



Maximising the Value of Horizon Scanning and Futures Work

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Introduction

Fast Future

- Research and consultancy on future trends and opportunities
- Practical application of scanning and accelerated scenario planning to drive strategic change
- Provide strategic advice on long term trends, forces for change and opportunities
- Advisor to US Defense Department & UK government Departments including MoD and Home Office
- Other clients include ABN Amro, BAe, Citibank, Intel, DeutscheBank, GSK, E&Y, IBM, Nokia, Novartis, PwC, Panasonic, Pfizer and Shell

Rohit Talwar

- Founder & CEO of Fast Future
- Consultant, facilitator, researcher and professional speaker
- Specialist on the future of Asia
- Twenty years' experience in 5 continents and over 20 countries
Currently running largest future trends research programme in Europe for UK government
- Formerly with Andersen Consulting, BT, GKN, Bossard (Gemini)
- Regular contributor on TV, Radio and press
- Special advisor to Actis – a leading investor in Asia and emerging markets

Horizon Scanning – a Definition

“The systematic examination of potential threats, opportunities and likely future developments including but not restricted to those at the margins of current thinking and planning. Horizon scanning may explore novel and unexpected issues as well as persistent problems or trends”



Sources - UK Office of Science and Technology Horizon Scanning Centre and Department for Environment, Food and Rural Affairs

*Horizon scanning is **NOT** about predicting the future*

Context – Fast Future’s Positioning

- Department of Environment, Food and Rural Affairs
- Ministry of Defence
- Home Office
- Office of Science and Technology
- Department of Trade and Industry
- Department of Constitutional Affairs
- Civil Contingencies Secretariat
- NHS Modernisation Agency

Drivers
Products
Markets
Behaviours
Tolerance
World View

Drivers
Aspirations
Philosophy
Policy
Legislation
Interventions

- ABN Amro / Citibank / DeutscheBank
- BAe / EADS
- Ernst & Young / PwC
- GSK / Novartis / Pfizer / BAT
- BBC / IBM / Intel / Panasonic
- Marks and Spencer
- Nokia / Orange
- Shell
- Yellow Pages

Contents

- ***Background – the RAHS Project***
- Techniques for Studying the Future
- Horizon Scanning Examples
- Horizon Scanning Fundamentals
- Conclusions

Background –Singapore Risk Assessment and Horizon Scanning (RAHS) Project

- Established July '05 by the National Security Co-ordination Secretariat (NSCS)
- Aim – ***detect, monitor, prevent, protect*** and respond effectively to ***strategic surprises*** and ***national security threats***
- Establish ***systematic scanning*** processes and approaches
- Identify ***early indicators*** of possible ***threats*** and ***surprise events***



RAHS Project - Methods

- Enhance ***co-ordination*** between ***ministries*** and ***national security agencies*** for Risk Assessment and Horizon Scanning (RAHS)
- ***Integrate*** RAHS cycle - combine expertise of ***multiple agencies*** in ***surveillance, research and scenario domains***
- Conduct ***anticipatory*** analysis
- ***2 year project*** – integrating ***theoretical, operational and technical*** tracks



RAHS Project Approach

- Year 1 – prototype development
- Year 2 – ‘testing and fielding’
- **Theoretical** – Develop theoretical and conceptual basis and model
- **Operational** - Develop analytical functions, indices, processes, workflows and procedures
- **Technical** – Development and integration of tools and technologies to support the people, knowledge resource management and collaboration process for RAHS



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There are a number of methods for helping us consider the future

- **Genius Forecasting**
- **Historic Projection**
- **Trend projection (Extrapolation, Growth Curves)**
- **Correlation**
- **Causal Methods**
- **Polling**
- **Horizon Scanning**
- **Technology Forecasting**
- **Scenarios**
- **Delphi Studies**
- **Morphological Models**
- **Relevance Trees**
- **Mission flow diagrams**
- **Technology Assessment**
- **Trend Impact Analysis**
- **Cross-Impact Analysis**
- **Systems Approach**
- **Simulation**
- **Cycles (e.g. Kondratieff)**
- **Social Indicators**
- **Chaos and Complexity Theory**

Typical Approaches

Ordered

Unordered



***Horizon
Scanning
(e.g. UK
OST /
Defra)***

***Scenario
Planning
(e.g. GBN
Model)***

***Complexity
Management
(e.g. Cynefin
Model)***

Why Horizon Scan?

*Underpin
Strategy and
Policy
Development*

*Describe
Environment /
Challenge
Assumptions*

Scanning

*Future
Proofing*

What If

Insight

Interaction

*Future
Context*

Wildcards

Why Undertake Horizon Scanning / Futures Activity?

- **Scanning** - Develop anticipatory skills - spot potential risks and opportunities
- **Future Proofing** – Introduce tools and techniques to test ideas and strategies against possible futures – identify blind spots
- **What If** - Rehearse the future and consider alternatives
- **Insight** - Understand the critical trends and forces driving change
- **Interaction** - Explore what happens when trends (and policies) collide, what second and third order effects could emerge?
- **Future Context** – Explore changes in public attitude and needs
- **Wildcards** – look for low probability / high risk events

How can you use the Scan Data?

- Challenge your assumptions and plans
- Provide trend and driver inputs to Policy and Research Strategies
- Identify risks and opportunities
- Spot the gaps - 'white spaces' and 'unmet needs'
- Start point for more in-depth scanning
- Build scenarios against which to test policy



A range of 'Horizon Scanning' data capture frameworks can be used

STEEP(O)

- Socio-Demographic
- Technological and Scientific
- Economic and Commercial
- Environmental
- Political, Moral and Legal
- Organization

PEST(EC)

- Political, Moral and Legal
- Economic
- Socio-Demographic
- Technological and Scientific
- Environmental
- Commercial

STEPPLE

- Socio-Demographic
- Technological and Scientific
- Economic and Commercial
- Political
- Physical Environment
- Legal
- Ethical and Moral

What is Scenario Planning

***“The precise definition of ‘scenario’ is:
a tool for ordering one’s perceptions about alternative
future environments in which one’s decisions might be
played out.***

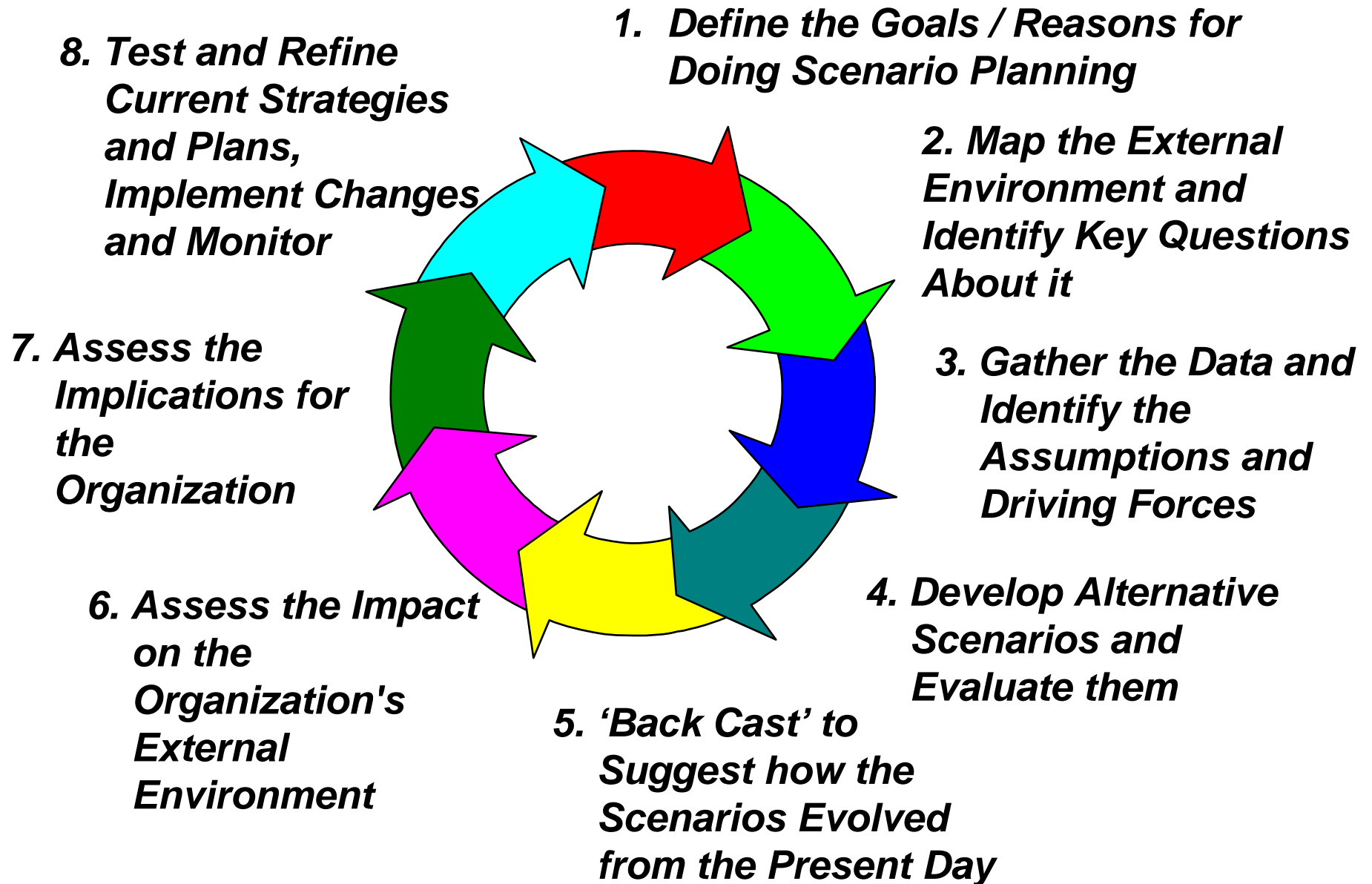
Alternatively:

***a set of organized ways for us to dream effectively about
our own future.”***

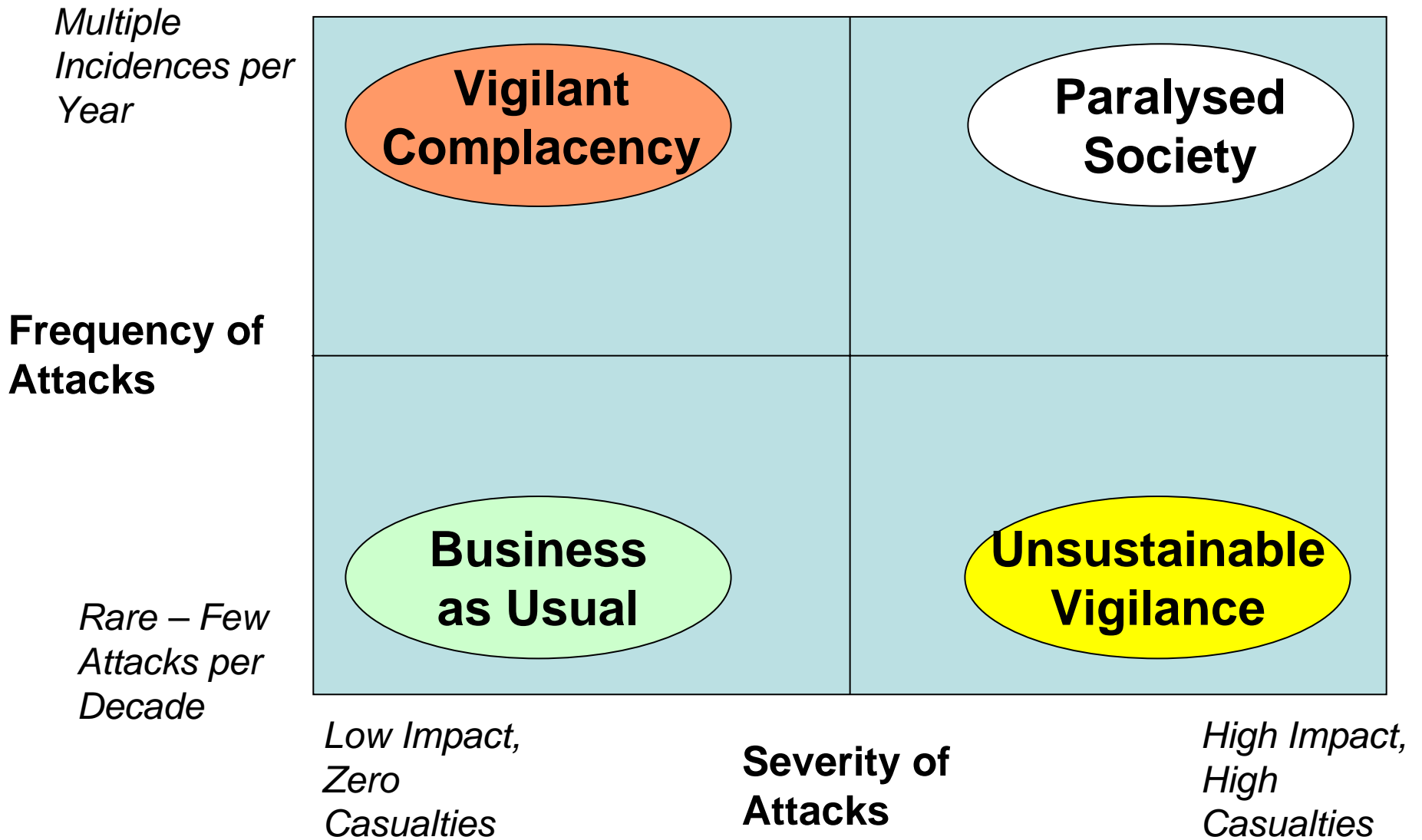
Peter Schwartz, *The Art of The Long View* (Doubleday Currency, 1992) p4

Scenario planning is a powerful and structured technique for working with data about the future by bringing together a range of trends, risks, opportunities, discontinuities, driving forces, potential shocks, hopes and fears into a set of coherent and plausible stories about alternative possible futures...

Key Steps in Scenario Planning

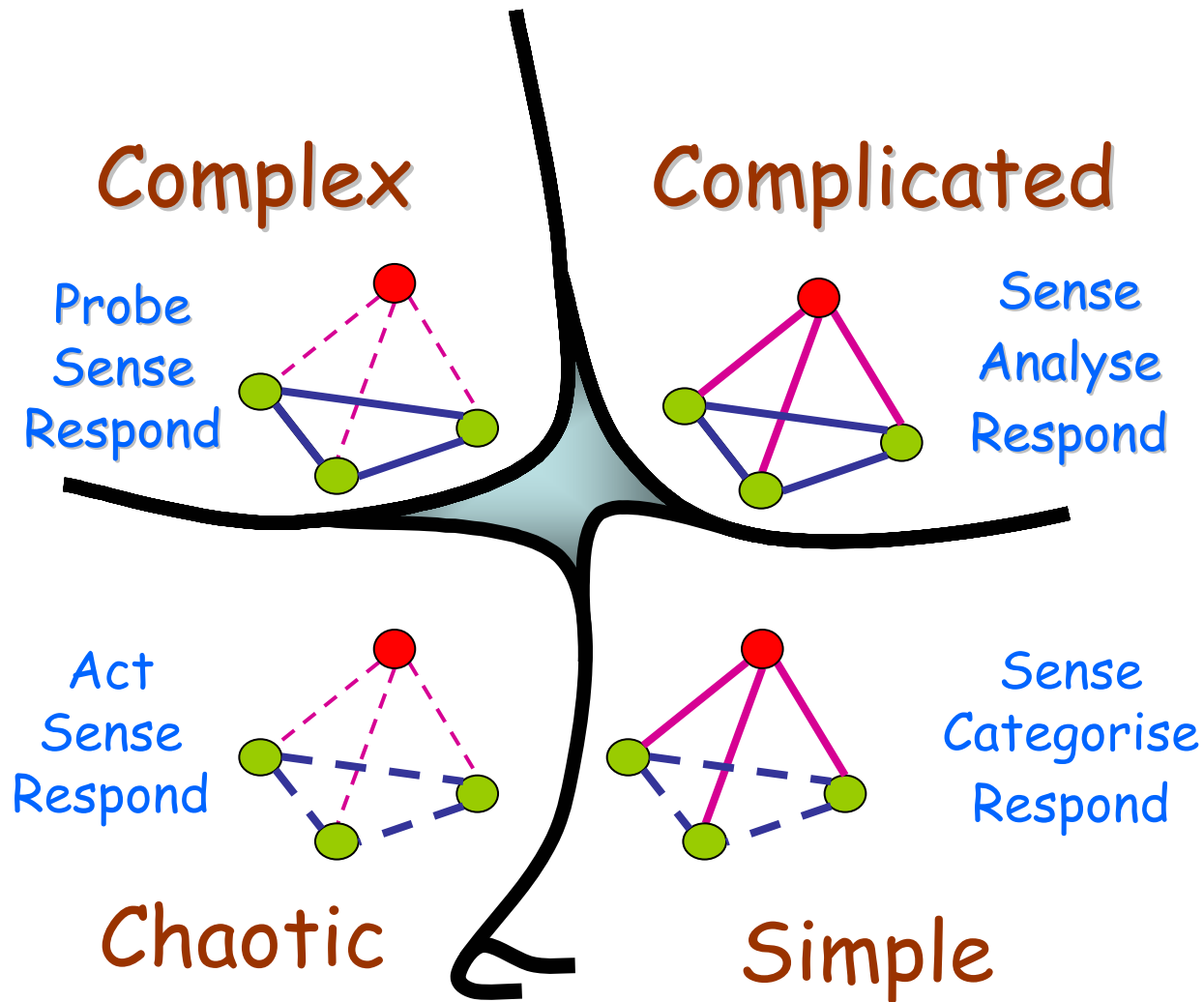


Example Scenarios – Social Impact of Terrorism



The Cynefin Model - Human sense making domains

Increasingly we have to Operate in Complex and Chaotic Environments where Traditional Approaches are inappropriate



Source: Arlington Institute

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Example Horizon Scanning Users

- Department for Environment Food and Rural Affairs (Defra) – Baseline Scan
- Office of Science and Technology - Horizon Scanning Centre
- Civil Contingencies Secretariat – Wild Cards
- Ministry of Defence - Strategic Trends 2030
- UK Treasury – Spending Guidelines
- Home Office – Strategy and Spending Plans

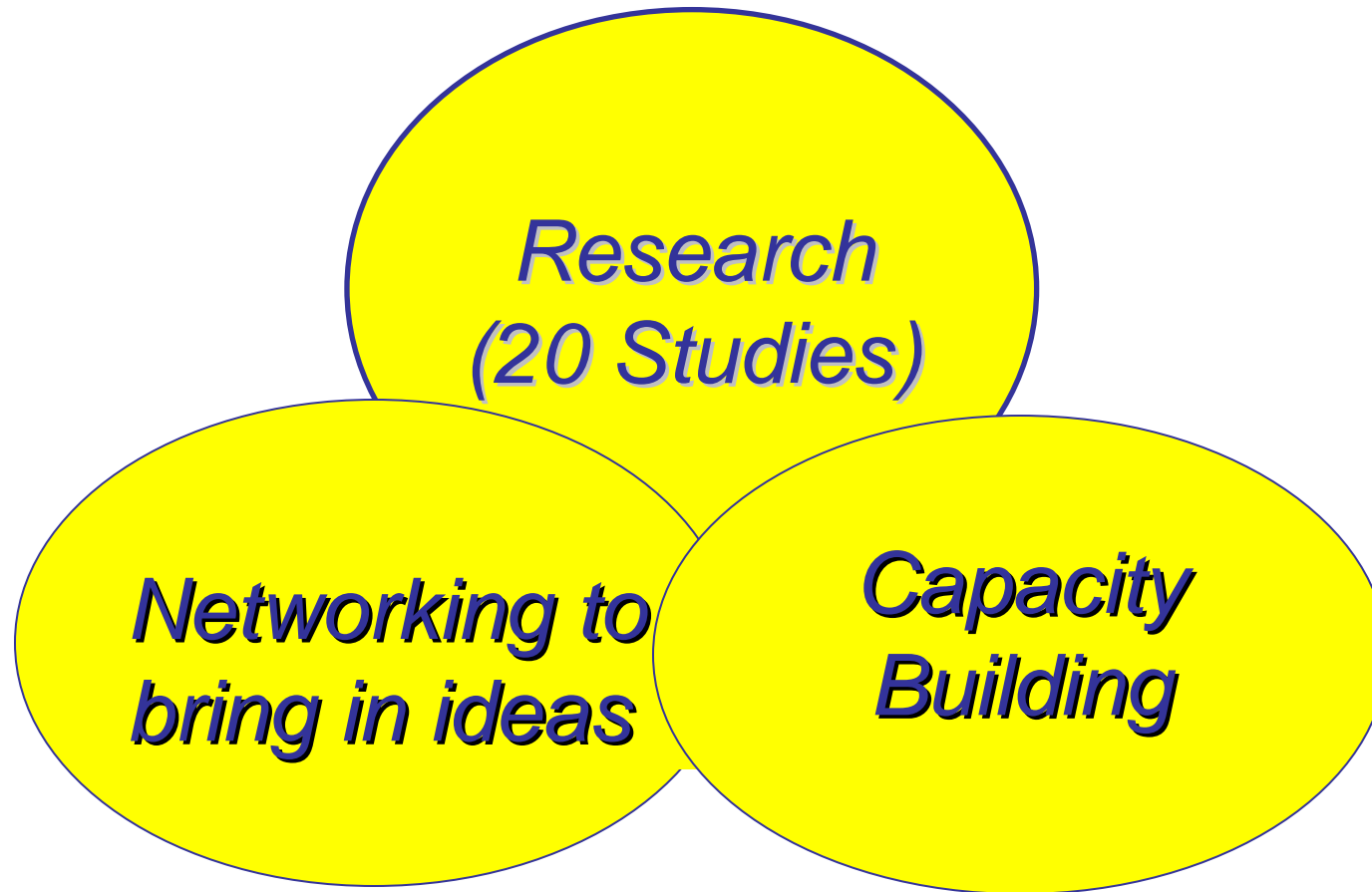
Horizon Scanning in UK Government

- Growing interest in HS across government
- Several central and departmental initiatives planned or underway
- Desire to learn from experience and best practice
- Defra HS considered one of longest running and most diverse programmes
- Defra have learned some key lessons about scoping, commissioning, conducting and using HS research in a complex and constantly evolving policy environment
- Defra's purpose - *Improve Defra's resilience and capability to anticipate and prepare for new risks and opportunities*

How Defra's Management Board think HS can Support the Transition to 'Future Defra'

- Provide tools and insights to help manage complexity
- Facilitate joined up thinking across Defra and with OGD's
- Help in the transition to 'effects based' planning / operations
- Stimulate innovation and encourage agility
- Tools, resources and scenarios for 'future proofing' policy options
- Creating an information / knowledge hub
- Facilitate internal and external learning networks
- Inform risk management
- Support opportunity identification / risk taking
- Briefing ministers

Defra HS Programme Activities



Defra Baseline Scan Objectives

- Provide a body of 'data' on future trends, drivers and potential developments which could shape Defra's external environment over the next 50 years:
 - Socio-Demographic
 - Economic
 - Political
 - Environmental
 - Scientific and Technological
- Draw the trends from 25 well respected existing studies
- Provide detailed descriptions of the key trends and their sources to enable policy makers and scientists to apply the trend data in policy and research

Defra Baseline Scan

Develop a Long List of ~100 Global Futures Studies
(e.g. *MoD Strategic Trends 2030, Countryside 2020, etc*)

Select a Short List of ~25 Key Studies
(Based on *Credibility / Quality / Relevance*)

Produce a Database of Key Factors Identified - Trends, Forces, Shocks
(Categorised into a framework e.g. *STEEP*)

Extract & Evaluate ~100 Key Factors for Defra
(e.g. *Impact, Timeframe, Novelty, Relevance, Defra Areas Affected, etc.*)

Support Directorates,
Members and Possibly
OGD's in Interpretation,
Evaluation & Application

Provide a Web-
Based Interface to
Support Future Use
/ Continuous
Update

How Defra HS are Trying to Engage Policy Makers – 1/2

- Meeting individual directors and their teams to explain the programme and discuss their needs
- Asking them for research ideas and for comments on new research specifications as they evolve
- Starting to work with the ‘owners’ of Defra’s five strategic themes to agree future programmes of research
- Encouraging participation in selection panels and steering groups
- Co-funding of studies with Directorates
- Regular project steering groups to build policy maker understanding and ensure they are aware of the emerging issues on a study – help us navigate critical issues internally and externally
- Request for comments on key project outputs

How Defra HS are Trying to Engage Policy Makers – 2/2

- Open lunchtime briefings early in the life of each study to build 'communities of interest'
- Encouraging active participation of policy makers and internal and external policy influencers in key project workshops
- Active discussion with OGD's to involve them and gain co-funding e.g. HMT, SERAD, DoH
- Distribution of emerging findings from the baseline scan study to help policy makers identify the trends of relevance to them.
- Feeding back to policy people on the learning / contacts / outputs / outcomes of our external networking e.g. International Risk Governance Council
- Sharing any relevant results from our own informal scanning

Office of Science and Technology (OST) HS Centre

- Pilot studies to develop the methods – 178 Trends Profiled by Fast Future in 2 studies
- General ('Sigma') and Science and Technology ('Delta') scans initiated
- In-depth studies on specific topics e.g. breakthrough technologies
- High level policy maker and expert workshops
- 'Future Analysts Network' launched
- Coaching for individual departments

Wild Cards from the OST Pilots

- 'Clash of civilisation' between west and Islam prompts widespread armed conflict
- A breakthrough in energy technology such as fusion power transforms the world economy
- A hostile state or terrorist group conducts a major 'information systems attack'
- Computers have widespread autonomous decision-making capability
- Significant and prolonged disruption to the city of London has catastrophic impact on the UK economy
- Collapse of the Euro
- Outbreak of new virulent infectious disease quickly kills millions
- The Gulf Stream dramatically switches off, cooling the UK
- UK reasserts national supremacy over European courts.
- Extremist politics become prevalent in the West
- Crisis of democratic legitimacy in the west
- A coherent and assertive pan-Arab or wider pan-Islamic alliance rises as a counter to the West
- Widespread chemical or biological warfare attack against a UK city

Ministry of Defence

- Strategic Trends 2030 – long term drivers
- 9 Workshops with external experts
- Detailed follow on study
- Public and internal versions of the final reports
- Used to drive strategy, policy and capability plans
- Updated regularly
- Dstl – used to drive planning for future CBRN detection capability

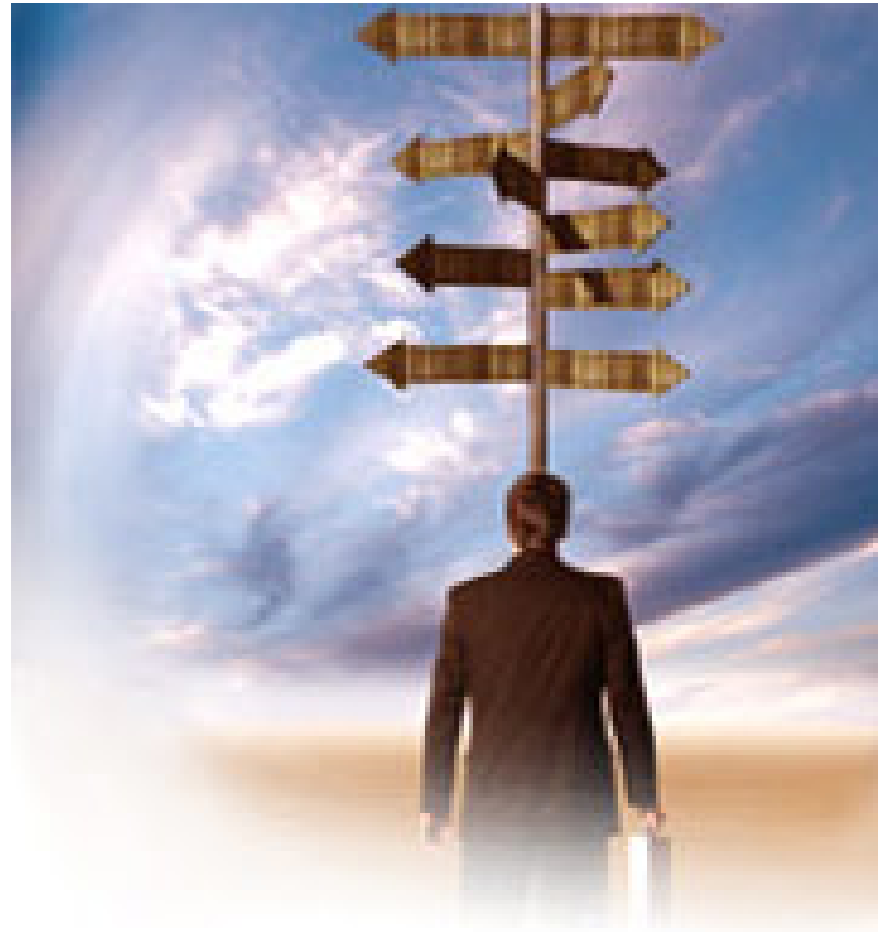
UK Treasury – Planning Advice

- 5 Themes defined to guide spending bids:
 - Demographic Change
 - Globalisation of Economic Activity
 - Faster Technological Change
 - Continued Global Uncertainty
 - Climate Change and Resource Protection

All UK Government Departments must scan against these themes to identify implications for their policies over the next 5-10 years

Home Office

- Defining future strategy and responding to the Treasury's 5 Themes
- Sixth Theme – Society & Social Fragmentation
- 38 Trends profiled (see following page)
- Workshop with policy makers to identify implications
- Embedding through local workshops, topic specific discussions and training



Home Office – 38 Trends and Drivers

Demographic Change

- 1) Old age dependency
- 2) Fluid population
- 3) Risk society – shifting awareness and attitude to risk
- 4) Shifting demographic to youth - blip at end of decade
- 5) Increase in number of children brought up outside marriage
- 6) Acceptance of immigrants into established communities

Globalisation of Economic Activity

- 7) Global economic competition
- 8) UK Economic outlook
- 9) Increasing Global elite - shared values and norms
- 10) Power shift away from the USA
- 11) Wealth Gap

Faster Technological Change

- 12) Ubiquity of technology
- 13) Increasing e crime
- 14) 24/7 'Always on Society'
- 15) Increase in e relationships /self governing communities
- 16) Increased use of RFID technology
- 17) Information Overload

Continued Global Uncertainty

- 18) Power shifts away from national government
- 19) Terrorism more widespread, extreme, international, and autonomous
- 20) Regulators grapple with rules for the internet
- 21) Organised crime more complex and more global in scale & scope
- 22) Greater risk of attack

Global Climate Change

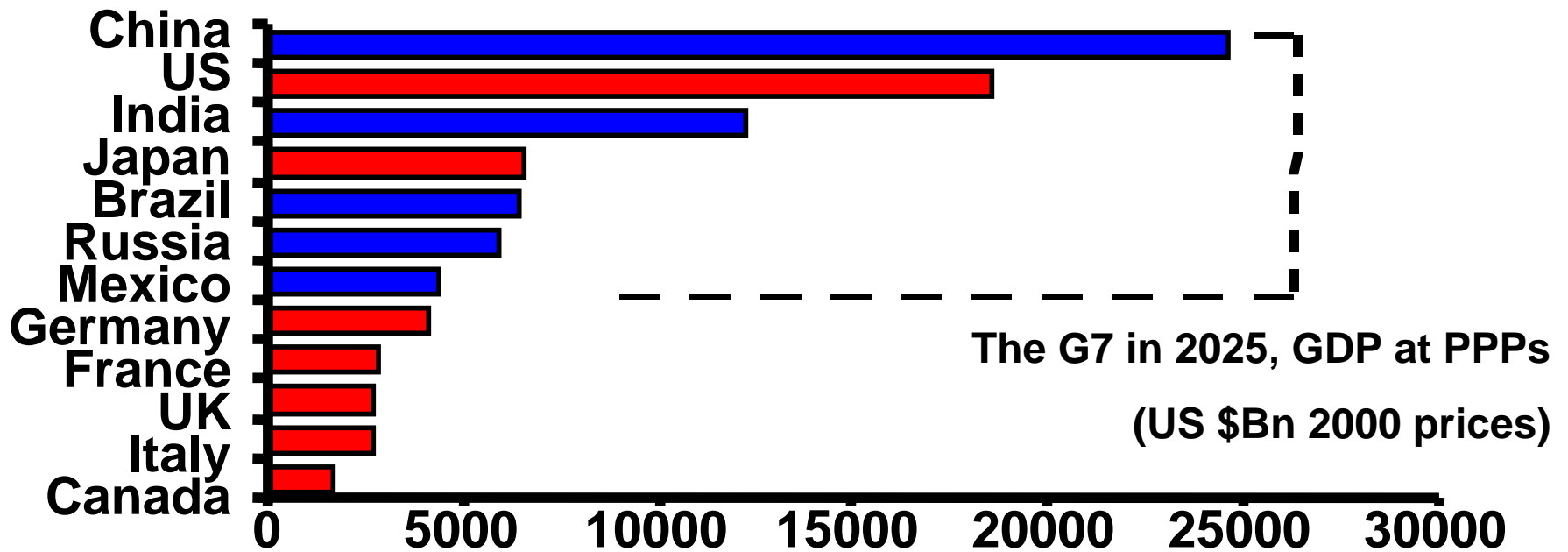
- 23) Increase in environmental legislation
- 24) Incidents of severe weather disruption set to increase
- 25) Global water shortage
- 26) Conflict arising from scarcity of resources

Society and Social Fragmentation

- 27) Empowered citizens
- 28) Insecure underclass / Social exclusion
- 29) Household composition & lifestyles
- 30) Shifting religious composition of UK
- 31) Shifting Pressures on Government
- 32) End of deference
- 33) Community cohesion-fragmentation tensions
- 34) Cultural Globalisation
- 35) Diminishing Respect
- 36) Rise of Post Modern Values
- 37) Declining identification of self with state
- 38) Trust

See following pages for examples

Power Shift Away from the USA



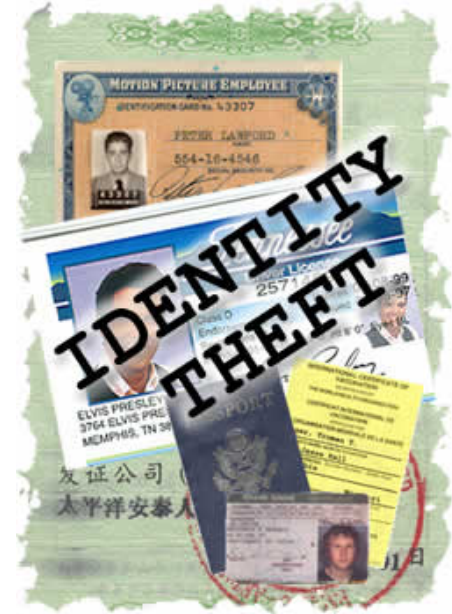
- Growing concerns over America's future economic stability – combined impact of hurricanes, Iraq, oil prices, savings crisis, rising interest rates and inflation
- Economic power gradually shifting eastwards - China's economy is forecast to overtake Germany by 2008 and be larger than that of the US by 2041.
- US deficit over \$700Bn (6% GDP) – heavily financed by China, S. Korea and Japan
- Approximately 60% of all global foreign exchange reserves held in Asia
- US net saving per household now a negative % of disposable income while debt service payments are at a 25 year high of over 13%
- Over 1.3Bn credit cards in issue in the US – more than 11 per household

Will Asian nations exert a growing influence in World Affairs – how will the US respond?

Sources: Goldman Sachs, Economist, Business Week

Increasing e-crime

- Electronic services (e.g., online banking), knowledge and information (e.g., intellectual and commercial property), and identity (e.g., identity theft and fraud) will increasingly become targets
- The Business newspaper (15/16 May 2005) reported 4 million in USA had fallen victim to identity theft in the previous three months.
- The 2004 US Computer Security Institute (CSI) / FBI survey found overall financial losses from 494 survey respondents totalled \$141,496,560.
- Between 2000 and 2003 (latest data available), approximately 40% of companies reported confronting attempts to breach security each year
- Nearly 3 trillion spam messages delivered globally in the first 6 months of 2004
- Pornography, online gaming, fraud, person to person crimes and commercial hijacking are seen as key focuses for e-crime



Are we developing the skills and methods required to detect and prevent e-crime?

Sources: CSI / FBI Survey, The Business, BT Timeline, Mi2g

Information Overload

- The number of channels through which we receive information is increasing
- From products to services consumer choice is increasing – requiring more decisions
- 55% of business surveyed by The Economist felt IT wasn't doing enough to help prioritise information
- In the US in 2002, print, film, magnetic and optical storage media produced 5 exabytes (~ 5Bn gigabytes)
- Approximately 800MB of recorded information is produced per person on the planet
- Growing concerns over the stress created by too much information

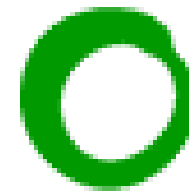


How are we preparing our staff to cope with ever-greater volumes of information?

Sources: Economist Intelligence Unit, Univ Berkeley

Power Shifts away from National Government

- Increasing political power of NGOs (non-governmental organisations), pressure groups, inter-governmental organisations, GROs (grass-roots organisations), and transnational corporations
- The number and influence of such organisations will increase significantly such that they may surpass the role of Western governments in setting the international political agenda (although not in terms of delivering concrete change), perhaps through an emerging global civil society.
- Creates increasing pressure on governments and their departments, and produces voluntary codes of conduct that governments can join.
- Involuntary power shifts also occurring to terrorists and organised crime



Friends of the Earth



What are the skills required for effective cross-agency working in the internet age?

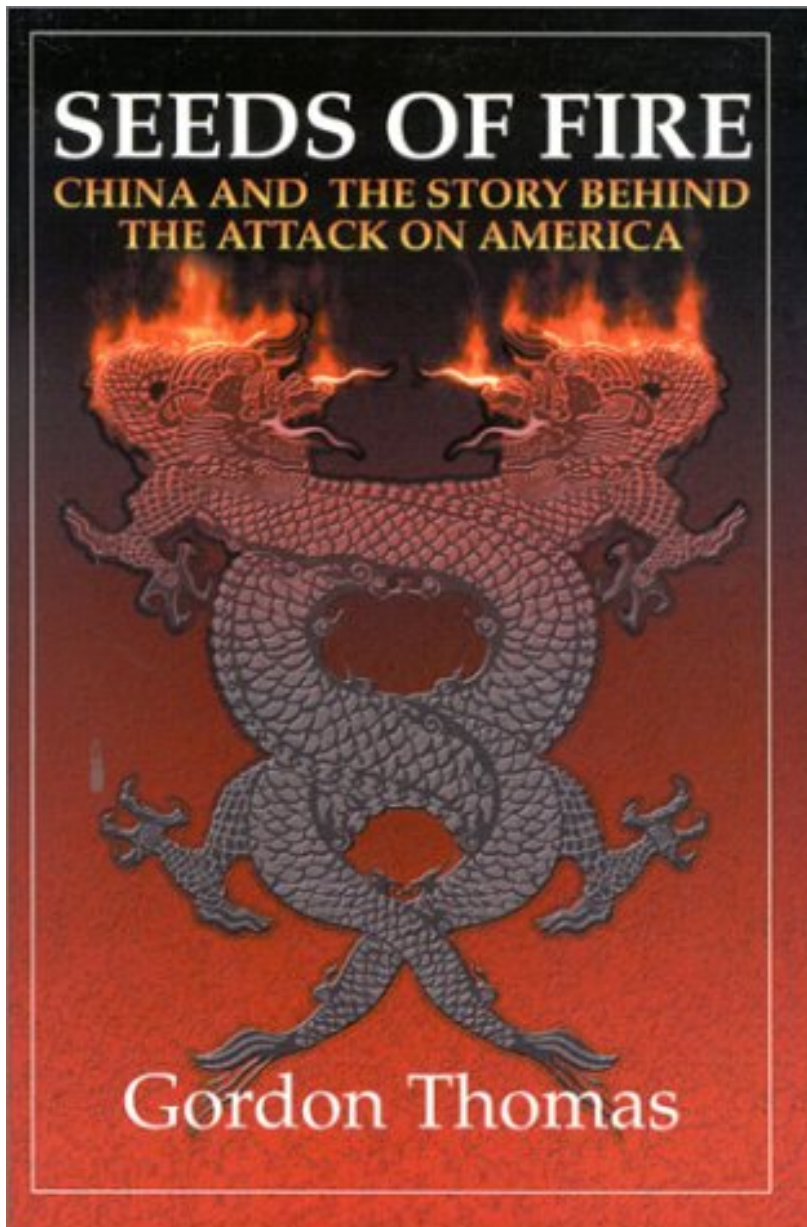
Terrorism more widespread, extreme, international, and autonomous

- Terrorism will remain a key challenge to state power, particularly through its ability to use asymmetric attacks to by-pass military security and attack states 'at home'.
- Increased use of radical tactics and weapons - potential adversaries - particularly non-state actors - will seek arenas or methods of conflict where they have an advantage, resulting in 'asymmetric' threats.
- Adversaries may use weapons which most governments would reject, such as those banned by international law;
- Acts of terrorism might include electronic and computer-based attacks against 'soft' targets such as civilian and military infrastructures, schools, public spaces, transport infrastructure and supply chains for food and fuel.



***How are our capabilities in addressing terrorist threats evolving?
Are they keeping pace with public expectations?***

Sources: MoD Strategic Trends, Cabinet Office, BBC

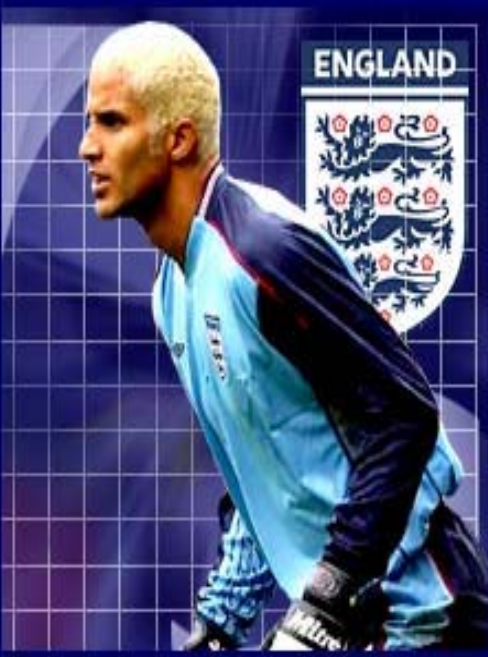
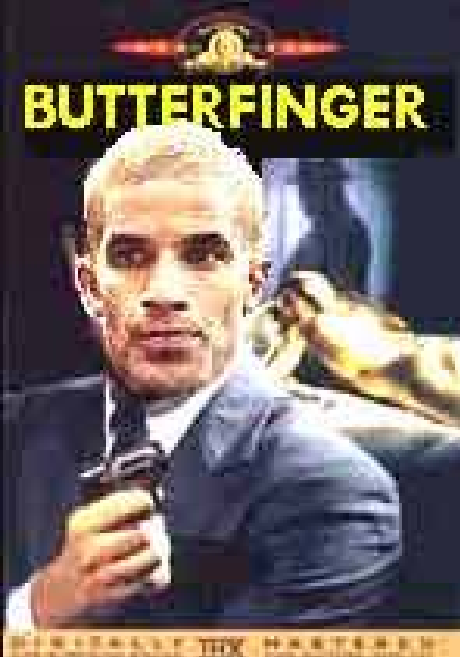


Puts the blame for September 11th at China's door and forecasts a war between China and America by 2015

Terrorist Goals can be Delivered through Unexpected Routes



Euro 2004 - Could Sportsmen have been Paid to Lose Games by Terrorists to Stir up Domestic Unrest?



What about Disaffected servicemen?

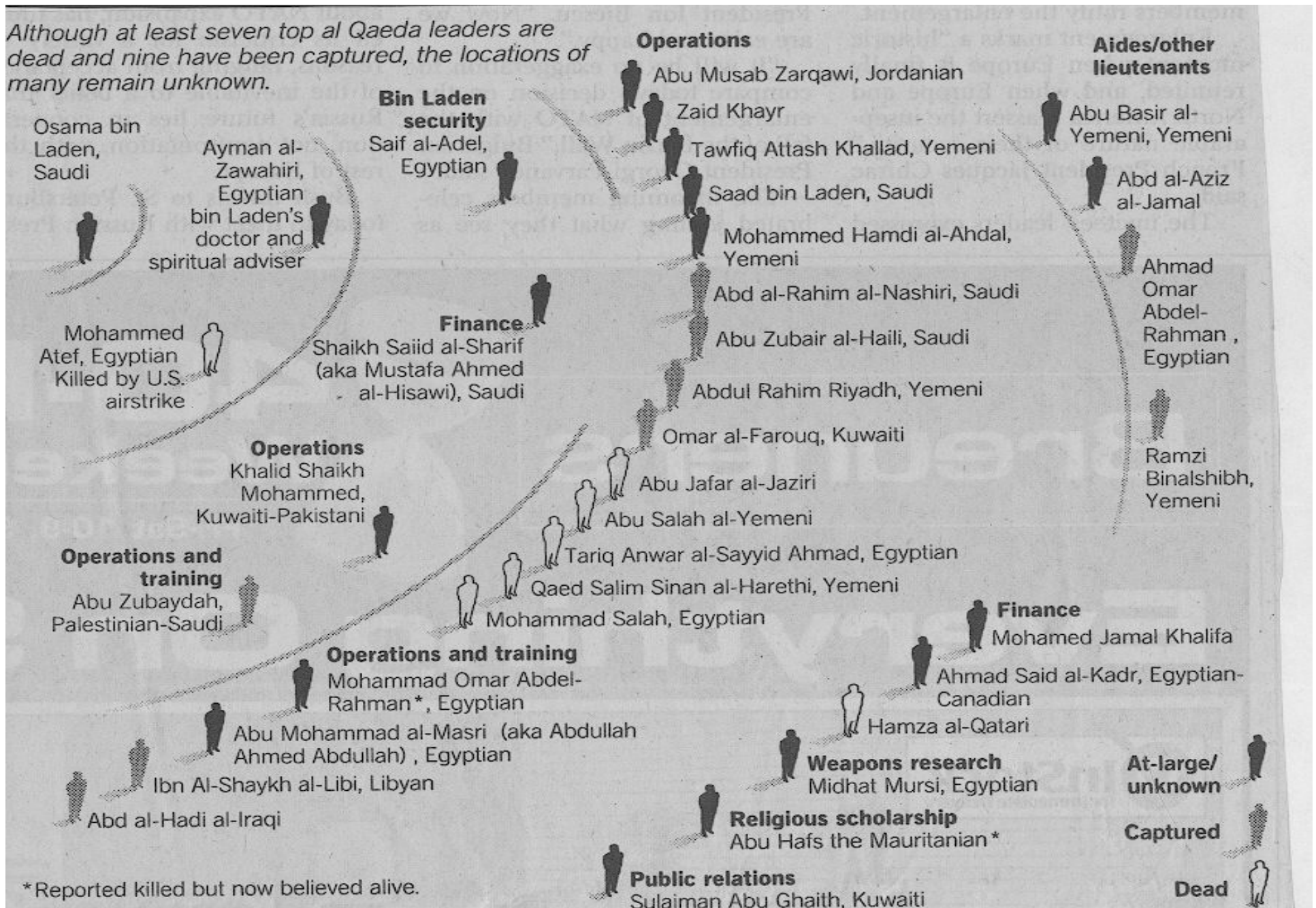


Soft targets remain a concern – e.g. schools, transport, the food chain



What lessons can we learn from Al Qaeda's organization model?

Although at least seven top al Qaeda leaders are dead and nine have been captured, the locations of many remain unknown.



... and from it's Different 'Business Model'...

Complex / 'Chaordic' Model	↔	Linear / Newtonian
Networked	↔	Organisation focused
Flexible / Adaptive	↔	Process based
Non-linear	↔	Planned and co-ordinated
Tolerant of uncertainty	↔	Crave certainty
Irrational / Illogical	↔	Evidence based
Rapid sense-plan-react cycles	↔	Variable speed of response / consensus constrained
Emergent behaviours	↔	Deliberate behaviours
Benefits / Effects driven	↔	Cost-Benefits driven
Illegal, innovative & risky	↔	Legally bound / Conservative
Relatively low tech	↔	Increasingly High tech
Instant feedback	↔	Wins not highly publicised

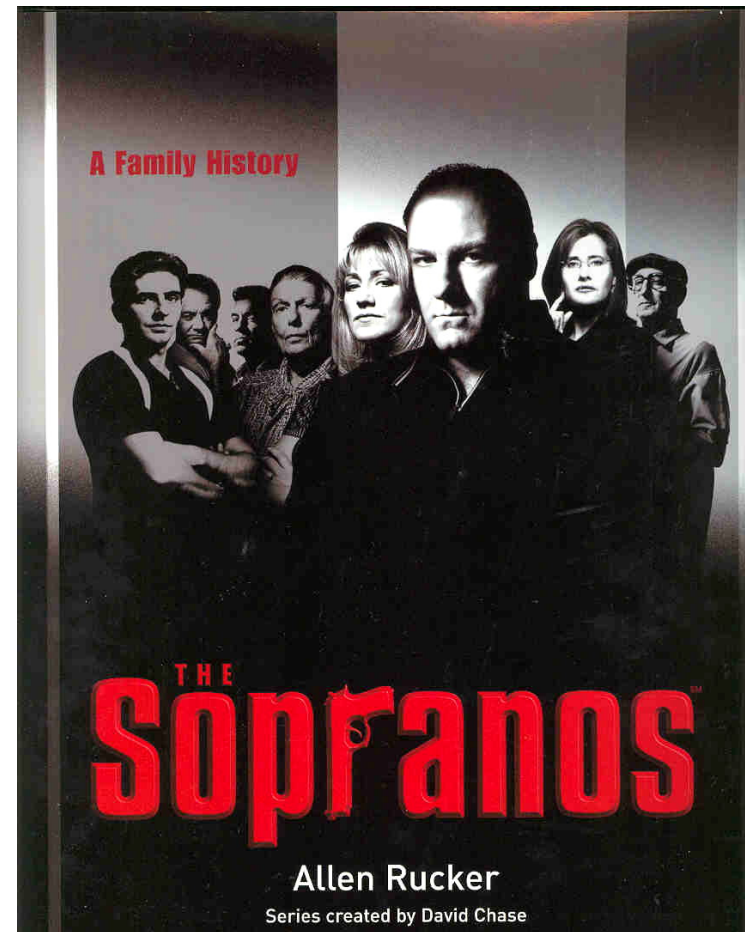
ASYMMETRIC FOES



OUR WORLD

Organised Crime more Complex and more Global in Scale and Scope

- Global organised crime industry has an estimated gross profit of \$1.25-\$1.5 trillion
- Organised crime is likely to widen in scope and increase in scale, exploiting the slowness and disjointed nature of national and international responses.
- Only rarely will organised criminals threaten overall state security.
- Organized e-crime is increasing as the Internet offers greater individual opportunities for empowered small actors to perpetrate serious crimes with disproportionately large effects.
- The scope encompasses drug trafficking, immigration crime, fraud, counterfeiting, firearms, sex crimes, kidnapping, extortion and robbery



Are international barriers to addressing global crime being removed quickly enough?

Sources: NCIS, Mi2g, UNU Millennium Project

Greater Risk of Attack

- 7/7 demonstrated our vulnerability to attacks on 'soft targets'
- Increasing ease of developing biological weapons and difficulty in determining whether an outbreak is natural or deliberate attack
- Advanced computing and biological technologies are decreasing in cost while increasing in availability, making biological and chemical manipulation easier for terrorists and criminals.
- A hostile state or terrorist could conduct an 'information systems attack' causing collapse of vital UK infrastructure, e.g. Air Traffic Control (Wild Card)
- Are we overlooking the vulnerability of high-tech systems to low-tech physical attacks - arson; flooding of facilities; physical damage to devices, cabling, air conditioning, cooling and heating systems and power networks.



Incidents of Severe Weather Disruption set to Increase

- Evidence for increased severity if not frequency
- Katrina, Rita and Boscastle have highlighted the potential scale of the risk
- In 2004 global weather-related disasters caused nearly \$105Bn in economic losses – almost twice the 2003 total
- Around 12,000 global weather related disasters since 1980 have caused over 618,000 fatalities and cost \$1.3 trillion, including \$567 Bn over the last ten years
- Environmental refugees are forecast to rise from 30 million in 2004 to 50 million in 2010 and 150 million by 2050
- Under The OST Foresight Flooding report's pessimistic scenario, by the 2080s, annual costs of damage from flooding could rise from £1 billion to £21 billion and the number of people at a high risk from flooding could rise from 1.6 million to between 2.3 and 3.6 million



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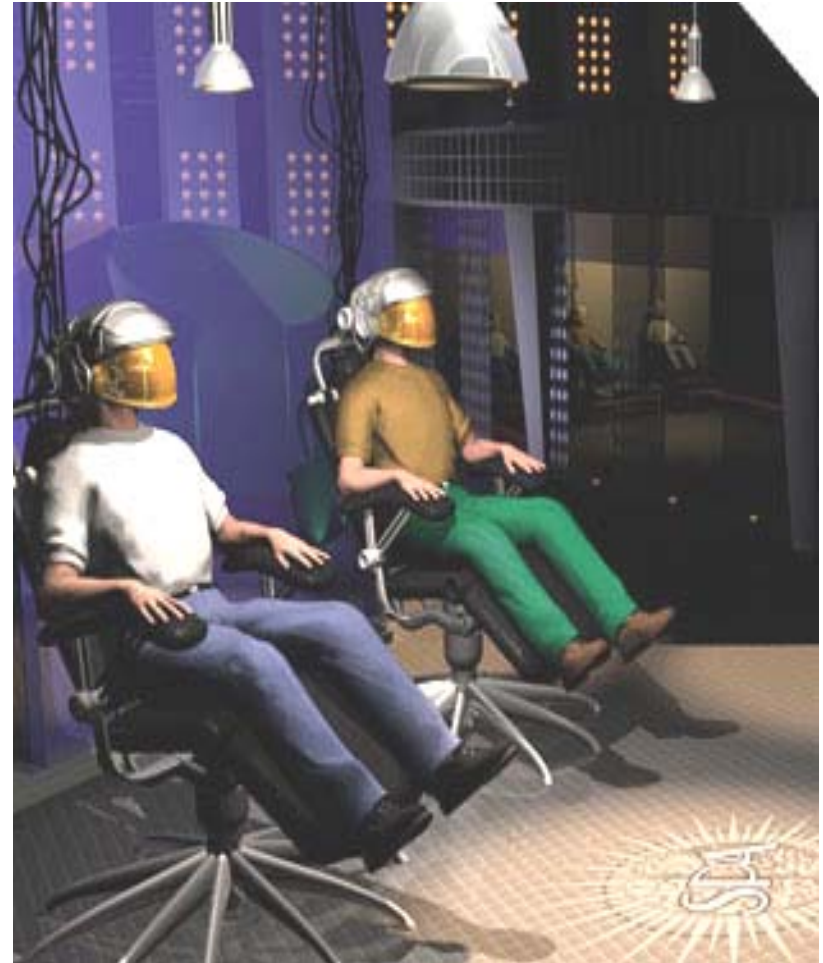
Effective Horizon Scanning

- Understand the users' decision making processes and key questions
- Experiment (and fail)
- Dexterity and diversity comes from using a range of models and analytical tools
- Develop a robust scanning database
- Look for opportunities and threats
- International networks are key



How do you Gather the Data?

- Networks
- Web logs / Newsletters / Publications / Newspapers
- Edge huggers / Counter intuitive thinkers
- Artists Groups / Writers / Creatives
- Research Papers
- Workshops
- Continuous Scanning
- Automated Scanning / Agent Technology



Typical Evaluation Criteria

- Description
- Source
- Potential impact
- Triggers & dependencies
- Indicators
- Timing (earliest impact)
- Stage of detection
- Rate of change
- Scope / reach
- Point of impact
- Certainty
- Power
- Controversy
- Vulnerability

Running HS Research – Key Learning

- **Specification** - Incorporating diverse stakeholder inputs and defining clear requirements and ‘doable studies’ is hard
- **Timescales** - The commissioning cycle from idea to contract can take far longer than expected
- **Evolution** - Need to learn and refine your HS strategy and approach based on initial project experiences
- **Research Mindset** - Many of the research community can find it hard to work on forward looking studies – discomfort with ‘out of the box thinking’
- **Capability** – Typically a lack of understanding of futures methods amongst traditional research contractors
- **Management** - Have to be prepared to monitor projects closely, be ‘hands on’ around approach and methods and encourage creativity
- **Resources** - Relatively few really capable HS / futures practitioners around at the rates governments are willing to pay
- **Relevance** - Need to consider policy maker engagement from the outset
- **Boundaries** - Fine line between providing evidence base and forming policy

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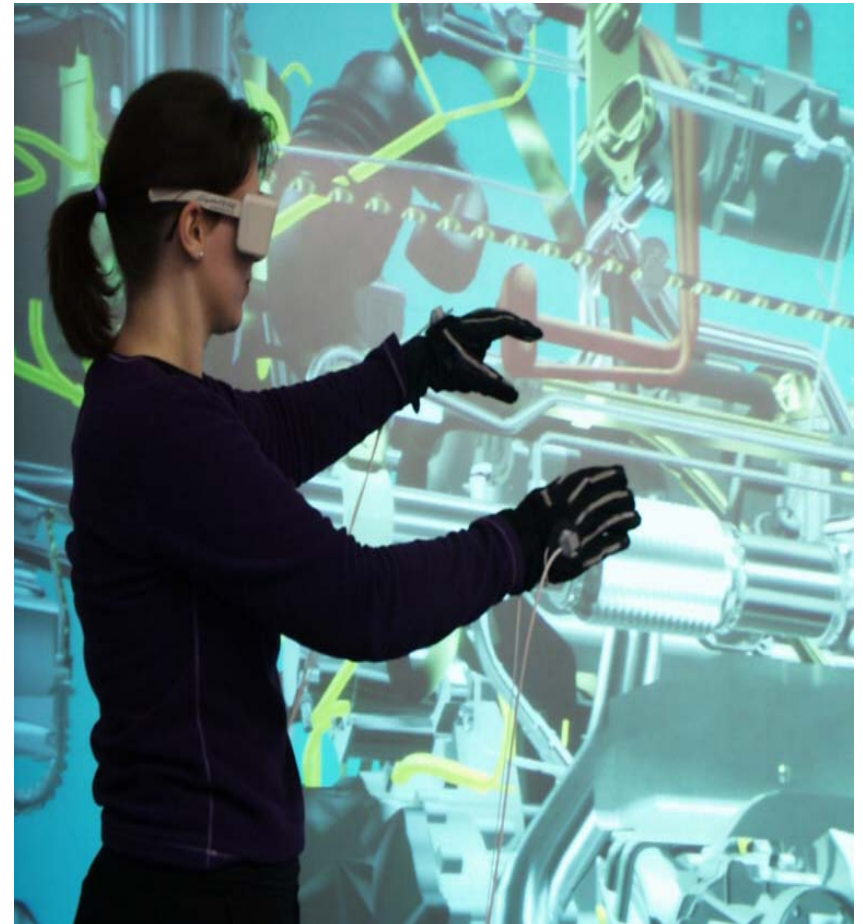
What Should Singapore do?

- Establish a Centre of Excellence for Risk Assessment and Horizon Scanning
- Develop expertise in a range of analysis and application approaches
- Leverage the expertise across government
- Look at a range of time horizons



Creating Deep Ownership

- Emphasis on working with Policy and Operational areas to learn how to address their needs and embed RAHS
- Create a top level steering group to ensure policy alignment
- Establish a core of users to act as a design board



Fast Future Clients

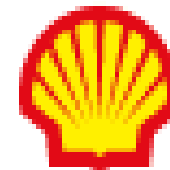


Deutsche Bank



BAE SYSTEMS

venturesphere



MARKS & SPENCER | Financial Services



PRICEWATERHOUSECOOPERS

HALLIBURTON

IceTek

*berwin leighton paisner

Hurel Hispano



NOVARTIS



THE ACADEMY FOR CHIEF EXECUTIVES



Thank You

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