



Cambridge Judge Business School

Centre for Risk Studies

USING THE RISK INDEX FOR DECISION MAKING

Simon Ruffle

Director of Research and Innovation, Cambridge Centre for
Risk Studies

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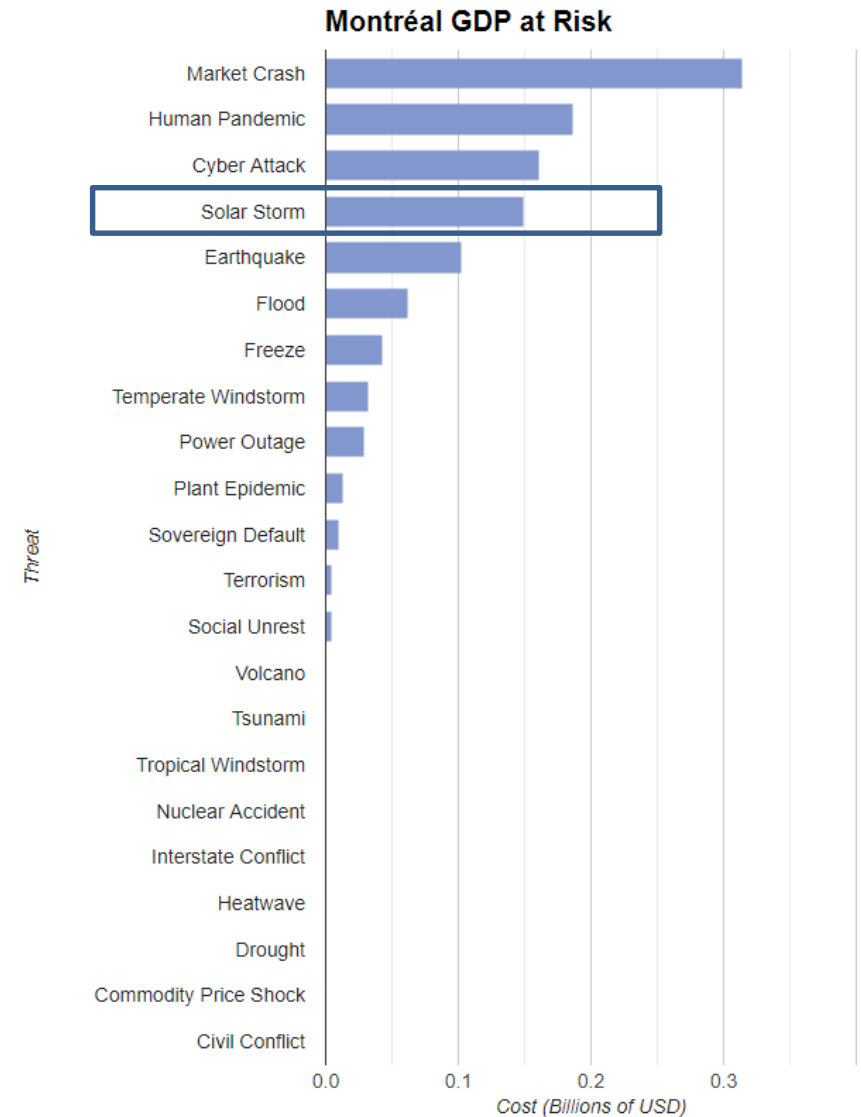
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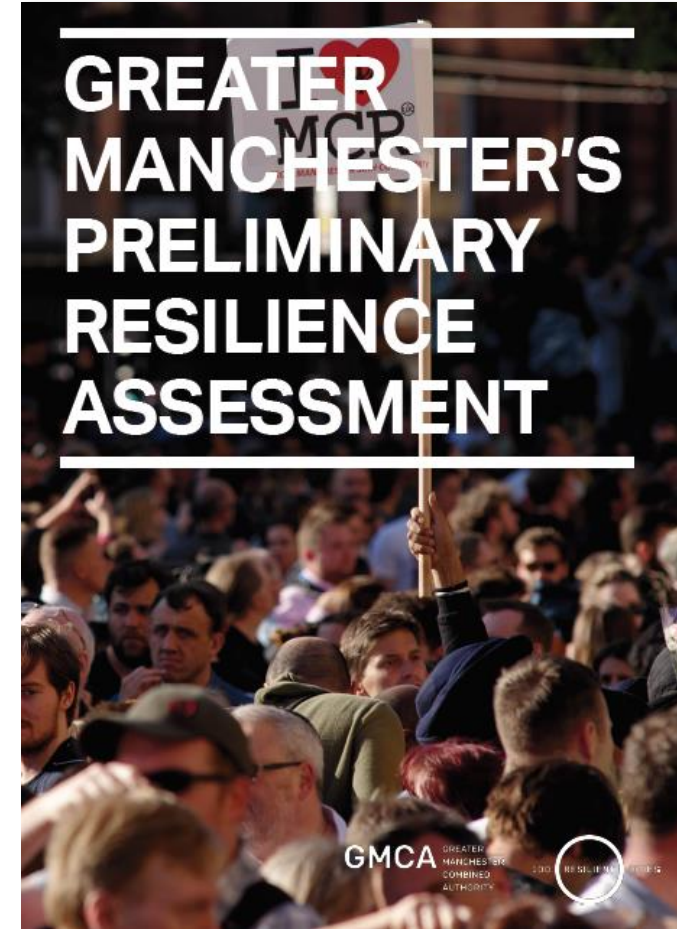
Informing Decision Making

- Anchoring to Facts
- Resilience Analysis
- Insurance
 - Purchasing
 - Growth Opportunities
- Corporate Risk Profiling
 - Tailoring the index to a company



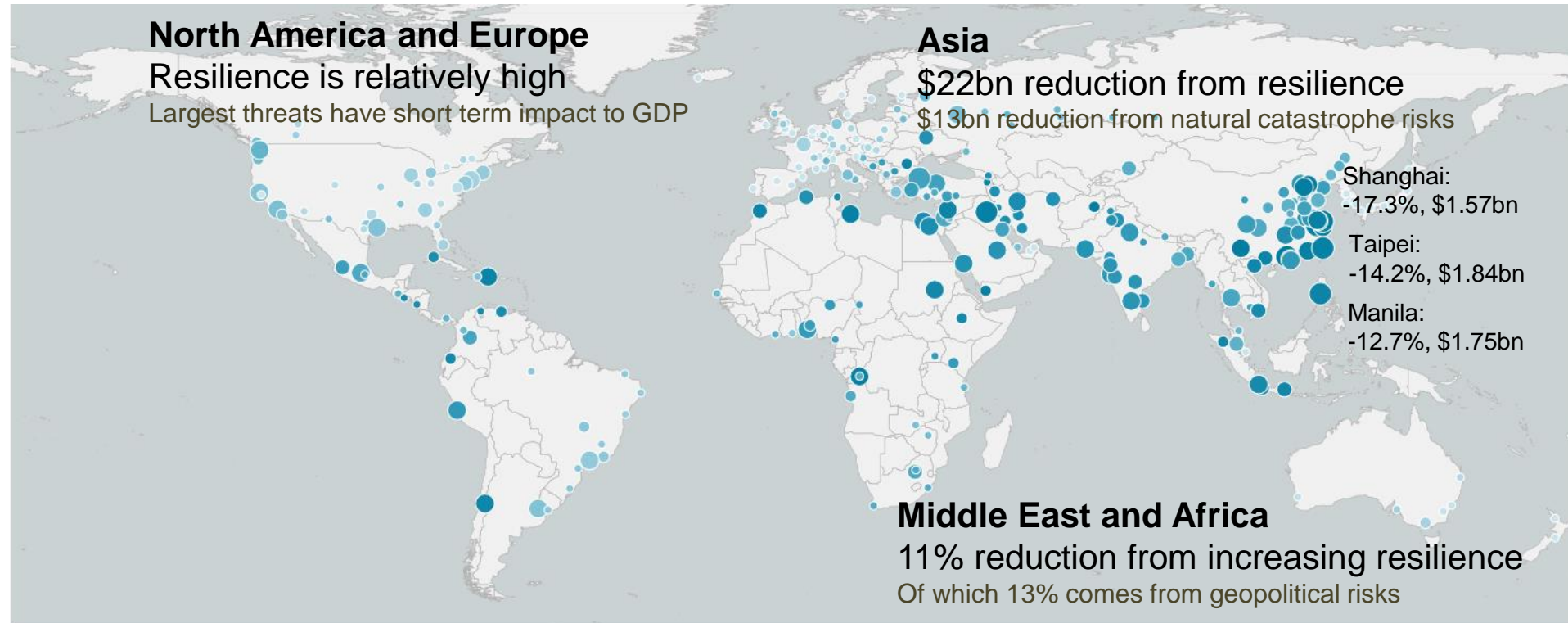
City Resilience Analysis

- City Risk Index 2018 used in Greater Manchester's Preliminary Resilience Assessment 2018
- Underscores significant threats that impact the city-region economy
- Highlights Greater Manchester's economic exposure to a range of threats
- Advanced the case for exploring how to build a more resilient economy
- Comparison with similar cities worldwide
- Helping city region in its vision to be one of the most resilience places in the world



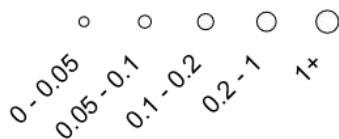
Closing the Protection Gap

- If all cities increased their resilience by one ranking, GDP@Risk decreases by \$40bn to \$537bn, a 7% reduction in expected loss



Resilience Improvement 2018-2019

Absolute (US\$ Bn)



Relative (%)



Site Specific Risk Assessment

Site Risk Assessment

US Sites (Global Risk Index 2019 Analysis)

Open

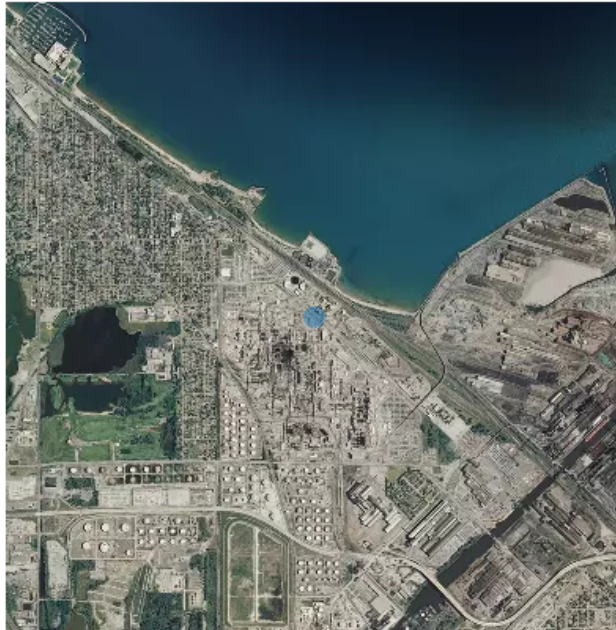
US Sites (Global Risk ...

Whiting Refinery A

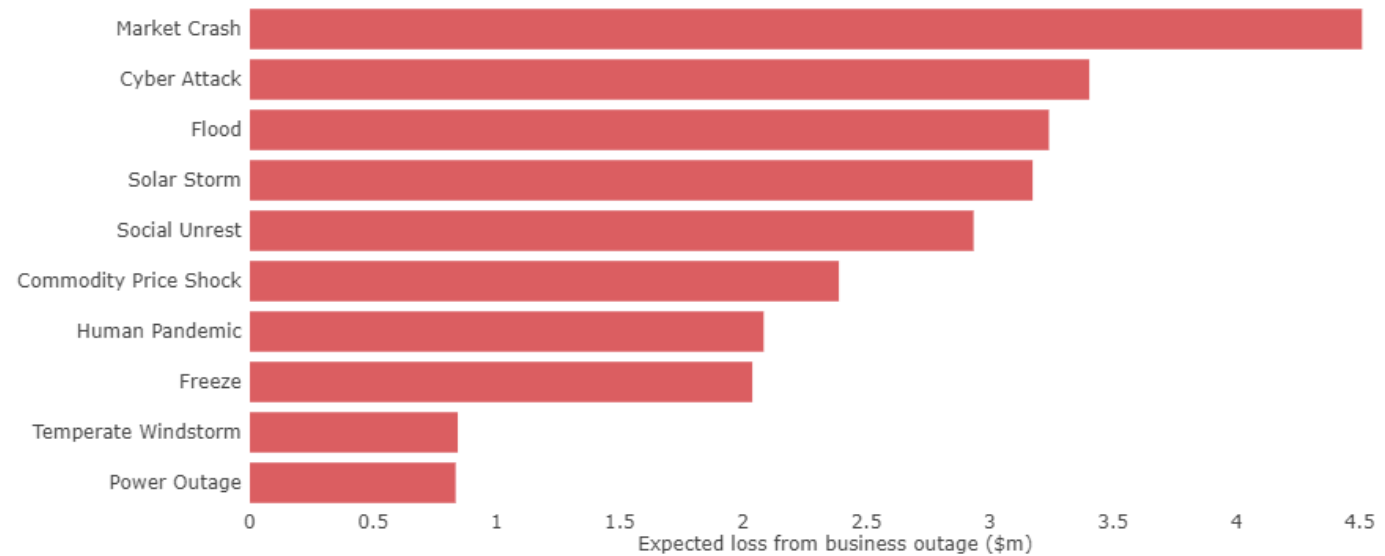
Open

☒ Business Outage ☐ Repair cost

Whiting Refinery A



Top 10 Threats to Revenue at Whiting Refinery A

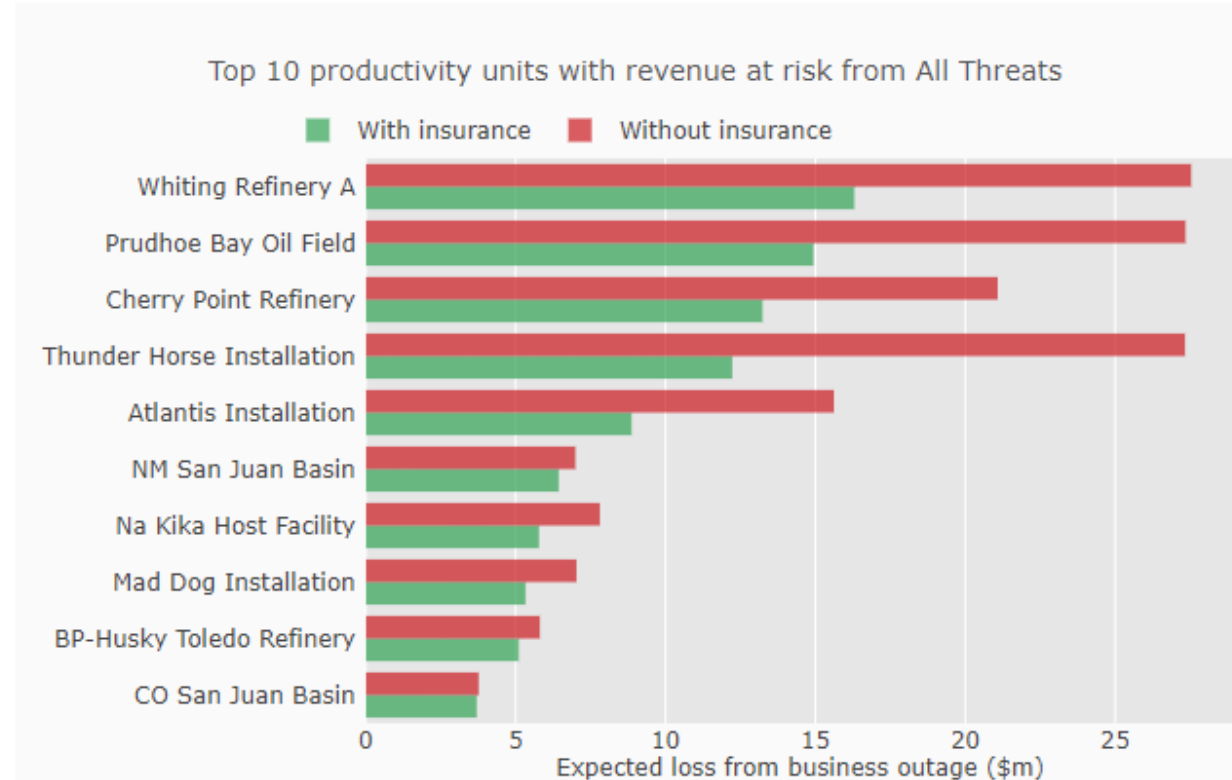


Site Risk Protection Through Insurance

Top productivity units by threat

Select threat:

All Threats



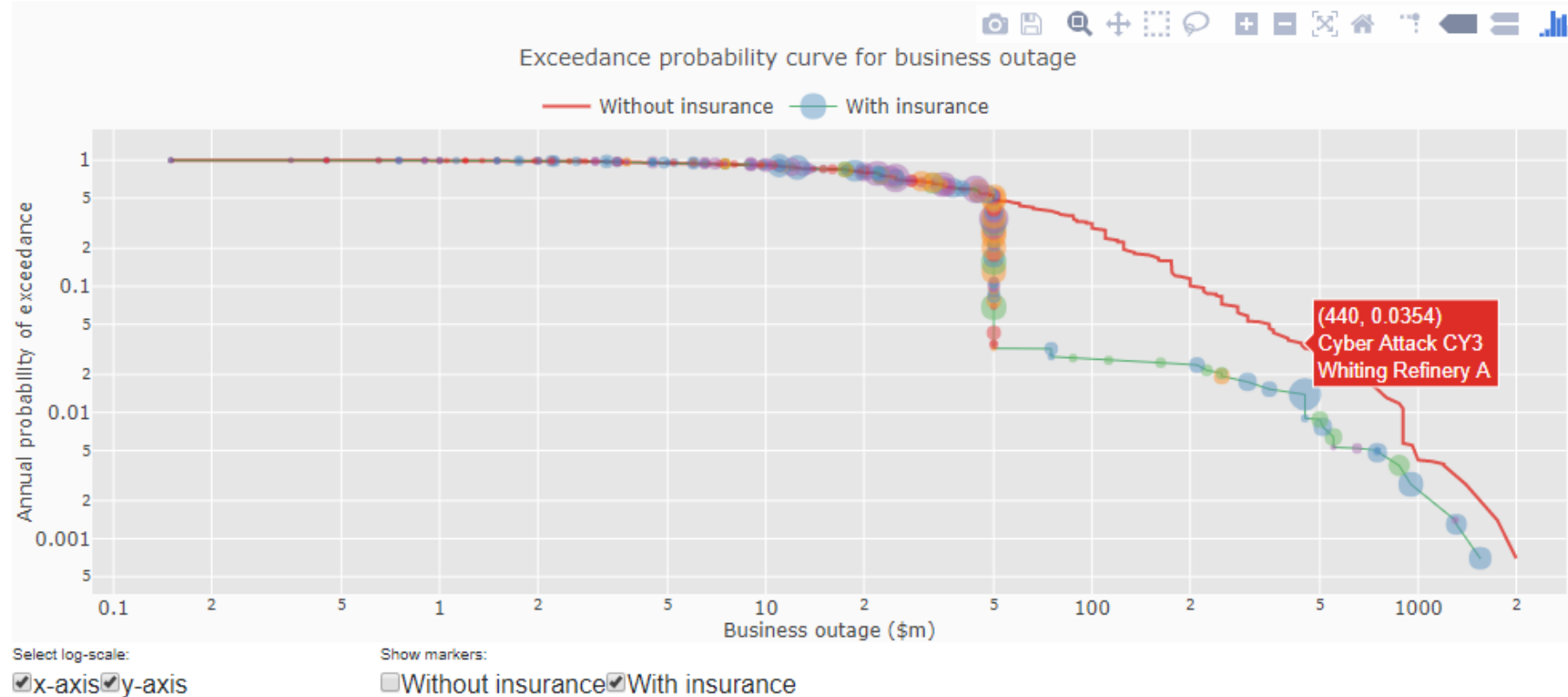
Insurance could reduce the total expected loss from All Threats business outage from \$154.0m to \$95.48m

Site Risk Protection Through Insurance

Insurance exceedance probability curve

Loss process:

● Business Outage ● Repair cost



Indicate a loss level (in \$m) of concern:

100

A business outage loss level of \$100m has a 28.9% chance of being exceeded without insurance and a 2.6% chance of being exceeded with insurance

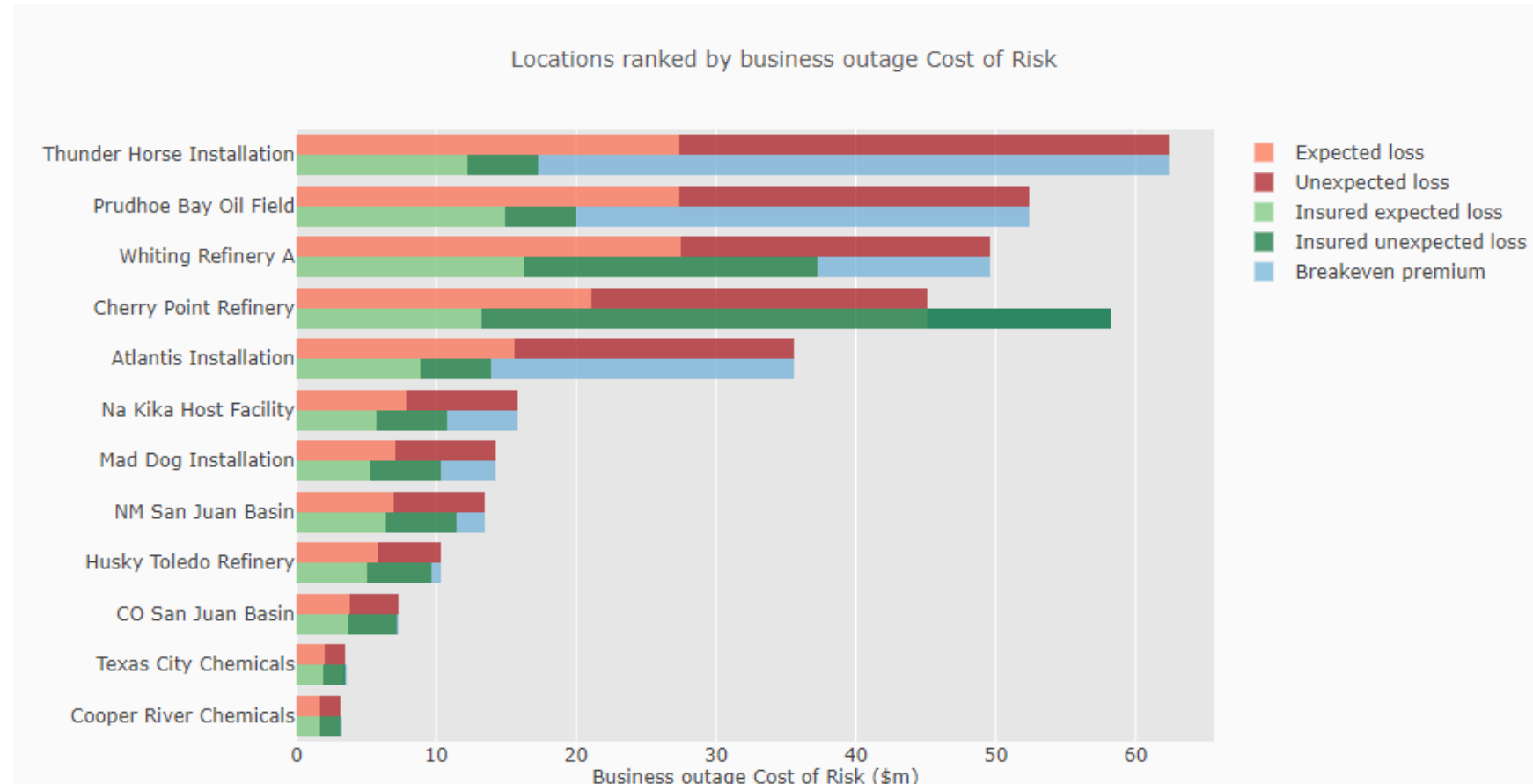
Indicate an exceedance probability (%) of concern:

5

There is a 5% chance of exceeding a business outage loss level of \$350.0m without insurance and \$50.0m with insurance

Cost of Risk Analysis

Cost of Risk Analysis



Cost of capital (%):

10

Risk appetite return period:

100

Mapping Lines & Exposure to Threats

Insurance Lines

Type of Exposure



Finance
Economics
& Trade



Geopolitics &
Security



Natural
Catastrophe &
Climate



Technology &
Space



Health &
Humanity

Commercial Property

Physical Damage
Revenue Loss / Business Interruption
Contingent Business Interruption

	1	3	2	
	1	3	2	2
	1	2	3	

Commercial Political Risk / War Market

Physical Damage
Revenue Loss / Business Interruption
Human Injury, Illness or Death
Financial Asset Devaluation

	3			
	3			
	2			
1	2			

Casualty Liability

Duty of Care to 3rd Party
Human Injury, Illness or Death

2	2	2	2	2
	2	2	1	2

Liability D&O; E&O

Financial Asset Devaluation

2	1	1	2	2
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Workers Comp

Human Injury, Illness or Death

	3	2	1	2
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Credit and Surety

Financial Asset Devaluation

3	2	1	1	2
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Personal Accident

Human Injury, Illness or Death

	2	2	1	2
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Cyber Liability

Digital Asset Loss

	1		3	
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Life & Health

Human Injury, Illness or Death

	1	1	2	3
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Pensions & Annuities

Financial Asset Devaluation

3	1	1	2	1
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Product Alignment with Risk



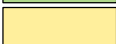
For selected cities

	Istanbul	Jakarta	Kuala Lumpur	Manila	Seoul	Singapore
Insurance Penetration	2.0	0.5	2.7	0.9	4.7	0.7
Recent Growth Rate	V High	High	High	Moderate	Moderate	High

Finance, Economics and Trade	Moderate	Low	High	Low	Moderate	High
Geopolitics and Security	High	Moderate	Moderate	High	High	Low
Natural Catastrophe and Climate	High	Moderate	Low	V. High	Moderate	Low
Technology and Space	Moderate	Moderate	Moderate	Low	Moderate	Moderate
Health and Humanity	High	High	High	High	Moderate	Moderate

Commercial Property	3	2	1	3	2	1
Commercial Political Risk / War	3	2	1	3	3	1
Casualty Liability	3	3	3	1	3	2
Liability D&O; E&O	2	2	3	1	2	3
Credit and Surety	3	2	3	2	2	3
Personal Accident	3	2	2	3	2	1
Cyber Liability	2	1	2	1	3	3
Life & Health	3	3	3	3	2	2
Pensions & Annuities	2	1	3	1	2	3

Risk-driven alignment with insurance product

	Strong Alignment
	Moderate Alignment
	Weaker Alignment

Mapping a Corporate Global Footprint



Mapping Supply Chains to Cities

 **Apple iPhone**



 **Starbucks Coffee**



 **Nike Sports shoes**



 **Blackberry Phone**



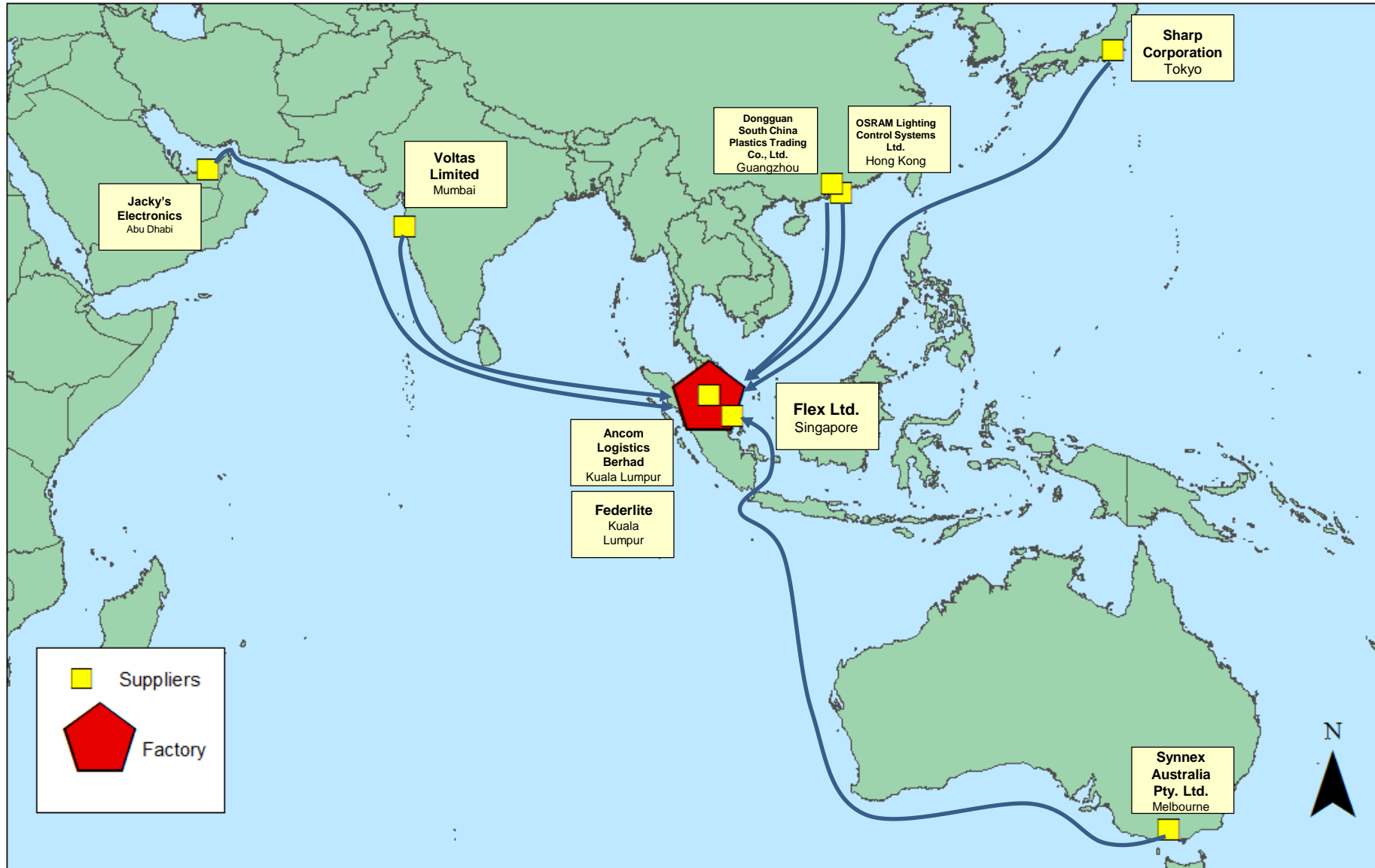
 **H&M Clothing - Jacket**



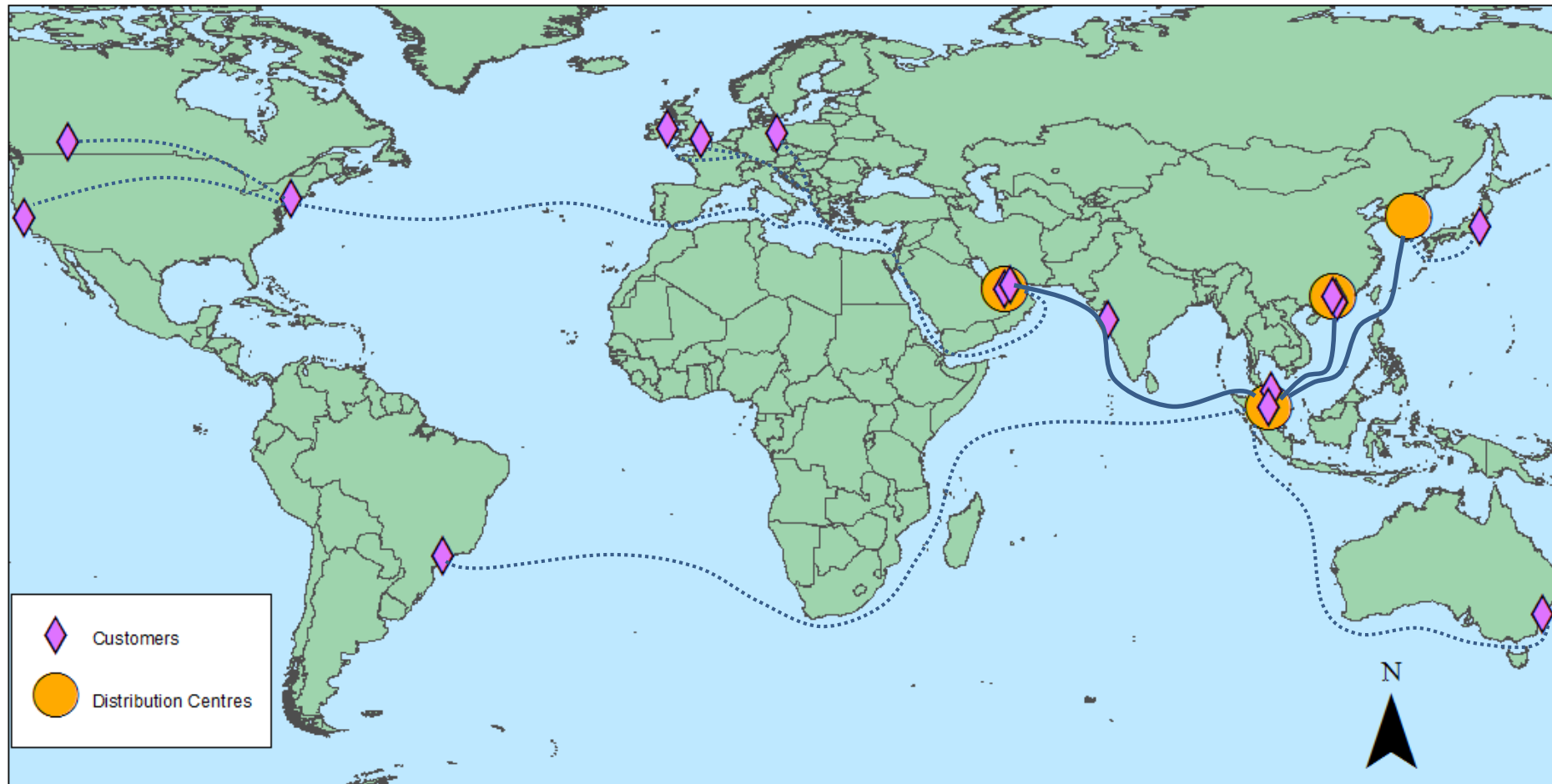
 **Adidas Sports shoes**



Supply Chain



Distribution System



Global Risk Index to Corporate Resilience Framework

Integrated risk profile of internal and external risks

Internal Risk Register

Company-specific
identification of threats

External Risk Register

Taxonomy of global threats
to business and economic
activity

Company-Specific Inputs

Business Network

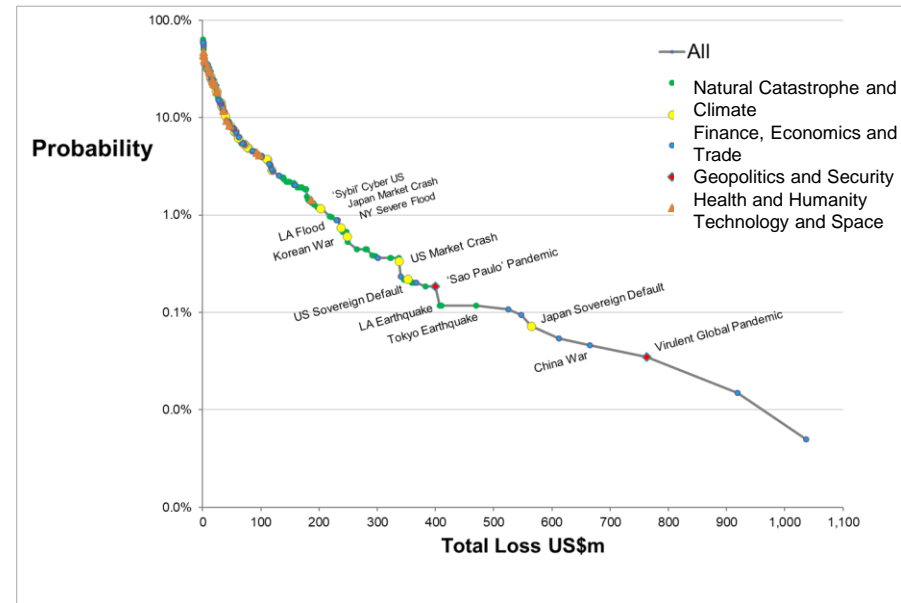
Locations and revenue sources

Activity matrix

Productivity units

Operational Structure

Business lines and subsidiaries



Example Scenarios that reach Severe Loss Threshold

Scenarios that cause loss of over \$20 M to either output (supply shock) or consumption (demand shock) include the following examples:

- Sovereign Crisis in Malaysia
- Extreme SE Asia Regional Monsoon Flooding
- Human Epidemic in SE Asia
- Separatism and Social Unrest in UEA
- Financial Crisis Property Crash Emerging Markets
- War between North and South Korea
- War between China and Japan

Similar internal risk scenarios might include:

- Litigation from a major trading partner
- Mass action by consumers, under new regulations

Scenarios for Corporate Risk Management

Workshop being run by Cambridge for senior executives of a global financial services company to evaluate emerging geopolitical risks and develop scenarios for their risk management response.
July 2018



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