



Cambridge Centre for Risk Studies
Advisory Board Research Showcase – 24 January 2017

Geopolitical Risk and Catastrophe Threats

Centre for
Risk Studies



UNIVERSITY OF
CAMBRIDGE
Judge Business School

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Threats



Interstate War



Social Unrest



Separatism



Terrorism



Richard Hartley CEO

Joshua Wallace, Product Director



International Centre for
Political Violence and Terrorism Research

	Market Crash	Sovereign Crisis	Price Shock	Interstate War	Terrorism	Separatism	Social Unrest	Earthquake	Volcanic Eruption	Tropical Windstorm	Temperate Windstorm	Flood	Tsunami	Drought	Freeze	Heatwave	Power Outage	Cyber Attack	Solar Storm	Nuclear Accident	Human Epidemic	Plant Epidemic
Market Crash	4	3	3	2	3	2	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Sovereign Crisis	3	4	3	3	3	3	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Price Shock	2	2	4	2	2	2	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Interstate War	3	3	3	4	3	3	3	1	1	1	1	1	1	1	1	1	2	3	1	2	2	2
Terrorism	2	2	2	2	4	3	2	1	1	1	1	1	1	1	1	1	2	2	1	2	2	2
Separatism	2	3	3	3	3	4	3	1	1	1	1	1	1	1	1	1	2	2	1	2	1	1
Social Unrest	2	2	2	2	3	3	4	1	1	1	1	1	1	1	1	1	2	2	1	2	1	1
Earthquake	2	2	2	1	1	1	2	0	0	1	1	1	3	0	0	0	3	0	0	3	2	1
Volcanic Eruption	2	2	2	1	1	1	2	0	0	0	0	0	0	0	2	0	2	0	0	0	2	1
Tropical Windstorm	2	2	2	1	1	1	1	0	0	0	0	3	0	0	0	0	3	0	1	1	1	0
Temperate Windstorm	1	1	1	1	1	1	1	0	0	0	0	2	0	0	1	0	3	0	1	0	0	0
Flood	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	2	0	0	1	2	0
Tsunami	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	2	0	0	3	0	0
Drought	1	2	3	2	1	1	2	0	0	0	0	0	0	0	1	1	0	0	1	0	0	0
Freeze	1	1	2	1	0	0	2	0	0	0	0	0	0	0	0	0	3	0	1	1	1	1
Heatwave	1	1	1	2	1	2	2	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0
Power Outage	1	2	2	1	0	0	2	1	1	1	1	1	1	1	1	1	4	0	0	2	1	1
Cyber Attack	1	2	1	2	0	1	2	0	0	0	0	0	0	0	0	0	3	4	0	2	0	0
Solar Storm	2	2	2	0	0	0	2	0	0	0	0	0	0	0	1	1	3	0	0	2	0	0
Nuclear Accident	2	2	1	2	0	0	2	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
Human Epidemic	3	3	3	1	1	0	2	1	1	1	1	1	1	1	1	1	2	1	1	1	2	0
Plant Epidemic	2	2	3	2	1	2	2	0	1	0	0	0	0	1	1	1	0	0	0	0	0	2

Prof. Rohan Gunaratna, Director

Highly Correlated Geopolitical Threats



Arab Spring in North Africa, December 2010



Social unrest in Syria, March 2011



Free Syrian Army, November 2011



Syrian Civil War, November 2011-present

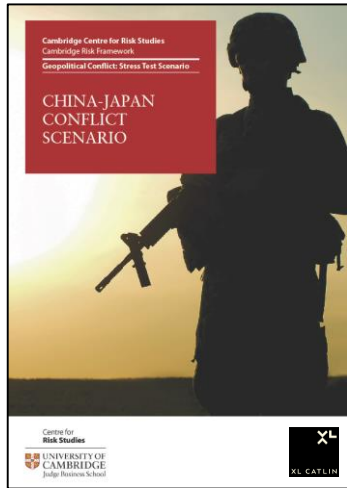


Islamic State seizes territory, 2013-present

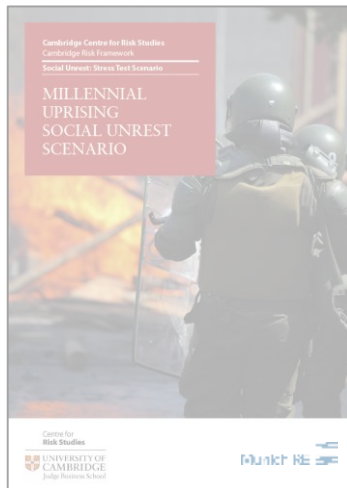


American-led intervention/proxy war

Published CRS Scenarios



- **China-Japan Geopolitical Conflict Stress Test Scenario**
- Stress test scenario involving a renewed Sino-Japanese conflict over disputed islands in the South China Sea
- ‘Level 3’ Magnitude for Interstate War; high civilian cost
- Impacts on international trade as exclusion zones are created
- Conflict ultimately broken up following intervention from United States and Russia
- Lost global output of **\$17-34 trillion**

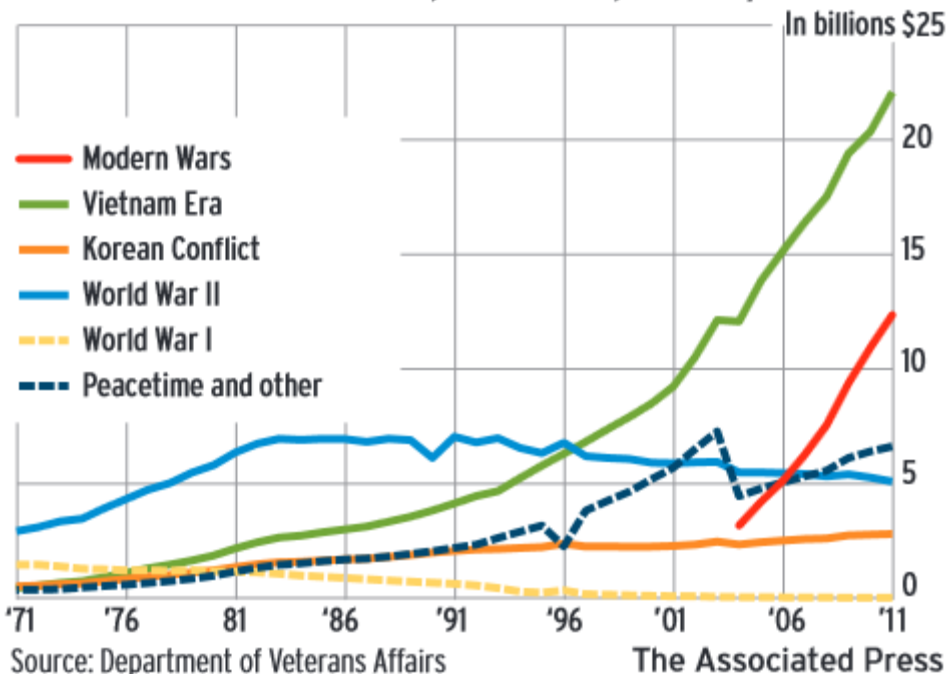


- **Millennial Uprising Social Unrest Scenario**
- Stress test scenario involving an Occupation-style protest wave driven by widespread youth unemployment occurring in 1000 cities simultaneously, triggering violence and rioting.
- A 9-month period of protest is ultimately drawn to a close as concessions are made and peaceful leaders of the movement disavow the violence
- Lost macroeconomic impact of **\$1.6-8 trillion**

Historical Costs of War

WAR COSTS GO ON AND ON

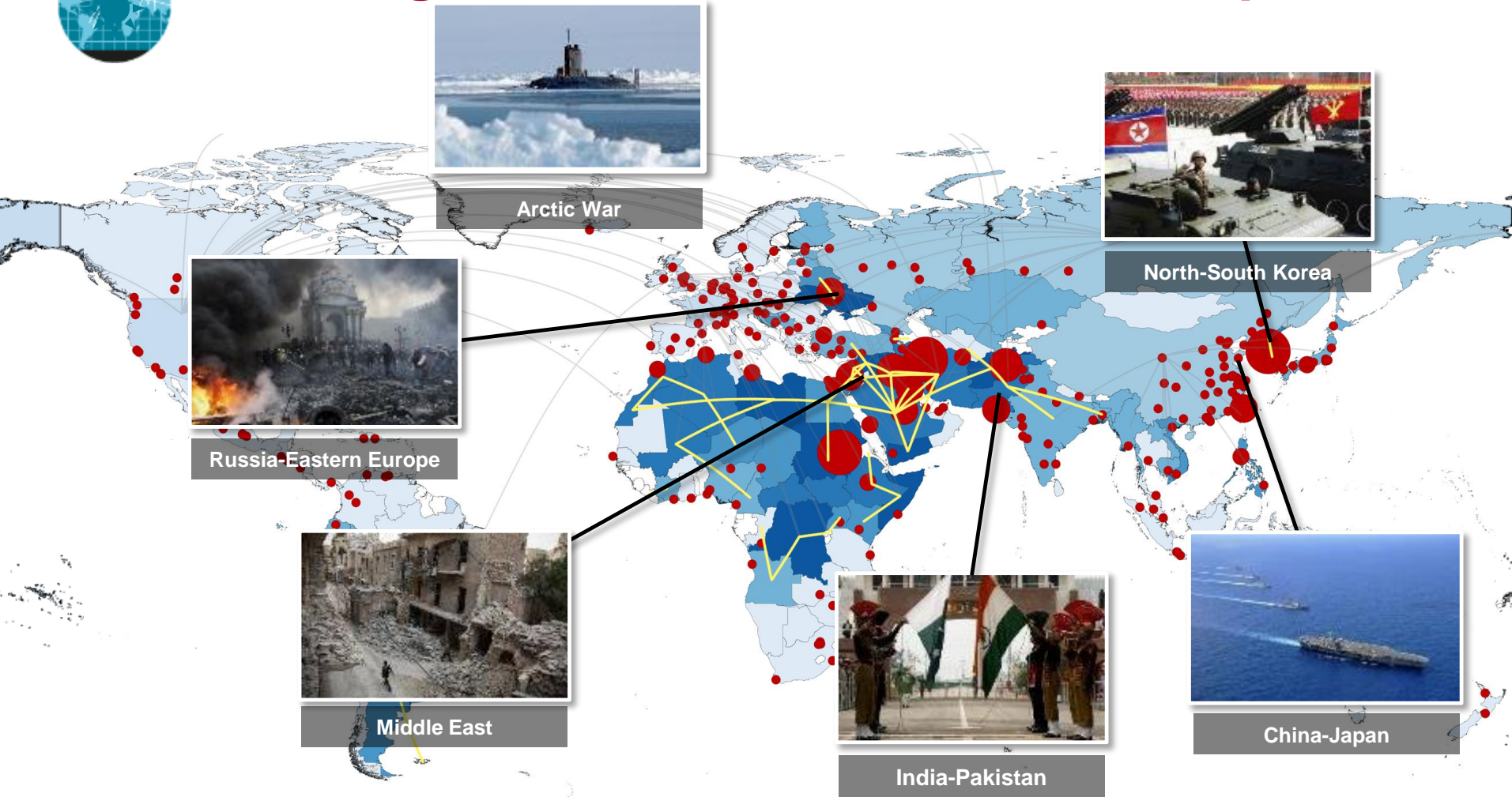
The US government has spent more than \$270 billion in payments to disabled veterans, wartime veterans and their survivors since 1970. A look at the annual amount paid to recipients by war:



- Wars do not have to be particularly large or deadly to be significantly expensive or impactful
- Continuing costs of war can linger for centuries
- Most nation states still retain capability for war
- 2.5% of global GDP funds military expenditures
- Increased globalisation diminishes the risk of wide-scale war but means that wars which do occur have greater global implications
- The changing nature of modern warfare threatens new frontiers and a wider number of industries



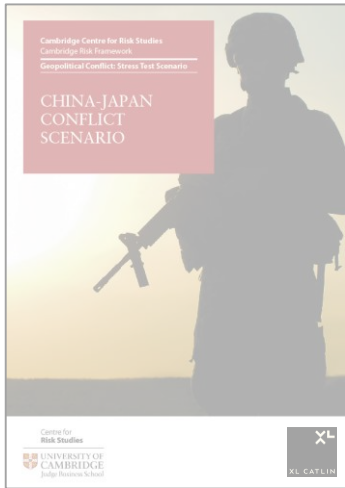
Changes in Interstate War Landscape



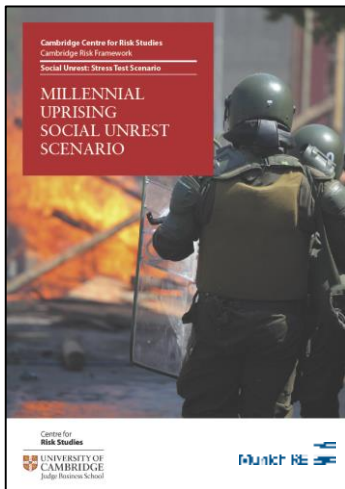
120 scenarios of potential bilateral conflicts

Identified through diplomatic protest; military skirmish; historical conflict; political posturing

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Change in Social Unrest Risk

- There has been a perceived decrease in rate of social unrest post-Arab Spring
- 40 national elections in 2014, representing 42% of the world's population and more than half its GDP
- Recent electoral cycles have channeled social disruption elsewhere





Rising Populism

- Increasing appearance of populist political forces gaining traction as a symptom of civil unrest that is defined by scepticism and anti-establishment sentiment
- While 'bloodless' in nature these forms of democratic protest have the potential to cause significant economic shifts, likely as part of an aggregating 'vox populi' movement



Populist Politics of 'Unrest'

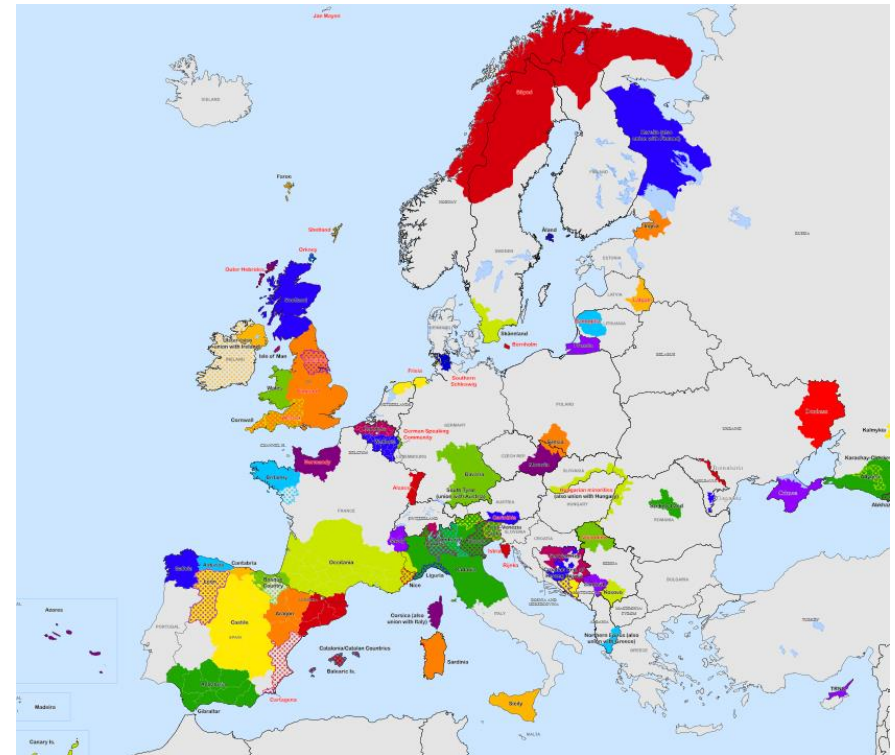


- 2009 establishment of the US Tea Party movement
- Entry of UKIP into mainstream politics, 2014-
- Rise of the National Front in France, 2014-
- 2016 Austrian presidential election
- Bernie Sanders' 2016 presidential campaign
- Donald Trump's 2016 presidential victory



Political Separatism

- June 23 EU referendum
- Possibility of future referendum on Italian EU membership
- Scottish independence option
- Sinn Fein call for 'united Ireland' in wake of Brexit
- July 2016, Catalonia's separatists voted to approve a plan of action towards self-sovereignty





Current separatism hotspots



Separatist Hotspots 2015-16 (UN Refugee Agency, 2016)

Americas	Africa	Europe	Middle East	Asia
Colombia	Nigeria	Ukraine	Yemen	Afghanistan
	Libya		Syria	Pakistan
	Sudan		Iraq	Myanmar
	South Sudan			Philippines
	Central African Republic			
	Democratic Republic of the Congo			
	Somalia			



2016 separatist hotspots

- Colombia
- Nigeria
- Libya
- Sudan
- South Sudan
- Central African Republic
- Democratic Republic of the Congo
- Somalia
- Yemen
- Iraq
- Syria
- Ukraine
- Afghanistan
- Pakistan
- Myanmar
- Philippines

Separatism Headlines



- Syrian Civil War, Free Syria Army opposition engaged with Syrian government Assad loyalist militants



- Kurdish separatism in northern Iraq and regional Iran, Turkey and Syria. Claims Turkey on 'the verge of civil war' in 2015



- Peace deal discussions ongoing between FARC and Colombian government, October 2016



- War in Donbass reaches a stalemate between Pro-Russia Donetsk and Luhansk separatists and Ukrainian government



Continuing Trends of Unrest and Protest

- There is an expected increase in protest and civil action 2017-onwards as we leave the current election cycle
- Women's March on Washington, 21 January 2017
- Similar marches held in 673 cities worldwide, est. participants: 4.9 million







Current Terrorism Landscape

- Rising terrorist action in Western Europe through 2014-2016
 - Jewish museum shooting, Brussels, 2014
 - Charlie Hebdo, January 2015
 - November 2015 Paris attacks
 - 2016 Brussels bombings
 - Munich knife attack, May 2016
 - Normandy church attack, July 2016
 - Nice truck attacks, July 2016
 - Berlin Christmas Market, December 2016
 - Istanbul bombing, December 2016
- Small-scale terrorism (low casualty, potentially high impact) attacks perpetrated by “lone wolves” occur with increasing frequency in the West, raising alert levels in Europe, Australia and the US
 - Current terrorism trends look towards **human casualty** rather than property damage or business disruption; potentially diminishing an acute economic impact on a particular business or sector
 - However, the influence of small-scale terrorism in France has contributed to a dent in the Parisian tourist trade in the long-term; tourism rates dropped 11% in 2016, with an estimated loss of €460 million



Terrorism Landscape

- Since the Lloyd's City Risk Index analysis, the growing influence of the so-called Islamic State and worldwide social instability has exacerbated awareness of the modern terrorist landscape though not necessarily changed its greater shape
- As of 2016, the Foreign Office has rated **40 countries as under “high” threat of terrorism**
- Terrorism risk is still chiefly centred on the Middle East and North Africa, with the most violent theatres situated in Syria, Yemen, Pakistan, and Afghanistan
- Small-scale terrorism attacks perpetrated by “**lone wolves**” occur with increasing frequency in the West, raising alert levels in Europe, Australia and the US, raising threat levels
- Terrorism Outlook:
 - Severity 
 - Frequency 

New Dimension: Cyber Warfare

Computing

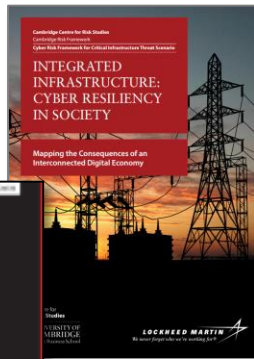
Ukraine's Power Grid Gets Hacked Again, a Worrying Sign for Infrastructure Attacks

Russian hackers may be behind attacks leveled at the nation's power grid and artillery. The West should take note.

Exclusive / MI5 chief warns of growing Russian threat to UK

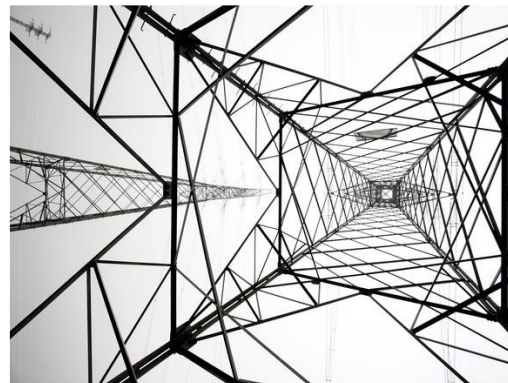
- Moscow 'using cyber-warfare' against targets across Europe
- 'About 3,000' violent Islamic extremists in Britain
- Andrew Parker is first serving spy chief to give newspaper interview

1,862



KIM ZETTER SECURITY 03.03.16 7:00 AM

INSIDE THE CUNNING, UNPRECEDENTED HACK OF UKRAINE'S POWER GRID



JOSE A. BERNAT BACET/GETTY IMAGES

theguardian

home > world > US americas asia australia africa middle east cities all

Obama administration

Obama expels 35 Russian diplomats in retaliation for US election hacking

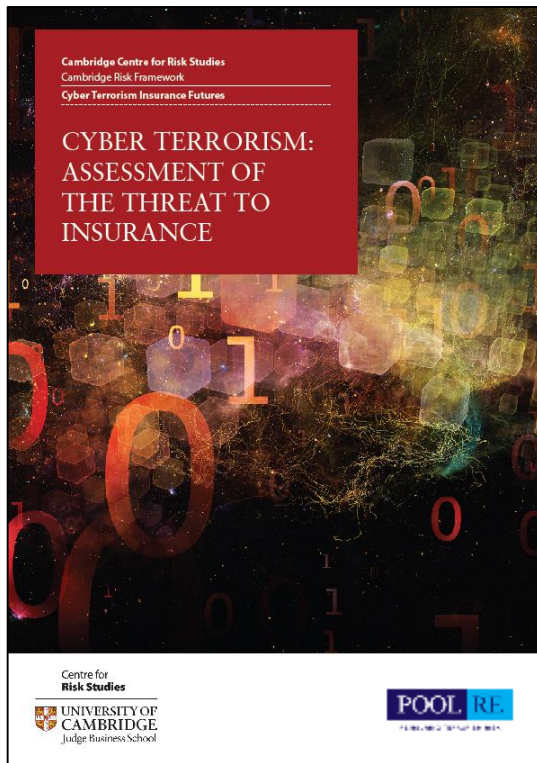
- Trump wants to 'move on' but says he will meet intelligence officials
- FBI and Homeland Security detail Russian hacking in new report



Vladimir Putin talks to Barack Obama during a meeting at the sidelines of the G20 Summit in Hangzhou, China, on 5 September 2016. Photograph: Alexei Druzhinin/Sputnik/Kremlin/EPA

Cyber Terrorism

Though its emergence as a new branch of modern terrorism is doubtful in the near future, we must maintain awareness of the rise of “cyber” as a new battleground for potential terrorist action, facilitating financial targeting and exploitation, information theft, and the potential disruption or sabotage of critical national systems.



	A.1 Terror Group Website	A.2 Video & Social Media	A.3 Funding Operations Manual	A.4 Encrypted Communications	B.1 Deplacement of web sites	B.2 DDoS Website Take-down	B.3 Data Exfiltration Hack	B.4 Cyber Financial Heist	C.1 Sensor Spoofing	C.2 Control Engineering Compromise	C.3 Damaging/Disabling Infrastructure	C.4 Scaled Destruction Multi Targets
Threat Group 1 e.g. Al-Qaeda	Red	Red	Red	Red	Red	Grey	Grey	Grey	Grey	Grey	Grey	Grey
Threat Group 2 e.g. Islamic State United Cyber Caliphate	Red	Red	Red	Red	Red	Red	Red	Red	Grey	Grey	Grey	Grey
Threat Group 3 e.g. Cyber group loosely affiliated to Nation State X	Red	Red	Red	Red	Red	Red	Red	Red	Grey	Grey	Grey	Grey
Threat Group 4 e.g. Hacktivists Militant Destructive	Grey	Red	Red	Red	Red	Red	Red	Red	Grey	Grey	Grey	Grey
Threat Group 5 e.g. Organised criminal group with terror links	Grey	Grey	Grey	Red	Red	Red	Red	Red	Grey	Grey	Grey	Grey
	A Enabling Activity				B Disruptive Activity				C Destructive Activity			

Conclusions

- The geopolitical landscape is changing faster than at any time in the past generation
- The Pandora framework provides a coherent method of analysing the likelihood and impacts from these changing elements
- Cambridge Centre for Risk Studies is committed to tracking trends and enabling our supporters to explore potential future shapes of risks to come

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