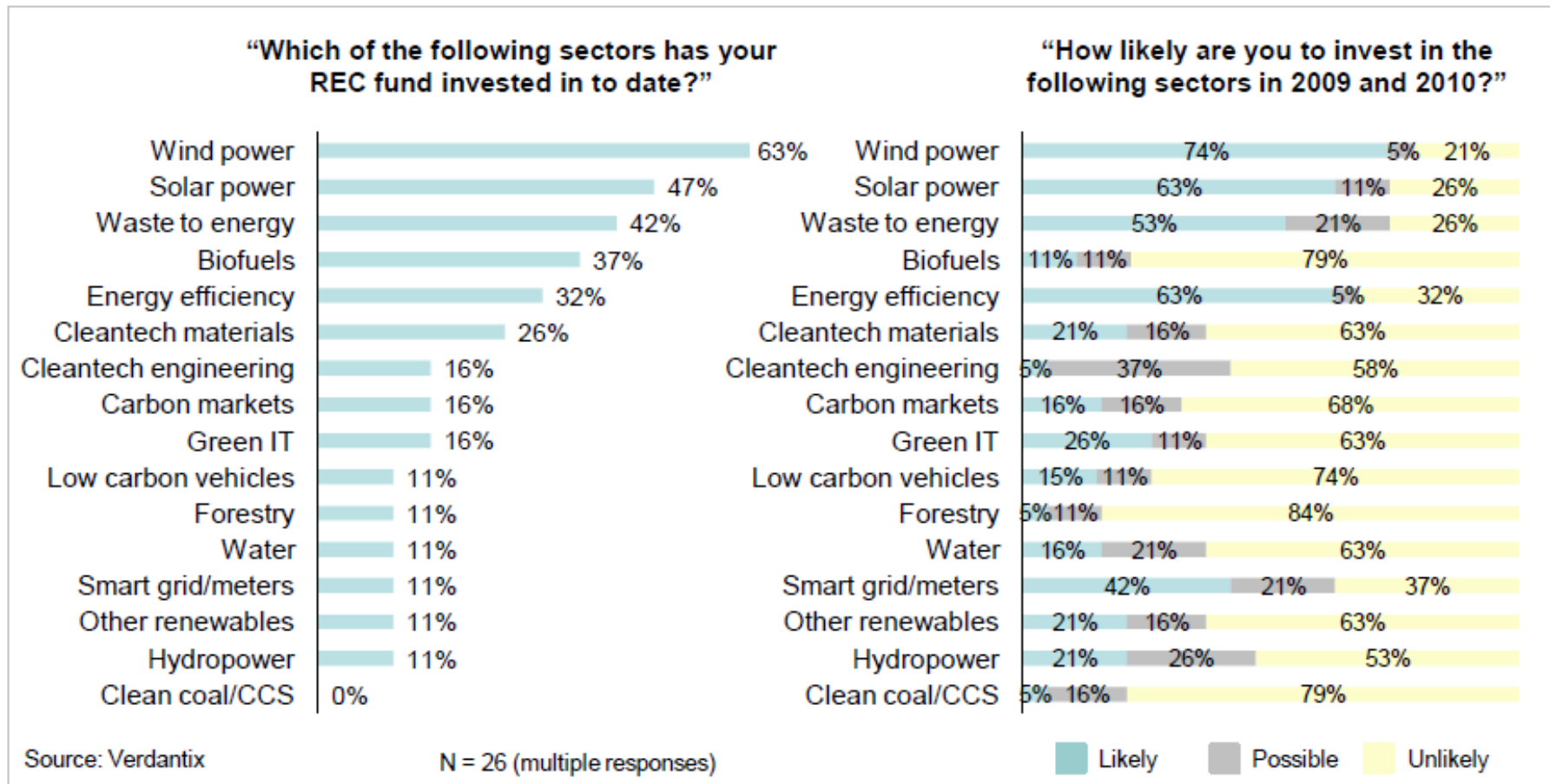
Source: Orange, Verdantix

BAE SYSTEMS CLIMATE CHANGE STRATEGY

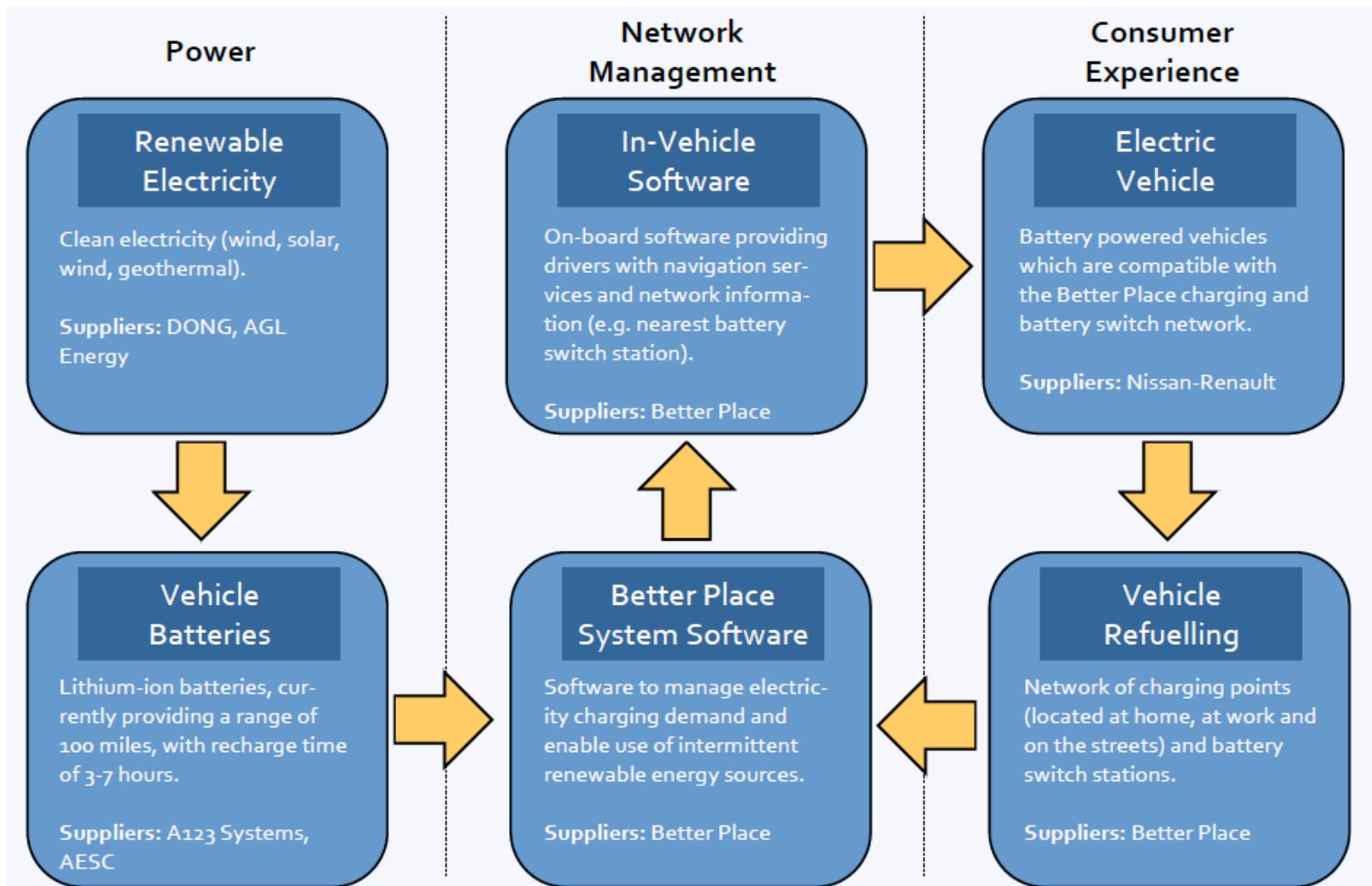
		EXPECTED BENEFIT		
		Risk Management	Cost Reduction	Revenue Generation
TYPE OF CHANGE	Business As Usual		Video collaboration	Advanced Digital Tracker
	Product Innovation	Carbon product lifecycle analysis	Resource efficient product design	HybriDrive Low interference wind turbine blades
	Operational Change	Carbon footprint assessment	Energy efficiency	
	Cultural Change	Carbon footprint reporting	Energy efficiency monitors	Focus on eco-innovation opportunities
	Strategic Innovation			

Source: Verdantix

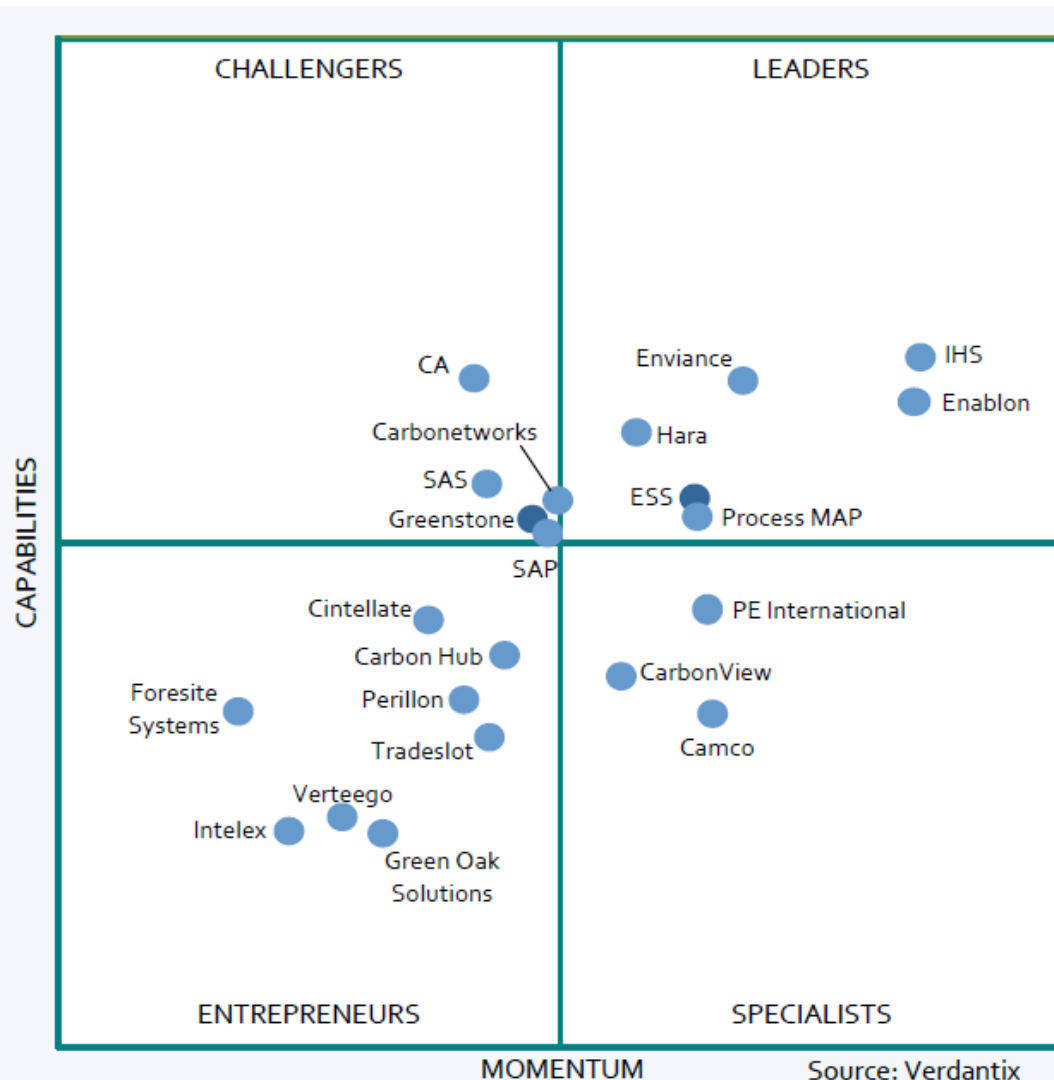
INVESTORS WILL COMMIT MORE CASH TO THE CLIMATE CHANGE SECTOR



BETTER PLACE ELECTRIC VEHICLE BUSINESS MODEL



EXPLODING OPPORTUNITY: CARBON MANAGEMENT SOFTWARE



Extract from Verdantix report on carbon management software

- Analysed 22 participants on 43 criteria to determine expertise across capabilities and market traction

Key advantages:

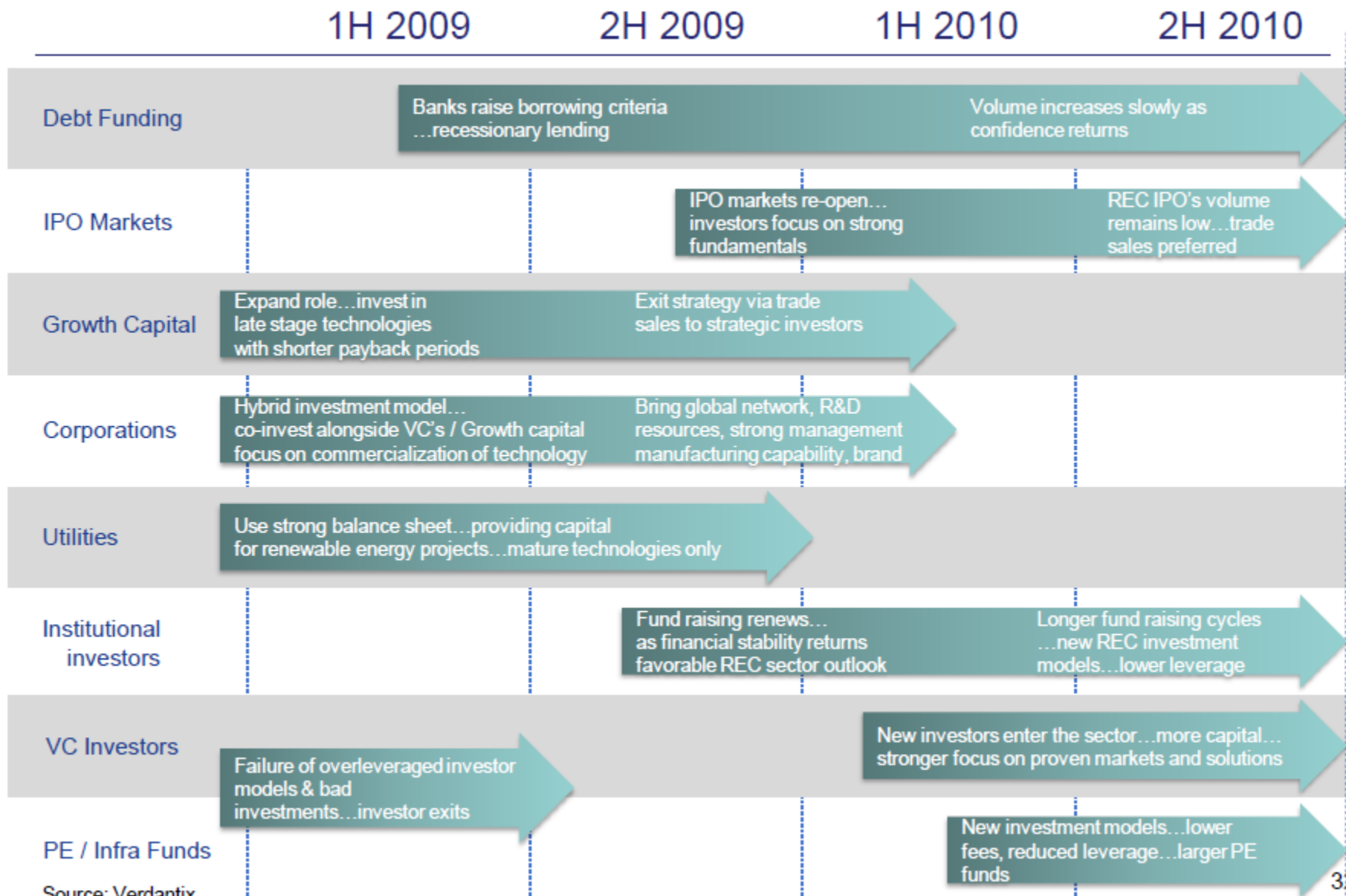
- Robust data collection
- Audit capability
- Analytics and reporting

Six leaders have the following characteristics:

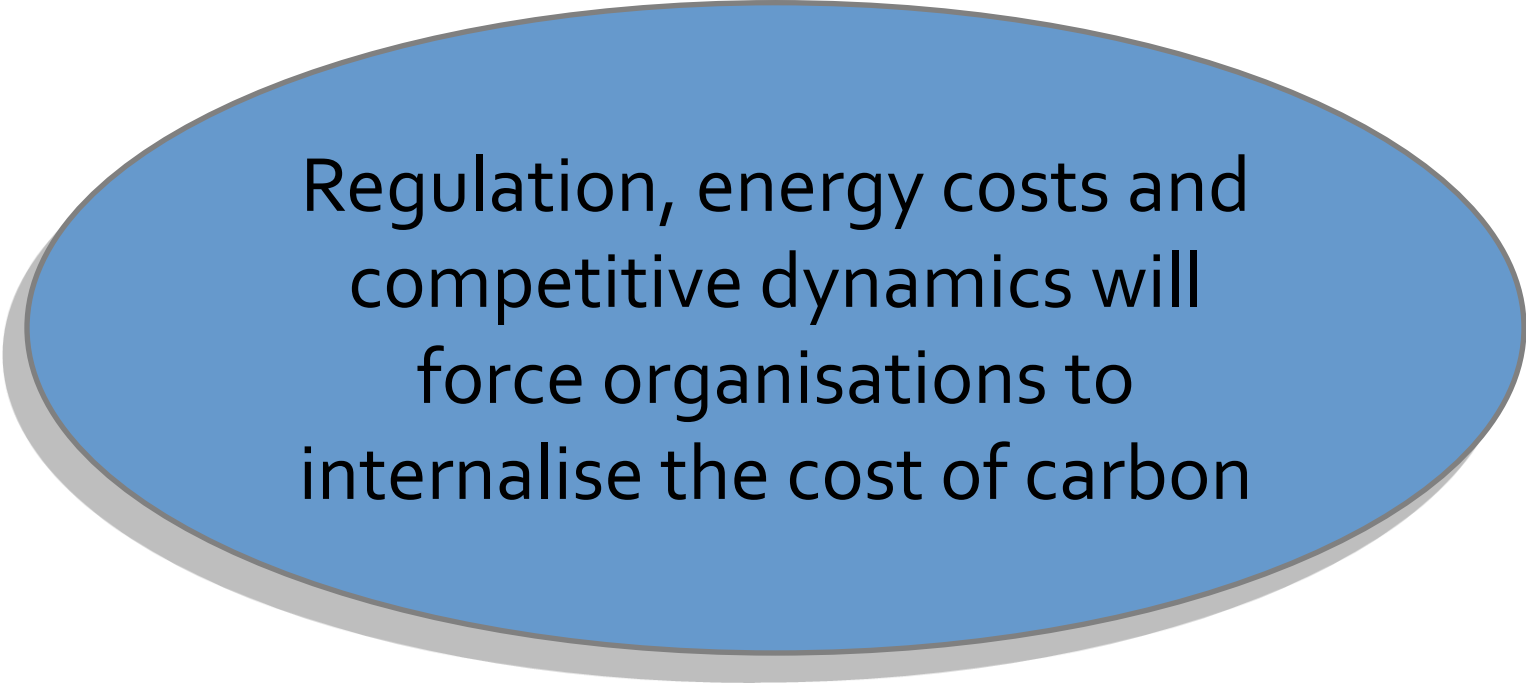
- Measurably more success stories with customers
- Fully featured solutions (emissions engine, analysis and reporting)
- Greater company resources and domain expertise

Note strong link to how bureau services are evolving in terms of broader sustainability and carbon data capture and management

PREDICTED SECTOR INVESTMENT TRENDS 2009 / 2010



CONCLUSION



Regulation, energy costs and
competitive dynamics will
force organisations to
internalise the cost of carbon

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About Verdantix

Verdantix is a business research firm focused on climate change, business sustainability and energy. The firm provides unique, fact-based, forward-looking commercial research.

Company Summary

Founded in 2007
Headquarters in the UK
Over 200 clients worldwide