Annex A: The Multiple Futures Project Methodology

The Multiple Futures Project (MFP) is not intended to predict the future of 2030, but to create a basis for strategic dialogue about future challenges, their relative nature and gravity, and about how the Alliance should respond to these challenges. It focuses dialogue on the fundamental question - what are the future challenges that could pose risks to the interests, values and populations of the Alliance?

Accordingly, it is open, transparent, inclusive and able to process the widest spectrum of inputs objectively and comprehensively. The MFP is designed to provide NATO's political leadership with a clear understanding of future challenges to support strategic dialogue. It was built on a solid foundation of national, NATO and other international organizations' work and developed and nurtured through extensive consultation across the Alliance. More than 20 workshops and strategic engagements were conducted as well as the direct engagement of representatives from 45 nations and more than 60 institutions representing political, military, civil and economic expertise.

BACKGROUND

In accordance with his mission to conduct strategic level operational analysis concerning the type and scale of future capability and interoperability requirements[1], Supreme Allied Commander Transformation directed the development of an intellectual framework that would address growing concerns about the need to properly identify and prioritize real security challenges the Alliance may face, along with their corresponding implications. That intellectual framework provided the foundation for the Multiple Futures Project.

The focal issue of the project was defined as: "in 2030, what are the future threats and challenges that could pose risk to the interests, values, and populations of the Alliance?"

[1] MC 58/3, Terms of Reference for the Supreme Allied Commander of Transformation-SACT, paragraph 1b

OBJECTIVES

The objectives of MFP were to establish and maintain a continuous military-strategic dialogue and to build an intellectual framework that leads to the development of the best possible military advice on the focal issue. For the purpose of this study, military advice should be understood as credible deductions, assessments and implications of a military nature, drawn from both the strategic dialogue and the analysis capacity of the project team.

As a starting point, ACT went into a continuous exchange of forward-looking perspectives, viewpoints and studies/projects between the ACT MF team and Alliance Nations, expert national institutions and the NATO leadership to generate questions and ideas. In addition, the team established contacts and networks with nations, strategic-thinking institutions, universities, national experts and other individuals, leading to the building of corporate knowledge within HQ ACT.

PROJECT APPROACH

In an organisational context, where uncertainty is high, an approach that systematically creates and describes possible outcomes or "Futures" is effective. Futures are tools that are used to help form a shared vision while exploring different ways the future might unfold. A future tells the story of the world that has yet to be realized. But *the* future is not set. That is why the MFP is about more than one possible future. It reveals four equally plausible futures for the year 2030. Each of these futures is relevant and of interest to NATO because each contains a varied set of security and military challenges against which potential strategy or policy can be considered.

The name "Multiple Futures" implies that ACT aims to propose several futures to support the Alliance's strategic dialogue about the possible implications of various plausible future security environments. Futures are tools for ordering one's perceptions about alternative future environments in which today's decisions might be played out. In practice, futures resemble a set of stories, written or spoken, built around carefully constructed plots. The rationale for using futures is to:

- Stimulate alternative thinking by challenging existing perceptions, dealing with uncertainty and disagreements about the future, providing input to strategic direction, and enable long-term multi-discipline engagement.
- Enable better understanding of the environment by identifying change, trends, driving forces, discontinuities and challenges, communicating the challenges and enhancing perception.
- Provide "wind tunnels" for strategies by evaluating robustness and identify strategic options in order to help developing skills and structure to deal with the uncertain future.

METHODOLOGY

There are different "schools" and methods for how to develop futures. Some rely strongly on quantitative techniques and simulation, while others are qualitative and positioned in the area between science and art. The MFP developed futures based on the latter category. Initially, a six step model – as described by Peter Schwartz[2] has been selected as the baseline:

1. Determine the focal issue
2. Identify trends and drivers
3. Develop plausible futures
4. Finalise drivers
5. Flesh-out futures
6. Derive key challenges and implications

This model was then adapted to meet the requirements of this study and is referred to as the Multiple Futures Intellectual Framework.

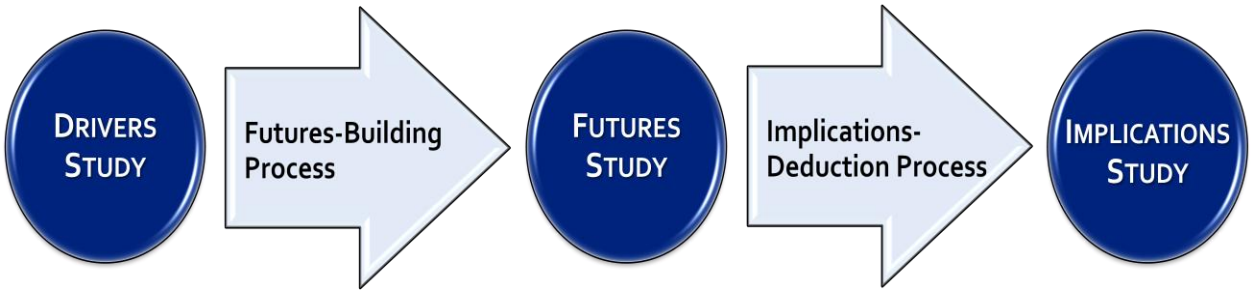
[2] Schwartz, Peter. *The Art of the Long View*. Currency Doubleday: New York, 1991.

MF INTELLECTUAL FRAMEWORK

The intellectual framework was designed to look to and discuss the future in a coherent and structured manner. It balanced sophistication and simplicity in order to adequately capture the complexity of the problem, reflect the intellectual rigor of the processes employed and be saleable to its intended audience. Decision makers will engage in strategic dialogue and build a shared vision of the future only if the framework is convincing and supports strategic dialogue by laying out the systematic process that was followed in an easily understandable manner.

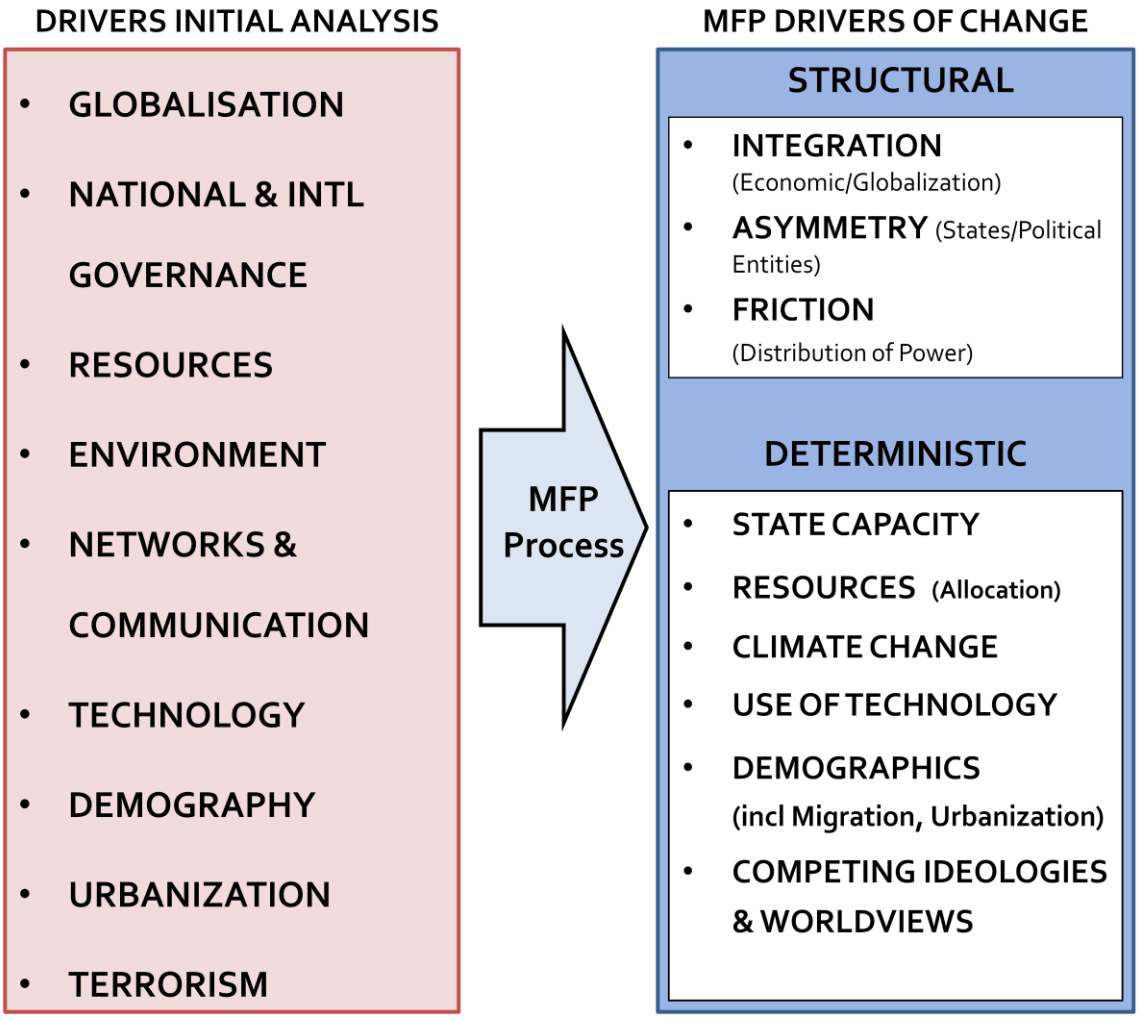
The MFP employed a traditional approach of gathering inputs via round table discussions and workshops to build a body of knowledge that was developed through an iterative process of engagement and analysis. Quantitative and qualitative data and perspectives for each of the project components and processes were drawn from the Alliance's vast networks of knowledge. Conclusions drawn from these developmental discussions were used in a continuous process to elaborate and refine drivers, build futures, and ultimately deduce implications.

The framework contains three major components: a driver study, a futures study and an implications study. These components are connected by two processes: the futures building process and the implications deduction process. Components as well as processes are explained in detail in the appropriate sections of this report. However, an overview is required to understand the overall methodology.



DRIVERS

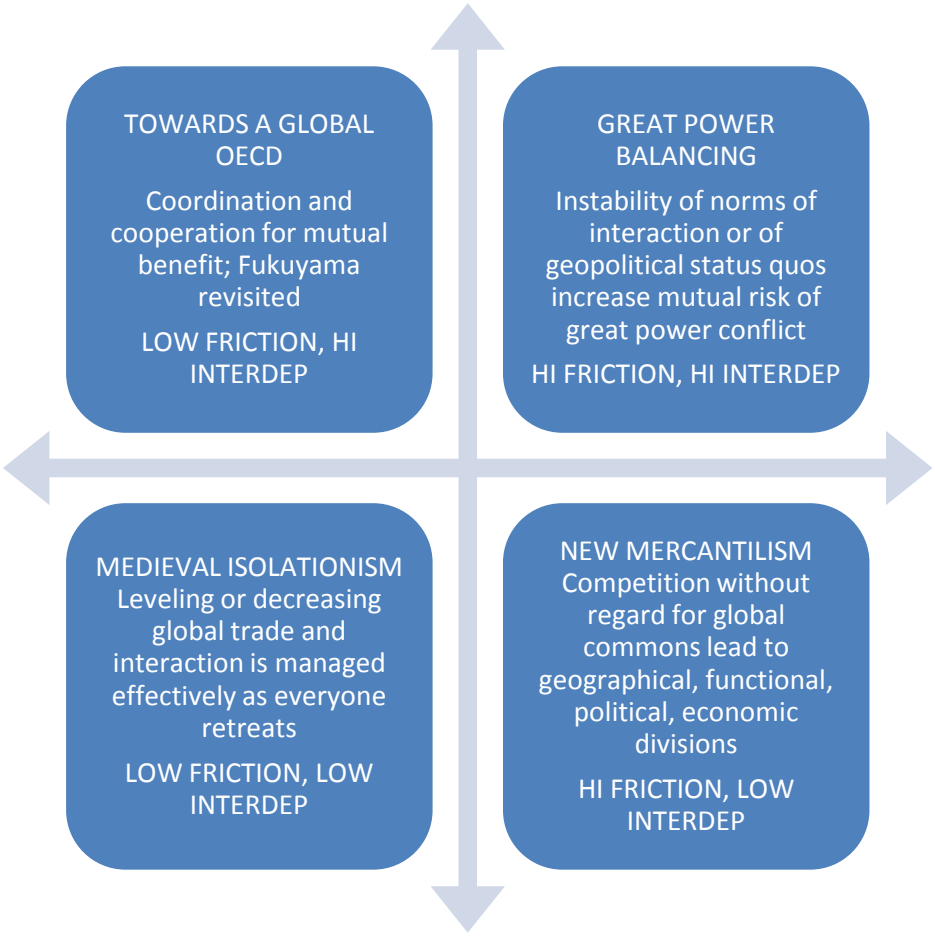
The *Driver Study* is a detailed analysis of existing future security environment studies that led to a preliminary list of drivers. This initial list was discussed during roundtables and workshops, which helped in developing a final consolidated list of drivers, which were assessed for impact and uncertainty against the focal issue.



FUTURES

The initial stage of the *Futures Building Process* examined various two-dimensional combinations of the leading drivers. The starting point of the box – power and money – expressed as politically dependent friction in decision making and interdependence as integration of economies through trade, in itself depicts the possible dynamics of relations between states.

The grid matrix depicts four different situations depending on the intersection of these two drivers. For example, the upper-left quadrant that exemplifies a world with low friction and high interdependence could be referred to as "Towards a Global Organisation for Economic Cooperation and Development (OECD)", where the international system is defined by significant coordination and cooperation for mutual benefit with a generally harmonious interaction among



actors.

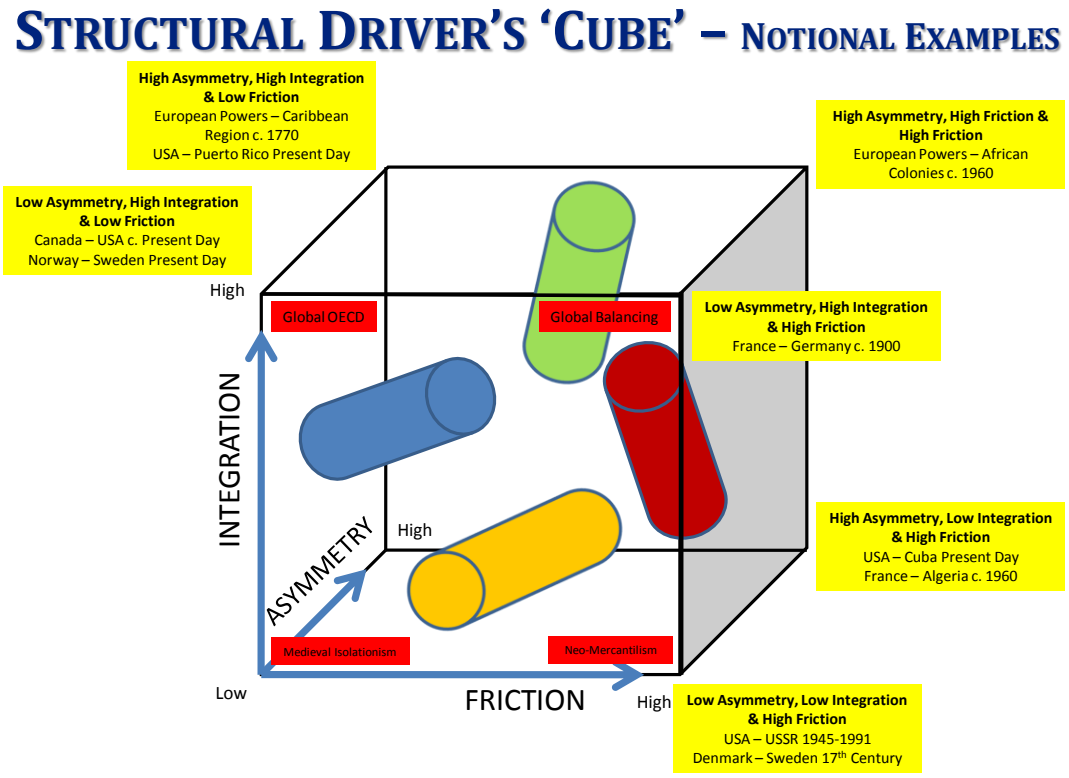
After numerous iterations of driver combinations, the *Futures Building Process* determined three structural drivers that are essential in defining the international system – economic integration, asymmetry of power, and friction in decision making. These structural drivers formed the world-building framework, usually referred to as "the box" throughout the project, within which six high impact and high uncertainty long-term drivers were combined and intersected.

In principle, the box is valid in different historical periods. Various combinations of the structural drivers will lead to widely disparate characterizations of the international system and historical examples can be illustrative in this regard. Moreover, there will often be elements of these structural drivers that exist simultaneously, such that these components may be mutually exclusive, but also aggregately comprehensive. For example, the bipolar international system that persisted during the Cold War from 1945 to 1991 can be seen as a low asymmetry, low interdependence, and high friction situation with respect to the superpower confrontation between the United States and Soviet Union. However, during the same time period the situation between the European powers and their African colonies could be described as high asymmetry, high interdependence, and high friction. Thus, a thorough understanding of the general context of the situation is extraordinarily important before additional "deterministic" drivers are introduced into the framework.

The Multiple Futures Project deals with the possible threats and challenges that will face the Alliance in 2030, and as a result the leading drivers were selected in terms of their likelihood and impact. The four futures are fleshed out with the deterministic drivers using the structural drivers as a backdrop against which to test and locate the futures.

The box in effect describes which kinds of relations are possible in a given situation in the international system between states, groups of states, or other major actors. Each point within a box is a kind of bilateral international relation determined by three vectors (friction, integration, and asymmetry). This is a crucial aspect, as these major kinds of relations define the potential and possible outcomes within a given future. In other words, these relationships enable a description of an overall space in international relations.

Consequently, all the four futures can be placed within this three-dimensional space. The futures were designed to be mutually exclusive in terms of the three dimensions and the box acts as a kind of quality control. It demonstrates that the futures aggregately account for – or take up – much of its space.



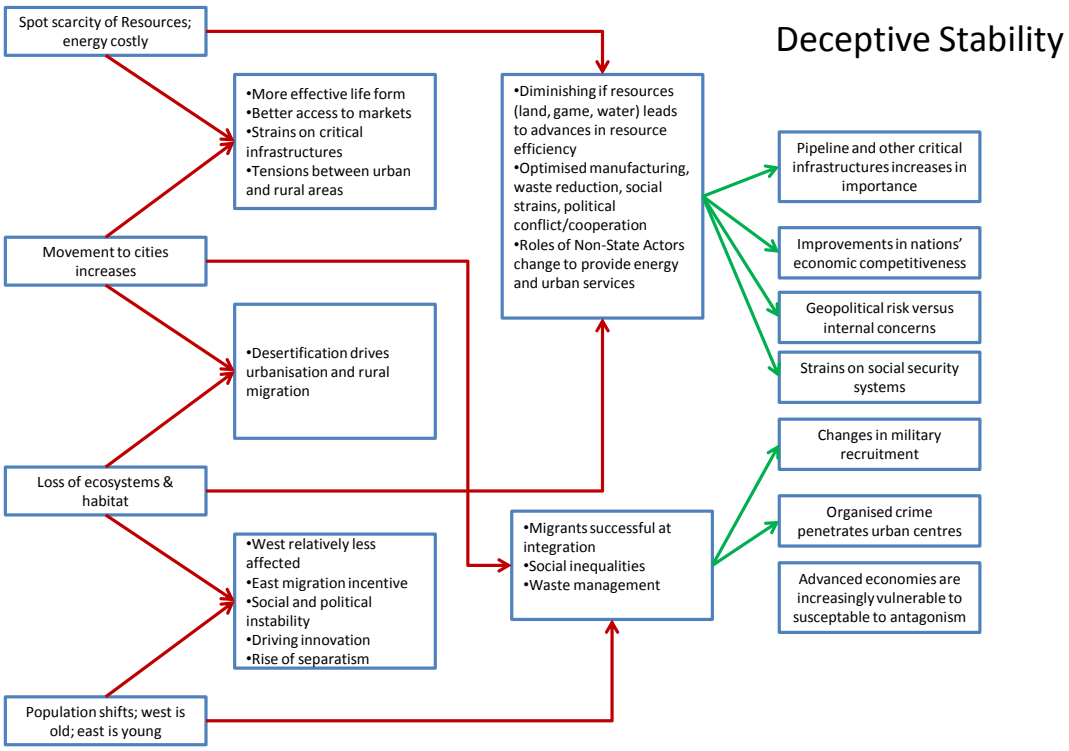
The futures are thus mutually exclusive in terms of the fundamental dimensions of the box. However, this concept of mutual exclusivity is inaccurate with respect to the likelihood that one of the futures will end up as *the* future; rather it is likely that elements from all four of the multiple futures will be present in the actual global environment of 2030.

The fundamental challenge arising from looking at all four futures concurrently is that vulnerabilities – opportunities for possible opponents – will arise from poor planning and anticipation. An effective plan that accounts for all four futures also shapes the possible choices for future opponents, including averting them from

becoming hostile. The position of the futures in the three-dimensional box demonstrates that each of them has positives and negatives with varying degrees of stability. The box then serves a continuous reminder that choosing one particular future – or future environment – as a primary motive for security or defence planning runs the risk of overlooking at least one of these dimensions and potential corresponding future security environments.

The *Futures Study* then synthesized four plausible futures. These futures are based on different drivers with different levels of influence, but were designed to be aggregately comprehensive, representing the likely challenges facing the Alliance in 2030. However, there are elements that are common to more than one future. The futures study attempted to create plausible futures that were mutually exclusive, but there are instances where a characteristic of one future might be found in another, which makes the overall context of each future another important consideration. Each of the futures provides a backdrop for conceptual analysis – a canvas on which to work through the risks, threats, potential strategic surprises, implications and opportunities.

The following graphic is an example of the analytical work involved in the synthesis of a plausible future, in this case *Deceptive Stability*. For example, what happens in a situation where resource scarcity is coupled with increased urbanization? Moreover, what are some possible implications that can be derived from such a future? The final section of this methodology annex discusses the *Implications Deduction Process* in greater detail, but for the purposes of the *Futures Study*, is it important to gain a thorough understanding of how the various drivers interact to form a plausible "future". In other words, the defining characteristics of a certain future must be understood before potential security and military implications can be deduced from it.

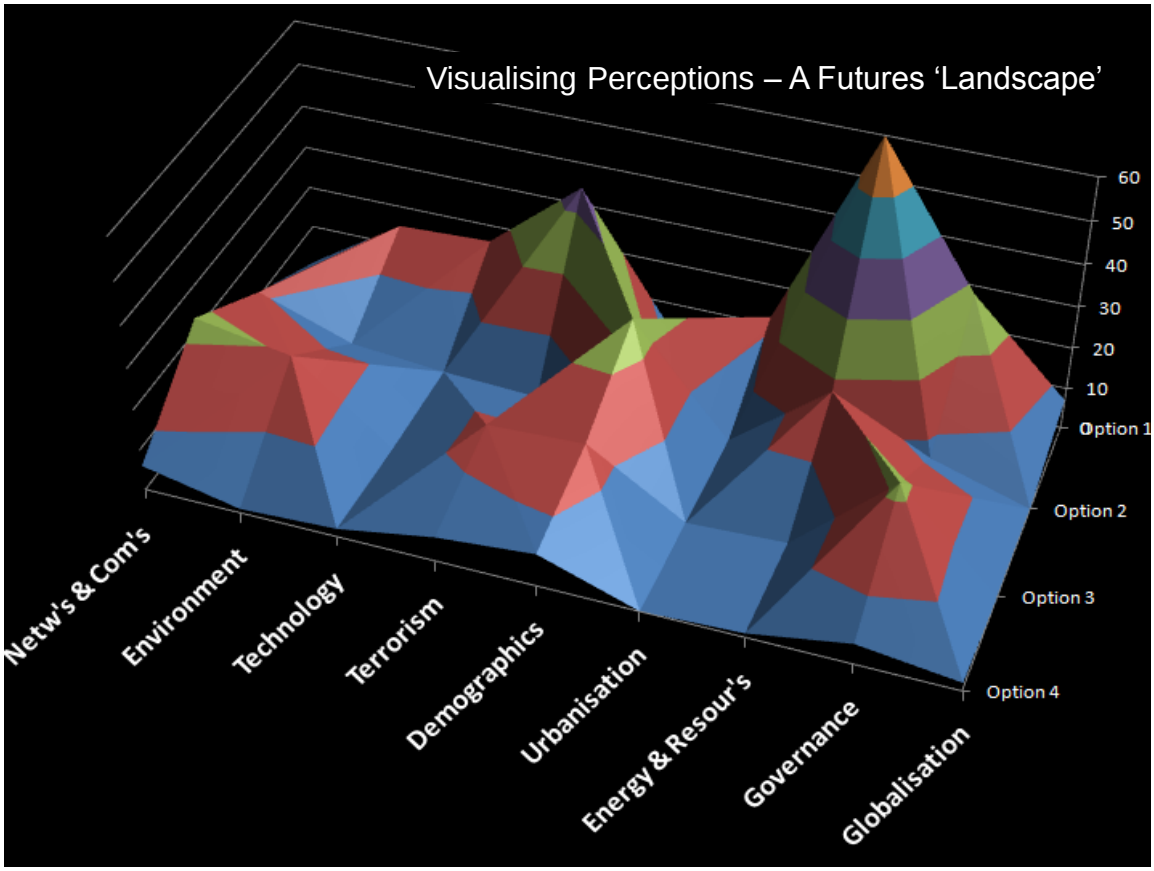


FUTURES LANDSCAPE

One of the primary components of the futures study was the development of the Futures Landscape to visualize broad perspectives through the utilization of morphology exercises in MFP events. The driver ranking analysis and affinity analysis reflect the connection between drivers, whereas the three-dimensional construct provided a framework to consider bilateral and multilateral relationships among the drivers related to friction, interdependence and asymmetry. In addition to these components, the landscape is a useful tool to craft MFP futures.

The MFP started with a broad analysis incorporating a wide variety of studies from Alliance nations and international organisations related to the future security environment. A meta-analysis of this body of work revealed nine key drivers that were both common to all and considered important by all. The nine key drivers were developed through qualitative and quantitative analysis in each of the MFP

events during the first phase of the project. In the figure below, drivers make up the main base or x-axis. The other base, or y-axis, reflects the breadth of potential outcomes for each of the drivers (e.g., what will happen with globalisation in 15 – 25 years). The vertical axis indicates the frequency of responses for a particular outcome of a specific driver.



If we jump from peak to peak in order to describe a future, we are in essence describing the dominant or shared future in which there is broad consonance. Clearly, it would be human nature to focus only on the dominant future, particularly where some drivers, and the trends that they are linked to, are fashionable and reflect present concerns. We must be careful not to be blind of those other areas, where there is useful disagreement or areas which have not gained much attention. It is from these areas that surprise is most likely.

If we were to ‘surf’ the medium level areas (in red) we find diverging views competing for attention. This is a very interesting region, particularly from the regional perspective. It can reflect the relative importance of different drivers in the various regions of the Alliance. It is very important to be able to reflect, observe and consider the dissonances in the writing of futures.

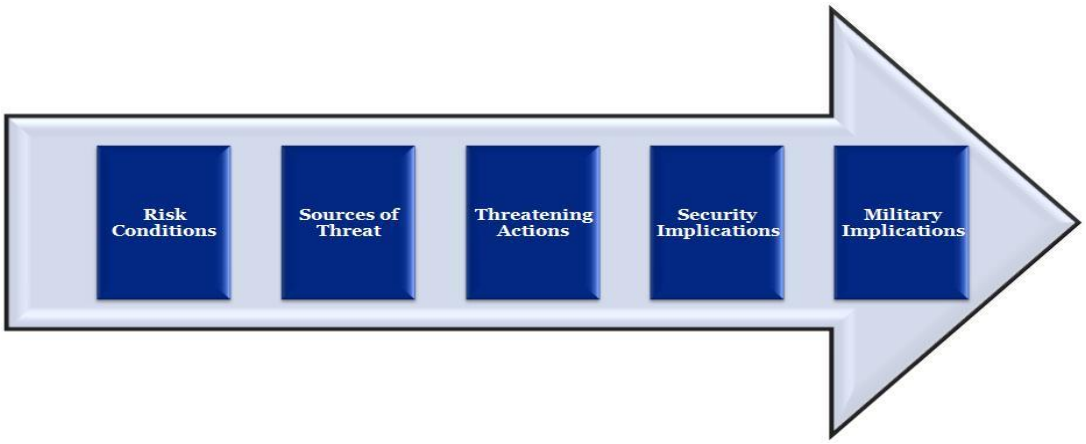
If one were to “walk the valleys”, these are the potential high-surprise areas – reflecting the silence of expectation. These high-surprise areas are captured in the concept of a “black swan” coined by Nassim Taleb, which is used to characterise a large-impact, hard-to-predict, and rare event beyond the realm of normal expectations, such that a “black swan” is a strategic surprise. One could argue that “black swans” nest in the valleys. Accordingly, it would make sense to carefully sign-post the valleys and understand how the Alliance might “sense and respond” to surprises from the valleys. This is a “maintain the alert” situation which, as an example, could require high alert capability, quick response, and high readiness forces.

It is the whole of the landscape, not just the peaks that are important to the MFP discussion. There are no “winning” futures and this approach starts to show us that in moving towards implications, the focus should be on the management of risk. Risk is associated with a future, not a single point on the landscape. Thus, in taking the landscape into consideration, we must assess and understand the social, natural and political nature of risks rather than to try and simply project possible military threats.

Uncertainty means that aggregate risk associated with a future is higher than the risk from single-order implications derived directly from drivers. Accordingly, the MFP must focus on aggregate risk. Arguably, an assessment of the aggregate risk found by intersecting drivers is the key value added by the Multiple Futures Project.

IMPLICATIONS

The *Implications Deduction Process* assessed each future against the focal question and a specific risk condition to identify and understand potential risks, threats, and security and military implications.



Finally, the *Implications Study* is a detailed analysis of those initial findings that yielded a consolidated assessment of security and military implications for the Alliance. The MF Interim Report of December 2008 focussed on the security implications deduced during this phase of the project, whereas the commander's assessment in this final report is based on the military implications that were developed and refined during the final phase of the MFP.

Annex B: Quantitative Driver Analysis

WORKSHOP DRIVER ANALYSIS

Driver Ranking

Purpose:

The driver ranking analysis was conducted to support the Multiple Futures Project (MFP) core team's work on the development of drivers and futures. This effort was designed to provide the MF Team with a sense of what drivers the workshop participants felt were most important for the future.

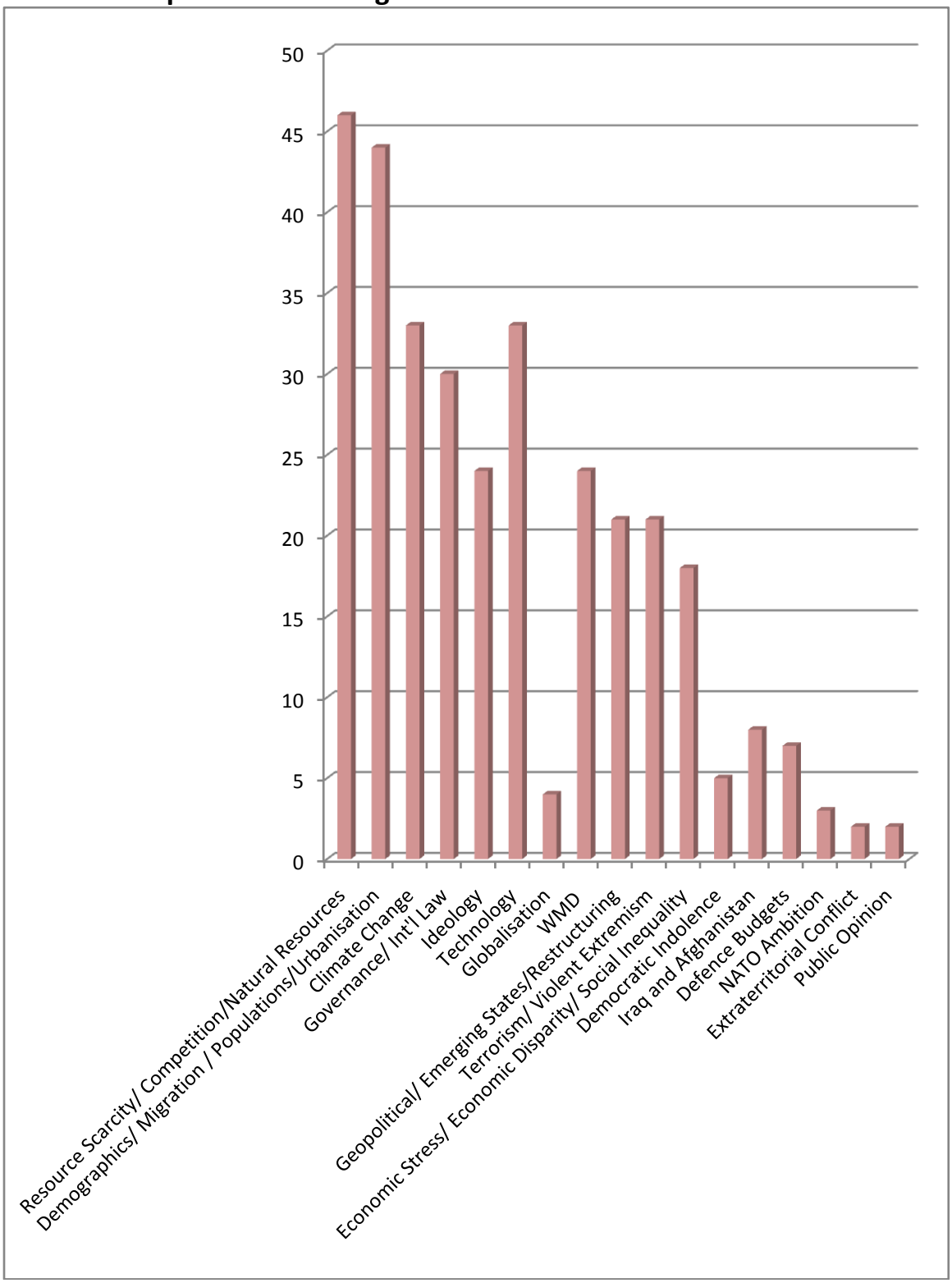
Result:

The histograms that follow demonstrate a generally consistent pattern in the highest ranked drivers with the exception of the Budapest Workshop. Whether this is attributable to the Eastern European composition (in contrast to the Western European composition of the other workshops) or the smaller sample size of the workshop cannot be determined.

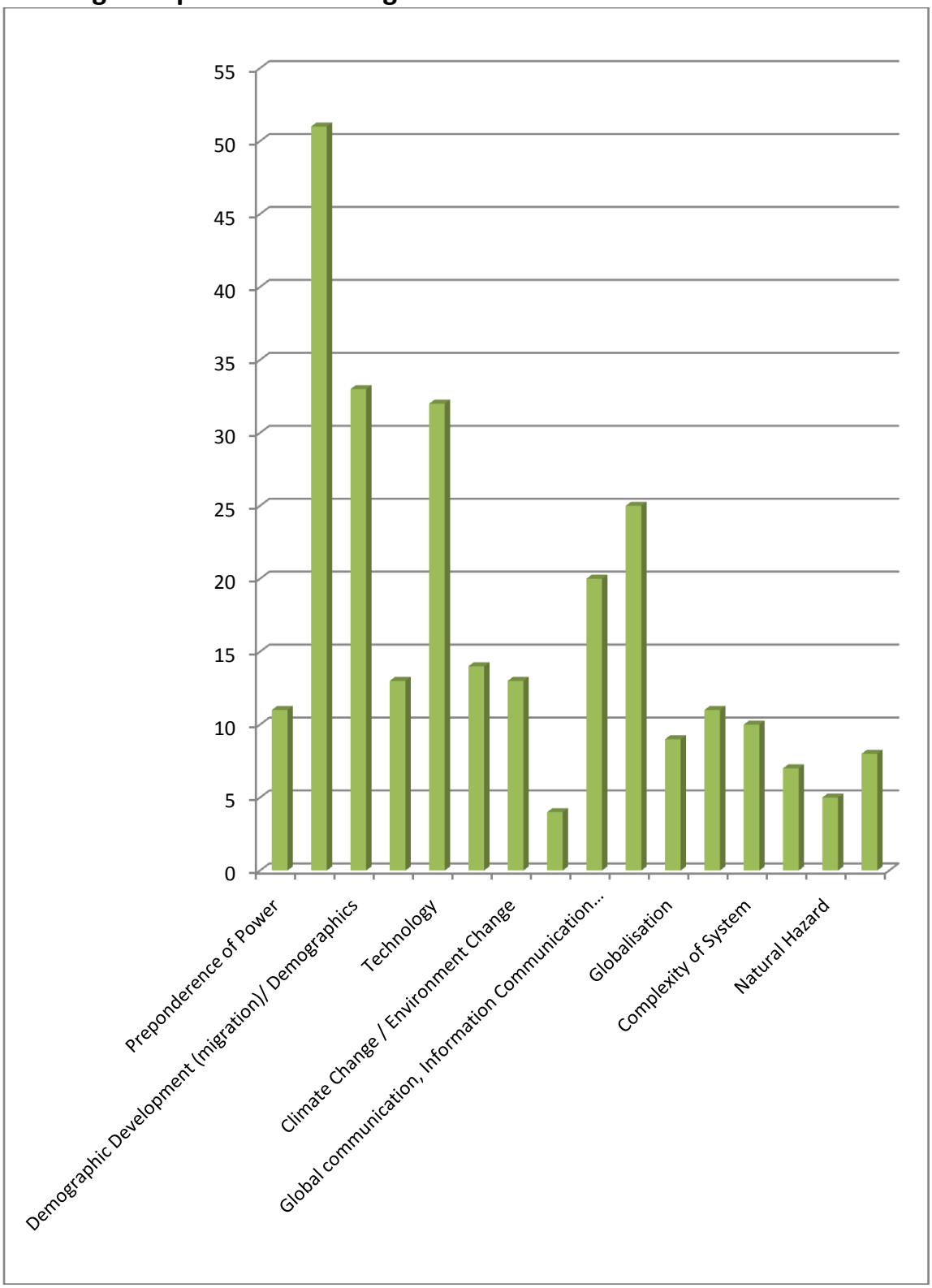
Method:

For each event the results of each syndicate were compared and categorised. The results were scored for driver ranking by each syndicate and also for the plurality of the driver. The results were aggregated and displayed in histograms.

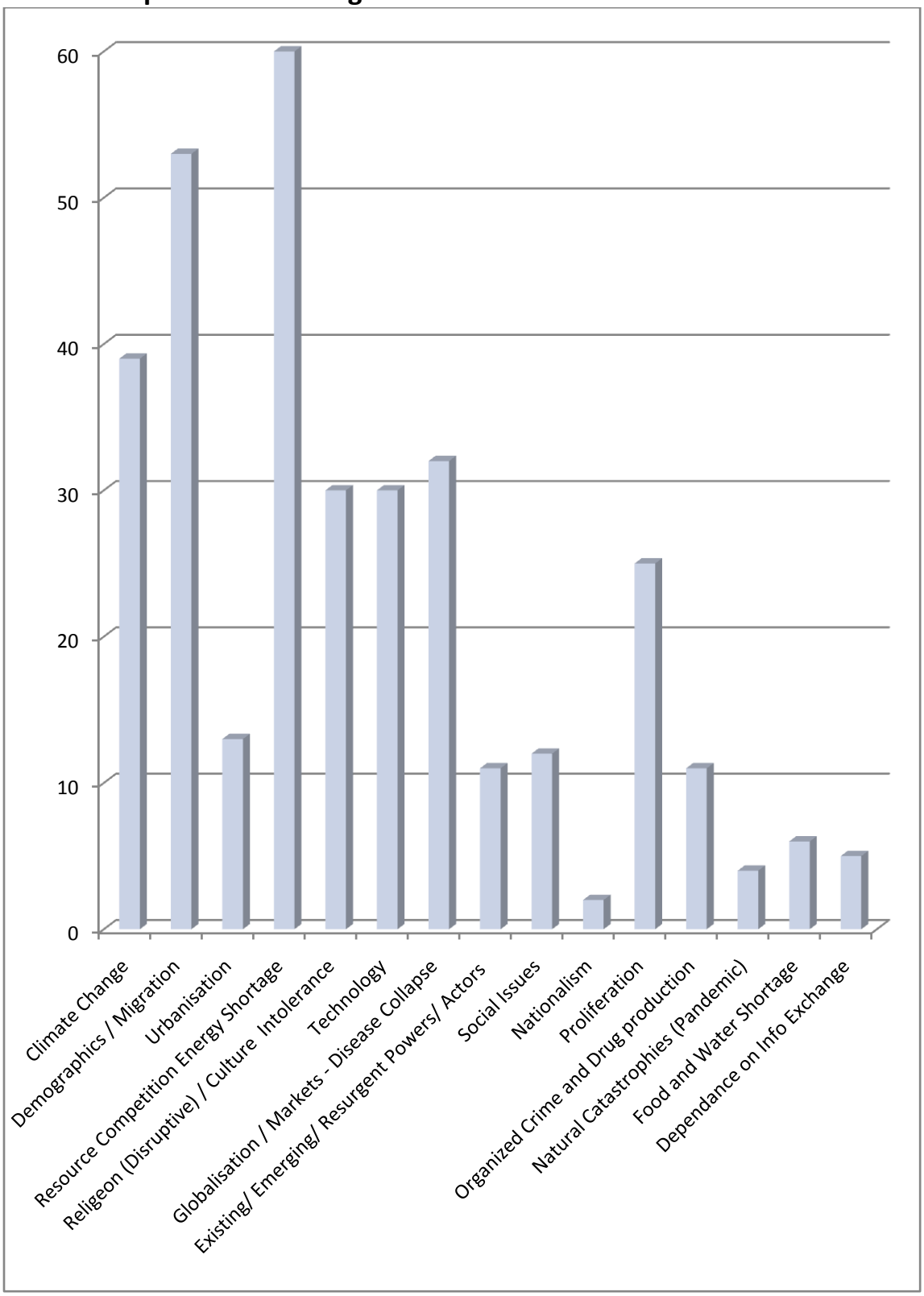
London Group Drivers Ranking



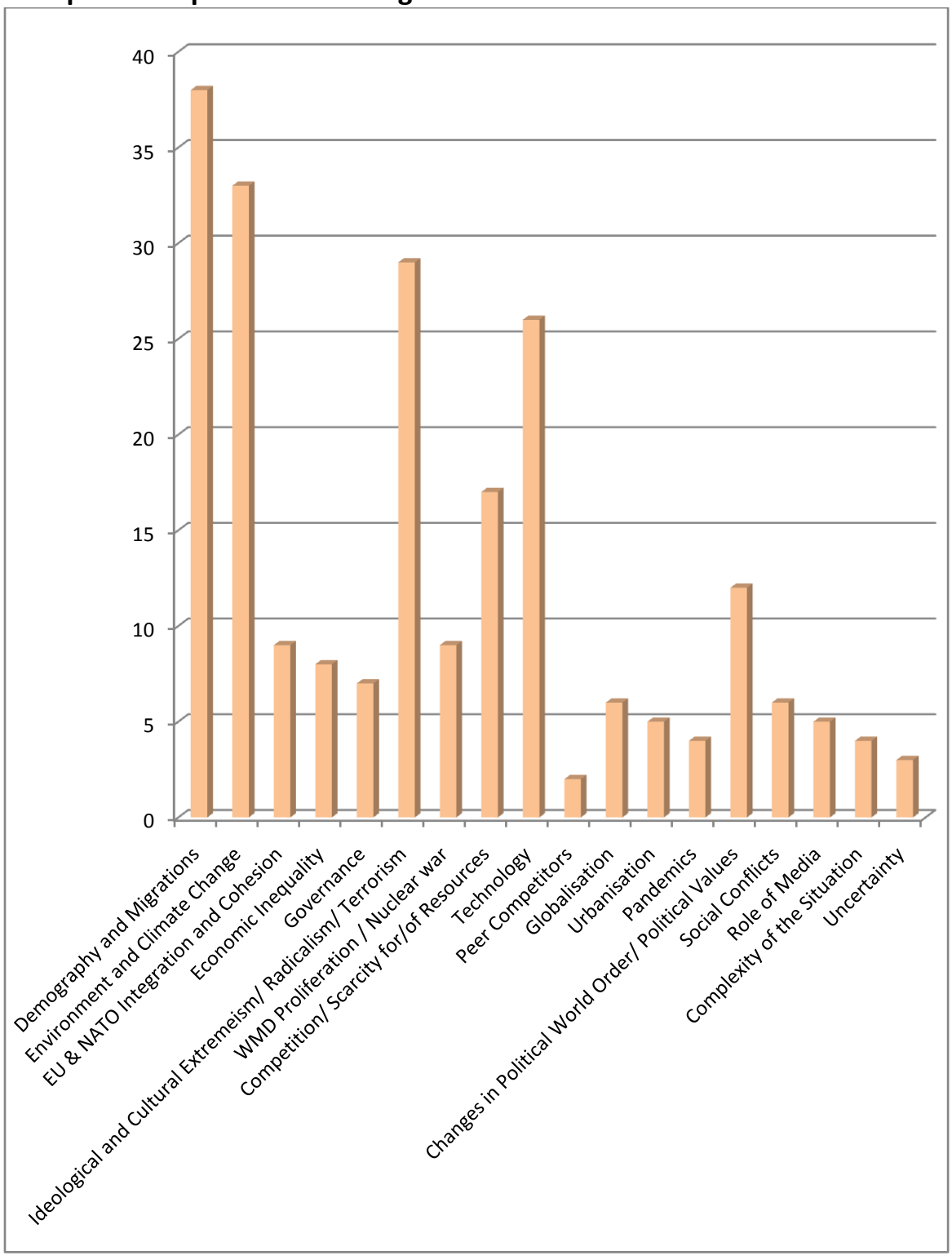
Den Hag Group Drivers Ranking



Berlin Group Drivers Ranking



Budapest Group Drivers Ranking



Driver Uncertainty Analysis

Purpose:

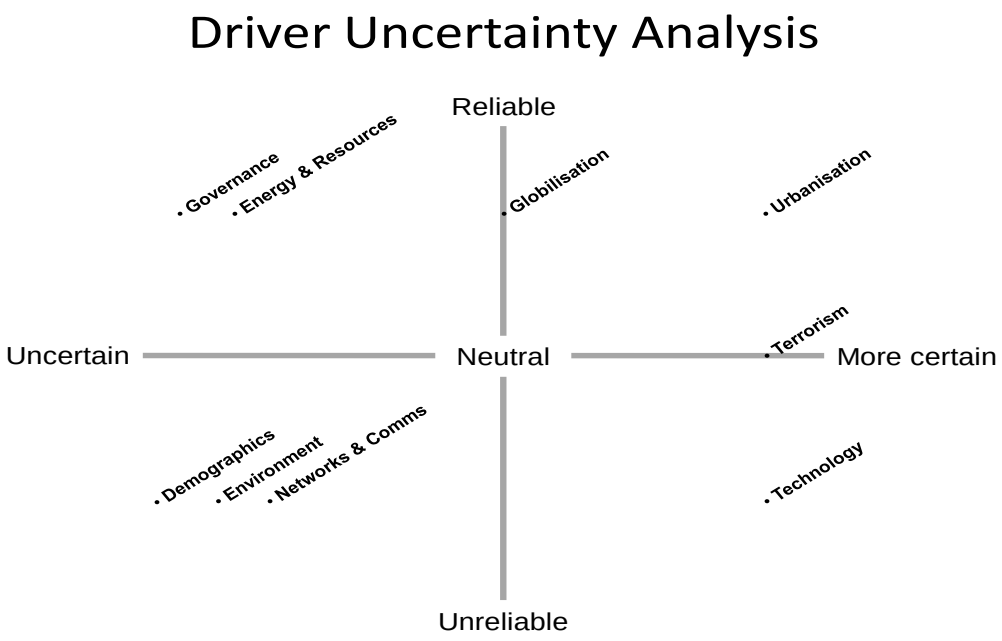
The driver uncertainty analysis was conducted to support the MFP core team's work on the development of drivers and futures. This analysis examines the uncertainty of each driver to provide the MFP team with an idea of what workshop participants felt were the uncertain drivers for the future.

Results:

The driver uncertainty results are depicted in one chart. There were two drivers that were assessed as uncertain with reliable analysis. These two drivers are recommended as the starting point for a two-axis analysis.

Method:

The uncertainty was analyzed by examining the "bandwidth" of the most likely (Table C) analysis. The reliability of the result was measured by examining the exclusivity of the morphology table options because some of the options for various drivers contained significant overlap. Thus, the plurality of selection could be attributed to the design of the table rather than the uncertainty of the driver.



Driver Likelihood and Impact

Purpose:

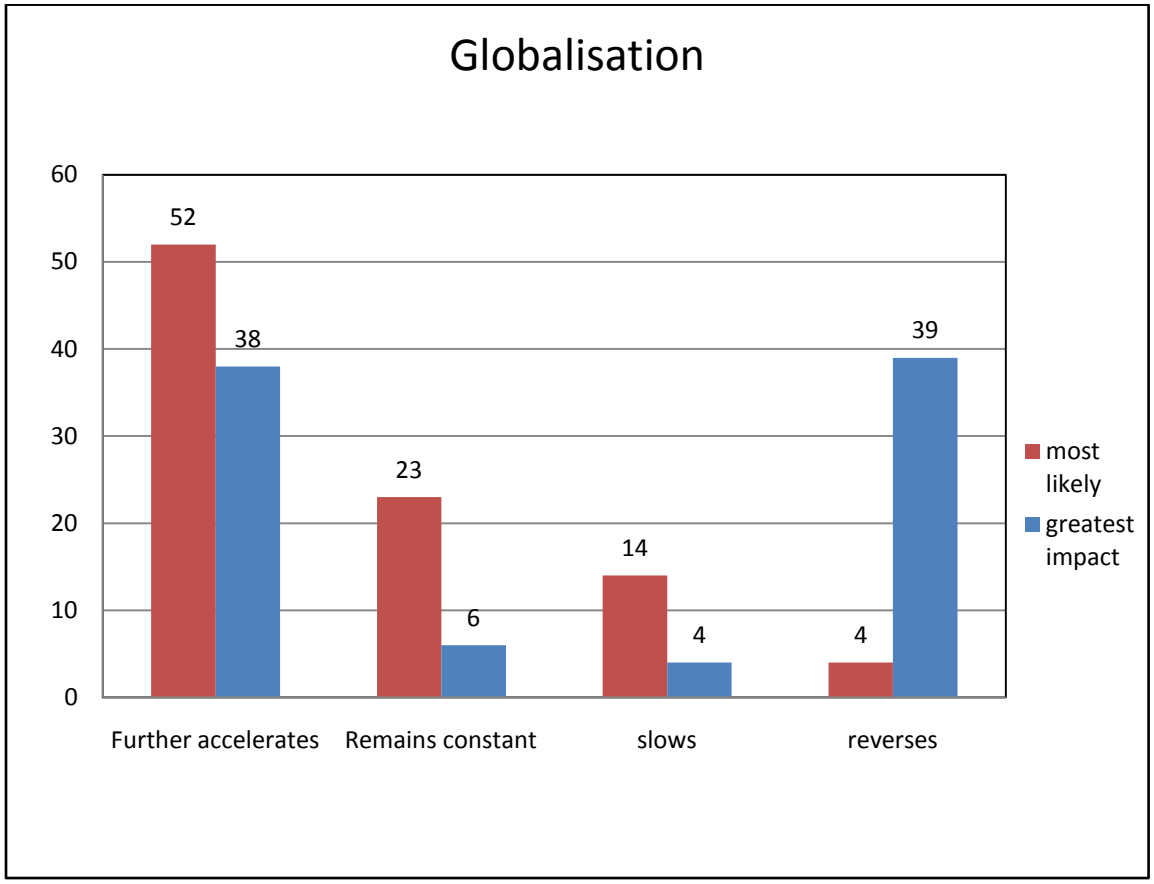
The driver likelihood and impact analysis was developed to support the MFP core team's work on the development of drivers and futures. This analysis was designed to assess the judgement of the workshop participants as to the likelihood, impact and "bandwidth" of each driver. Bandwidth can be defined as the plurality of selections from table C and D (Likelihood and Impact) for each driver.

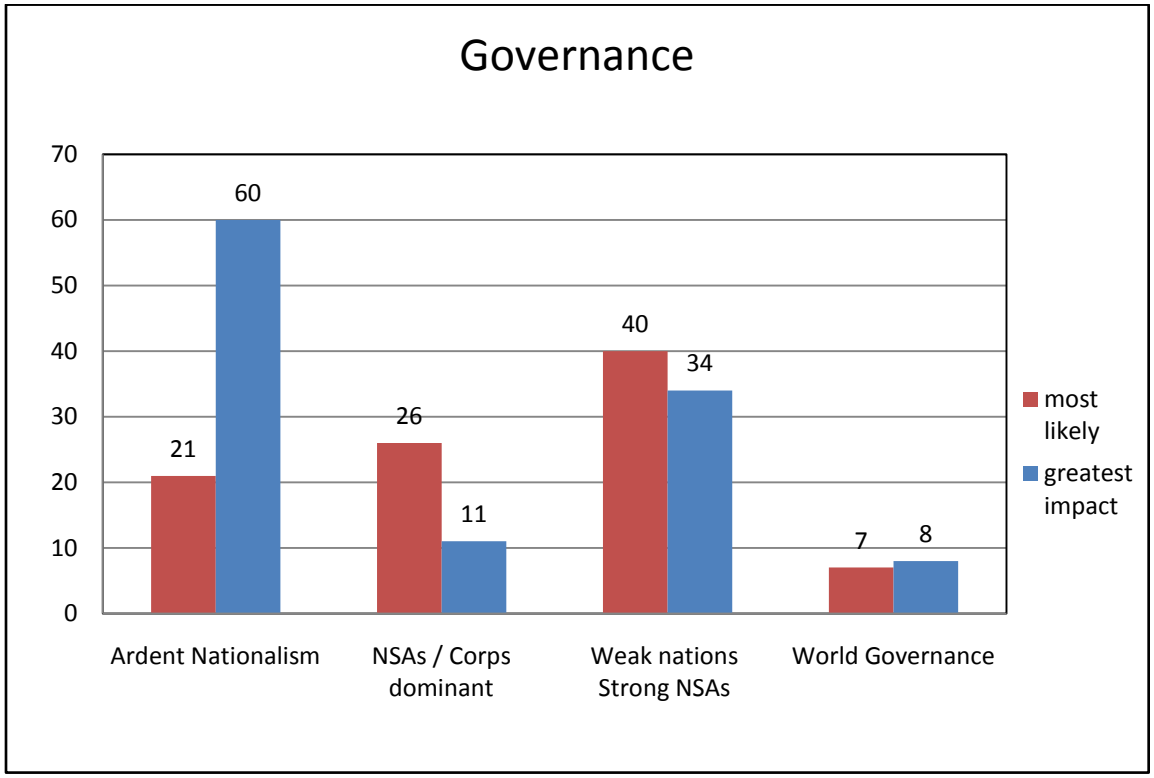
Results:

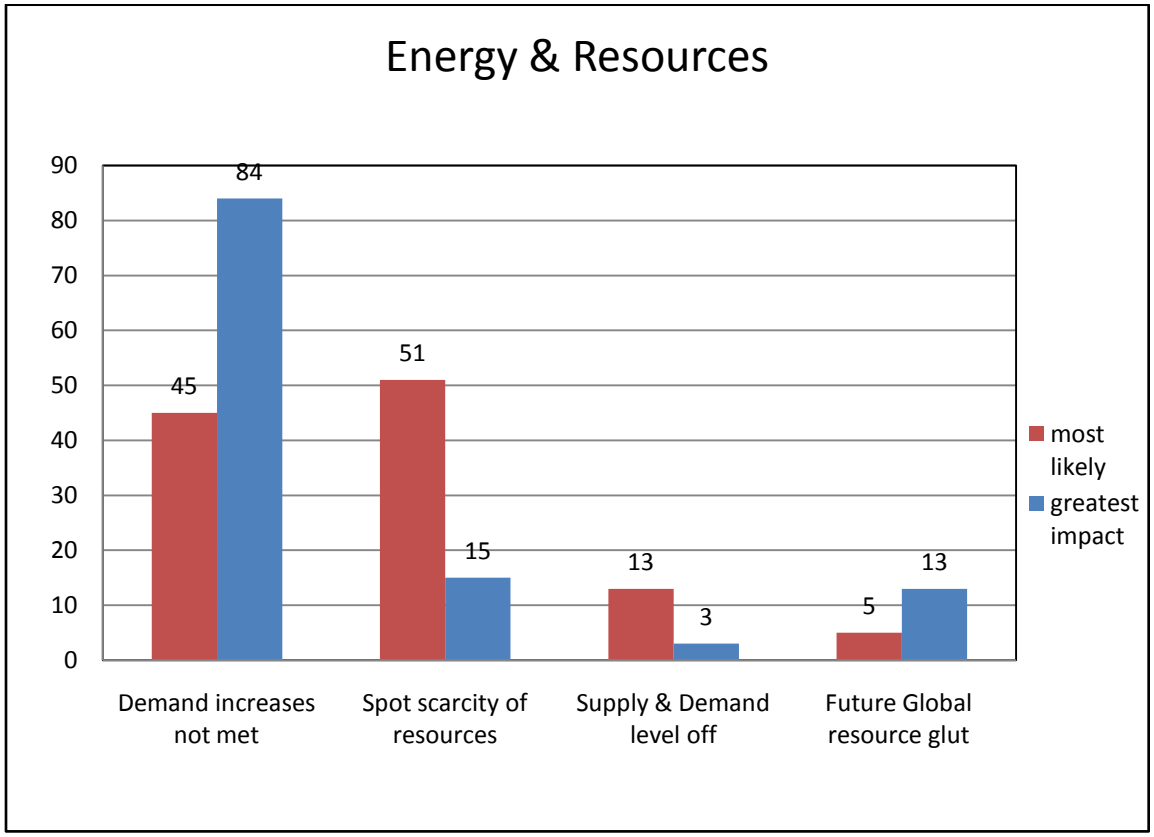
There is one combined chart for likelihood and impact for each driver displayed in histograms. The results are self-explanatory.

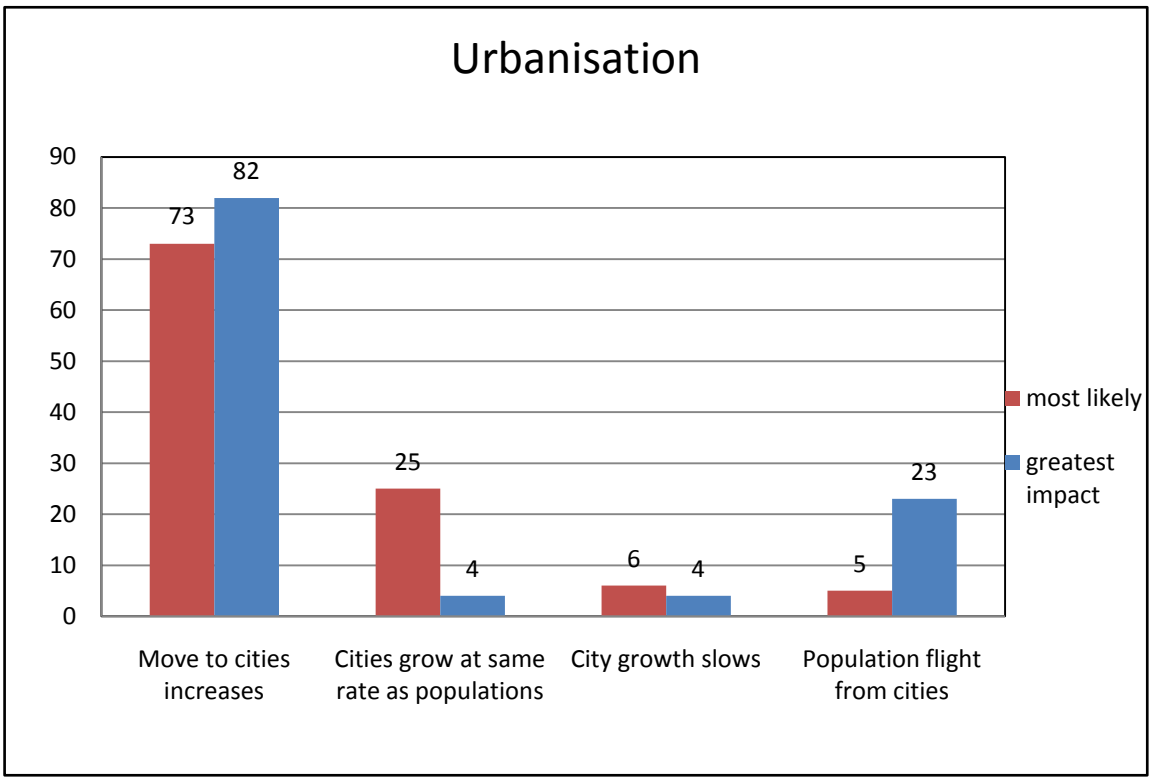
Method:

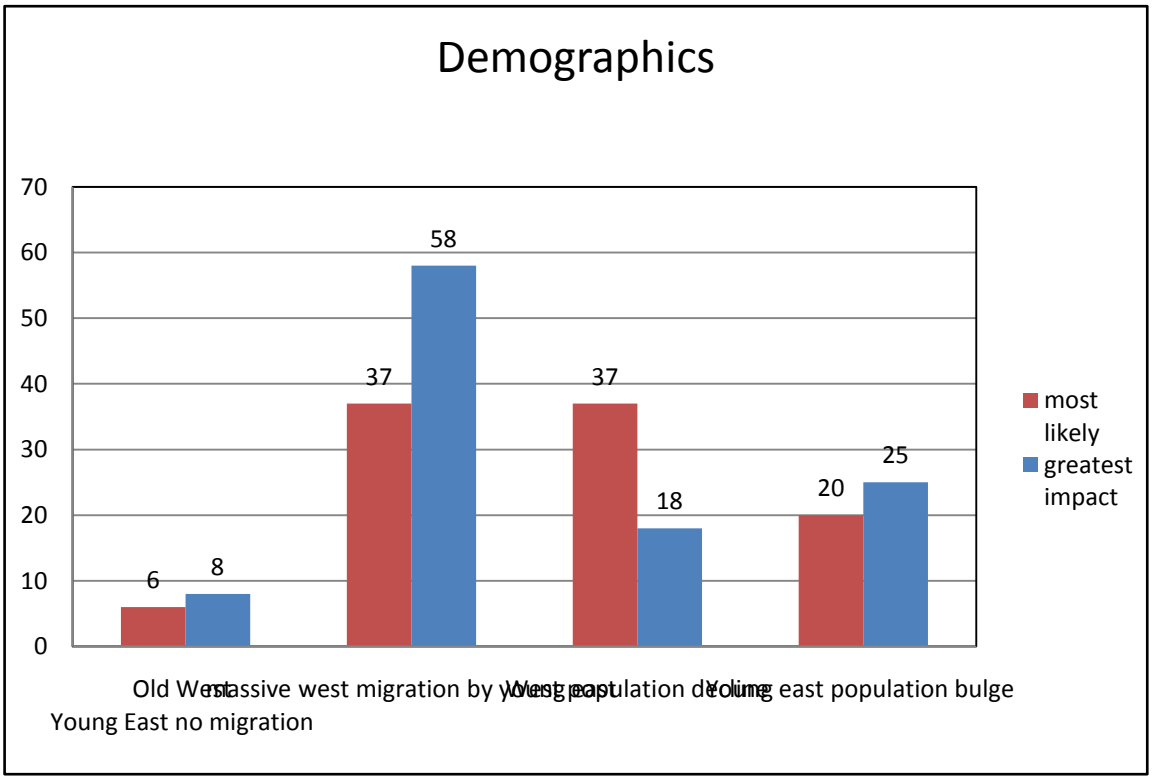
The likelihood and impact analysis for each driver is an aggregation of table C and table D data from all available events.

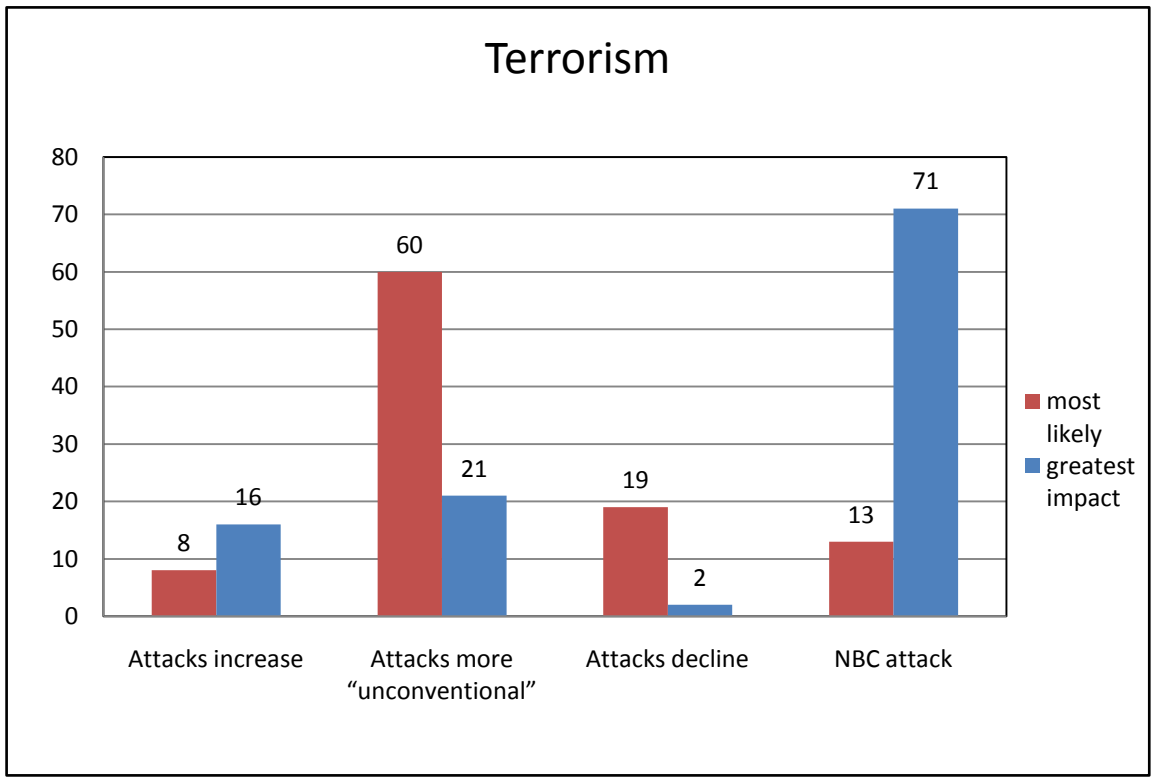

Globalisation
60
50
40
30
20
10
0
52
38
23
6
14
4
4
39
Further accelerates
Remains constant
slows
reverses
most likely
greatest impact

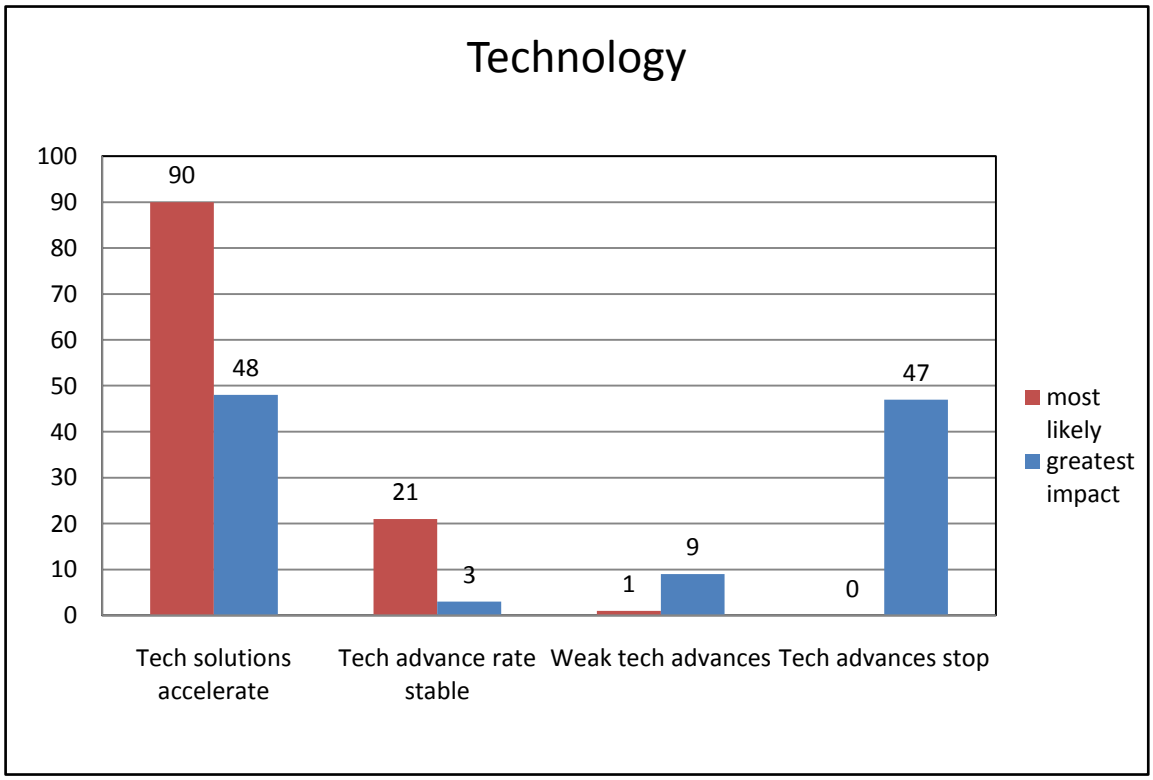

Governance
70
60
50
40
30
20
10
0
60
21
26
11
40
34
7
8
most likely
greatest impact
Ardent Nationalism
NSAs / Corps dominant
Weak nations Strong NSAs
World Governance

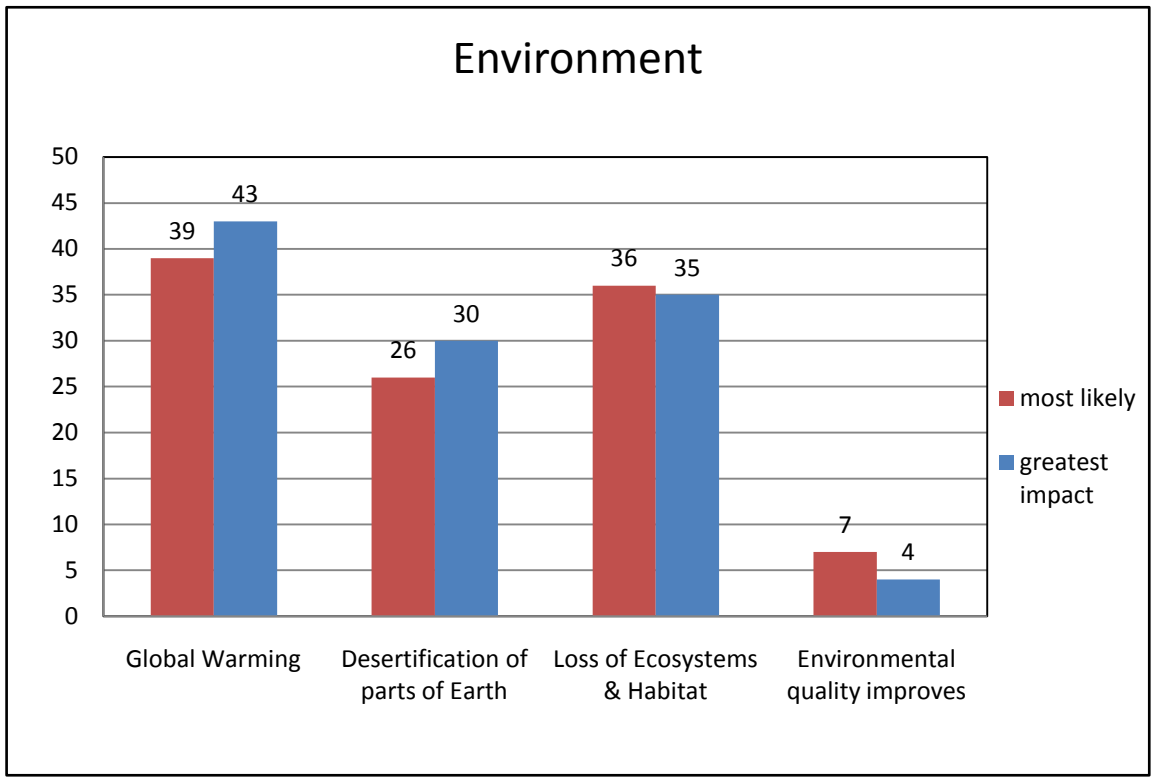

Energy & Resources
90
80
70
60
50
40
30
20
10
0
84
45
51
15
13
3
5
13
most likely
greatest impact
Demand increases not met
Spot scarcity of resources
Supply & Demand level off
Future Global resource glut

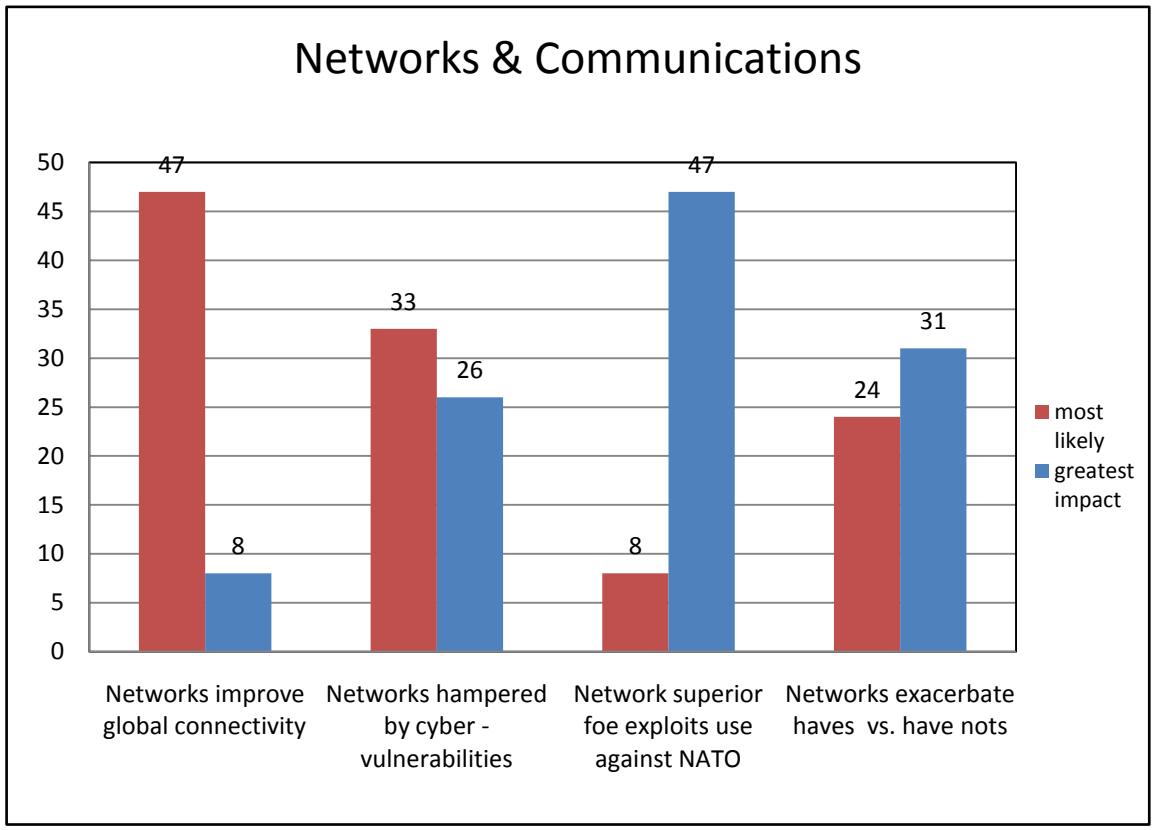

Urbanisation
90
80
70
60
50
40
30
20
10
0
73
82
25
4
6
4
5
23
most likely
greatest impact
Move to cities increases
Cities grow at same rate as populations
City growth slows
Population flight from cities


Demographics
70
60
50
40
30
20
10
0
6
8
37
58
37
18
20
25
most likely
greatest impact
Old West
Young East no migration


Terrorism
80
70
60
50
40
30
20
10
0
8
16
60
21
19
2
13
71
Attacks increase
Attacks more "unconventional"
Attacks decline
NBC attack
most likely
greatest impact


Technology
100
90
80
70
60
50
40
30
20
10
0
90
48
21
3
1
9
0
47
Tech solutions accelerate
Tech advance rate stable
Weak tech advances
Tech advances stop
most likely
greatest impact


Environment
50
45
40
35
30
25
20
15
10
5
0
39
43
26
30
36
35
7
4
Global Warming
Desertification of parts of Earth
Loss of Ecosystems & Habitat
Environmental quality improves
most likely
greatest impact


Networks & Communications
50
45
40
35
30
25
20
15
10
5
0
47
8
33
26
8
47
24
31
Networks improve global connectivity
Networks hampered by cyber - vulnerabilities
Network superior foe exploits use against NATO
Networks exacerbate haves vs. have nots
most likely
greatest impact

Driver Relations: Driver Landscape Analysis

Purpose:

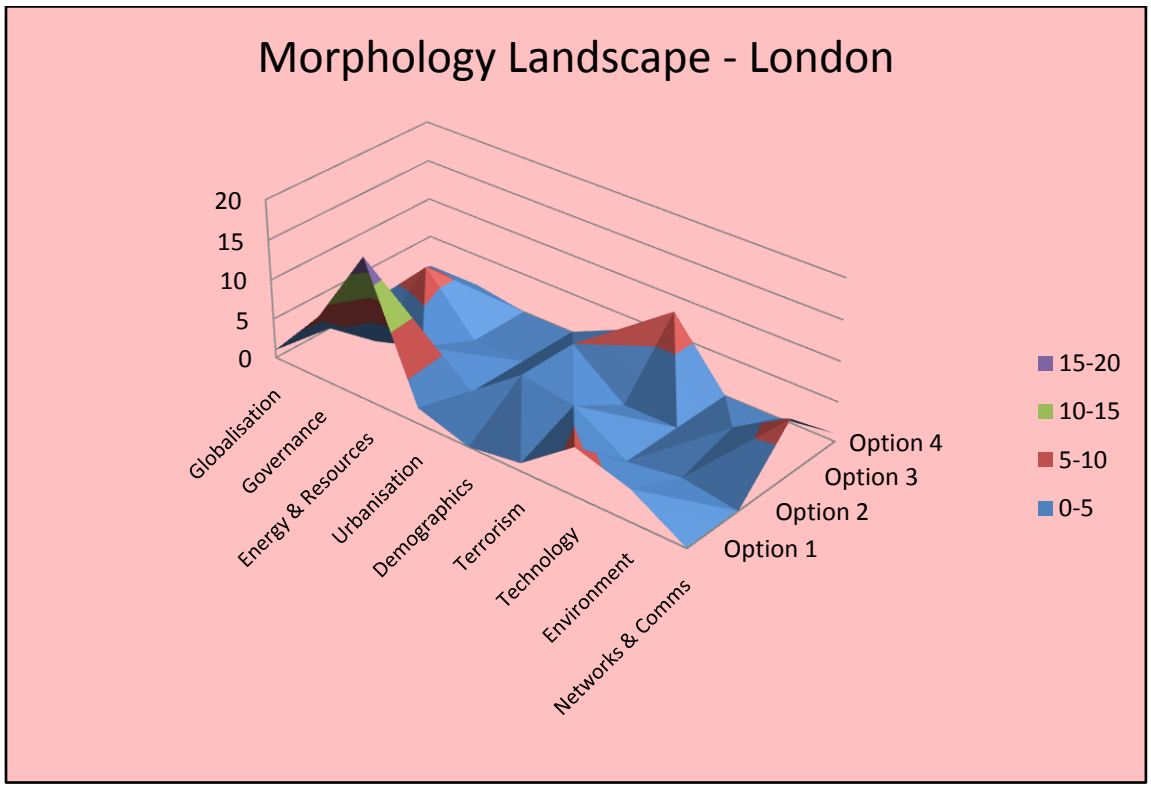
The driver relations/landscape analysis was developed to support the MFP core team's work on the development of drivers and futures. This analysis provides a contextual basis for examination of the drivers in relation to other drivers based upon the opinions of the attendees.

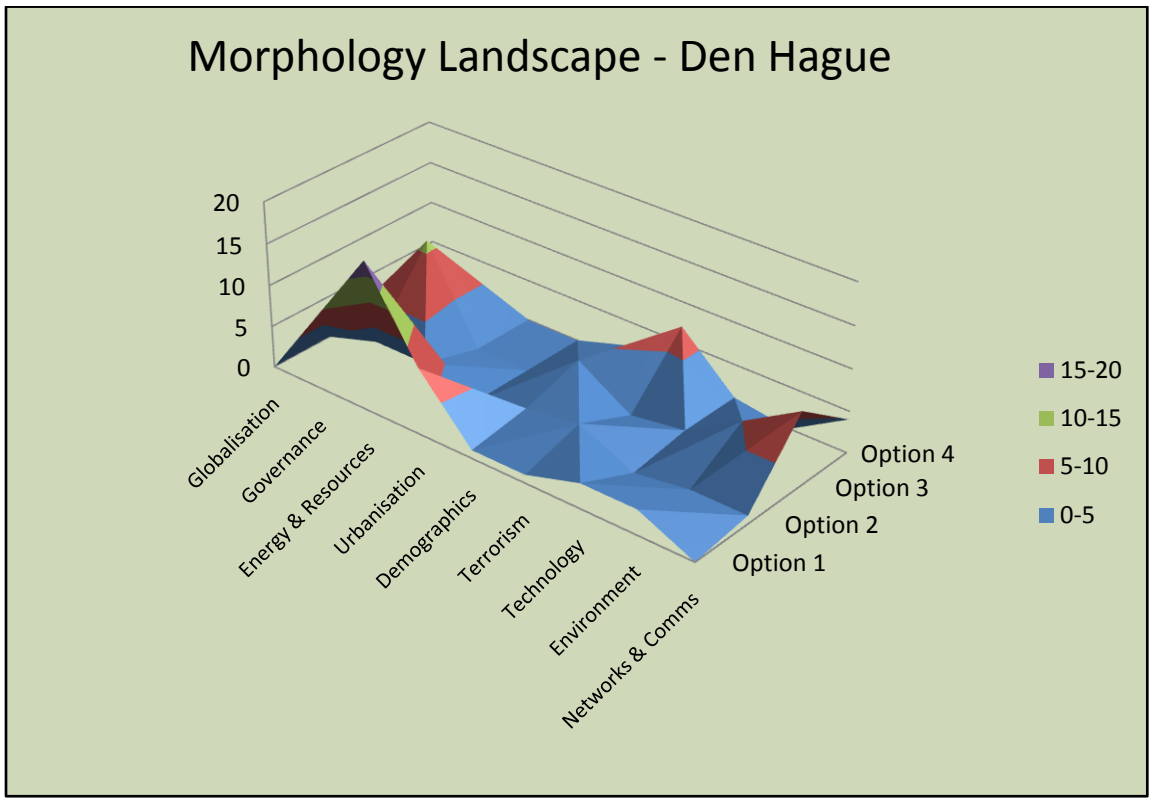
Result:

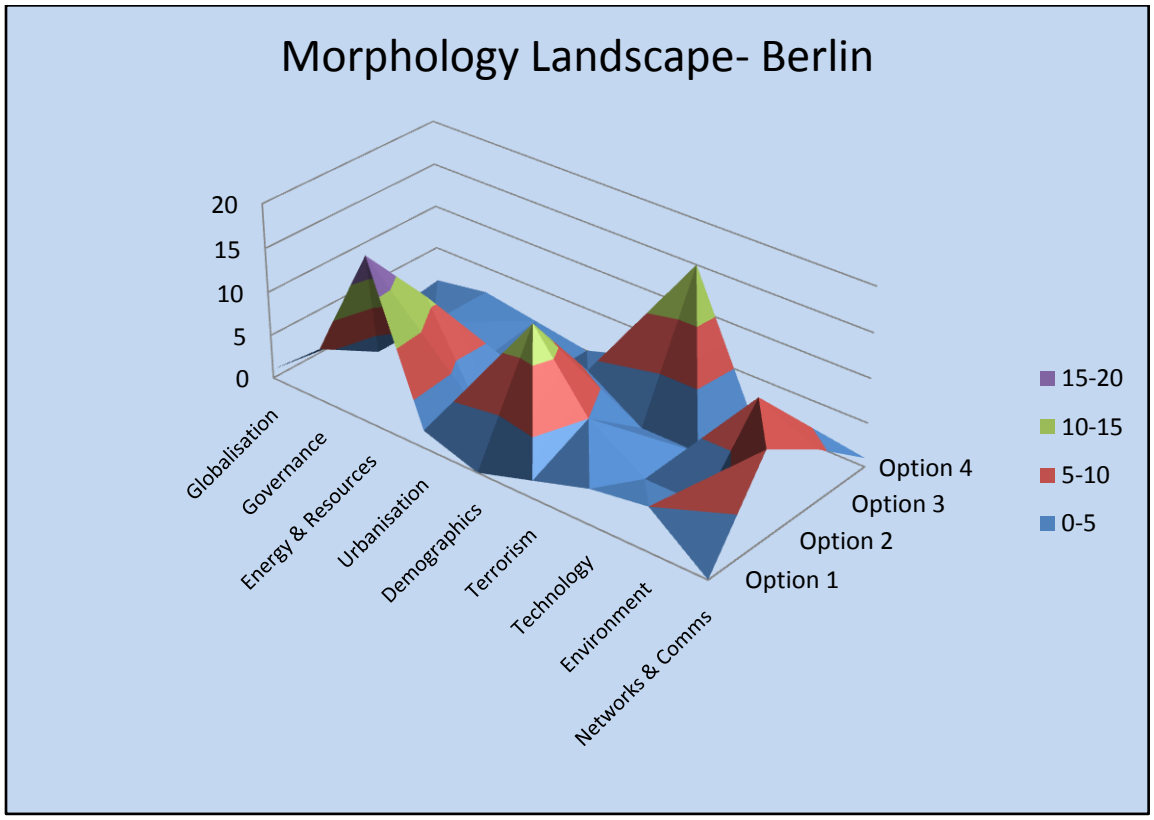
This analysis provides somewhat similar results for London, Den Hag and Berlin, with a significant spike in peak oil. Peak oil is defined as the unmet future energy demand. For Budapest the spike is in Massive Migration.

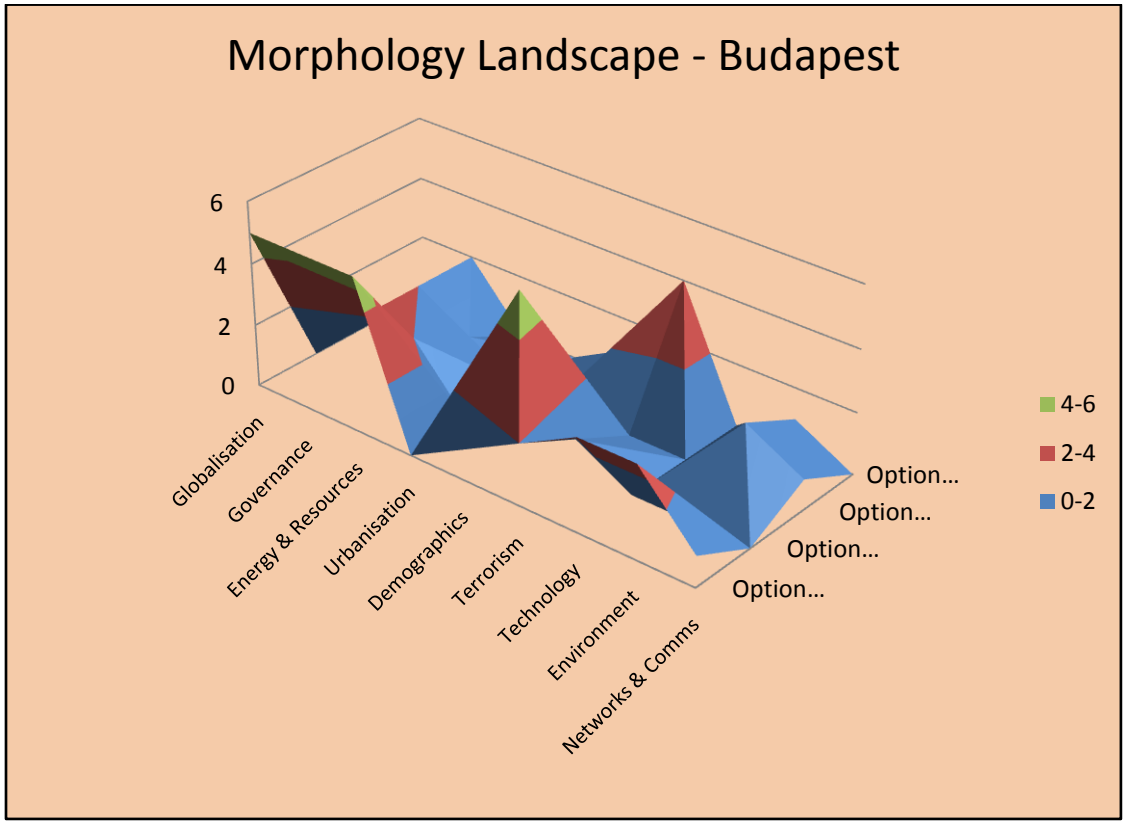
Method:

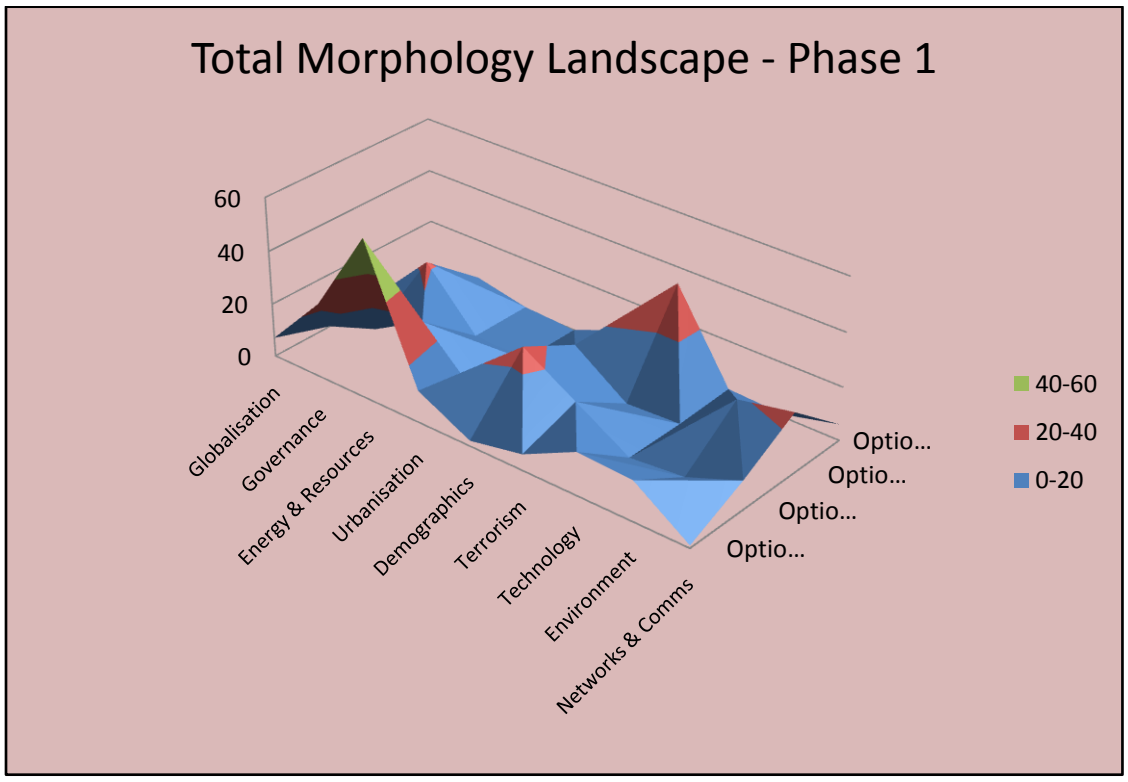
The morphological table (Table E) choices for all participants were aggregated and then displayed in 3-D topography charts.

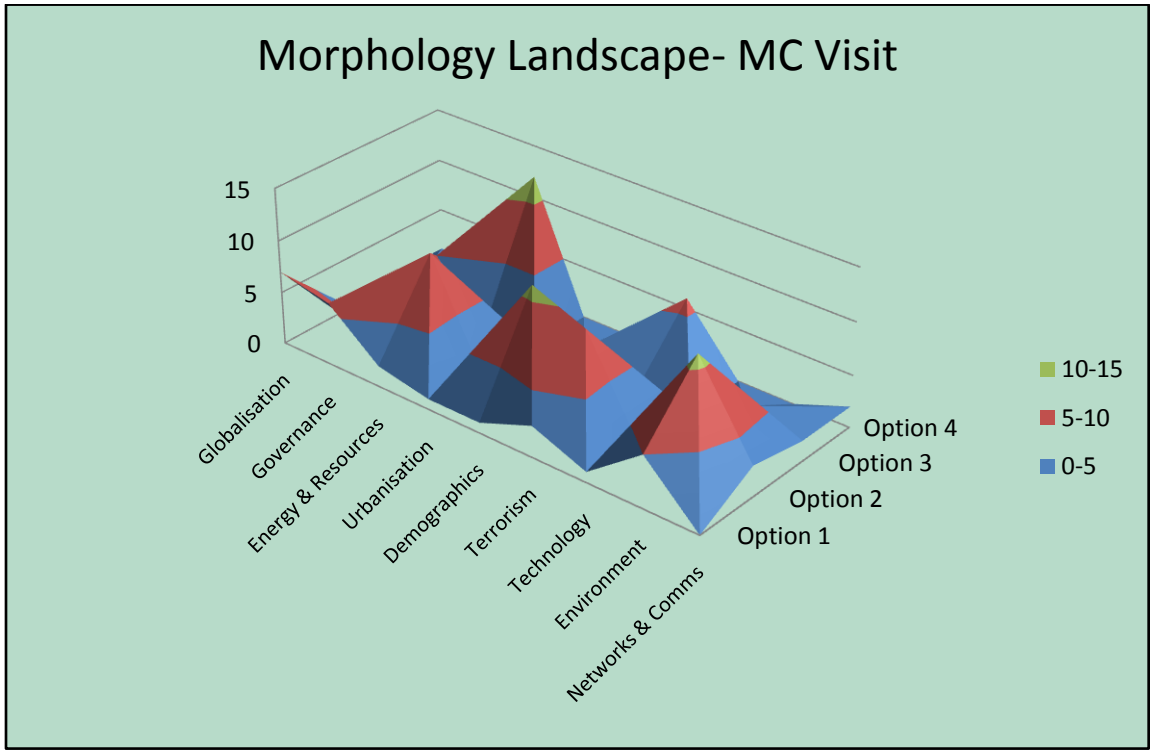


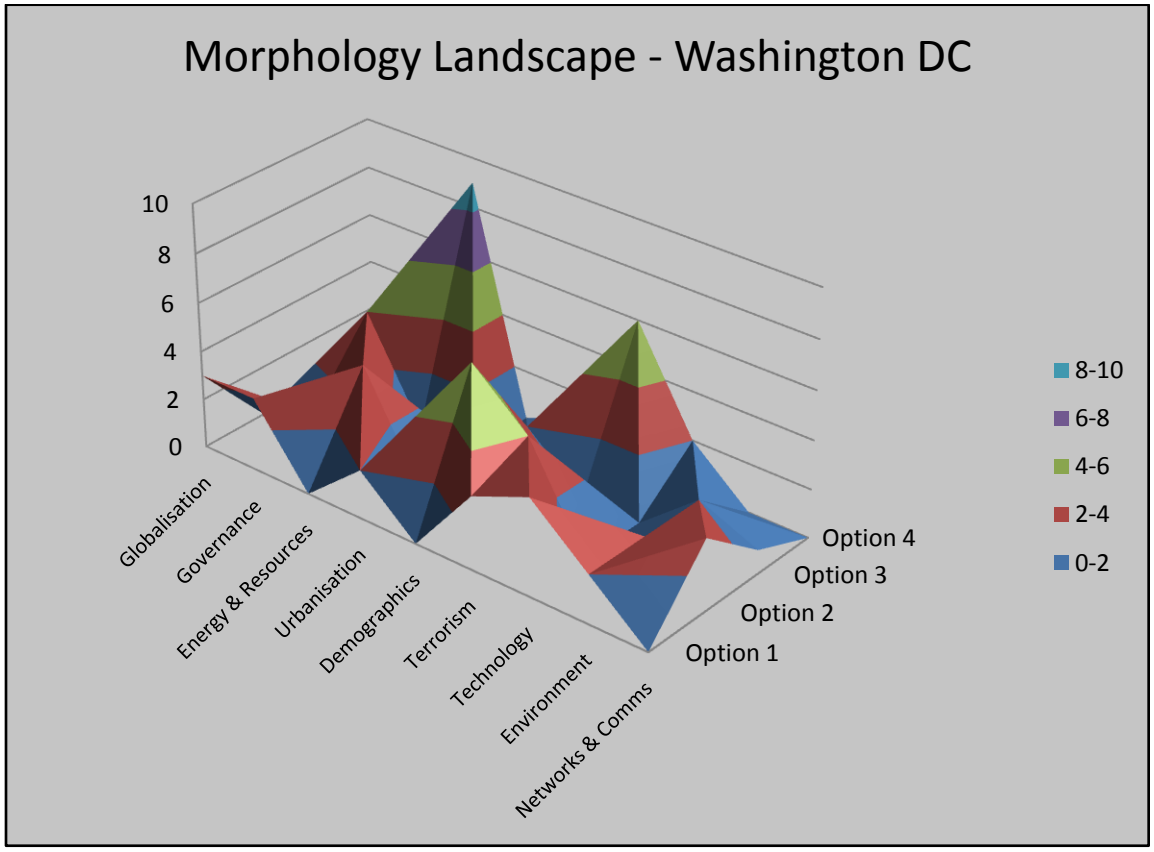

Morphology Landscape - Den Hague
20
15
10
5
0
Globalisation
Governance
Energy & Resources
Urbanisation
Demographics
Terrorism
Technology
Environment
Networks & Comms
Option 4
Option 3
Option 2
Option 1
15-20
10-15
5-10
0-5


Morphology Landscape- Berlin
20
15
10
5
0
Globalisation
Governance
Energy & Resources
Urbanisation
Demographics
Terrorism
Technology
Environment
Networks & Comms
Option 4
Option 3
Option 2
Option 1
15-20
10-15
5-10
0-5


Morphology Landscape - Budapest
6
4
2
0
Globalisation
Governance
Energy & Resources
Urbanisation
Demographics
Terrorism
Technology
Environment
Networks & Comms
Option...
Option...
Option...
Option...
4-6
2-4
0-2


Total Morphology Landscape - Phase 1
60
40
20
0
Globalisation
Governance
Energy & Resources
Urbanisation
Demographics
Terrorism
Technology
Environment
Networks & Comms
Optio...
Optio...
Optio...
Optio...
40-60
20-40
0-20


Morphology Landscape- MC Visit
15
10
5
0
Globalisation
Governance
Energy & Resources
Urbanisation
Demographics
Terrorism
Technology
Environment
Networks & Comms
Option 4
Option 3
Option 2
Option 1
10-15
5-10
0-5


Morphology Landscape - Washington DC
10
8
6
4
2
0
Globalisation
Governance
Energy & Resources
Urbanisation
Demographics
Terrorism
Technology
Environment
Networks & Comms
Option 4
Option 3
Option 2
Option 1
8-10
6-8
4-6
2-4
0-2

Driver Affinity Analysis

Purpose

The driver affinity analysis is designed to support the MFP core team's selection of drivers and driver options to populate the futures. This work must be taken in context as a compilation of the affinity of driver selections and cannot be seen as any sort of predictive tool.

Results

The Peak Oil option was dominant in five of the six workshops. Peak oil is defined as the unmet future energy demand. Massive Migration was the dominant driver in the Budapest Workshop.

Significant relationships exist within the second order affinity mapping. The selection of intriguing second order affinities were used to develop the four futures expanding and stretching challenges.

Method

Affinity mapping is a simple method of measuring subjects' opinions on connections between presented options. A menu of options is presented neutrally, with no expressed connections among them, and then survey subjects are asked to select a limited number of the options from a larger list. For example, once analysts have tabulated the results, they examine the data and determine the number of times subjects who selected option A1 also selected option B3. If this connection is a high number, one can claim a "strong" affinity was observed between A1 and B3.

During Phase 1 of the MFP, workshop participants were asked to complete a Morphology Table. In this table each of the nine drivers were divided into four intensity/magnitude options. Participants were asked to select four driver options from among the 36 driver options on the table. The resulting morphology map of driver options helped the MFP team define plausible futures from thousands of possible alternatives, as collections of driver options with strong affinities have the potential to form logically cohesive futures, at least from the perspective of the survey subjects.

The Table E Morphology results were tabulated for option selection versus all of the other options, such that in the end only two-option tabulation was completed. Tabulation was done for each Round Table or Workshop separately and then

totalled. “Peak Oil” was charted separately from the other options to provide clarity to the diagrams.

Values for first and second order affinity were set at different levels for each round table or workshop because of the different size of each workshop. The total was a simple sum of all option selection affinities for the London, Den Hague, Berlin and Budapest Round Tables/ Workshops. The results were not directly comparable and were not included in the Total Affinity Maps because the morphology table was changed for the Military Committee and Washington, D.C. sessions.

Driver Affinity Mapping Phase 1:

First Order Affinity without Peak Oil

Globalisation		Further accelerates	Remains constant	slows	reverses
Governance		Ardent Nationalism	NSAs / Corporations dominant	Weak nations Strong NSAs	World Governance
Energy & Resources		Demand increases not met	Spot scarcity of resources, energy expensive	Supply & Demand level off	Future Global resource glut
Urbanisation		Move to cities increases	Cities grow at same rate as populations	City growth slows	Population flight from cities
Demographics		Old West Young East no migration	massive west migration by young east	West population decline	Young east population bulge
Terrorism		Attacks increase	Attacks more "unconventional"	Attacks decline	NBC attack
Technology		Tech solutions accelerate	Tech advance rate stable	Weak tech advances	Tech advances stop
Environment		Global Warming	Desertification of parts of Earth	Loss of Ecosystems & Habitat	Environmental quality improves
Networks & Communications		Networks improve global connectivity	Networks hampered by cyber - vulnerabilities	Network superior foe exploits use against NATO	Networks exacerbate haves vs. Have-nots

Criteria: 10 or more selections, excluding Demand increases not met

Second Order Affinity without Peak Oil

Globalisation		Further accelerates	Remains constant	slows	reverses
Governance		Ardent Nationalism	NSAs / Corporations dominant	Weak nations Strong NSAs	World Governance
Energy & Resources		Demand increases not met	Spot scarcity of resources, energy expensive	Supply & Demand level off	Future Global resource glut
Urbanisation		Move to cities increases	Cities grow at same rate as populations	City growth slows	Population flight from cities
Demographics		Old West Young East no migration	massive west migration by young east	West population decline	Young east population bulge
Terrorism		Attacks increase	Attacks more "unconven-tional"	Attacks decline	NBC attack
Technology		Tech solutions accelerate	Tech advance rate stable	Weak tech advances	Tech advances stop
Environment		Global Warming	Desertification of parts of Earth	Loss of Ecosystems & Habitat	Environmental quality improves
Networks & Communications		Networks improve global connectivity	Networks hampered by cyber - vulnerabilities	Network super foe exploits use against NATO	Networks exacerbate haves vs. have nots

Criteria: 8 or 9 selections, excludes Demand increases not met

Third Order Affinity without Peak Oil

Globalisation		Further accelerates	Remains constant	slows	reverses
Governance		Ardent Nationalism	NSAs / Corporations dominant	Weak nations Strong NSAs	World Governance
Energy & Resources		Demand increases not met	Spot scarcity of resources, energy expensive	Supply & Demand level off	Future Global resource glut
Urbanisation		Move to cities increases	Cities grow at same rate as populations	City growth slows	Population flight from cities
Demographics		Old West Young East no migration	massive west migration by young east	West population decline	Young east population bulge
Terrorism		Attacks increase	Attacks more "unconven-tional"	Attacks decline	NBC attack
Technology		Tech solutions accelerate	Tech advance rate stable	Weak tech advances	Tech advances stop
Environment		Global Warming	Desertification of parts of Earth	Loss of Ecosystems & Hab.	Environmental quality improves
Networks & Communications		Networks improve global connectivity	Networks hampered by cyber - vulnerabilities	Network superior foe exploits use against NATO	Networks exacerbate haves vs. have nots

Criteria: Third order: 5-7 or more selections

First, Second and Third Order Affinity of Peak Oil

Globalisation		Further accelerates	Remains constant	slows	reverses
Governance		Ardent N[illegible]sm	NSAs / Corporations dominant	Weak nat[illegible] Str[illegible] NSAs	World Governance
Energy & Resources		Dema[illegible]nd incre[illegible]es	Spot scarcity of resources, energy expensive	Supply & Demand level off	Future Global resource glut
Urbanisation		Move to cities increases	Cities grow at same rate as populations	City growth slows	Population flight from cities
Demographics		Old West Young East no migration	massive west mig[illegible] by you[illegible]	West po[illegible]n de[illegible]	Young east population bulge
Terrorism		Attacks increase	Attacks more "unconventional"	Attacks decline	NBC attack
Technology		Tech soluti[illegible] accel[illegible]	Tech advance rate stable	Weak tech advances	Tech advances stop
Environment		Global Warmin[illegible]	Desertification of parts of Earth	Loss of Ec[illegible]ms & [illegible]	Environmental quality improves
Networks & Communications		Networks improve global connectivity	Networks hampered by cyber - vulnerabilities	Network su[illegible] foe ex[illegible]its [illegible]se aga[illegible] NATO	Networks exa[illegible]bate haves vs. have nots

Criteria: First order: 3 or more selections, Second order: 2 selections, excludes Demand increases not met

=Peak Oil = First Order = Second Order =Third Order

Event Driver Affinity Mapping

London: First Order Affinity without Peak Oil

Globalisation		Further accelerates	Remains constant	slows	reverses
Governance		Ardent Nat[illegible]m	NSAs / Corporations dominant	Weak nations Strong NSAs	World Governance
Energy & Resources		Demand increases not met	Spot scarcity of resources, energy expensive	Supply & Demand level off	Future Global resource glut
Urbanisation		Move to cities increases	Cities grow at same rate as populations	City growth slows	Population flight from cities
Demographics		Old West Young East no migration	massive west migration by young east	West population decline	Young east population bulge
Terrorism		Attacks increase	Attacks more "unconventional"	Attacks decline	NBC attack
Technology		Tech solutions accelerate	Tech advance rate stable	Weak tech advances	Tech advances stop
Environment		Global Warming	Desertification of parts of Earth	Loss of Ecosystems & Habitat	Environmental quality improves
Networks & Communications		Networks improve global connectivity	Networks hampered by cyber - vulnerabilities	Network s[illegible] foe e[illegible]use against NATO	Networks exacerbate haves vs. have nots

Criteria: 3 or more selections, excludes Demand increases not met

London: Second Order Affinity without Peak Oil

Globalisation		Further accelerates	Remains constant	slows	reverses
Governance		Ardent Nationalism	NSAs / Corporations dominant	Weak nation-states Strong NSAs	World Governance
Energy & Resources		Demand increases not met	Spot scarcity of resources, energy expensive	Supply & Demand level off	Future Global resource glut
Urbanisation		Move to cities increases	Cities grow at same rate as populations	City growth slows	Population flight from cities
Demographics		Old West Young East no migration	massive west migration by young males	West population decline	Young east population bulge
Terrorism		Attacks increase	Attacks more "unconventional"	Attacks decline	NBC attack
Technology		Tech solutions accelerate	Tech advance rate stable	Weak tech advances	Tech advances stop
Environment		Global Warming	Desertification of parts of Earth	Loss of Ecosystems & Habitat	Environmental quality improves
Networks & Communications		Networks improve global connectivity	Networks hampered by cyber - vulnerabilities	Network superior exploits use against NATO	Networks exacerbate haves vs. have nots

Criteria: 2 or more selections, excludes Demand increases not met

London: First and Second Order Affinity without Peak Oil

Globalisation		Further accelerates	Remains constant	slows	reverses
Governance		Ardent Nation	NSAs / Corporations dominant	Weak nations Strong NSAs	World Governance
Energy & Resources		Demand increases not met	Spot scarcity of resources, energy expensive	Supply & Demand level off	Future Global resource glut
Urbanisation		Move to cities increases	Cities grow at same rate as populations	City growth slows	Population flight from cities
Demographics		Old West Young East no migration	massive west migration by young east	West population decline	Young east population bulge
Terrorism		Attacks increase	Attacks more "unconventional"	Attacks decline	NBC attacks
Technology		Tech solutions accelerate	Tech advance rate stable	Weak tech advances	Tech advances stop
Environment		Global Warming	Desertification of parts of Earth	Loss of Ecosystems & Habitat	Environmental quality improves
Networks & Communications		Networks improve global connectivity	Networks hampered by cyber - vulnerabilities	Network [illegible] use against NATO	Networks exacerbate haves vs. have nots

Criteria: First order: 3 or more selections, Second order: 2 selections, excludes Demand increases not met

London: First and Second Order Affinity of Peak Oil

Globalisation		Further accelerates	Remains constant	slows	reverses
Governance		Ardent Nationalism	NSAs / Corporations dominant	Weak nations Strong NSAs	World Governance
Energy & Resources		Demand increases not met	Spot scarcity of resources, energy expensive	Supply & Demand level off	Future Global resource glut
Urbanisation		Move to cities increases	Cities grow at same rate as populations	City growth slows	Population flight from cities
Demographics		Old West Young East no migration	massive west migration by young east	West population decline	Young east population bulge
Terrorism		Attacks increase	Attacks more "unconventional"	Attacks decline	NBC attack
Technology		Technology solution accelerates	Tech advance rate stable	Weak tech advances	Tech advances stop
Environment		Global Warming	Desertification of parts of Earth	Loss of Ecosystems & Habitat	Environmental quality improves
Networks & Communications		Networks improve global connectivity	Networks hampered by cyber - vulnerabilities	Network support foe exploits use against NATO	Networks exacerbate have vs. have-nots

Criteria: First order four or more selections. Second Order: two or three selections. Lines to Demand Increases Not met have been omitted for clarity.

 =Peak Oil  = First Order  = Second Order

The Hague: First Order Affinity without Peak Oil

Globalisation		Further accelerates	Remains constant	slows	reverses
Governance		Ar[illegible] M[illegible]ism	NSAs / Corporations dominant	Weak nat[illegible] St[illegible]g NSA[illegible]	World Governance
Energy & Resources		Demand increases not met	Spot scarcity of resources, energy expensive	Supply & Demand level off	Future Global resource glut
Urbanisation		Move to cities increases	Cities grow at same rate as populations	City growth slows	Population flight from cities
Demographics		Old West Young East no migration	massive west migration by young east	West population decline	Young east population bulge
Terrorism		Attacks increase	Attacks more “unconventional”	Attacks decline	NBC attack
Technology		Tech solutions accelerate	Tech advance rate stable	Weak tech advances	Tech advances stop
Environment		Global Warming	Desertification of parts of Earth	Loss of Ecosystems & Habitat	Environmental quality improves
Networks & Communications		Networks improve global connectivity	Networks hampered by cyber - vulnerabilities	Net[illegible]k su[illegible]m[illegible] foe ex[illegible]it use against NATO	Networks exacerbate haves vs. have nots

Criteria: 4 or more selections, excludes Demand increases not met

The Hague: Second Order Affinity without Peak Oil

Globalisation		Further accelerates	Remains constant	slows	reverses
Governance		Ardent Nationalism	NSAs / Corporations dominant	Weak nations Strong NSAs	World Governance
Energy & Resources		Demand increases not met	Spot scarcity of resources, energy expensive	Supply & Demand level off	Future Global resource glut
Urbanisation		Move to cities increases	Cities grow at same rate as populations	City growth slows	Population flight from cities
Demographics		Old West Young East no migration	massive west migration by young east	West population decline	Young east population bulge
Terrorism		Attacks increase	Attacks more "unconventional"	Attacks decline	NBC attack
Technology		Tech solutions accelerate	Tech advance rate stable	Weak tech advances	Tech advances stop
Environment		Global Warming	Desertification of parts of Earth	Loss of Ecosystems & Habitat	Environmental quality improves
Networks & Communications		Networks improve global connectivity	Networks hampered by cyber - vulnerabilities	Network superior foe exploit use against NATO	Networks exacerbate have vs. have nots

Criteria: 3 or more selections, excludes Demand increases not met

The Hague: First and Second Order Affinity without Peak Oil

Globalisation		Further accelerates	Remains constant	slows	reverses
Governance		Ardent [illegible]alism	NSAs / Corporations dominant	Weak [illegible]	World Governance
Energy & Resources		Demand increases not met	Spot scarcity of resources, energy expensive	Supply & Demand level off	Future Global resource glut
Urbanisation		Move to cities increases	Cities grow at same rate as populations	City growth slows	Population flight from cities
Demographics		Old West Young East no migration	massive west migration by young east	West population decline	Young east population bulge
Terrorism		Attacks increase	Attacks more "unconventional"	Attacks decline	NBC attack
Technology		Tech solutions accelerate	Tech advance rate stable	Weak tech advances	Tech advances stop
Environment		Global Warming	Desertification of parts of Earth	Loss of Ecosystems & Habitat	Environmental quality improves
Networks & Communications		Networks improve global connectivity	Networks hampered by cyber - vulnerabilities	Network superiority against NATO	Networks exacerbate have vs. have nots

Criteria: First order: 4 or more selections, Second order: 3 selections, excludes Demand increases not met

The Hague: First and Second Order Affinity of Peak Oil

Globalisation		Further accelerates	Remains constant	slows	reverses
Governance		Ardent N[illegible]ism	NSAs / Corporations dominant	Weak nations Strong NSAs	World Governance
Energy & Resources		Dema[illegible]d increa[illegible]es not m[illegible]	Spot scarcity of resources, energy expensive	Supply & Demand level off	Future Global resource glut
Urbanisation		Move to cities increases	Cities grow at same rate as populations	City growth slows	Population flight from cities
Demographics		Old West Young East no migration	massive west migra[illegible] by young[illegible]st	West po[illegible]tion dec[illegible]	Young east population bulge
Terrorism		Attacks increase	Attacks more "uncc[illegible]ntional"	Attacks decline	NBC attack
Technology		Tech solutions accelerate	Tech advance rate stable	Weak tech advances	Tech advances stop
Environment		Global W[illegible]g	Desertification of parts of Earth	Los[illegible] of E[illegible]sys[illegible]ms & [illegible]	Environmental quality improves
Networks & Communications		Networks improve global connectivity	Networks hampered by cyber - vulnerabilities	Network su[illegible] foe ex[illegible]use against NATO	Networks exacerbate haves vs. have nots

Criteria: First order four or more selections. Second Order: three selections. Note: Lines to Demand Increases Not met have been omitted for clarity.

=Peak Oil = First Order = Second Order

Berlin: First Order Affinity without Peak Oil

Globalisation		Further accelerates	Remains constant	slows	reverses
Governance		Ardent Nationalism	NSAs / Corporations dominant	Weak nat… St… NSA…	World Governance
Energy & Resources		Demand increases not met	Spot scarcity of reso… ene… expensive	Supply & Demand level off	Future Global resource glut
Urbanisation		Move to cities increases	Cities grow at same rate as populations	City growth slows	Population flight from cities
Demographics		Old West Young East no migration	massive west migr… by you… a…	West population decline	Young east population bulge
Terrorism		Attacks increase	Attacks more "unconventional"	Attacks decline	NBC attack
Technology		Tech solutions accelerate	Tech advance rate stable	Weak tech advances	Tech advances stop
Environment		Global Warming	Desertification of parts of Earth	Loss of Ecosystems & Habitat	Environmental quality improves
Networks & Communications		Networks improve global connectivity	Networks hampered by cyber - vulnerabilities	Network superior foe exploits use against NATO	Networks exacerbate haves vs. have nots

Criteria: 7 or more selections, excludes Demand increases not met

Berlin: Second Order Affinity without Peak Oil

Globalisation		Further accelerates	Remains constant	slows	reverses
Governance		Ardent Nationalism	NSAs / Corporations dominant	Weak nation… Stro… NSAs	World Governance
Energy & Resources		Demand increases not met	Spot scarcity of res…es, ene…expensive	Supply & Demand level off	Future Global resource glut
Urbanisation		Move to cities increases	Cities grow at same rate as populations	City growth slows	Population flight from cities
Demographics		Old West Young East no migration	massive west migra… by young…st	West population decline	Young east population bulge
Terrorism		Attacks increase	Attacks more "unconventional"	Attacks decline	NBC attack
Technology		Tech solutions accelerate	Tech advance rate stable	Weak tech advances	Tech advances stop
Environment		Global Warming	Desertification of parts of Earth	Loss of Ecosystems & Habitat	Environmental quality improves
Networks & Communications		Networks improve global connectivity	Networks hamp…ed by cybe… - vulnerabilities	Network superior foe exploits use against NATO	Networks exacerbate haves vs. have nots

Criteria: 4 - 6 selections, excludes Demand increases not met

Berlin: First and Second Order Affinity without Peak Oil

Globalisation		Further accelerates	Remains constant	slows	reverses
Governance		Ardent Nationalism	NSAs / Corporations dominant	Weak nation[illegible] IS	World Governance
Energy & Resources		Demand increases not met	Spot scarcity of res[illegible]es, e[illegible]rgy expensive	Supply & Demand level off	Future Global resource glut
Urbanisation		Move to cities increases	Cities grow at same rate as populations	City growth slows	Population flight from cities
Demographics		Old West Young East no migration	mass[illegible] west mi[illegible] by [illegible]st	West population decline	Young east population bulge
Terrorism		Attacks increase	Attacks more "unconventional"	Attacks decline	NBC attack
Technology		Tech solutions accelerate	Tech advance rate stable	Weak tech advances	Tech advances stop
Environment		Global Warming	Desertification of parts of Earth	Loss of Ecosystems & Habitat	Environmental quality improves
Networks & Communications		Networks improve global connectivity	Networks ham[illegible]d by cyber - vulnerabilities	Network superior foe exploits use against NATO	Networks exacerbate haves vs. have nots

Criteria: First order: 7 or more selections, Second order: 4-6 selections, excludes Demand increases not met

Berlin: First and Second Order Affinity of Peak Oil

Globalisation		Further accelerates	Remains constant	slows	reverses
Governance		Ard[illegible] N[illegible]sm	NSAs / Corporations dominant	We[illegible] na[illegible]ons St[illegible] NSAs	World Governance
Energy & Resources		Dema[illegible]d increa[illegible]es not [illegible]	Spot scarcity of resources, energy expensive	Supply & Demand level off	Future Global resource glut
Urbanisation		Move to cities increases	Cities grow at same rate as populations	City growth slows	Population flight from cities
Demographics		Old West Young East no migration	mas[illegible] west mig[illegible]tio by you[illegible]t	West popu[illegible]tion dec[illegible]e	Young east population bulge
Terrorism		Attacks increase	Attacks more "unconventional"	Attacks decline	NBC attack
Technology		Tech solutions accelerate	Tech advance rate stable	Weak tech advances	Tech advances stop
Environment		Global Warming	Desertification of parts of Earth	Loss[illegible] of Ec[illegible]ys[illegible]ms & [illegible]bit	Environmental quality improves
Networks & Communications		Networks improve global connectivity	Networks hamp[illegible]red by cyb[illegible]r - vulnerabilities	Network superior foe exp[illegible]it use against NATO	Networks exacerbate haves vs. have nots

Criteria: First order: 7or more selections. Second Order: 4-6 selections. Note: Lines to Demand Increases Not met have been omitted for clarity.

=Peak Oil = First Order = Second Order

Budapest: First Order Affinity without Peak Oil

Governance		Ardent Nationalism	NSAs / Corporations dominant	Weak nations Strong NSAs	World Governance
Energy & Resources		Demand increases not met	Spot scarcity of resources, energy expensive	Supply & Demand level off	Future Global resource glut
Urbanisation		Move to cities increases	Cities grow at same rate as populations	City growth slows	Population flight from cities
Demographics		Old West Young East no migration	massive west migration by young east	West population decline	Young east population bulge
Terrorism		Attacks increase	Attacks more "unconventional"	Attacks decline	NBC attack
Technology		Tech solutions accelerate	Tech advance rate stable	Weak tech advances	Tech advances stop
Environment		Global Warming	Desertification of parts of Earth	Loss of Ecosystems & Habitat	Environmental quality improves
Networks & Communications		Networks improve global connectivity	Networks hampered by cyber - vulnerabilities	Network superior foe exploits use against NATO	Networks exacerbate haves vs. have nots

Criteria: 3 selections, excludes Demand increases not met

Budapest: Second Order Affinity without Peak Oil

Globalisation		Further accelerates	Remains constant	slows	reverses
Governance		Ardent Nationalism	NSAs / Corporations dominant	Weak nations Strong NSAs	World Governance
Energy & Resources		Demand increases not met	Spot scarcity of resources, energy expensive	Supply & Demand level off	Future Global resource glut
Urbanisation		Move to cities increases	Cities grow at same rate as populations	City growth slows	Population flight from cities
Demographics		Old West Young East no migration	massive west migration by young east	West population decline	Young east population bulge
Terrorism		Attacks increase	Attacks more "unconventional"	Attacks decline	NBC attack
Technology		Tech solutions accelerate	Tech advance rate stable	Weak tech advances	Tech advances stop
Environment		Global Warming	Desertification of parts of Earth	Loss of Ecosystems & Habitat	Environmental quality improves
Networks & Communications		Networks improve global connectivity	Networks hampered by cyber - vulnerabilities	Network superior foe exploits use against NATO	Networks exacerbate haves vs. have nots

Criteria: 2 selections, excludes Demand increases not met

Budapest: First and Second Order Affinity without Peak Oil

Globalisation		Further accelerates	Remains constant	slows	reverses
Governance		Ardent Nationalism	NSAs / Corporations dominant	Weak nations Strong NSAs	World Governance
Energy & Resources		Demand increases not met	Spot scarcity of resources, energy expensive	Supply & Demand level off	Future Global resource glut
Urbanisation		Move to cities increases	Cities grow at same rate as populations	City growth slows	Population flight from cities
Demographics		Old West Young East no migration	massive west migration by young east	West population decline	Young east population bulge
Terrorism		Attacks increase	Attacks more "unconventional"	Attacks decline	NBC attack
Technology		Tech solutions accelerate	Tech advance rate stable	Weak tech advances	Tech advances stop
Environment		Global Warming	Desertification of parts of Earth	Loss of Ecosystems & Habitat	Environmental quality improves
Networks & Communications		Networks improve global connectivity	Networks hampered by cyber - vulnerabilities	Network superior foe exploits use against NATO	Networks exacerbate haves vs. have nots

Criteria: First order: 3 selections, Second order: 2 selections, excludes Demand increases not met

Budapest: First and Second Order Affinity of Peak Oil

Globalisation		Further accelerates	Remains constant	slows	reverses
Governance		Ardent Nationalism	NSAs / Corp tions dom t	Weak nations Strong NSAs	World Governanc e
Energy & Resources		Dema d increa es not	Spot scarcity of resources, energy expensive	Supply & Demand level off	Future Global resource glut
Urbanisation		Move to cities increases	Cities grow at same rate as populations	City growth slows	Population flight from cities
Demographics		Old West Young East no migration	mass west mig do by you t	West population decline	Young east population bulge
Terrorism		Attacks increase	Attacks more “unconventional”	Attacks decline	NBC attack
Technology		Tech solutions accelerate	Tech advance rate stable	Weak tech advances	Tech advances stop
Environment		Global War	Desertification of parts of Earth	Loss of Ecosystems & Habitat	Environmen tal quality improves
Networks & Communications		Networks improve global connectivity	Networks hampered by cyber - vulnerabilities	Network superior foe exploits use against NATO	Networks exacerbate haves vs. have nots

Criteria: First order 3 selections. Second Order: 2 selections. Note: Lines to Demand Increases Not met have been omitted for clarity.

=Peak Oil = First Order = Second Order

MC Visit: First Order Affinity without Peak Oil or High Volatility

Globalisation		Further accelerates	Remains constant	Slows	Reverses
Governance		Nationalism Increases	Non State Actors, Corporations dominant	Non State Actors challenge (weak) nations	World governance achieved
Energy & Resources		Global resource surplus	High volatility to meet demand, prices high	Supply equal to demand	Demand exceeds supply
Urbanisation		City growth increases	Cities grow at same rate as populations	City growth slows	City populations decline
Demographics		Old Europe Young neighbours: no migration	Massive Eurr imn rat by youn neighbours	European population decline	Young European population bulge
Terrorism		Attacks increase	Attacks more unconventional	Attacks d	CBRN attack
Technology		Rate of advance accelerates	Rate of advance stable	Rate of advance weak	Advances stop
Environment		Global Warming	Dese tion and esh wate ity	Ecosystems & Habitats in decline	Environment al quality improves
Networks & Communications		Networks improve global connectivity	Networks hampered by cyber - vulnerabilities	Actors exploit superior network capabilities against NATO	Networks increase human inequality

Criteria: First order 5 selections, excludes Demand exceeds supply and High volatility to meet demand, prices high.

MC Visit: Second Order Affinity w/o Peak Oil or High Volatility

Globalisation		Further accelerates	Remains constant	Slows	Reverses
Governance		Nationalism Increases	Non State Actors, Corporations dominant	Non State Actors challenge (weak) nations	World governance achieved
Energy & Resources		Global resource surplus	High volatility to meet demand, prices high	Supply equal to demand	Demand exceeds supply
Urbanisation		City growth increases	Cities grow at same rate as populations	City growth slows	City populations decline
Demographics		Old Europe Young neighbours: no migration	Massive European immigration by young neighbours	European population decline	Young European population bulge
Terrorism		Attacks increase	Attacks more unconventional	Attacks decline	CBRN attack
Technology		Rate of advance accelerates	Rate of advance stable	Rate of advance weak	Advances stop
Environment		Global Warming	Desertification and fresh water scarcity	Ecosystems & Habitats in decline	Environmental quality improves
Networks & Communications		Networks improve global connectivity	Networks hampered by cyber - vulnerabilities	Actors exploit superior network capabilities against NATO	Networks increase human inequality

Criteria: Second order 3 selections, excludes Demand exceeds supply and High volatility to meet demand, prices high.

MC Visit: First and Second Order Affinity without Peak Oil or High Volatility

Globalisation		Further accelerates	Remains constant	Slows	Reverses
Governance		Nationalism Increases	Non State Actors, Corporations dominant	Non State Actors challenge (weak) nations	World governance achieved
Energy & Resources		Global resource surplus	High volatility to meet demand, prices high	Supply equal to demand	Demand exceeds supply
Urbanisation		City growth increases	Cities grow at same rate as populations	City growth slows	City populations decline
Demographics		Old Europe Young neighbours: no migration	Massive E[illegible]n i[illegible]tion by yo[illegible]g neighbours	European pop[illegible]tion dec[illegible]	Young European population bulge
Terrorism		Attacks increase	Attacks more uncor[illegible]na l	Attacks decli[illegible]	CBRN attack
Technology		Rate of advance accelerates	Rate of advance stable	Rate of advance weak	Advances stop
Environment		Global Warming	D[illegible]rtification [illegible]d fresh [illegible]ca[illegible]	Ecosystems & Habitats in decline	Environmental quality improves
Networks & Communications		Networks improve global connectivity	Networks hampered by cyber - vulnerabilities	Actors exploit superior network capabilities against NATO	Networks increase human inequality

Criteria: First order 4-5 selections, Second order 3 selections, excludes Demand exceeds supply and High volatility to meet demand, prices high.

MC Visit: Peak Oil Affinity

Globalisation		Further acceleration	Remains constant	Slows	Reverses
Governance		Nationalism Increases	Non State Actors, Corporations dominant	Non State Actors challenge (weak) nations	World governance achieved
Energy & Resources		Global resource surplus	High volatility to meet demand, prices high	Supply equal to demand	Demand exceeds supply
Urbanisation		City growth increases	Cities grow at same rate as populations	City growth slows	City populations decline
Demographics		Old Europe Young neighbours: no migration	Massive European immigration by young neighbours	European population decline	Young European population bulge
Terrorism		Attacks increase	Attacks more unconventional	Attacks decline	CBRN attack
Technology		Rate of advance accelerates	Rate of advance stable	Rate of advance weak	Advances stop
Environment		Global Warming	Desertification and fresh water scarcity	Ecosystems & Habitats in decline	Environmental quality improves
Networks & Communications		Networks improve global connectivity	Networks hampered by cyber - vulnerabilities	Actors exploit superior network capabilities against NATO	Networks increase human inequality

Criteria: First order 4-5 selections, Second order 3 selections, Note: Lines to Demand Increase not met have been omitted for clarity.

MC Visit: High Volatility Affinity

Globalisation		Further accelerates	Remains constant	Slows	Reverses
Governance		Nationalism Increases	Non State Actors, Corporations dominant	Non State Actors challenge (weak) nations	World governance achieved
Energy & Resources		Global resource surplus	High volatility to meet demand, prices high	Supply equal to demand	Demand exceeds supply
Urbanisation		City growth increases	Cities grow at same rate as populations	City growth slows	City populations decline
Demographics		Old Europe Young neighbours: no migration	Massive European immigration by young neighbours	European population decline	Young European population bulge
Terrorism		Attacks increase	Attacks more unconventional	Attacks decline	CBRN attack
Technology		Rate of advance accelerates	Rate of advance stable	Rate of advance weak	Advances stop
Environment		Global Warming	Desertification and fresh water scarcity	Ecosystems & Habitats in decline	Environmental quality improves
Networks & Communications		Networks improve global connectivity	Networks hampered by cyber - vulnerabilities	Actors exploit superior network capabilities against NATO	Networks increase human inequality

Criteria: First order 4 selections, Second order 3 selections. Note: Lines to High volatility to meet demand, prices high have been omitted for clarity.

Washington DC: First Order Affinity without Peak Oil

Globalisation		Further accelerates	Remains constant	Slows	Reverses
Governance		Ardent Nationalism	Non State Actors, Corporations dominant	Weak nations Strong Non State Actors	World Governance
Energy & Resources		Future Global resource surplus	Spot scarcity of resources, energy expensive	Supply & Demand level off	Demand increases not met
Urbanisation		Move to cities increases	Cities grow at same rate as populations	City growth slows	Population flight from cities
Demographics		Old West Young East no migration	Massive West migration by young East	West population decline	Young East population bulge
Terrorism		Attacks increase	Attacks more unconven-tional	Attacks decline	NBC attack
Technology		Tech solutions accelerate	Tech advance rate stable	Weak tech advances	Tech advances stop
Environment		Global Warming	Desertification of parts of Earth –fresh water scarcity	Loss of Ecosystems & Habitat	Environmental quality improves
Networks & Communications		Networks improve global connectivity	Networks hampered by cyber - vulnerabilities	Network superior foe exploits use against NATO	Networks exacerbate haves versus have nots

Criteria: First Order 3 selections, excludes Demand increases not met.

Washington D.C.: Second Order Affinity without Peak Oil

Globalisation		Further accelerates	Remains constant	Slows	Reverses
Governance		Ardent Nationalism	Non State Actors, Corporations dominant	Weak nations Strong Non State Actors	World Governance
Energy & Resources		Future Global resource surplus	Spot scarcity of resources, energy expensive	Supply & Demand level off	Demand increases not met
Urbanisation		Move to cities increases	Cities grow at same rate as populations	City growth slows	Population flight from cities
Demographics		Old West Young East no migration	Massive West migration by young East	West population decline	Young East population bulge
Terrorism		Attacks increase	Attacks more unconven-tional	Attacks decline	NBC attack
Technology		Tech solutions accelerate	Tech advance rate stable	Weak tech advances	Tech advances stop
Environment		Global Warming	Desertification of parts of Earth & fresh water scarcity	Loss of Ecosystems & Habitat	Environmental quality improves
Networks & Communications		Networks improve global connectivity	Networks hampered by cyber - vulnerabilities	Network superior foe exploits use against NATO	Networks exacerbate haves versus have nots

Criteria: Second Order 2 selections, excludes Demand increases not met.

Washington, D.C.: First and Second Order Affinity w/o Peak Oil

Globalisation		Further accelerates	Remains constant	Slows	Reverses
Governance		Ardent Nationalism	Non State Actors, Corporations dominant	Weak nations Strong Non State Actors	World Governance
Energy & Resources		Future Global resource surplus	Spot scarcity of resources, energy expensive	Supply & Demand level off	Demand increases not met
Urbanisation		Move to cities increases	Cities grow at same rate as populations	City growth slows	Population flight from cities
Demographics		Old West Young East no migration	Massive West migration to Young East	West population decline	Young East population bulge
Terrorism		Attacks increase	Attacks more unconventional	Attacks decline	NBC attack
Technology		Tech solutions accelerate	Tech advance rate stable	Weak tech advances	Tech advances stop
Environment		Global Warming	Desertification of parts of Earth –fresh water scarcity	Loss of Ecosystems & Habitat	Environmental quality improves
Networks & Communications		Networks improve global connectivity	Networks hampered by cyber - vulnerabilities	Network superior foe exploits use against NATO	Networks exacerbate haves versus have nots

Criteria: First Order 3 selections. Second Order 2 selections, excludes Demand increases not met.

Washington D.C.: Peak Oil Affinity

Globalisation		Further accelerates	Remains constant	Slows	Reverses
Governance		Ardent Nationalism	Non State Actors, Corporations dominant	Weak nations Strong Non State Actors	World Governance
Energy & Resources		Future Global resource surplus	Spot scarcity of resources, energy expensive	Supply & Demand level off	Demand increases not met
Urbanisation		Move to cities increases	Cities grow at same rate as populations	City growth slows	Population flight from cities
Demographics		Old West Young East no migration	Massive West migration by young East	West population decline	Young East population bulge
Terrorism		Attacks increase	Attacks more unconven-tional	Attacks decline	NBC attack
Technology		Tech solutions accelerate	Tech advance rate stable	Weak tech advances	Tech advances stop
Environment		Global Warming	Desertificatio n of parts of Earth –fresh water scarcity	Loss of Ecosystems & Habitat	Environmental quality improves
Networks & Communications		Networks improve global connectivity	Networks hampered by cyber -vulnerabilitie s	Network superior foe exploits use against NATO	Networks exacerbate haves versus have nots

Criteria: First Order 3 or more selections. Second Order 2 selections. Lines to Demand increases not met have been omitted for clarity

Outlier Driver Analysis

Purpose:

The outlier driver analysis was conducted to support the MFP core team's work on the development of drivers and futures. It was developed to identify drivers from the Round Table and Workshop input of attendees. Outlier Drivers are drivers that are not part of the core team's selected drivers. This body of work was directed from the Supreme Allied Commander Transformation (SACT).

Results:

The analysis produced a large number of outliers which were synthesised by the analysts into broad categories. The outliers, with the exception of WMD Proliferation, were somewhat "softer" than the set of drivers that the MF team selected originally. These results were used in the development of the drivers and the futures for the project.

Method:

Each analyst categorised the entire Table A driver data base. Categorisation consisted of relating each driver in each worksheet to a MFP Team driver, or labelling the driver an outlier. After completing the categorisation of outliers the analysts compared results and summarised the outliers into broad categories. Descriptions of the outliers were provided by the analysts based upon an examination of the outliers in the data sheets.

Multiple Futures Driver Outliers List

Geopolitical Restructuring: This included all references to the rise or fall of certain nations, regions or factions, the results of current conflict, the role of the EU and the shift from state power to Non- State Actors. Impact and likelihood ratings were varied.

WMD Proliferation: This included all proliferation to state and non-state actors, and is separate from the terrorist use of nuclear weapons. This driver was often rated a high impact.

Social Values: Includes the problems associated with unequal distribution of freedom, economic prosperity and opportunity, individualism vs. Collectivism, as well as the religion/culture, the perceived problems associated with modern society and perceptions of state actors.

Pandemic**:** Refers to calamitous consequences from the outbreak of a worldwide infection. This was often rated as likely and high impact.

Education: Includes literacy and access to knowledge. It touches the issues of globalisation and demographics, but was distinct enough to be mentioned here.

Technology Shift: This driver describes a technology change so monumental that many current assumptions about the future would be rendered incorrect. Examples include artificial intelligence, genetic engineering and nanotechnology. The technology shift might also be considered a shock. This driver was often rated as high likelihood and high impact.

Organised Crime/ Drug Trafficking: The danger from organised crime and drug trafficking was expressed by many participants as very likely but not high impact.

Complexity**:** This driver deals with the unpredictable consequences of actions in a globalised and networked world. This was rated as somewhat likely and high impact.

NATO role and cohesion: This driver included NATOs future security role, expansion, the transatlantic link, the NATO relation to the EU and cohesion of the Alliance. This was not rated as high impact.

Media/Strategic Communication/Influence: This driver captured the growing importance of media and strategic communication to influence perceptions from the global to the local level. Impact and likelihood varied.

Round Table Individual Drivers List

Data Naming Convention ACUS WS#2_________________

Please fill in the following table listing what you feel are the Top Ten Drivers. This is a judgement that you make about the most important drivers for NATO's Future Security Environment by 2030. It is your judgement of the most important Drivers for the analysis team to consider.

You will also be asked to rank the drivers for uncertainty and level of impact. We ask that you do this ranking after you have written your top 10 drivers.

Uncertainty: For uncertainty we ask that you consider the predictability of the driver. For example, if we ask what colour shirt a co-worker will wear tomorrow, the uncertainty would be high. If you know that the co-worker wears a military uniform to work the uncertainty would be lower. 1 is a driver with low uncertainty. 9 is a driver with high uncertainty.

Impact: For impact we ask that you consider the impact that this driver (if it occurs) will have upon NATOs Future Security Environment. 1 is a driver that will have little lasting effect. 9 is a driver that would have a civilisation changing effect.

Driver	**Uncertainty**	**Impact**
	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9
	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9
	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9
	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9
	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9
	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9
	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9
	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9
	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9
	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9

Table **A**

Round Table Break Out Group Drivers List

Data Naming Convention WS#1_____

Please fill in the following table listing what your group feels are the Top Ten Drivers. This is a judgement that your group comes to consensus about the most important drivers for NATO's Future Security Environment by 2030. It is your group judgement of the most important Drivers for the analysis team to consider.

There is not a required method for the group to use to reach consensus about the top ten drivers, just that there is a "general consensus" amongst the group.

Drivers

Table **B**

Individual Most Likely Option Table

Most likely – Please circle the most likely option for each Driver by 2030.

Driver		**Options**			
Globalisation		Further accelerates	Remains constant	slows	reverses
Governance		Ardent Nationalism	NSAs / Corporations dominant	Weak nations Strong NSAs	World Governance
Energy & Resources		Demand increases not met	Spot scarcity of resources, energy expensive	Supply & Demand level off	Future Global resource glut
Urbanisation		Move to cities increases	Cities grow at same rate as populations	City growth slows	Population flight from cities
Demographics		Old West Young East no migration	massive west migration by young east	West population decline	Young east population bulge
Terrorism		Attacks increase	Attacks more "unconventional"	Attacks decline	NBC attack
Technology		Tech solutions accelerate	Tech advance rate stable	Weak tech advances	Tech advances stop
Environment		Global Warming	Desertification of parts of Earth	Loss of Ecosystems & Habitat	Environ-mental quality improves
Networks & Communications		Networks improve global connectivity	Networks hampered by cyber - vulnerabilities	Network superior foe exploits use against NATO	Networks exacerbate haves vs. have nots

Table **C**

Individual Greatest Impact Option Table

Most likely – Please circle the option for each Driver with the greatest Future Security Environment impact by 2030.

Driver		**Options**			
Globalisation		Further accelerates	Remains constant	slows	reverses
Governance		Ardent Nationalism	NSAs / Corporations dominant	Weak nations Strong NSAs	World Governance
Energy & Resources		Demand increases not met	Spot scarcity of resources, energy expensive	Supply & Demand level off	Future Global resource glut
Urbanisation		Move to cities increases	Cities grow at same rate as populations	City growth slows	Population flight from cities
Demographics		Old West Young East no migration	massive west migration by young east	West population decline	Young east population bulge
Terrorism		Attacks increase	Attacks more “unconventional”	Attacks decline	NBC attack
Technology		Tech solutions accelerate	Tech advance rate stable	Weak tech advances	Tech advances stop
Environment		Global Warming	Desertification of parts of Earth	Loss of Ecosystems & Habitat	Environ-mental quality improves
Networks & Communications		Networks improve global connectivity	Networks hampered by cyber - vulnerabilities	Network superior foe exploits use against NATO	Networks exacerbate haves vs. have nots

Table **D**

Individual Morphology Table

Please circle 4 options (no two options from the same driver) that identify the greatest NATO Future Security Challenge by 2030.

Driver		**Options**			
Globalisation		Further accelerates	Remains constant	slows	reverses
Governance		Ardent Nationalism	NSAs / Corporations dominant	Weak nations Strong NSAs	World Governance
Energy & Resources		Demand increases not met	Spot scarcity of resources, energy expensive	Supply & Demand level off	Future Global resource glut
Urbanisation		Move to cities increases	Cities grow at same rate as populations	City growth slows	Population flight from cities
Demographics		Old West Young East no migration	massive west migration by young east	West population decline	Young east population bulge
Terrorism		Attacks increase	Attacks more “unconventional”	Attacks decline	NBC attack
Technology		Tech solutions accelerate	Tech advance rate stable	Weak tech advances	Tech advances stop
Environment		Global Warming	Desertification of parts of Earth	Loss of Ecosystems & Habitat	Environ-mental quality improves
Networks & Communications		Networks improve global connectivity	Networks hampered by cyber - vulnerabilities	Network superior foe exploits use against NATO	Networks exacerbate haves vs. have nots

Table **E**

Group Morphology Table

Please circle 4 options (no two options from the same driver) that identify the greatest NATO Future Security Challenge by 2030.

Driver		**Options**			
Globalisation		Further accelerates	Remains constant	slows	reverses
Governance		Ardent Nationalism	NSAs / Corporations dominant	Weak nations Strong NSAs	World Governance
Energy & Resources		Demand increases not met	Spot scarcity of resources, energy expensive	Supply & Demand level off	Future Global resource glut
Urbanisation		Move to cities increases	Cities grow at same rate as populations	City growth slows	Population flight from cities
Demographics		Old West Young East no migration	massive west migration by young east	West population decline	Young east population bulge
Terrorism		Attacks increase	Attacks more “unconventional”	Attacks decline	NBC attack
Technology		Tech solutions accelerate	Tech advance rate stable	Weak tech advances	Tech advances stop
Environment		Global Warming	Desertification of parts of Earth	Loss of Ecosystems & Habitat	Environ-mental quality improves
Networks & Communications		Networks improve global connectivity	Networks hampered by cyber - vulnerabilities	Network superior foe exploits use against NATO	Networks exacerbate haves vs. have nots

Table **F**

Annex C: Quantitative Futures Analysis

Multiple Futures Plausibility Analysis

Purpose:

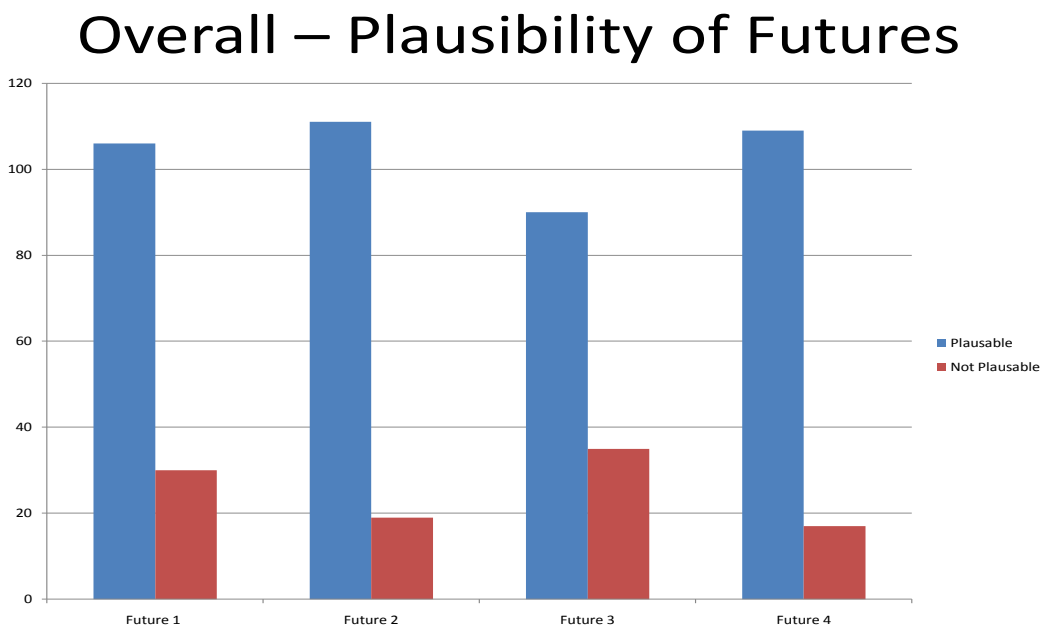
The multiple futures plausibility analysis was conducted to collect feedback on the MFP core team's ongoing development work on the futures and to guide their further refinement.

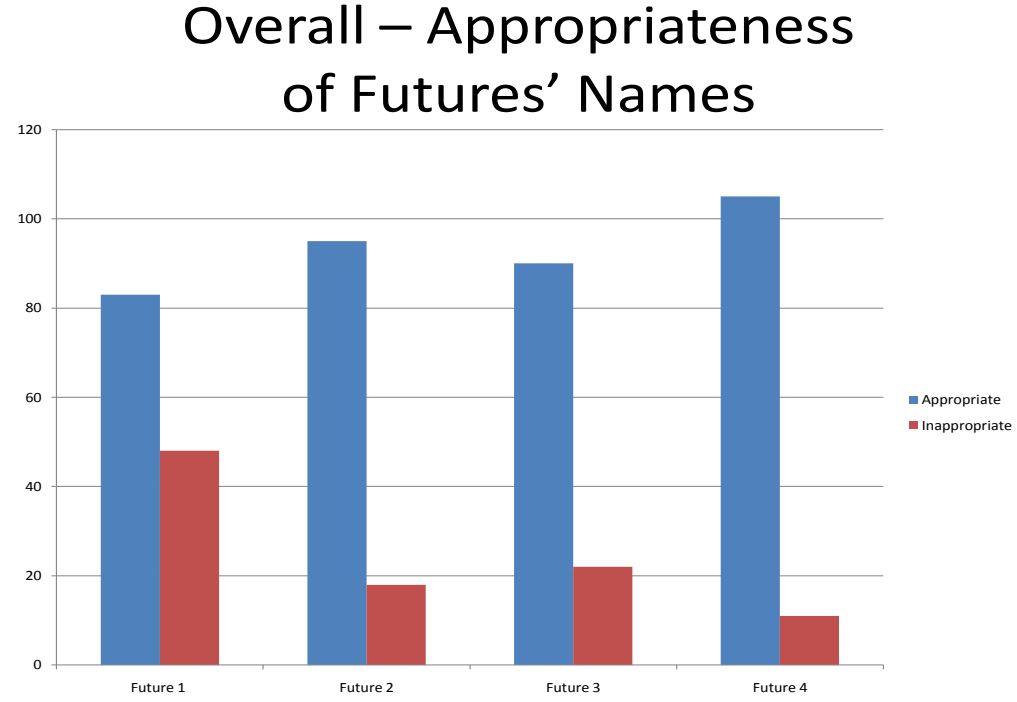
Results:

The responses indicated participants' general acceptance of the four futures as developed by the MFP team. The MFP team made minor but important revisions to each of the futures based on this feedback, after which the futures remained stable throughout the rest of the project.

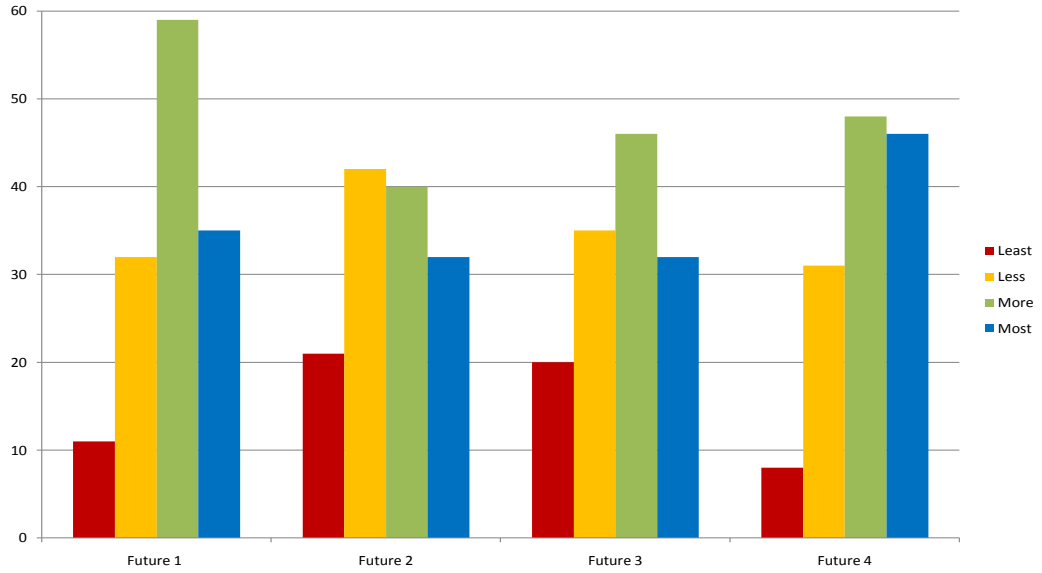
Method:

Workshop participants were asked to fill out questionnaires regarding the plausibility and presentation of the four futures as developed by the MFP team. The overall results are displayed in the following histograms, followed by results broken out by workshop.

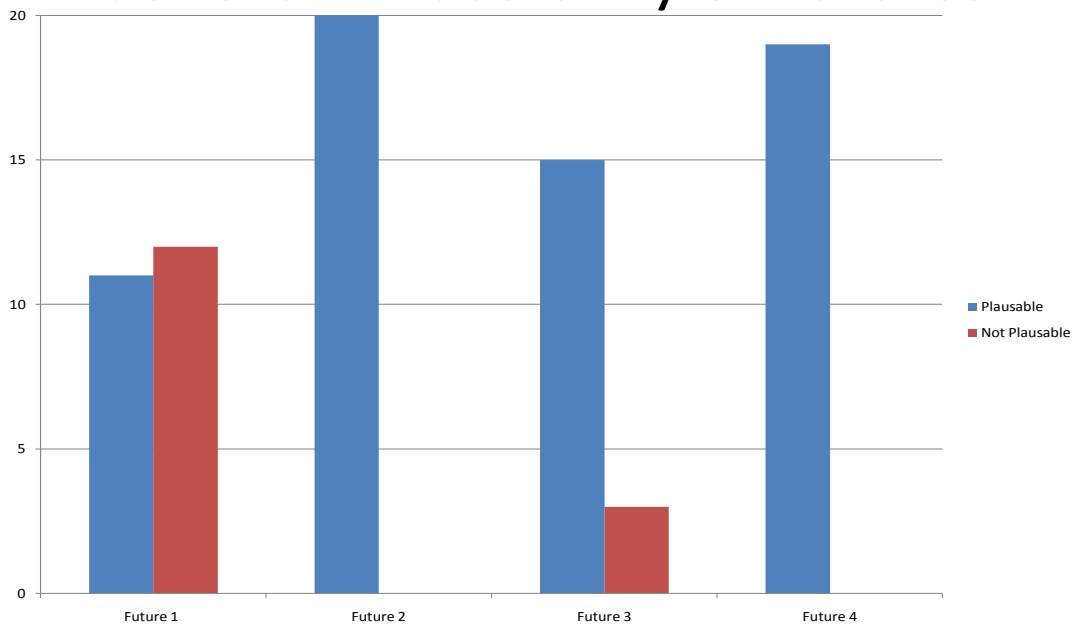

Overall – Plausibility of Futures
120
100
80
60
40
20
0
Future 1
Future 2
Future 3
Future 4
Plausable
Not Plausable


Overall – Appropriateness of Futures' Names
120
100
80
60
40
20
0
Future 1
Future 2
Future 3
Future 4
Appropriate
Inappropriate

Overall – To What Extent Do the Futures Stimulate Thinking?

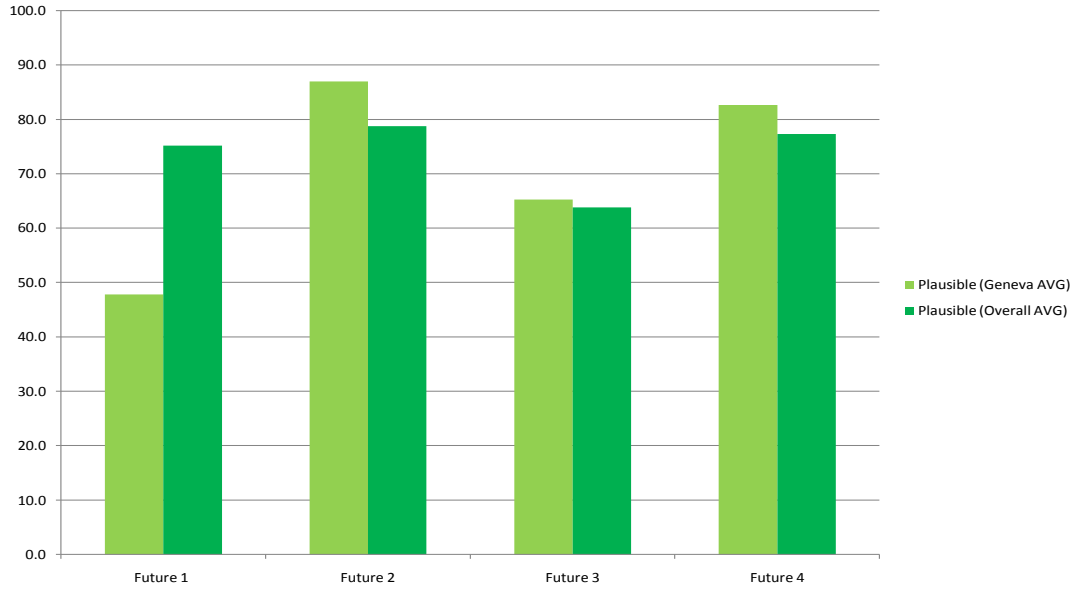


Geneva – Plausibility of Futures

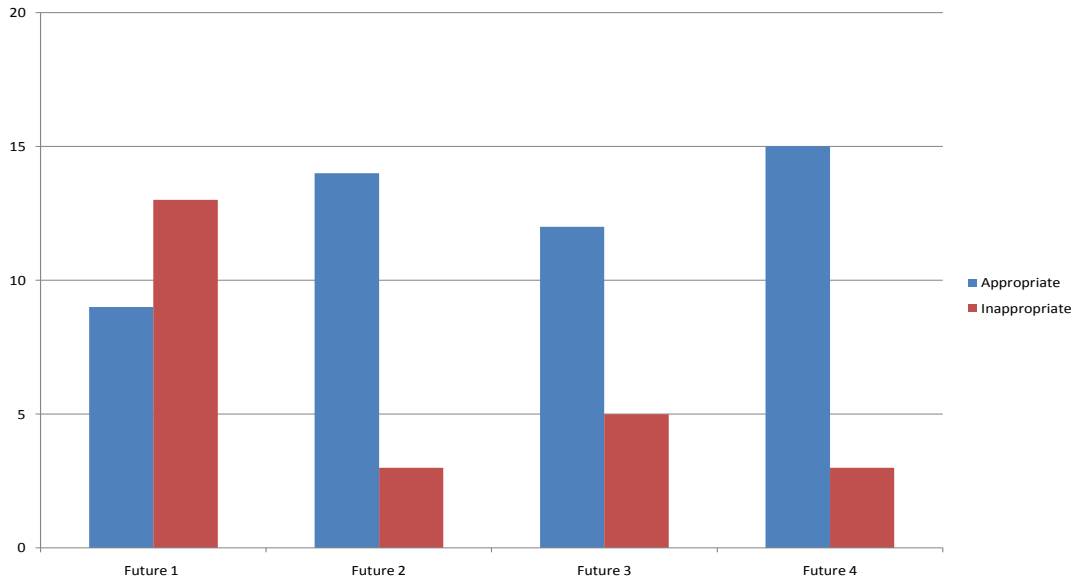


Geneva – Plausibility of Futures

(Comparison with MF Workshop Overall Average)

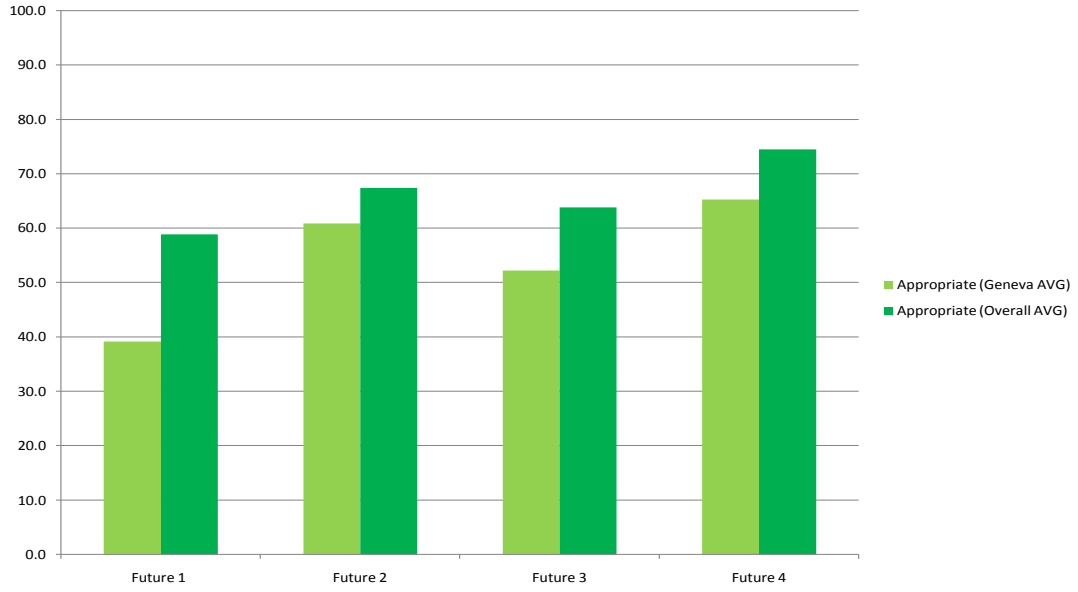


Geneva – Appropriateness of Futures' Names

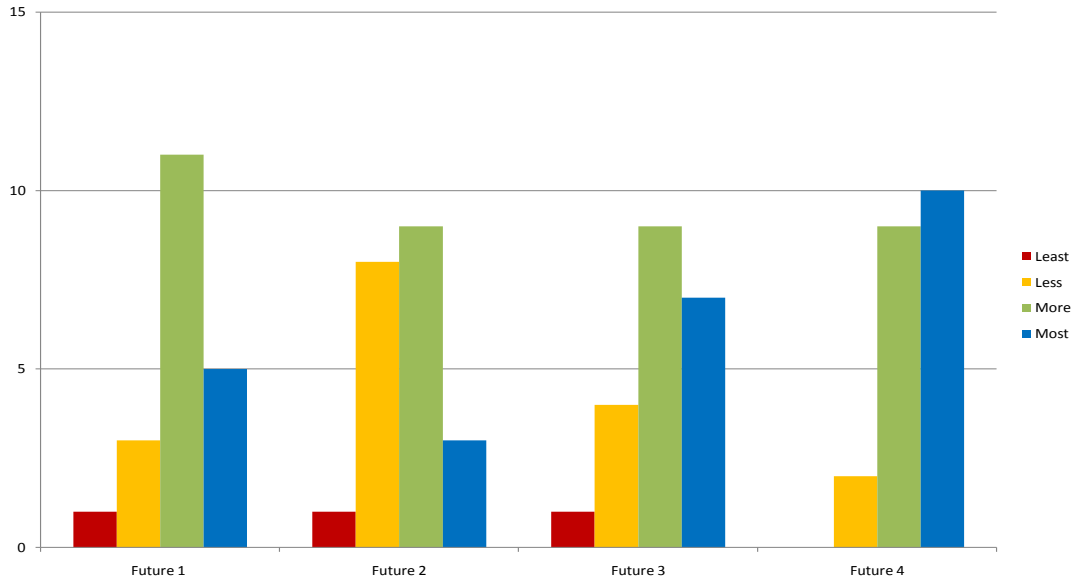


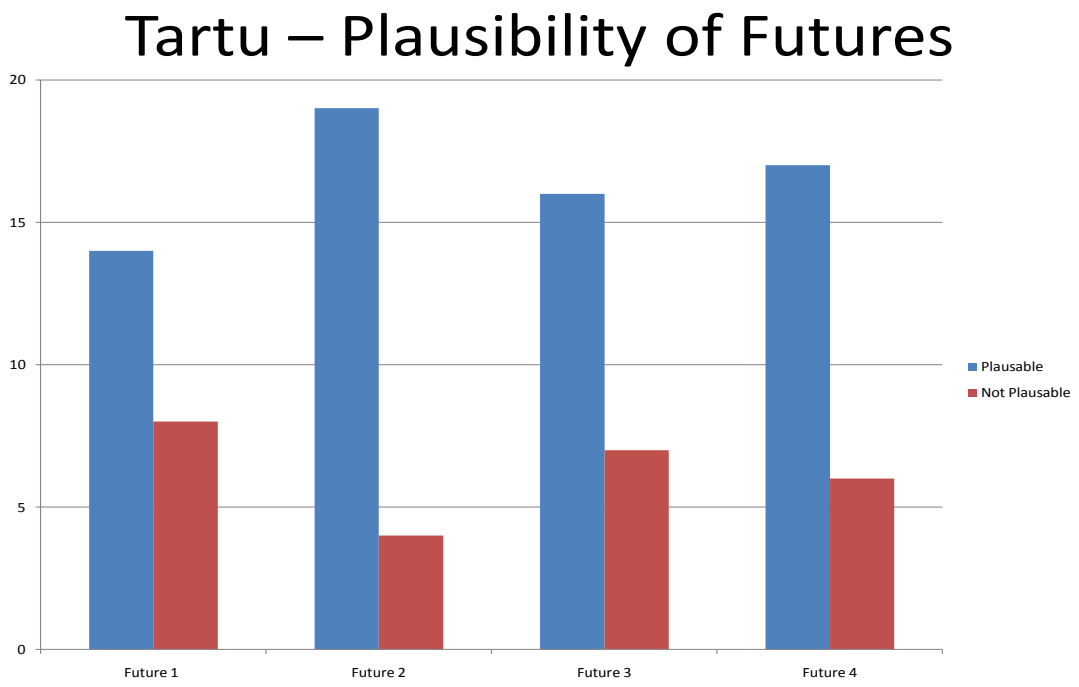
Geneva – Appropriateness of Futures' Names

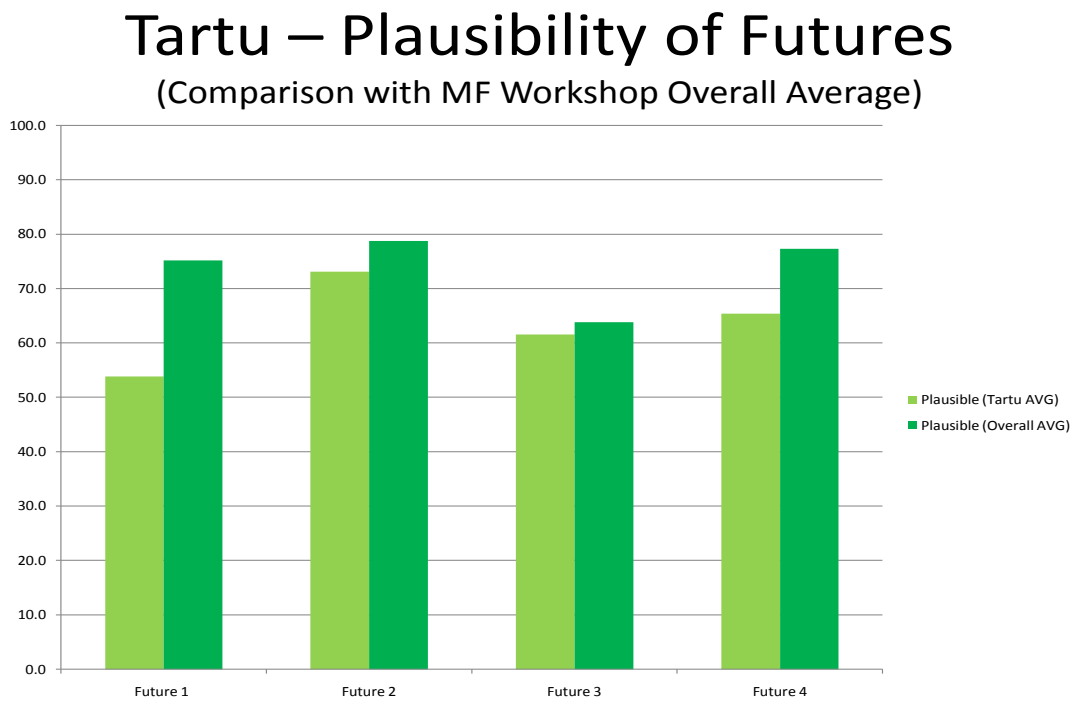
(Comparison with MF Workshop Overall Average)

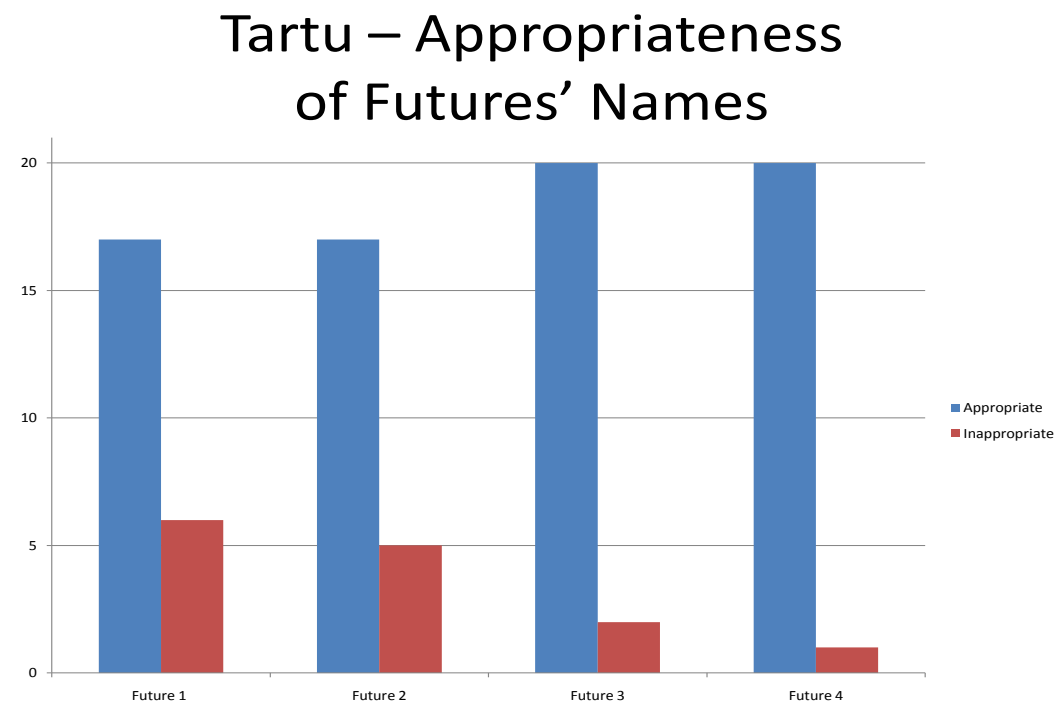


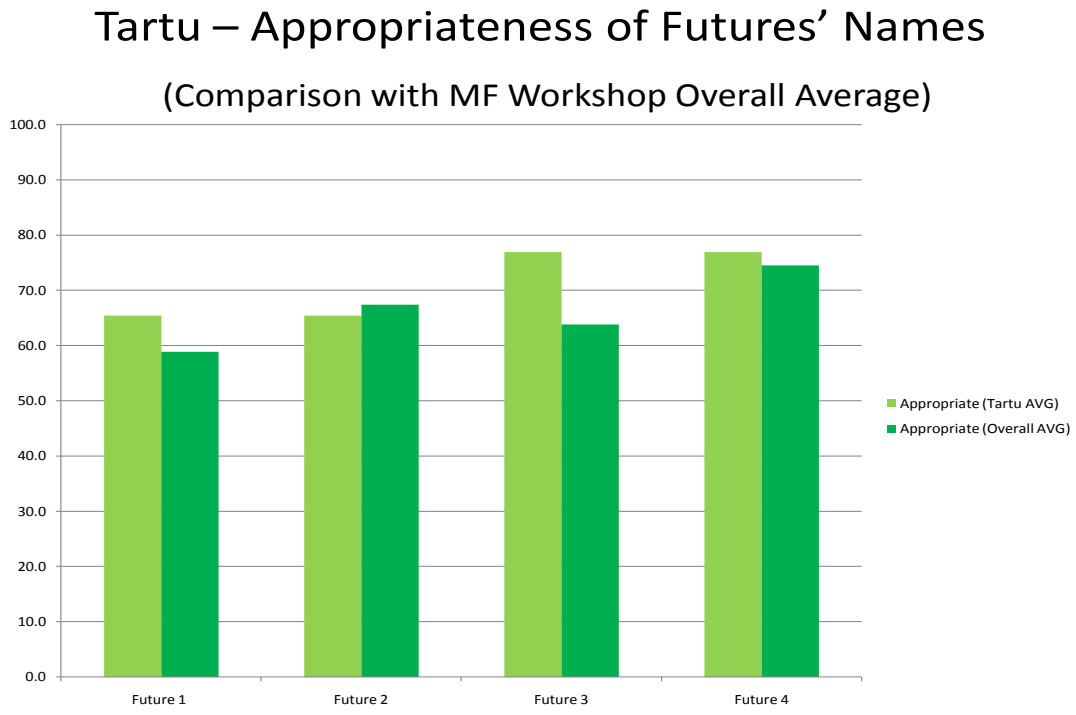
Geneva – To What Extent Do the Futures Stimulate Thinking?

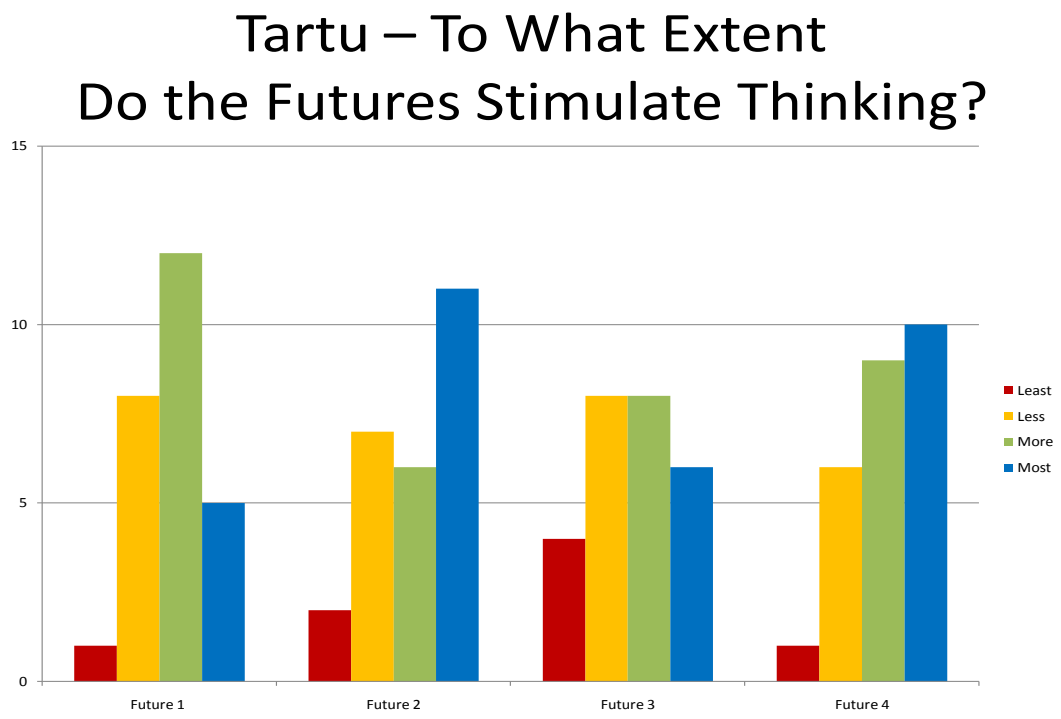


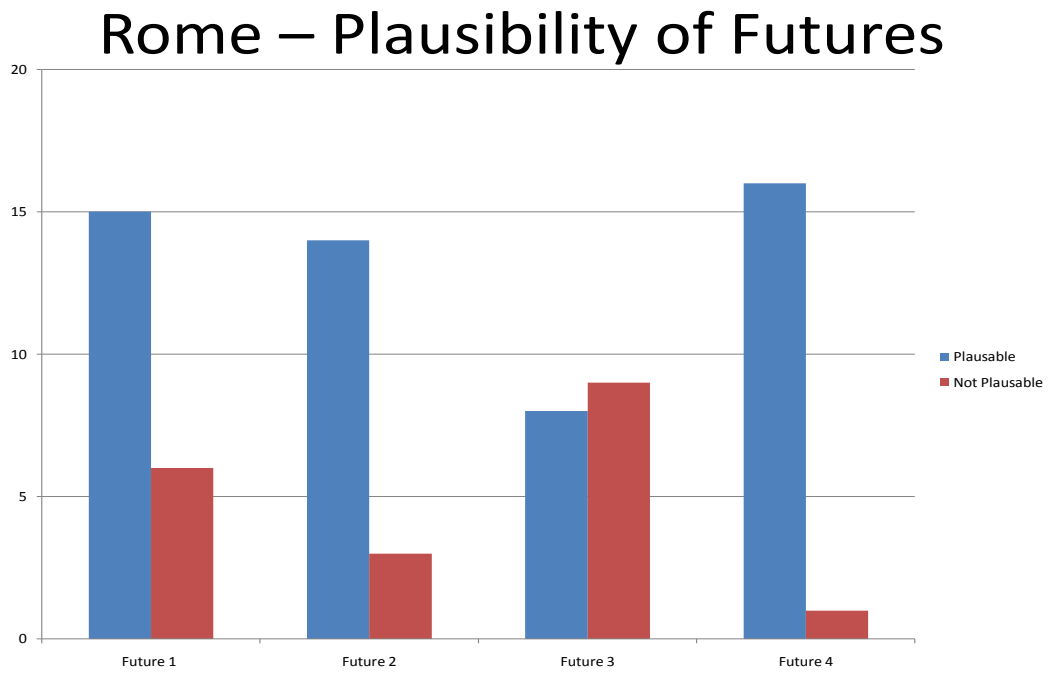

Tartu – Plausibility of Futures
20
15
10
5
0
Future 1
Future 2
Future 3
Future 4
Plausable
Not Plausable

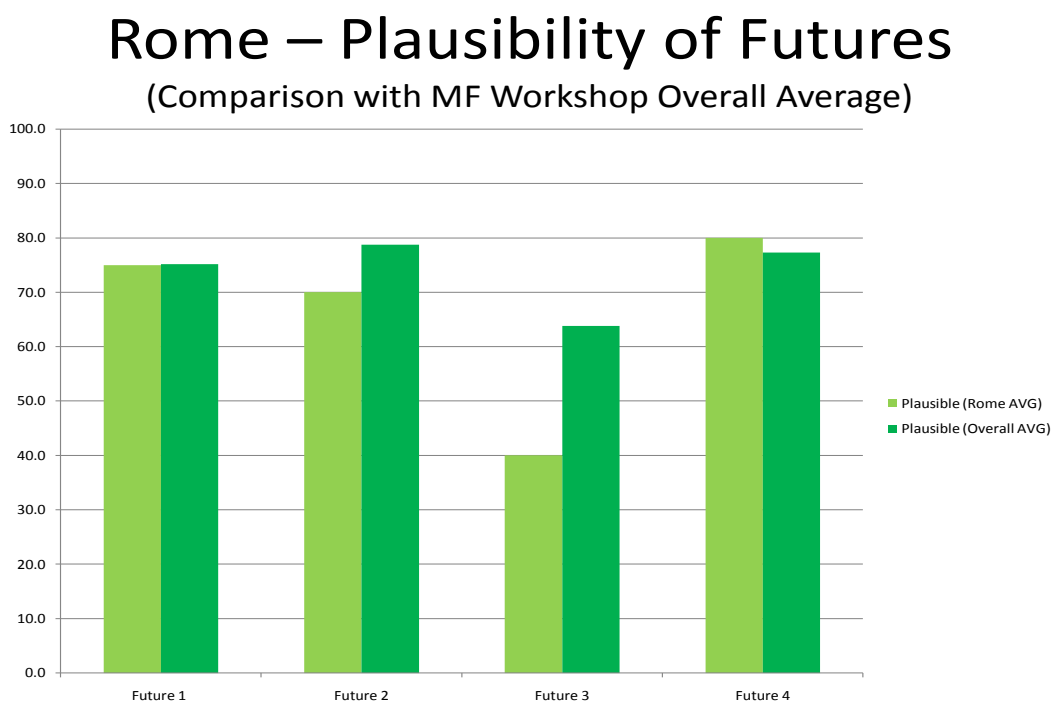

Tartu – Plausibility of Futures
(Comparison with MF Workshop Overall Average)
100.0
90.0
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
Future 1
Future 2
Future 3
Future 4
Plausible (Tartu AVG)
Plausible (Overall AVG)

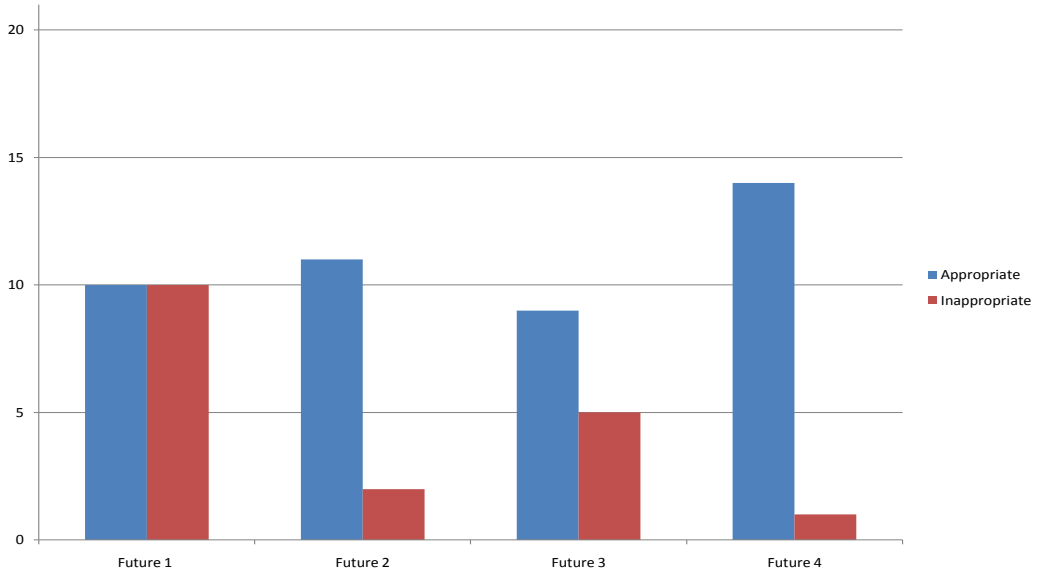

Tartu – Appropriateness of Futures' Names
20
15
10
5
0
Future 1
Future 2
Future 3
Future 4
Appropriate
Inappropriate

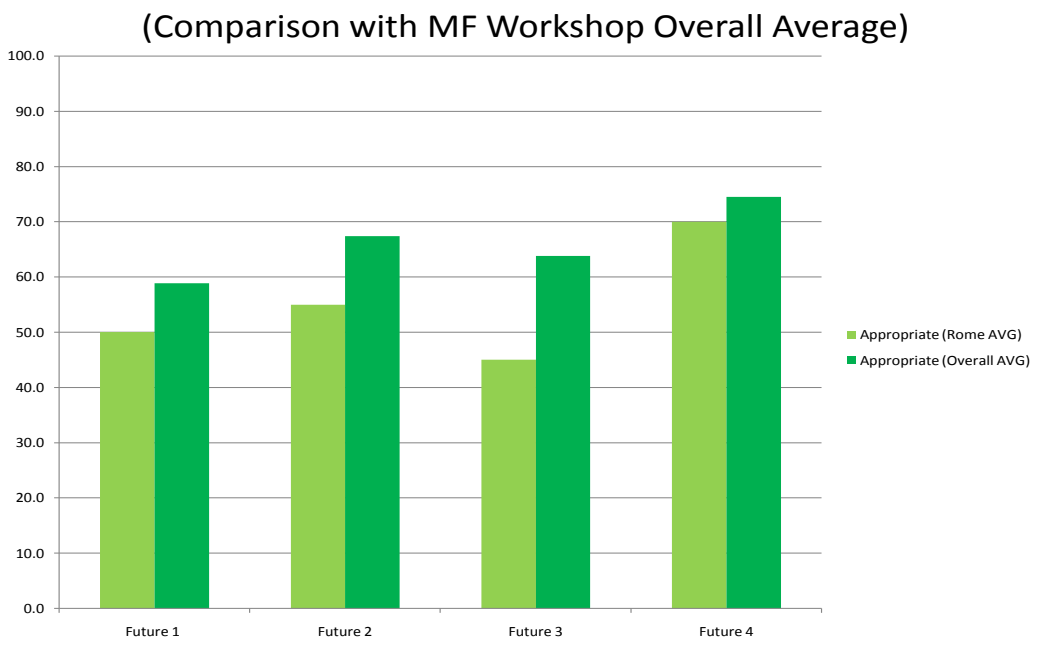

Tartu – Appropriateness of Futures' Names
(Comparison with MF Workshop Overall Average)
100.0
90.0
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
Future 1
Future 2
Future 3
Future 4
Appropriate (Tartu AVG)
Appropriate (Overall AVG)


Tartu – To What Extent
Do the Futures Stimulate Thinking?
15
10
5
0
Future 1
Future 2
Future 3
Future 4
Least
Less
More
Most

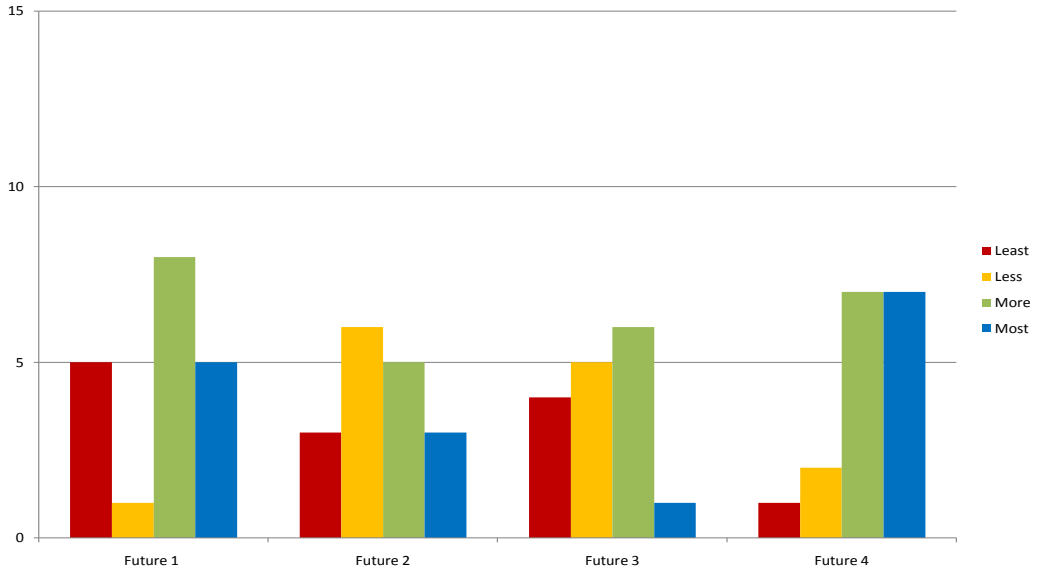

Rome – Plausibility of Futures
20
15
10
5
0
Future 1
Future 2
Future 3
Future 4
Plausable
Not Plausable


Rome – Plausibility of Futures
(Comparison with MF Workshop Overall Average)
100.0
90.0
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
Future 1
Future 2
Future 3
Future 4
Plausible (Rome AVG)
Plausible (Overall AVG)

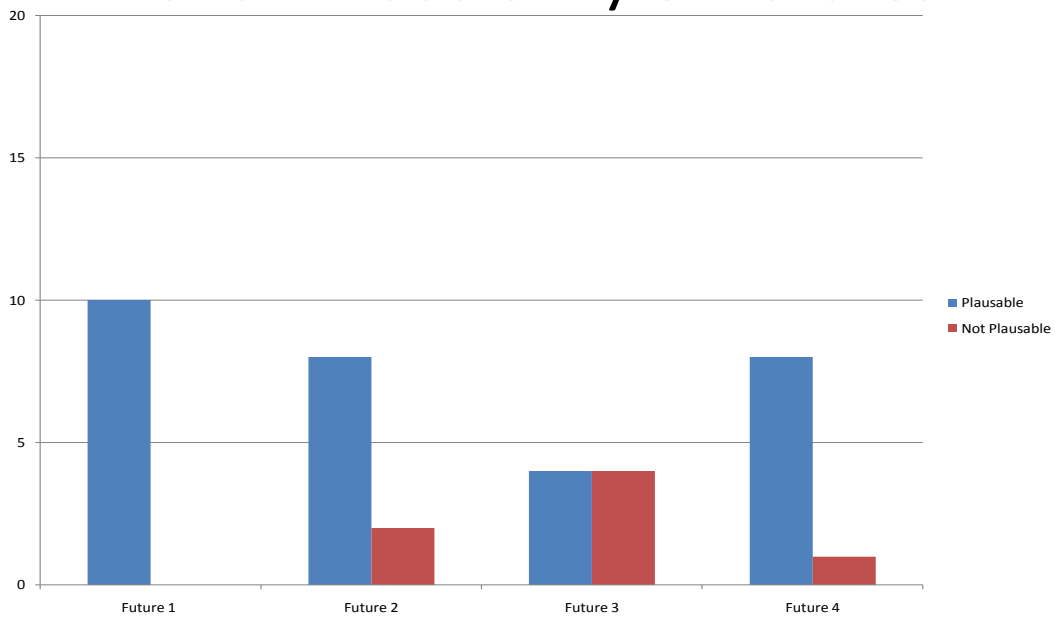

Rome – Appropriateness of Futures' Names
20
15
10
5
0
Future 1
Future 2
Future 3
Future 4
Appropriate
Inappropriate


Rome – Appropriateness of Futures' Names
(Comparison with MF Workshop Overall Average)
100.0
90.0
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
Future 1
Future 2
Future 3
Future 4
Appropriate (Rome AVG)
Appropriate (Overall AVG)

Rome – To What Extent Do the Futures Stimulate Thinking?

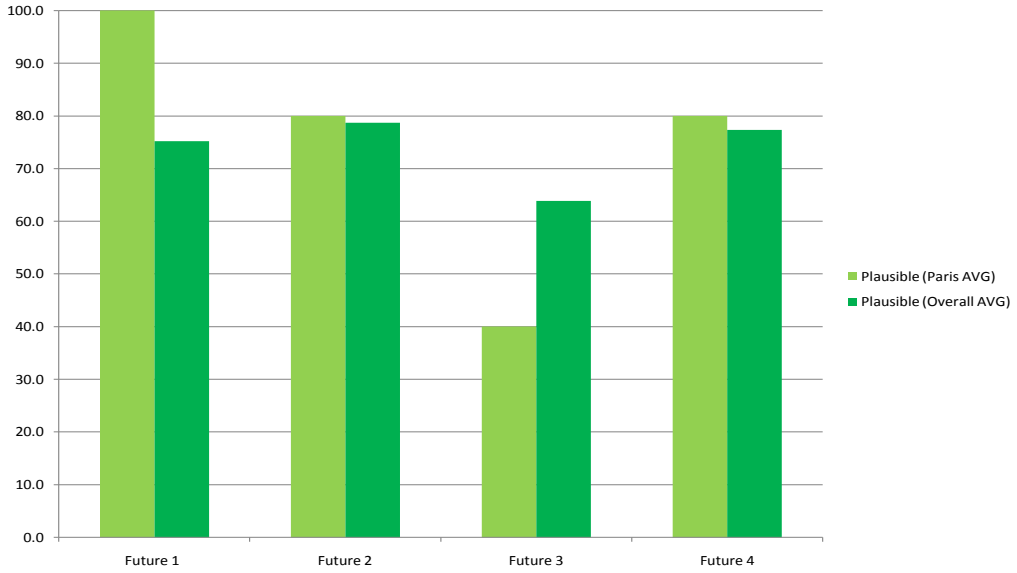


Paris – Plausibility of Futures



Paris – Plausibility of Futures

(Comparison with MF Workshop Overall Average)



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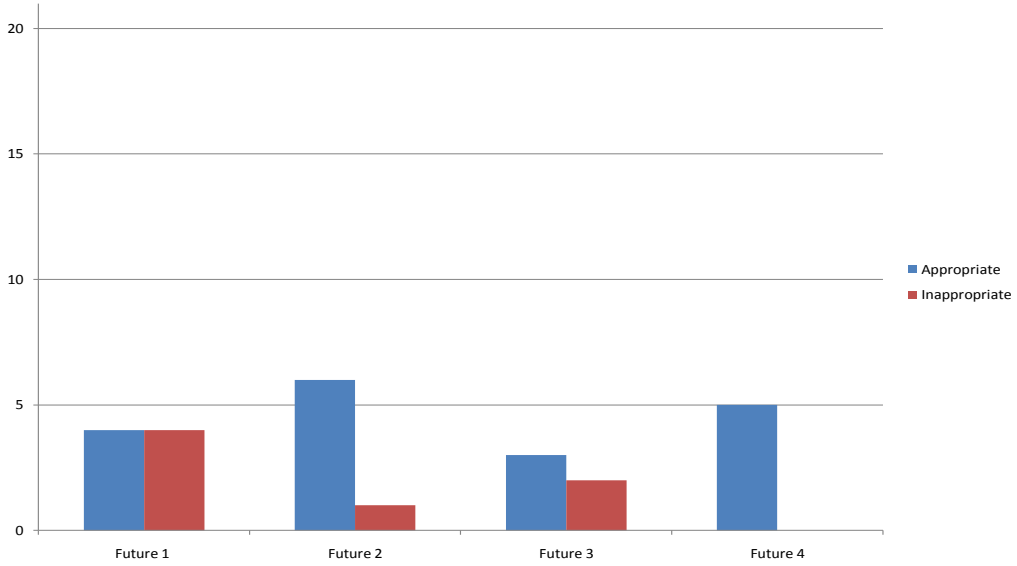
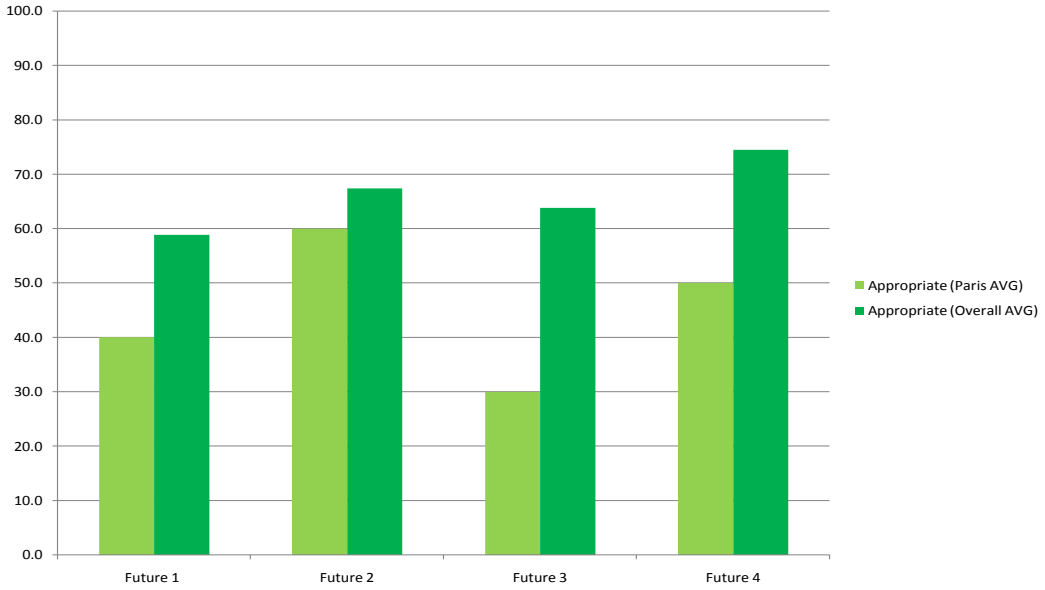


Paris – Appropriateness of Futures' Names

(Comparison with MF Workshop Overall Average)



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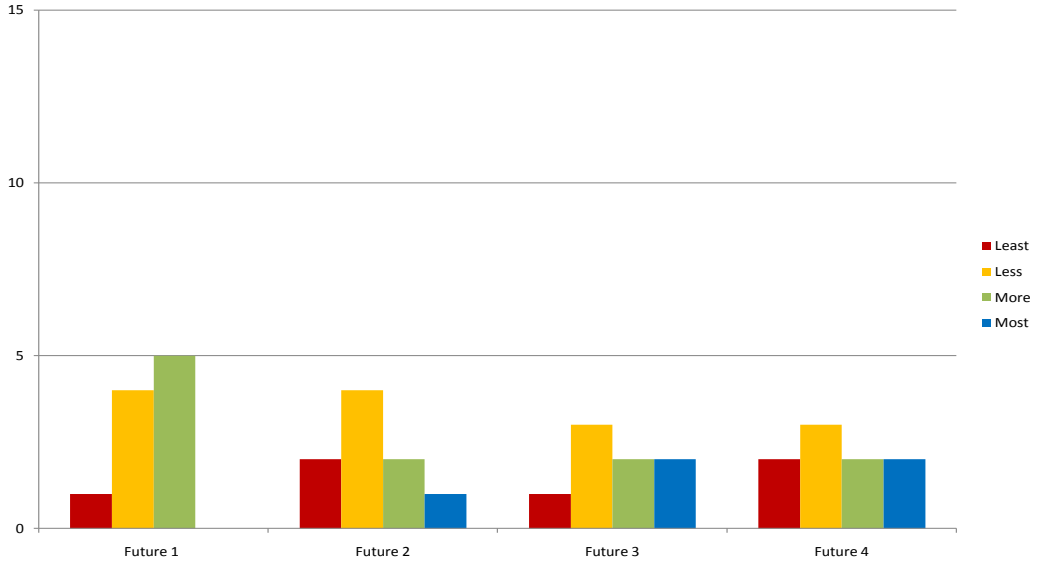

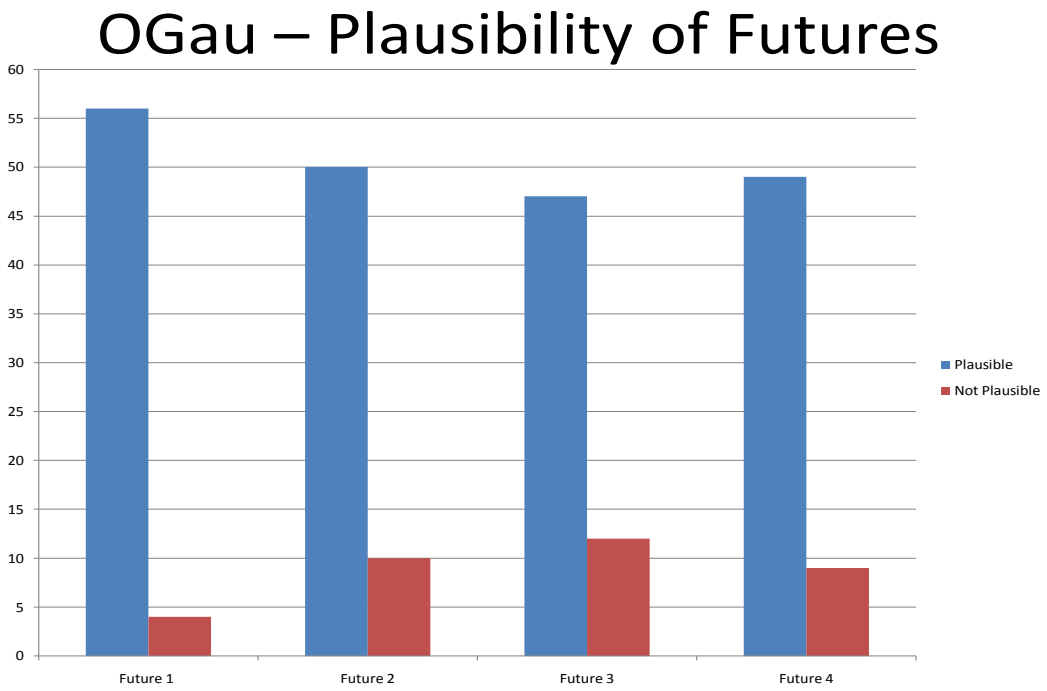
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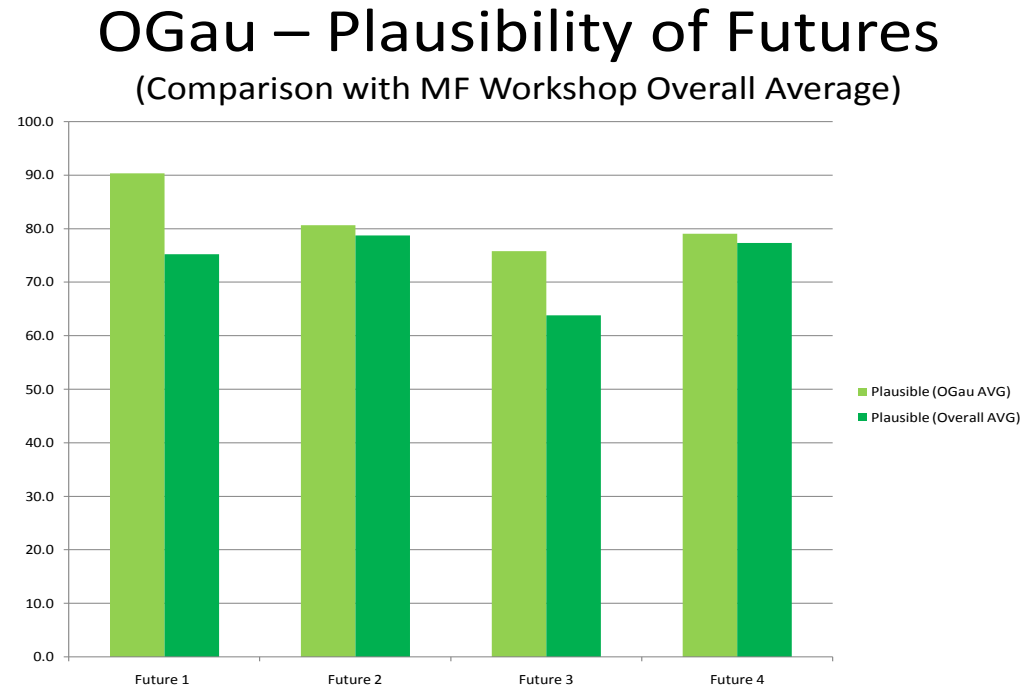
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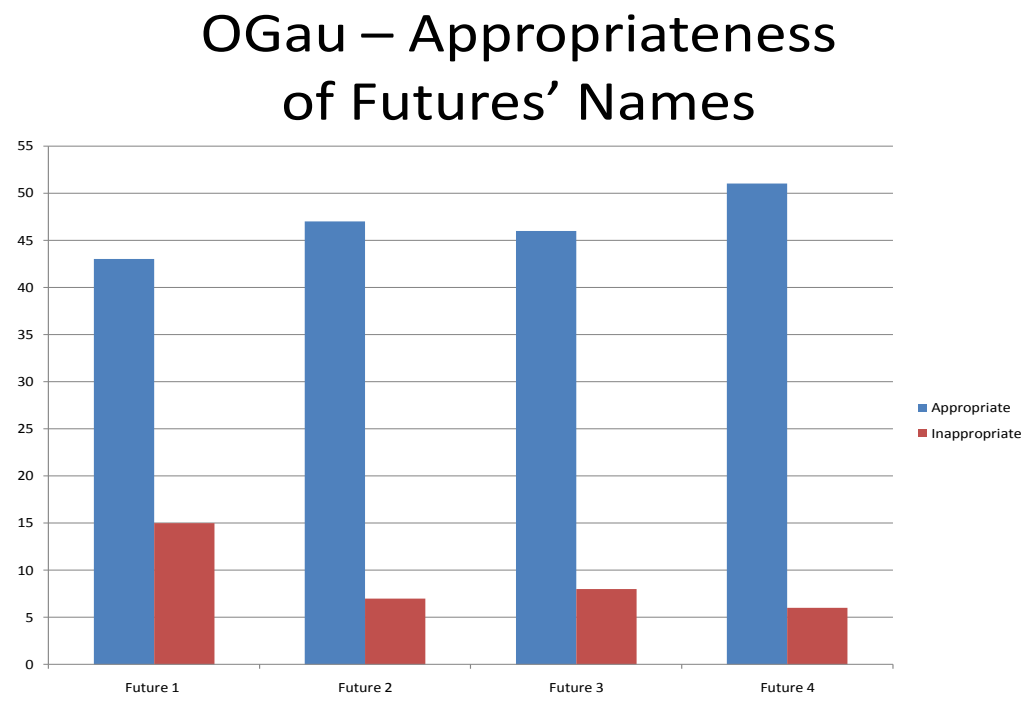
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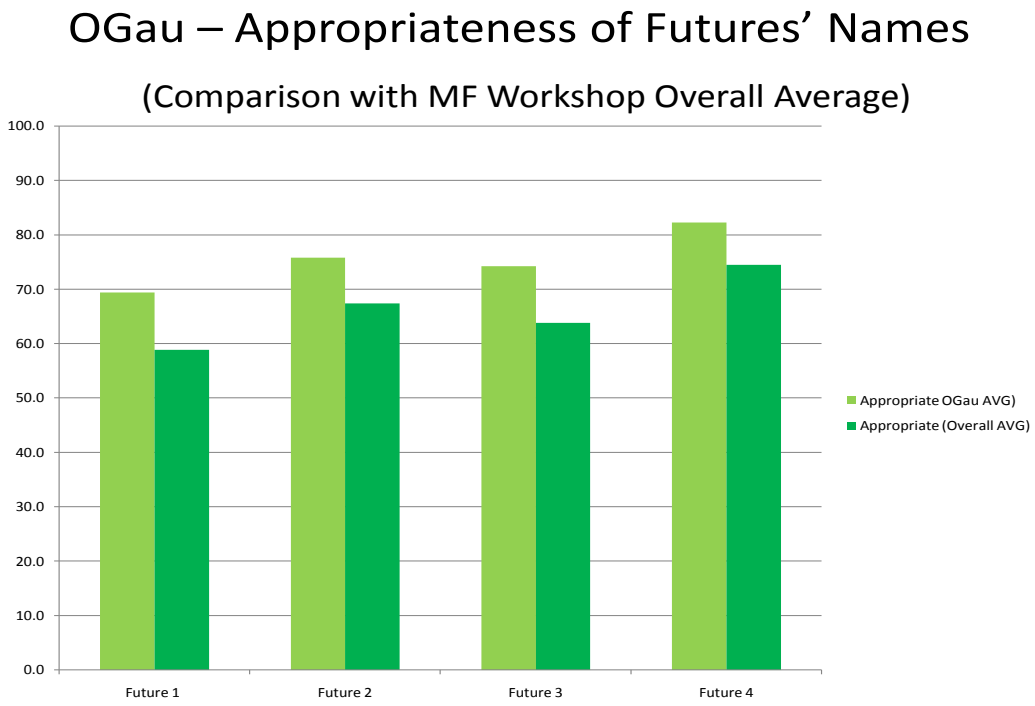
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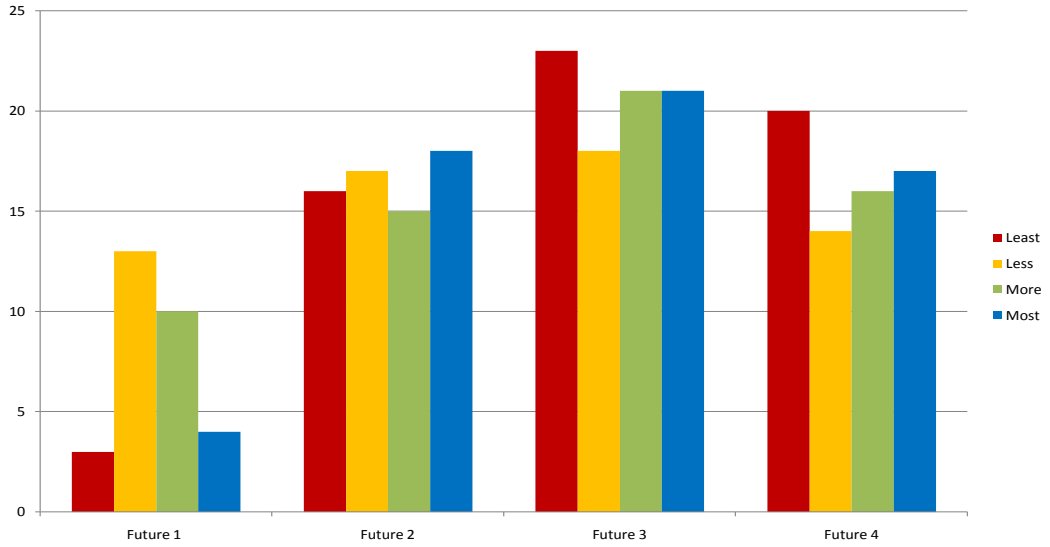
OGau – To What Extent Do the Futures Stimulate Thinking?



Annex D: Futures and Strategic Surprises

FUTURES

Future One: Dark Side of Exclusivity

Drivers: Climate change, resource allocation, economic integration, competing ideologies and worldviews

Climate change and resource allocation significantly affects the capacity of states outside the globalized world to function effectively and meet the needs of their populations. Weak and failed states generate instability in areas of interest, and the states of the globalized world are faced with strategic choices on how to react.

This future is focused on the friction between the developed or 'market' states, highly globalized and technological, and developing states – those left behind during the decades of advancement and innovation that now dominate the market in 2030. It is further imbalanced by an influx of immigrants fleeing devastated regions to seek improved opportunities and conditions in developed globalized areas. Market states have little interest in states that lack the resources, educated work force and culture of innovation necessary to fuel globalisation. This friction between market and developing states is exacerbated by nationalism, misallocation of resources, poverty, frustration, demographic pressure, and deteriorating environmental conditions.

Market states have become increasingly self-sufficient by reducing their dependency on oil and natural gas and by increasing their use of alternative energy. Dependent on the global economy, these states promote, protect and dominate financial, information, commodity and technology markets. Those states that derived wealth primarily from resources like oil and natural gas, and who failed to invest in education, diversification, technological infrastructure and a culture of innovation, have witnessed a systematic decline in their economic viability. Determined to protect their fragile economies and promote their cultural identity, some nations have adopted autocratic means of national control while

others gradually fail, chained to their collapsing economies. Thus, the landscape in 2030 is characterized by high asymmetry and friction as market states struggle to balance continued growth and development against the needs of those nations with large populations, scarce resources and weak governance.

As a result of the population and workforce deficit and the deteriorating climatic conditions in equatorial areas, an increasing number of immigrants migrate to developed countries, which has a direct impact on the demographic and societal structure. Developed states struggle to integrate and accommodate the mix of cultural, religious, and political views and values, which increasingly divides and segregates society.

While global technological innovation continues at a rapid pace, most developing nations lack the infrastructure and educated workforce to make the leap in innovation required to diversify and strengthen their economies. Market states that possess a highly educated workforce, more developed infrastructure and a commitment to technological innovation continue to advance – further widening the gap between 'market' and developing states.

In response to this globalized commercialization, some developing states promote and export nationalism, terrorism and criminal networks through a sophisticated array of global cells. This export of terrorism becomes the dark side of globalisation, the mimic of modernity: devolved, decentralized, privatized, outsourced and networked. In employing this advanced model of terrorism, regimes benefit from the technological advances of the past twenty years, cobbling together a brand of hybrid warfare that relies on a range of conventional, asymmetric and nuclear capabilities to threaten and blackmail their opponents. Criminal and terrorist networks, empowered by the globalized access to information and fuelled by innovations in the market, merge in a twisted nexus of opportunism and the wilfulness of power.

To protect their cultural and increasingly vulnerable way of life, like-minded market states have formed regional and associated federations and alliances that promote their primacy. International organizations play a major role in defending and enforcing a system based on a globalized rule of law. Failing states see such law as invasive and representative of 'market' arrogance and challenge and rebel in violent, asymmetric dissent.

Future Two: Deceptive Stability

Drivers: asymmetry, demographics, resource allocation, and competing ideologies and worldviews

Managing the demographic shift from aging populations and young migrants preoccupies states with social cohesion and transnational issues related to diasporas. The relatively benign stability results in over-attention to domestic concerns which leave the states in a weak position to react to geopolitical risk.

This future is focused on a general sense of deceptive stability throughout the developed world, where over-attention to internal concerns may leave states open to various geopolitical risks. There is a marked asymmetry between the developed and developing worlds. The developed world struggles to integrate labour markets as a result of changing demographics from increased immigration, as people migrate from poorer to richer countries in unprecedented numbers. As their own populations experience rapid aging, attracting young workers from relatively stable neighbouring countries becomes an economic necessity.

Large migration flows are facilitated by low birth rates in developed countries combined with a youth bulge in undeveloped countries, giving access to education and wealth to those leaving their poorer states of origin. The youth bulge refers to societies that have a greater proportion of younger people who later have enormous difficulty finding employment. This has enhanced economic growth in the developed world, while the same selectivity of migration has exacerbated a 'brain drain' in poorer areas. As the income gap between states continues to widen, there is an increased incentive to migrate to the developed countries.

Resource allocation is both effective and efficient as the resource-rich parts of the world become part of the dominant system. This leaves a wide range of festering problems in the resource-poor parts of the developing world, which are exacerbated by the lack of intervention by the liberal democracies absorbed in domestic concerns – real or imagined. At the same time, new non status-quo

powers are emerging in this area, partially unnoticed by the developed states – that are intent on gaining an advantage wherever they can, when necessary even outside of the international legal framework.

A number of emergent powers are also major migration destinations, which has altered traditional migration patterns. Demographic changes entail issues of conflicting values and worldviews and include concerns about social cohesion. Ensuing tensions and poor economic and cultural integration gives rise to domestic and transnational security issues such as crime and terrorism. Managing the domestic challenges of major demographic change is a primary focus both in terms of practical labour market issues and in terms of political and cultural integration.

In addition to increased immigration and urbanization, this future is shaped by marked resource scarcity, competing values and worldviews, and increased friction in the international system. States in the developed world are overwhelmingly focused on managing internal concerns, such as providing social services, developing infrastructure, and promoting a higher standard of living. This attention to internal concerns may leave NATO states vulnerable to geopolitical risk as opponents eye the opportunity to gain advantages in the international system.

Future Three: Clash of 'Modernities'

Drivers: competing ideologies and worldviews, demographics, and the use of technology

A strong belief in rationalism coupled with technological innovation has enabled advanced networked societies to connect horizontally across the globe. This network is challenged from the outside by the impoverished and authoritarian regimes of the hinterlands, and from within by a precarious balance between civil liberties and the system's surveillance capacities.

The principal tension in this future is between advanced networked societies amassing wealth and advancing civilisation, and the instability of hinterlands ruled by impoverished and authoritarian regimes.

Globalisation and technology have helped drive urban centres in the developed world to become mega-hubs of wealth and culture. These urban centres promote highly efficient living. The well-functioning segment of the world economy is wholly interdependent, global and a magnet for resources – informational, human and physical. The need for resources has been addressed through better use of formerly inaccessible territories such as the high north as well as through innovation.

Across the globe, middle and upper classes both work and exchange information seamlessly. Access to these classes is regulated through meritocratic and universal education systems. Populations residing within mega-cities enjoy extended life spans and high standards of living. Technology enables the formation and resilience of new social, cultural and political structures.

The governance of this developed world is highly functional – though not exclusively democratic. Governance evolves away from the Westphalian model to a more diffuse, multi-layered and network-centric model, in which problems are solved – and created – by virtual networks in real time. However, this devolution of socio-political power is brittle and critically vulnerable to attack, both

manmade and natural. Innovative technologies facilitate ubiquitous surveillance throughout urban centres, something that continues to be resisted fiercely by networks within civil society.

These same technological advances have decoupled the economies of the developed and developing worlds. Tensions persist at the edges, where the global network of cities comprised of steel, glass and suits, gives way to impoverished hinterlands that are home to authoritarian regimes fuelled by radical extremism, frustration, and resentment towards the well-functioning urban centres. Authoritarian regimes presiding over hinterlands interpret 'modernity' as austerity, civil and religious discipline, and increasingly reject the worldviews and cultural precepts embraced by urban networks. These regimes continue to wield real power through the active manipulation of the enormous resource needs of vast urban networks.

National allegiances have weakened and a corresponding growth in loyalty to shifting groups creates opportunities for non-state actors to increase in strength and importance. International norms shared by liberal democracies have facilitated the development of governmental entities both above (supranational) and below (local) the state level. The state is both ubiquitous because of increased technological surveillance and eroded as a result of more distributed networks of decision making.

Frontier areas – where cities meet hinterlands and modernities clash – suffer the greatest tension. Further destabilising these regions are organised criminal elements that engage in human and narcotic trafficking, intellectual and technological piracy, and illegal arms trading. Authorities within developed states are focussed primarily on keeping 'outsiders' at bay. They manage flows of trade, information, resources, and immigrants that traverse the borders between the urban cores and outlying areas.

Future Four: New Power Politics

Drivers: friction in international decision-making, competing ideologies and worldviews conflict over resource allocation; and a lack of economic integration.

Growing absolute wealth including widespread proliferation of WMD has increased the number of major powers, between whom there is now a tenuous deterrence. Globalization through trade integration and internationally shared standards of interaction is undermined as they compete for access to resources and spheres of influence.

This future is focused on power politics, but the world is not dominated by one or two superpowers; it has become truly multi-polar. The world's geopolitical framework is shaped by the emergence of large and powerful states, or unions of states, whose relations have become more antagonistic and competitive due to absolute increases in wealth. This future is unstable as a number of states with comparable power wield significant influence in the international system as a result of their large populations, resource allocation, technological innovation, geographic location and cultural dominance.

The states that comprise the major poles of power may not be global, but regionally they play a significant role in shaping world politics by promoting their strategic interest and competitive advantage. Regional spheres have emerged around the most powerful of the poles in this new multi-polar system. Competition and demand for resources, particularly in ungoverned spaces, continues unabated as the most powerful states continuously strive to improve their economies. Realism is the dominant international relations paradigm, where states share a belief in the sanctity of sovereignty and are primarily motivated by the desire for military and economic power, and to a lesser extent by ideals. There is little incentive to build, support and improve international institutions. The role of international organizations is reduced substantially in this future and without their paternity inter-governmental and non-governmental organizations have little influence in the international system.

Global governance – including international law – has weakened significantly. States pursue their own interests and shifting bi-lateral agreements flourish, as states, both large and small, prefer direct relationships. Nationalism flourishes in those states that demand cultural homogeneity over an integrated society, which has successfully integrated diverse groups with different cultural, religious and political values and beliefs. Strong historic narratives influence political agendas, encourage power politics, and attempt to maintain cultural traditions and values in the face of continued globalisation. With strained international relations and dysfunctional cooperation at the international level, states cannot come to accommodation and lack forums to solve mutual problems.

Advances in technology continue as the competition between states intensifies. States seeking to join the club of most powerful states use nuclear technology to attain international stature, energy independence, deterrence and improved military capability. The result is an increasingly tenuous world where a “show of force” has less deterrent value and where it has proven to be harder to intervene or credibly pressure governments within their dominant spheres of influence. With few shared international standards for resolving disputes, interstate conflict is a risk.

STRATEGIC SURPRISES – THE CHALLENGE OF DISRUPTION

Futures studies often have trouble dealing with non-linear developments such as systemic shocks. A systemic shock is an unforeseen event that shakes the entire, economic as well as political, system. It does not have to be a military event, but can stem from all of the domains of social and natural reality. Historical examples include the collapse of the Soviet Union and the tragic events of September 11, 2001.

Four each of the four Futures, two shocks are applied systematically after the initial analysis: The shocks are posed as having taken place between now and 2030: what is sought by this are the wider ramifications of the shocks, not the immediate crisis response actions. The shocks are thus applied in order to tease out and illuminate structural vulnerabilities and tensions inside each Future – they are flash grenades showing fissures and provoking them to break apart. In order to facilitate further analysis the original risk conditions identified in the four futures are reviewed under the light of these flash grenades and the impact of each shock is first described in one paragraph per future and then summarized per shock.

First Shock: Global Pandemic

November 2019: Over several years, disease-monitoring agencies have reported genetic shifts in the circulating strands of influenza, the latest designated H5Nx. CNN Headlines News broadcasting from Asia reported an increasing number of new infections. The majority of the victims parts of Southeast Asia. In all cases local authorities confirmed the transmission path to be animal-to-human. In reaction to the local outbreaks, all infected livestock has been killed.

December 2019: A specialized laboratory isolated a virus that contained an unprecedented combination of the rare H9-series avian flu and the human flu virus. The virus designated H12Nx showed signs of high lethality and contagiousness. After human-to-human transmission was confirmed in 3 different cases the World Health Organization (WHO) issued a major alert and raises alert level from 3 to 5. Meanwhile, with a rapidly increasing number of flu cases in

many Asian countries, Western experts and politicians discussed the pros and cons of issuing travel bans for all countries with reported H12Nx flu cases vs. the expected economic losses given western extraordinary supply-chain vulnerability. Despite major efforts undertaken the overall yearly capacity of pharmaceutical companies and laboratories peaked at 450 million doses of vaccine.

January 2020: The European Centre for Disease Prevention and Control (ECDC) confirmed a rapid rise in infections as well as an unprecedented fatality rate. Exact numbers were withheld to prevent widespread panic. A small number of vaccine producing countries issued export stops arguing that protection of the own population must be ensured before excess doses can be delivered to help others. That number soon began to rise.

February 2020: WHO acknowledges that H12Nx has spread around the world. More than 300 million people have been reported as infected and health experts warn that we may not even have reached the peak of the crisis. The current case fatality rates lead to a projected death toll of 120 to 140 million, far exceeding the last major pandemic of 1918 (Spanish flu). ECDC predictions for overall loss of population range from 3.1 to 6.5 million fatalities in Europe. Major insurance companies calculate the overall economic damage in excess of 5% of the global GDP, ranging from 4.3% in Europe to 26% in Hong Kong.

Impact on identified risk conditions

Future 1: A pandemic at the scale of the 1918 Spanish flu will exacerbate internal stability in already weak states and likely lead to a significantly increased number of failed states. Rich and stable countries however, will focus their attention and concentrate resources on alleviating the effects of the pandemic on their own populations and are likely to reduce stabilization efforts abroad. However, critical infrastructures abroad in areas heavily affected by the pandemic will require increased protection in order to ensure access to critical resources. Especially in failed or failing states with a very high number of casualties, radical ideologies will find better breeding grounds and ideological conflicts will spill over into neighbouring areas. With single national health care systems incapable of dealing with the situation and providing vaccines the likelihood of massive uncontrolled migration increases significantly.

Future 2: A large scale pandemic will further increase the inward look and overemphasis of internal affairs in many western nations. Due to the immense demand on vaccine and health care the electorates will be pressed to shift more resources towards the prevention and mitigation of future pandemics which will put more pressure on defence budgets. The market for vaccines will become very attractive to organized crime. Additionally, the short notice availability of theses vaccines in a global high demand situation will lead to significant internal and external tension.

Future 3: The complexity and interconnectivity of systems within a society (health, transport, energy, security, etc.) will aggravate the impact of a pandemic. Increased absence of employees in one system will have significant negative impact on the all the others up to the full break down of a states' economy. The likelihood of civil unrest significantly increases. In a life threatening situation important parts of the society may shift loyalties from the state towards a non-state actor capable of supplying vaccine and basic life support. Resource rich states heavily affected by the pandemic will likely use western dependence on energy imports in order to extort vaccines and health technology in return for energy.

Future 4: With large parts of their populations affected by the pandemic there will be a run for available vaccines on the global market and it is likely that all instruments of power will be used in order to ensure survival of a states' population. Interstate rivalry will significantly increase and existing alliances will suffer from reduced cohesion. The security environment will become more volatile with the follow-on run on existing natural resources to mitigate the negative effects of the pandemic on individual economies, especially in ungoverned spaces. Overall, the risk of interstate war will rise considerably. Above that, large power fluctuations are likely if key states are significantly affected as other states will be ready to step up to the plate and demand more influence in global politics.

Pandemic Summary: A global pandemic with hundreds of millions casualties will cause state failures in undeveloped or weak states and severely deteriorate economies in affected globalized states. Radical ideologies will further spread in failed states whereas governments in globalized countries will have to focus on

ensuring the survival and prosperity of their populations. Resource rich countries affected by the pandemic on the other hand will use their energy resources to extort vaccines. These two conditions will lead to a run for existing vaccines in a global high demand situation that cannot be satisfied through increased vaccine production. Organized crime will quickly step in to profit from that situation. Interstate rivalry will significantly increase foremost due to the struggle for vaccines and following that in an attempt to secure natural resources. Therefore, the risk for interstate war may reach unprecedented levels and large power fluctuations are likely to occur.

Second Shock: WMD Attack on a critical node

March 2020: The mayor of R-town, home of the world's 3rd largest seaport, is giving the keynote address for the opening ceremony of the port's newest Liquefied Petroleum Gas (LPG) production facility. He proudly addresses the fact that R-town has now also become the number 1 LPG hub.

April 2020: A new terrorist group, the Global Radical Freedom Fighters (GRFF) proclaims to be the single voice of all the fighters against the imperialistic western powers. In a statement broadcasted on some Eastern TV stations, they warn the United States and the European Union that "justice will soon come down upon both". Preliminary analysis of the tape reveals no sources of information about its origin or the person giving the 3-minute statement.

May 2020: EUROPOL investigations supported by multiple intelligence agencies in and outside Europe lead to the arrest of over a dozen alleged suicide bombers. Interrogation of the suspects reveals links to a group called GRFF. As a direct response to the investigations, some EU countries elevate their terrorist threat levels while others argue that there is no clear evidence of an imminent attack.

June 2020: A nuclear explosion in the vicinity of the new LPG production facility in R-town port completely destroys the facility. Initial analysis of satellite imagery leads to estimates that the size of the nuclear device was around 10kT. Casualty reports range from 35k to 55k and all medical facilities around R-town are

overwhelmed by the number of patients showing up with severe burns or symptoms of nausea. Doctors are unable to distinguish between victims critically radiated and needing immediate medical care and those who have been exposed to fatal doses of radiation beyond recovery as well as shock patients since the initial symptoms are reported to be identical. Military nuclear experts advise that the total number of casualties may well exceed 100k.

The explosion destroyed the refinery and rendered 90% of the port unusable for an extended amount of time. This constitutes a critical blow to the Western economy. Shortly after the explosion, another videotape was released in which the proclaimed leader of the GSFF acknowledged responsibility for the attack.

Impact on identified risk conditions

Future 1: A WMD attack will destroy a major European hub and surrounding area. Internal migration and intense pressures on the health care system stress societal infrastructure beyond the breaking point. Europe will recover, but in the aftermath the radical actors behind the attack will have earned a strategic victory which will motivate them and increase the number of recruits joining those radical groups.

Future 2: In Future 2 a WMD attack is a logical consequence of the strategic inattention and overemphasis on internal affairs. The likely public demand for an adequate response to the attack will lead to a rejection of current government policies. The importance of being a member of a credible Alliance will return to the agenda and likely lead to increased efforts to enhance the ability of the Alliance to protect and defend its members. Even though the economic impact of the attack will be immense, a single WMD attack will be insufficient to destroy Europe. The developed nations, led by the Alliance, will combine all available resources to speed recovery and increase security measures at an unprecedented level.

Future 3: A single critical blow to a major Alliance seaport will significantly harm regional economies due to the complexity and interdependence. Reduced civil liberties and an increasingly invasive security force will be a consequence of the recovery. Determining the identification and location of specific perpetrators will be a very sensitive and difficult task, making effective retaliation extremely

problematic. The nation under attack in most cases will not have sufficient military forces for retribution by itself, and will make a strong demand for an Article 5 response by the Alliance. Failure to respond rapidly and appropriately will split the Alliance.

Future 4: In case of a major European seaport being targeted, the impact of the attack will change the balance of power. European power will decrease in the short term, but a measured retaliatory response and a comprehensive recovery plan supported by a unified Alliance will in the long term strengthen the region and the Alliance.

WMD attack summary: The WMD attack will destroy a critical logistic hub and cause extreme environmental degradation in the heart of Europe with immense internal consequences for the affected nation. Mitigating the effects of a single WMD may exceed one nation's capacities and multinational assistance will then be required. Being a member of a credible defence and/or security organization will get increased emphasis but the Alliance will be expected to show resolve by timely and appropriately responding to the attack. Such action taken with proper burden sharing will increase Alliance cohesion. Failure to respond or a weak response on the other hand will lead to internal abrasion of the bonding forces within the Alliance. The WMD attack will have large scale negative effects on all European nations' economies due to the complexity and interconnectivity of the different societal sectors but concerted actions taken by all states are likely to overcome these effects within a couple of years. However, synchronized WMD attacks to different critical nodes within a short period of time will likely cause an economic and social crisis of unprecedented scale.

RISK CONDITIONS DEFINED

Challenge of state authority- Subversive actions and activities to undermine the legitimacy of the government system in a state.

Competition for ideological supremacy- and ardent nationalism lead states to try to increase their sphere of influence supported by sophisticated information warfare. The international system is dominated by the most powerful nations that impose their views and use their instruments of power to create acute asymmetries resulting in a high friction environment. Broad interpretations of existing national and international laws in favour of nations' strategic interests create a "law fare" environment.

Competition for resources- leads to the creation of loose and flexible coalitions and new bi-lateral agreements as states try to protect the security of their resource supply chain. This competition is extended into formerly ungoverned areas (polar regions, deep sea, space) and exacerbates the already high level of friction in the international system.

Complex interdependent computer networks- attacks on networks have the potential to achieve catastrophic effects in a highly-advanced and technologically-driven society. The acceptance of the internet as a legitimate environment within the battle-space remains debatable for publics who enjoy largely reliable service networks. Questions abound whether or not the information environment has become the most important in which to wage wars.

Consequences from recurrent environmental catastrophes- driven largely by climate change; have the potential to not only destroy critical infrastructures and wreak havoc among civil population centres, but to also drive weakened states into failed ones.

Extremism of marginalised groups- continues to foster discontent and instability. Such groups continue to conduct acts of terrorism and want for WMD. Low-technology warfare (guns, suicide bombers, dirty-bombs) will continue to have a large "bang for the buck" effect on morale of the technocratic society.

Failed Governance- leads to civil war and/or authoritarian rule; makes the region a zone of instability. Criminal and disenfranchised elements of society find sanctuary in failing or failed states.

High dependency on constant flow of vital resources- within the technocratic centres, and between the technocratic centres and the frontier regions, can devastate

highly interdependent trade infrastructures. Vital resources are defined to include information, energy, minerals, foodstuffs, water, labour etc.

Inability of international system to handle large power fluctuations- international system is too slow or unable to adapt to changes in the relative distribution of global power, resulting in tensions while system slowly adapts.

Inability to anticipate, sense, and shape the external security environment - Domestic overemphasis created a risk of overlooking emerging geopolitical risks. As a consequence, primary attention is on internal affairs and efficiency of the security apparatus with declining focus on defence and defence budgets.

Internal tension between technocratic efficiency and civil liberties- Increased capabilities of the state to survey and control society creates risks of abuse and may provoke counter-responses from civil groups or vice versa.

Interstate rivalry- In the international system states compete for absolute wealth and power as well as relative status.

Meeting of incompatible belief systems- Tensions may arise from meeting between widely different and incompatible belief systems whether between or inside states.

Potential altering of spheres of influence- changes of existing spheres of influence creates regional instabilities.

Potential disputes over previously uninhabited and resource rich territories- resource rich territories, especially in Polar Regions potentially place powerful nations in competition with each other. Viewpoints espoused by different nations constituting prudent exploitation cause friction has implied risks ranging from pollution to search and rescue.

Potential spill-over of ethnic, religious, ideological conflict- threatens region-wide stability. Internally displaced people place overwhelming demands on other nations' state infrastructures. Poverty and disease spread can spread. Political leadership in neighboring countries is affected. Economic stability in the region is prone to collapse as fear permeates the markets. Groups become hardened in their identities and become more sympathetic/vulnerable to extremist beliefs.

Proliferation of nuclear and other WME capabilities- as a result of technology development caused by the nations' need for sustained energy production as well as their desire to exercise more influence on the global arena. This technological

competition led to the introduction of new WME (pulse weapons, chemical & biological weapons, etc.).

Proliferation of radical ideologies- enables further decay in troubled countries/regions. Promotion of rigid, dogmatic and oppressive administrations within already unstable areas breed further extremism, cripples economic development, hampers institution-building and destabilizes entire regions.

Proliferation of WMD/WME- inability to maintain control over weapons grade nuclear material enables non-nuclear entities to strengthen their cause and wreak havoc on unsuspecting populations.

Shifting loyalties (state vs. non-state actors) - Diffusion of identities and loyalties across various networks diminishes the traditional role and ability of the state to manage events.

Shifting of population mix- Significant alteration of the existing social fabric (ethnic, cultural, ideological, and demographic).

Spreading of radical ideologies- dissemination of extreme ideas/ideologies challenges the established values in a society.

Strategic inattention- Misplaced or excessive focus on internal issues causes lack of attention to external security developments.

Systemic inability to quickly respond to external threat- super-empowered individuals, non-state actors, or states can create large effects by limited action (blocked trade routes, comp-network attack, EMP, cyber attack, etc.). Furthermore, focus on small operations may lead to loss of domain dominance (maritime, etc.).

Technological exploitation by criminal/rogue elements- challenges police and security forces. Police forces prove incapable of handling such multi-faced actors, thereby fostering further blurring between police and military roles.

Territorial and extra-territorial border disputes- among socio-political layers cause tensions as each entity competes for resources. (The dispute surrounding space exploitation creates tense, highly competitive, but peaceful, interaction across all affected areas of society.) Civil society proves unable to administrate effectively ungoverned territorial and extra-territorial regions.

Transnational criminal flows- including narcotics, human trafficking, intelligence, and terrorism exacerbate existing domestic security issues as a result of the openness of

the developed countries. Additionally, domestic tensions are exacerbated by dual allegiance of migrant populations on the political and social agenda of host countries. International criminal elements and violent extremists take advantage of civil liberties within developed countries and use urban populations for fund raising, radicalization and recruitment to conduct illegal activities.

Uncontrolled migration- Unmanaged flow of migrants across state borders or large displacement of population within an area.

Ungoverned Spaces- areas where no state or non-state actor have established control such as Polar Regions, deep sea, space and failed states are increasingly becoming objects of competition.

Vulnerability of complex interdependent systems- the complexity of macro-level infrastructures increases vulnerability to attacks-which are exacerbated by the fact that most systems are standardised and interconnected (e.g., financial networks, public utilities, communications, etc.)

Vulnerability of electromagnetic spectrum-with the ever increasing day-to-day dependency on the electromagnetic spectrum (GPS, SATCOM, Communications, etc), any interruption/disruption of the electromagnetic spectrum will have a compounding effect.

Vulnerability of strategic chokepoints and infrastructures in ungoverned spaces-increase in importance as climate change continues. Diplomatic mechanisms designed to mitigate conflict are tested in ungoverned territories and states return to more realist expressions of power in these newly-valuable territories. Economic development increases as resource and lines of communication are unlocked.

SECURITY IMPLICATIONS DEFINED

A. NEGATIVE IMPACT ON ECONOMY (Futures 1, 3, & 4)

Environmental changes, disputes over resource rich territories, and interstate revelries, all have the potential to negatively impact globalized economies. Conflict spill-over expose vulnerabilities to strategic chokepoints and infrastructures in ungoverned spaces which cause massive disruptions to interdependent economies as they lose access to critical resources.

A. NEGATIVE IMPACT ON ECONOMY (Future 2)

Tendencies to concentrate on domestic issues leave states ill prepared to deal with transnational criminal flows or potential conflict pill-over into domestic domains.

B. ILLEGAL IMMIGRATION (Futures 1, 2, & 4)

Massive illegal immigration from failed governance or the spill-over of ethnic or religious conflicts threaten social and economic institutions of surrounding states.

C. HUMAN EXPLOITATION (Futures 1, 2, & 4)

A significant number of migrants fleeing devastated regions to seek improved opportunities and conditions are likely utilizing organized human trafficking networks in order to reach wealthier developed countries. The illegal status of these immigrants in combination with debts they have to pay back for being smuggled across multiple borders leads to a high degree of dependency on criminal networks for an extended amount of time. As a result, groups of these illegal immigrants are subject to human exploitation by forced prostitution, adoption, and/or forced labour.

D. ISSUE OF RIGHT/OBLIGATION TO INTERVENE (Futures 1, 2, & 4)

Failed governance, inter-state rivalry, and conflicts initiated for control over ungoverned spaces, creates a ripe environment for mounting violations of human rights. Violations of personal liberties cultivate into wide spread ethnic cleansing and genocide as warring factions attempt to tip the balance of power in their favour. Fear over the potential spill-over of ethnic, religious or ideological conflicts, coupled with public outrage over atrocities, compel developed nations to intervene as evidenced in the UN/NATO intervention in Bosnia-Herzegovina (1992-1997).

E. DANGER TO CITIZENS (All Futures)

The asymmetric security environment and continuous threat of terrorist style attacks endangers citizens at home as well as abroad. This threat is exacerbated by growing nationalism, misallocation of resources, poverty, frustration, and deteriorating environmental conditions as well as demographic pressure in developing countries. Radical ideologies are spreading primarily outside of developed countries, leading to increasing recruitment by terrorist organizations. However, radical elements also exploit

legal immigration in order to create subversive networks within developed states with the aim to spread their radical ideologies from the inside.

F. LIBERAL-DEMOCRATIC VALUES AND IDEAS AT RISK (All Futures)

Proliferation of radical ideologies coupled with uncontrolled migration and the subsequent competition for ideological supremacy, results in tension and instability along ethnic, religious, and political lines. To protect cultural and political norms, like minded states form alliances to promote cultural identity. Additionally, unassimilated immigrant populations perpetuate conflicting values and ideas within the state.

G. DISRUPTION OF VITAL RESOURCE FLOWS (Futures 1 & 3)

The risk conditions under which vital resource flows may be disrupted exists in all four futures. Intentional disruption, what varies across the futures is the motivation and desired effect. Climate change may be responsible for environmental catastrophes that cause the disruptions.

G. DISRUPTION OF VITAL RESOURCE FLOWS (Future 2)

An increased vulnerability to attacks on resource flows emerges where the populations fail to recognize potential threats of this nature. It is amplified as societies' critical resource flows are more interconnected and interdependent across modern urban centres.

G. DISRUPTION OF VITAL RESOURCE FLOWS (Future 4)

The threat of disruption to resource flows is largely motivated by state power politics.

H. NEGATIVE IMPACT ON CRITICAL INFRASTRUCTURE (Futures 1, 2, & 4)

Violations of territorial integrity caused by religious, or ideological conflicts, have the potential to significantly disrupt access to infrastructure that is critical to state economies. Additionally, shifting state alliances, potential conflicts over ungoverned spaces, and the threat of terrorism which are inherent in those futures, all expose significant economic vulnerabilities to any interference with critical infrastructure

H. NEGATIVE IMPACT ON CRITICAL INFRASTRUCTURE (Future 3)

National tendencies to concentrate on domestic issues render state infrastructures vulnerable to attacks from external sources. The inability to anticipate, sense or shape the external security environment exposes critical infrastructure to numerous forms of attack (both cyber and physical).

I. DIFFUSION OF NATIONAL IDENTITY (Future 1)

The identification of national interests is one of the most exclusive functions of governments. In many western democracies the predominant national and ethnic identity forms the basis for the development of national interests. As such, the national identity becomes not only the justification to conduct foreign politics; it also provides them with internal legitimacy to do so. A sustained high level of immigration may diffuse

national and ethnic identities to a point where the legitimacy to use all instruments of power in geographical areas where a large part of the immigrants were migrating from is no longer given.

J. DESTABILIZATION OF PREVIOUSLY STABLE GOVERNMENTS (Future 1)

Like-minded developed states seek to promote, protect and dominate information, financial and technical markets. IOs play a defining role in defending and enforcing this system based on a globalized rule of law. The innovation and wealth gap widens between market states and developing states, which spawns instability (civil unrest and contested political legitimacy) and leads to the downfall of previously stable governments. This threatens to disrupt the flow and access of resources, requiring possible intervention on the part of regional alliances or individual states.

K. INCREASING NUMBER OF POTENTIALLY HOSTILE STATES (Future 1)

Hostile states are characterized by their resolve not to cooperate economically with other states or aggressive actions towards states that threaten populations. Arrogance in market states who have little interest in resource-poor states combined with deteriorating climate conditions, fuel hostility in developing states.

L. CHALLENGES TO DOMINANT VALUES (POOR INTEGRATION) (Future 1)

Developed states see increasing migration from devastated regions. Immigrants are seeking improved opportunities and living conditions in globalized nations where there is a population and workforce deficit. The developed nations struggle to effectively integrate and assist the mix of values & ideas which results in a stress on societal structures and the rule of law. Ethnic tensions along with mass welfare and health issues arise which increasingly divides and segregates the growing population.

M. UNDERMINING NATIONAL & INTERNATIONAL LAW (Future 1)

A continuous flow of immigrants migrating to either find better living and working conditions or fleeing devastated areas leads to a shifting population mix. Developed states struggle to integrate and accommodate the mix of cultural, religious, and political views and values, which increasingly divides and segregates society. Growing parts of the unassimilated migrants disavow existing ethic and legal foundations of the hosting state and challenge the rule of law.

N. POPULATION HOSTILITY AND UNREST (Future 1)

The proliferation of radical ideologies combined with uncontrolled migration and shifting population mixes, cause tension among ethnic groups. Unassimilated populations contribute to growing ethnic tensions and stresses states traditional societal structures. Spreading radical ideologies challenge state authority. Terrorism is used to further exacerbate civil unrest.

O. DOMESTIC DISORDER (Future 1)

Domestic disorder is usually associated with failing or failed states that are incapable of reacting timely or appropriately to rising internal tensions caused by overpopulation, misallocation of food/resources, ethnic conflicts, environmental degradation and subsequent rapid social mobilization. However, uncontrolled migration into developed states that already have massive stress on their welfare and public health systems caused by changing demographics may have significant impact. Ethnic tensions and further stress on the societal system can destabilize democracies and lead to domestic disorder, especially with a large quantity of unassimilated migrant populations that are unable to contribute to the welfare system

P. DECISIONS BY MULTINATIONAL INDUSTRY CHALLENGES INTL ORDER (Future 1)

In the global market place, some developing states weaken their governing rules creating the potential for multinational industries to engage in a twisted nexus of opportunism and wilfulness of power.

P. DECISIONS BY MULTINATIONAL INDUSTRIES CHALLENGE INTL ORDER (Future 3)

The rise of global companies perpetuates a common set of values around the world. Nanotech-based manufacturing is in widespread use where manufacture costs have decreased significantly and removed barriers for entry into the elite club of businesses. It is no longer the top 500, but rather the top 50,000 companies that are all run under a universalizing set of rules and norms which spurs great competition and innovation. The private sector is in control of the 'ship' while the states are still attempting to set the course. Non-State Actors enjoy a more prominent role in international affairs than most nation states.

Q. ASYMMETRIC SECURITY ENVIRONMENT (Future 1 & 4)

Globalisation has created a wider gap between market and developing states. Some developing states resort to promoting and exporting radical extremism and terrorism in response to globalised commercialization, igniting a conflict that involves the haves vs. the have-nots. These antagonists seek to affect change by disheartening the public in market states and furthering their radical ideologies through threats and asymmetric attacks against populations, computer networks, or critical infrastructure. Regional alliances of developed states play a crucial role in preserving and protecting their increasingly vulnerable way of life. Historically, asymmetric threats are not new as they span pre-modern times to the current day.

R. SOCIAL DISORDER (Future 2)

Social disorder emerges from large migration flows as workers seek to fill gaps in employment created by low birth rates, as well as the promise for a better life in the developing worlds.

S. ORGANIZED CRIME (Future 2)
The failure of individual states to economically and culturally assimilate *all* of the immigrant population breeds resentment among those who are not integrated. This tension gives rise to domestic and transnational security issues that allow organized crime to thrive in a society that is stressed by ethnic tensions, mass welfare and disregard for the rule of law.

T. VIOLATION OF TERRITORIAL INTEGRITY (Futures 1 & 2)
The threat of border incursions is common to all four futures. Each future has different conditions under which the threat can arise. Friction between the 'haves' and 'have-nots' exasperate relationships with non-state entities.

T. VIOLATION OF TERRITORIAL INTEGRITY (Future 3)
Urban centres that are largely insensitive to the suffering outside its borders are increasingly vulnerable to incursions from the hinterlands.

T. VIOLATION OF TERRITORIAL INTEGRITY (Future 4)
The potential for 'traditional' violations of territorial integrity is more prevalent.

U. REDUCED WILL TO USE MILITARY POWER (Future 2)
The resolve to use military power for expeditionary operations is diminished. This stems from a combination of over-attention to domestic concerns such as; maintaining social and cultural cohesion in the face of large numbers of migrants; massive stress on existing health care and welfare systems; and reduced military capability.

V. REDUCED SELF-DEFENCE POSTURE (Future 2)
The prolonged absence of an external security threat paired with an overemphasis on domestic concerns, leads to strategic inattention. Internal stresses on societal structure and ethnic tensions caused by unsuccessful immigrant integration policies result in challenges to the rule of law. An increasing number of states refocus their budgets to cope with domestic challenges. Significant defence spending in the absence of an identifiable threat becomes less justifiable. Subsequently, the ability for a state to anticipate, sense, and shape the external security environment is severely degraded.

W. OVEREMPHASIZED SECURITY VS PERSONAL LIBERTIES TENSION (Future 3)
Repeated asymmetric attacks demonstrate a high degree of technical exploitation by perpetrators. The clash of incompatible belief systems is fuelled by information operations from strong non-state identities who utilize marginalized extremist groups to carry out attacks against identified key nodes. In order to counter the threat the technocratic leadership employs the newest technologies to find, track, and detain extremists. An abundant use of panoptical surveillance and constant monitoring of

communication systems leads to increased concerns over violations of personal liberties.

X. EXPLOITATION OF CORPORATE & STATE SECRETS (Future 3)

Protection against the exploitation of corporate and state secrets will always be a concern. National alliances have weakened and uncertain loyalties create opportunities for this type of exploitation. Net-centricity has spurred the growth of technological capabilities to capture and sell corporate and state secrets to opportunistic actors both within the advanced societies and the hinterlands.

Y. CHALLENGED STATE MONOPOLY ON THE USE OF FORCE (Future 3)

The role of Private Military Corporations (PMC) has increased as local governments and multi-national corporations rely heavily on their services and expertise, which includes access control, training, and supplementing official armed forces. A limited supply of reputable PMCs fosters a profitable business model where loyalties may give credence to the highest bidder rather than loyalty to the state. In combination, this leads to an erosion of the Westphalia model of state sovereignty on the use of force.

Z. ERODED STATE-SOCIETY COHESION (Future 3)

Shifting loyalties between state and non-state actors and increased reliance on private military corporations challenge traditional state roles. Information operations by non-state identities and the growing power of corporations erode state loyalties as populations capitalize on highly integrated multinational economies. The power and importance of the state declines as a result of more distributed power (supranational, corporate, state and metropolitan).

AA. EXPLOITATION OF COMMUNICATION SYSTEMS (Future 3)

With the rampant use of technology in all aspects of the private and public sectors, all manners of communication (point to point, network, satellite etc) will become increasingly vulnerable to attacks. Subtle and/or complete manipulation of critical data (tracking routines, inventory, communication lines etc) may wreak havoc on a society that thrives on the accuracy of information transfer.

BB. LOSS OF COMMUNICATIONS SYSTEMS (Future 3)

The world relies on the ability to communicate across a broad swath of the electromagnetic spectrum. The ability of an enemy to deny use or access to certain parts of the spectrum (GPS, satellite, television, etc) could pose a serious threat to the state.

CC. UNCERTAIN ALLEGIANCES OF PMCS (Future 3)

The high dependency on a constant flow of vital resources constitutes a requirement for constant protection of critical resource nodes at home and abroad against attacks from

marginalized extremist groups. Private Military Corporations (PMC) become the preferred asset to protect these vital assets abroad since they operate cost efficiently and casualties during combat action do not stir as much domestic concern as they would with national military forces. As a result of their increased significance, PMC continue to grow/merge and become global security players with military power equalling that of small to mid-size states. Considering that the primary objective of PMC is profit, there is an inherent security risk that a PMC may shift loyalties to the highest bidder.

DD. LARGE-SCALE WARFARE (Future 4)

The competition for resources in ungoverned spaces (amongst a large group of both nuclear and non-nuclear states) fuels inter-state conflict eroding existing alliances. Regional spheres have emerged as states compete for military and economic power in this multi-polar world. There is little incentive to build international organizations to govern and mediate inter-state conflicts.

EE. DEVASTATION CAUSED BY WMD/WME (Future 4)

Traditional notions of deterrence underlie the aggressive pursuit of nations to become nuclear powers. The notion of deterrence in Future 4 is in stark contrast to the other three futures where traditional notions of deterrence are less relevant.

FF. REDUCED INFLUENCE OF INDIVIDUAL NATIONS OR IOs TO INFLUENCE OR MANAGE CRISIS/EVENTS (Future 4)

The influence of International Organizations (IO) is significantly reduced as nation states dominate the political landscape. In this zero-sum situation one state's gain in resources or sphere of influence leads to a decline in power of another state and the same holds true for coalitions. Therefore, shifts in power distribution result in swift reactions by individual nation states that have little patience for consensus building. This reluctance therefore leads to a diminished influence of IOs in times of crisis.

GG. ERODED COHESION OF EXISTING ALLIANCES (Future 4)

National interest re-emerges as an important force driving foreign and security politics within the existing conglomerate of powerful states. As such, states continuously strive to remain a balance of power between each other by either using their economic power to increase military posture, expanding their sphere of influence, or by forming temporary coalitions with whoever appears to be best suited to preserve that states' security and freedom of action. This may lead to an erosion of existing alliances in case a key member or a number of smaller members of that alliance decide to realign themselves with other states / coalitions. Historically, this situation reflects the balance of power politics of the late 19th / early 20th century in Europe.

Annex E: Security Implications Quantitative Analysis

Multiple Futures Threatening Actions/Events Analysis

Purpose:

The threatening actions and events analysis was conducted to support the MFP core team's development of implications derived from the futures. By determining which events and/or actions could threaten Alliance nations in each of the four futures, the MFP team could focus on deriving the implications of mitigating the most critical threats.

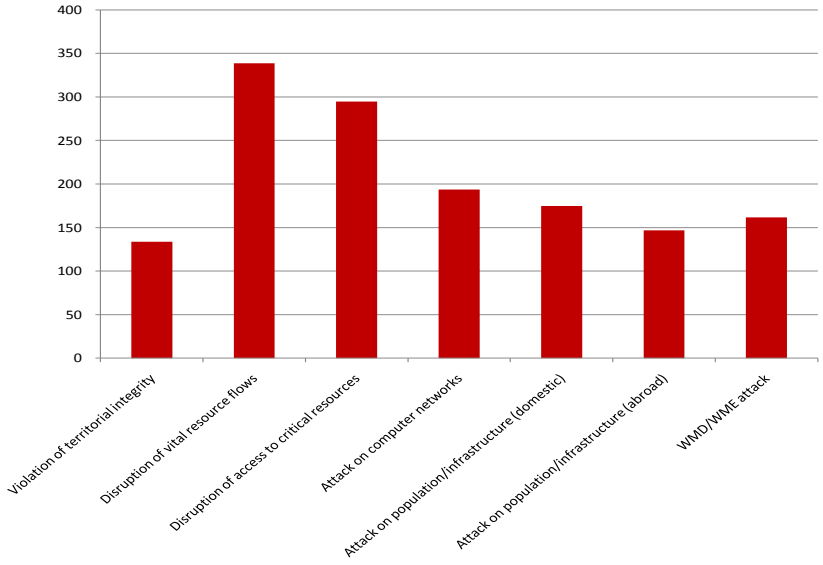
Results:

The responses indicated participants were primarily concerned with ensuring access to resources, countering cyber-attack, and ensuring the safety of their populations at home and abroad. Criminal and socio-political threats were considered to be much less important by workshop participants.

Method:

Workshop participants were asked to fill out questionnaires ranking the importance of a series of Threatening Events and Actions identified by the MFP team. The results were normalized to allow comparison between workshops of disparate sizes. The overall results are displayed in the following histograms, followed by results broken out by workshop.

Overall – Top Threatening Actions/Events by Weighted* Average Score



*Weighting Scheme:
Rank 1 = 5 points
Rank 2 = 4 points
Rank 3 = 3 points
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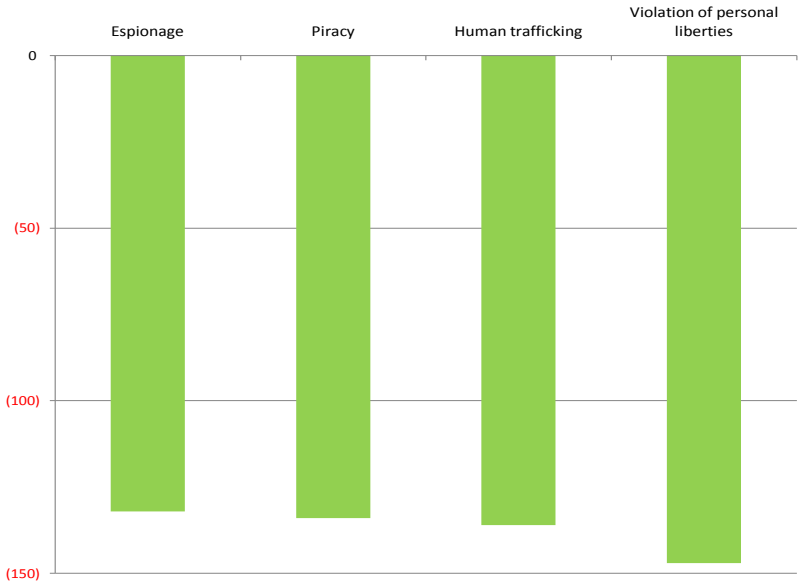
Rank 5 = 1 point
"X" = -5 points

Overall – Bottom Threatening Actions/Events by Weighted* Average Score



*Weighting Scheme:
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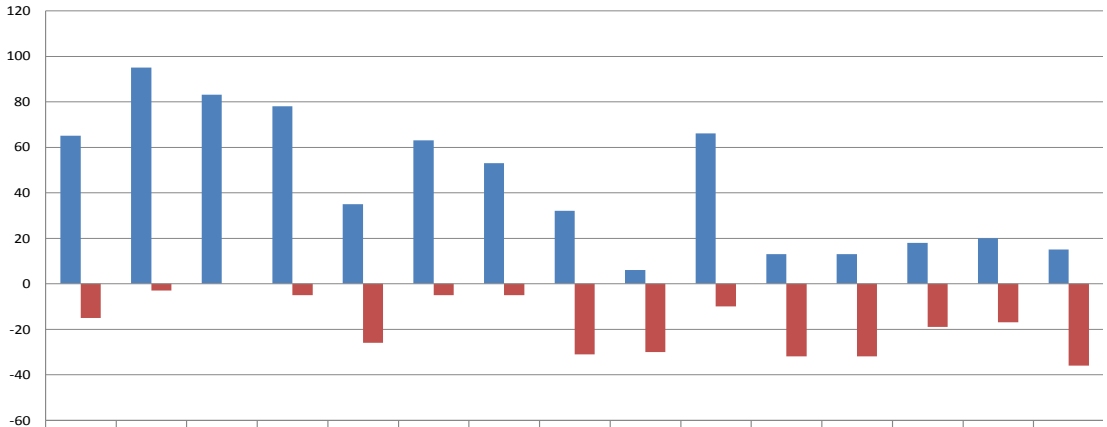
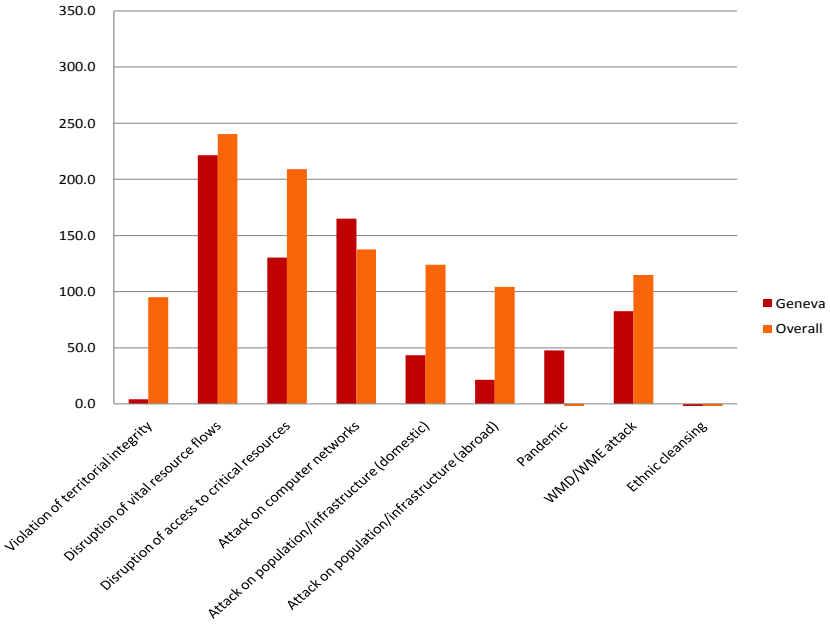
Overall – Threatening Actions/Events Selection Frequency



	Violation of territorial integrity	Disruption of vital resource flows	Disruption of access to critical resources	Attack on computer networks	Natural Disasters	Attack on population/infrastructure (domestic)	Attack on population/infrastructure (abroad)	Pandemic	Espionage	WMD/WME attack	Piracy	Human trafficking	Drug trafficking	Ethnic cleansing	Violation of personal liberties
#Pos Votes	65	95	83	78	35	63	53	32	6	66	13	13	18	20	15
#Neg Votes	-15	-3	0	-5	-26	-5	-5	-31	-30	-10	-32	-32	-19	-17	-36

Geneva – Top Threatening Actions/Events by Normalized* Weighted** Average Score



*Normalization:
(Score / # voters) x 100

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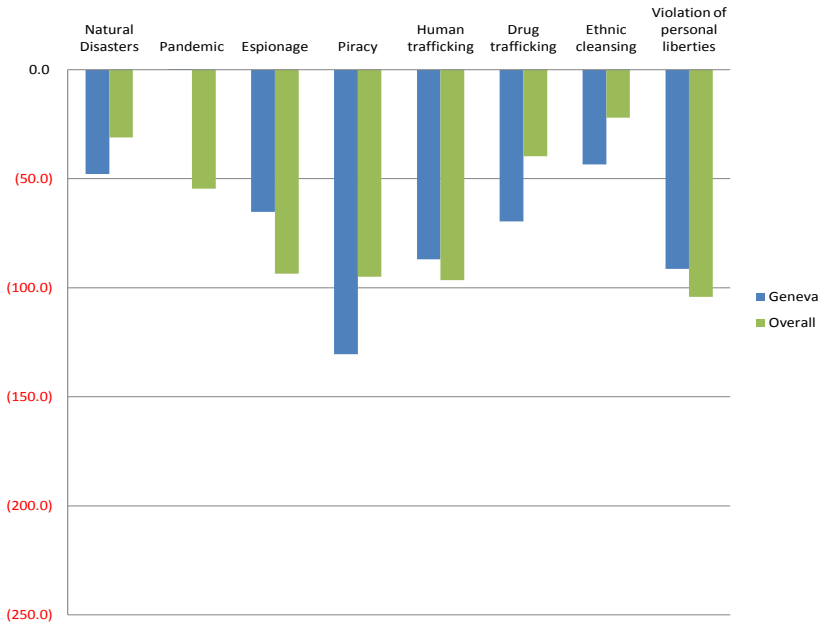
Geneva – Bottom Threatening Actions/Events by Normalized* Weighted** Average Score



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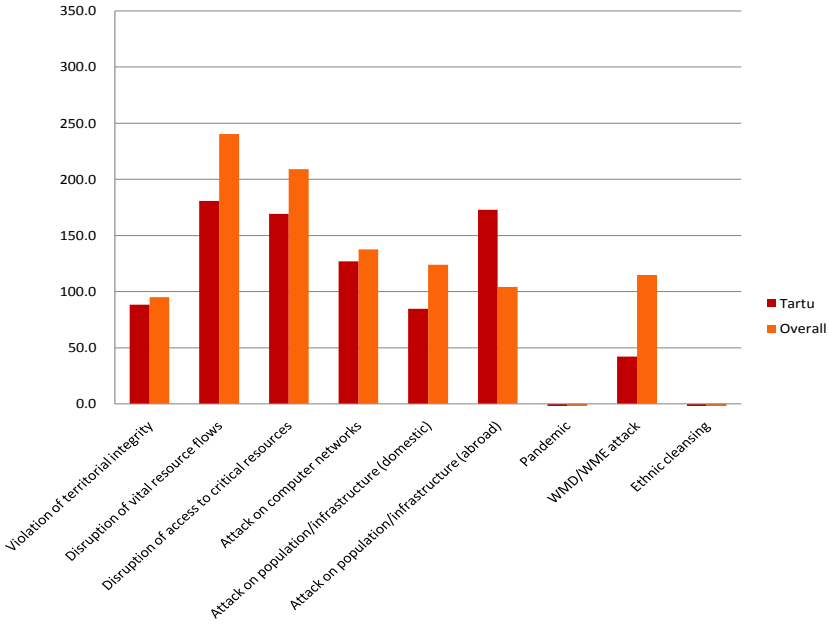
Tartu – Top Threatening Actions/Events by Normalized* Weighted** Average Score



*Normalization:
(Score / # voters) x 100

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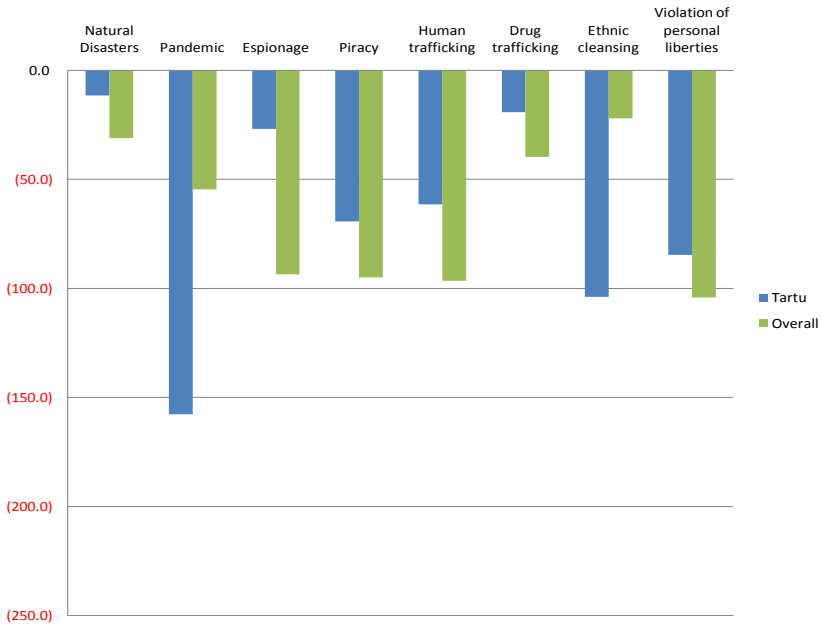
Tartu – Bottom Threatening Actions/Events by Normalized* Weighted** Average Score



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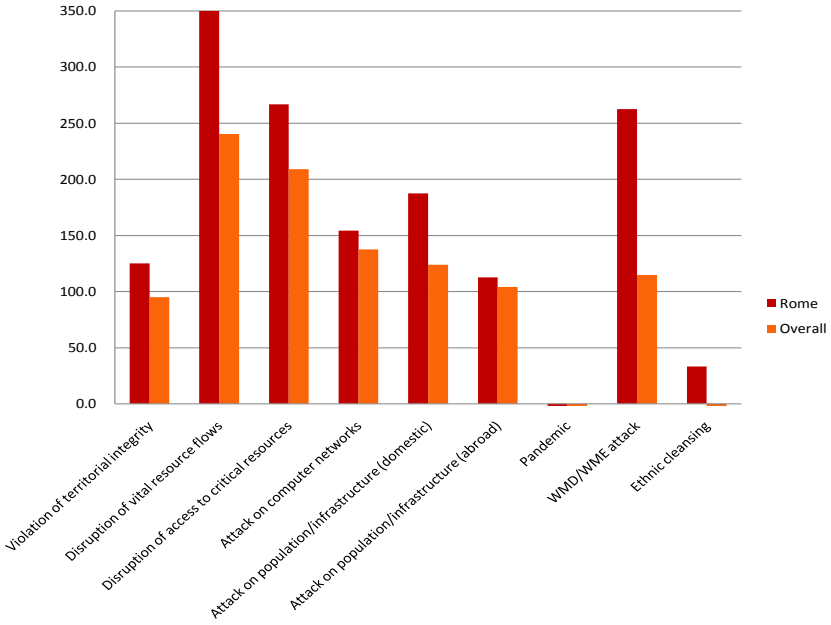
Rome – Top Threatening Actions/Events by Normalized* Weighted** Average Score



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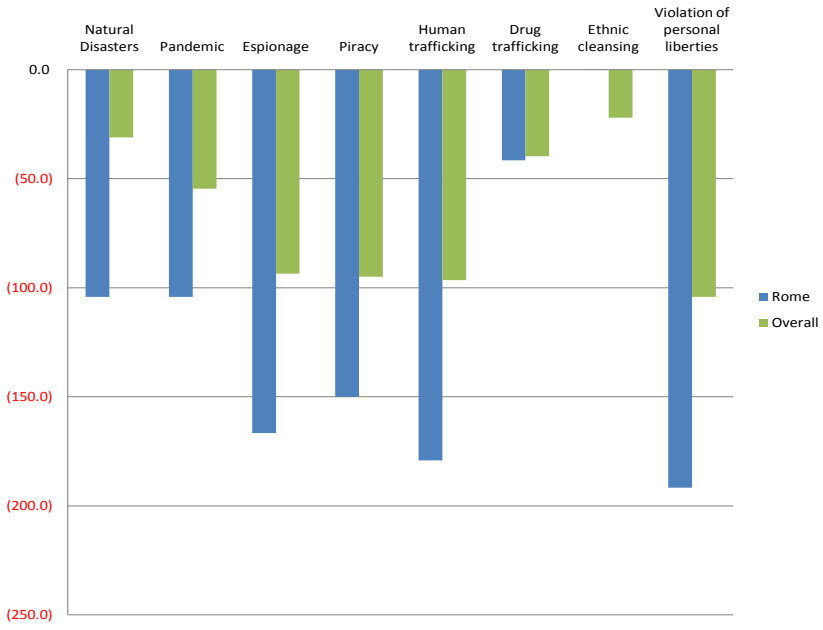

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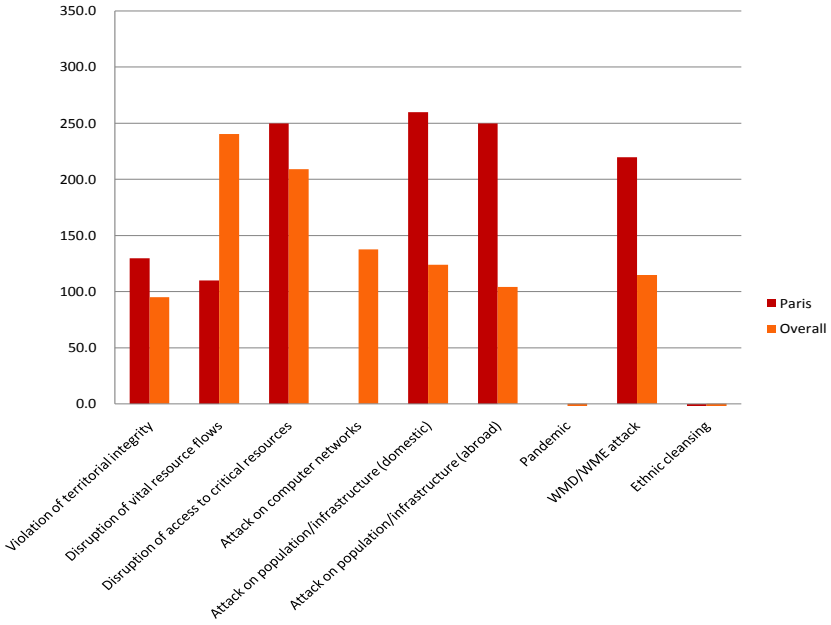
Paris – Top Threatening Actions/Events by Normalized* Weighted** Average Score



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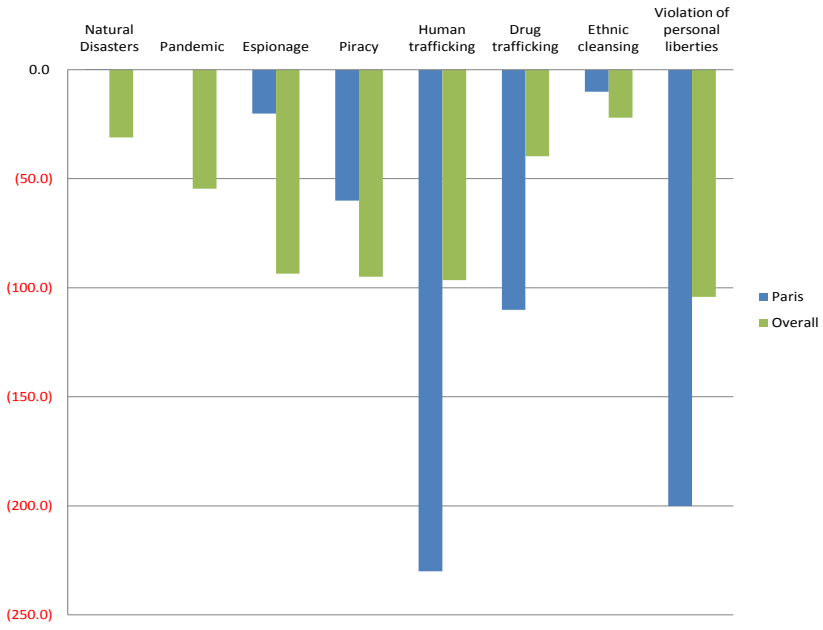
Paris – Bottom Threatening Actions/Events by Normalized* Weighted** Average Score



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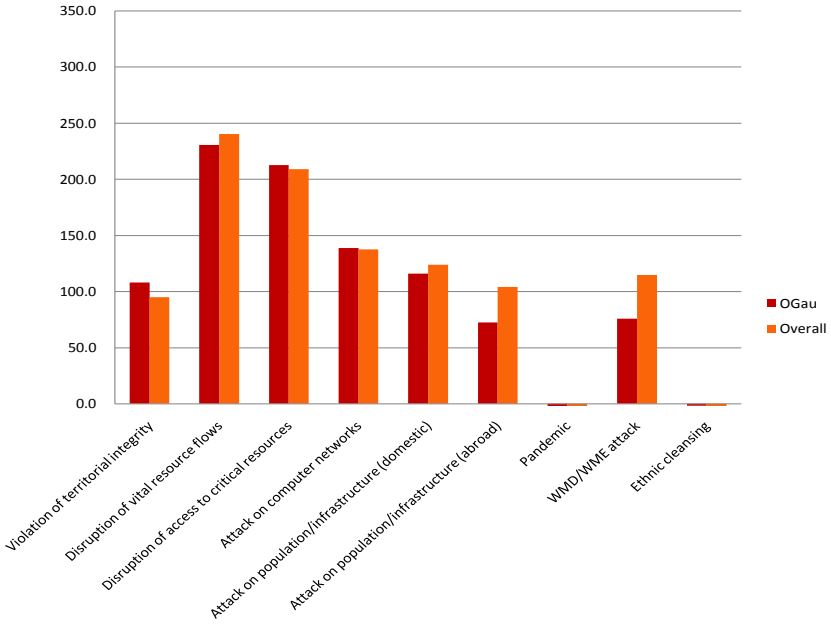
OGau – Top Threatening Actions/Events by Normalized* Weighted** Average Score



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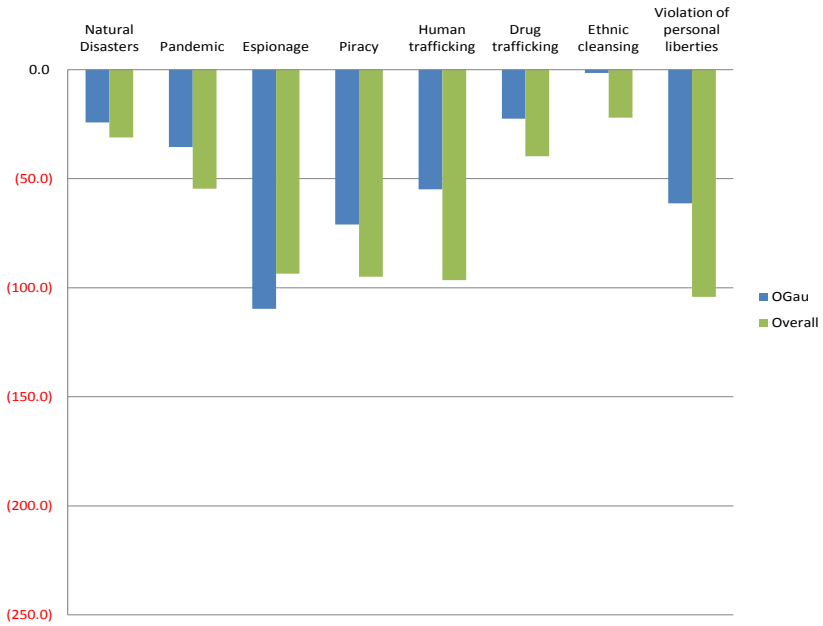
OGau – Bottom Threatening Actions/Events by Normalized* Weighted** Average Score



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Multiple Futures Security Implications Analysis

Purpose:

The security implications analysis was conducted to support the MFP core team's development of Security Implications (SIs) derived from previously identified Threats, refined by feedback from prior workshops. The SI analysis set the stage for follow-on MFP work by determining which SIs were deemed most strategically important.

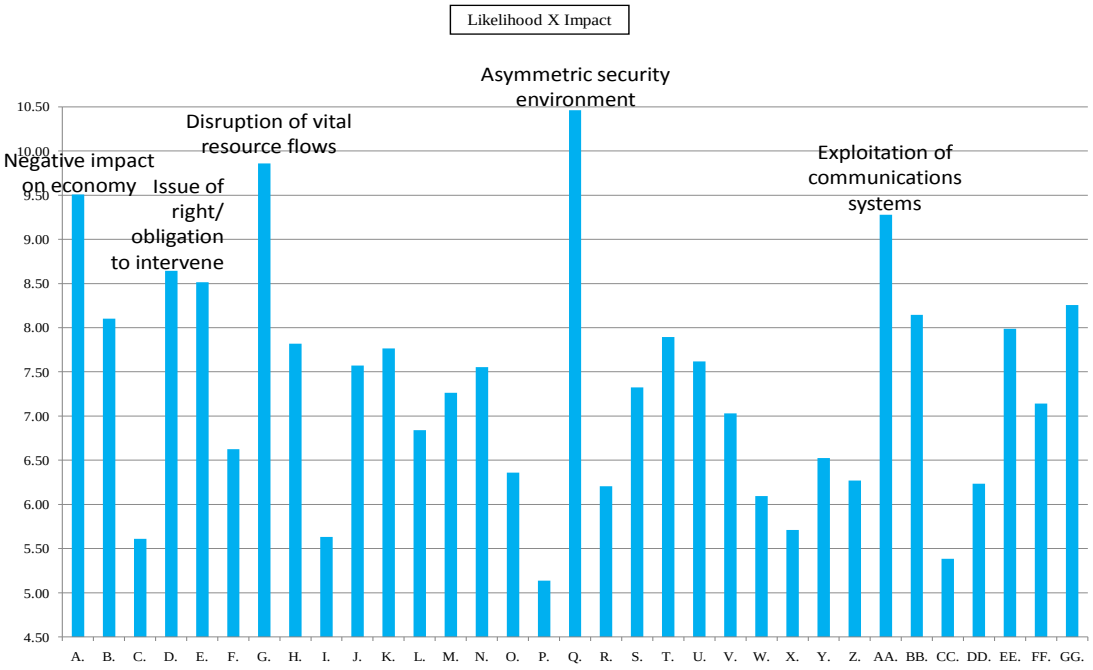
Results:

The responses indicated participants' predominant concerns lie with the emerging asymmetric security environment, with the vulnerability of international networks, and with the ongoing "Battle of the Narrative" between liberal democracies and authoritarian regimes/extremist actors.

Method:

Workshop participants were asked to fill out questionnaires rating the Likelihood each SI identified by the MFP team would arise by 2030, the Impact on NATO if it did, and the "Stretch" (amount of transformation) required of NATO to mitigate it. The strategic importance of each SI was calculated by multiplying its Likelihood rating by its Impact rating. The overall results are displayed in the following histograms, followed by results broken out by workshop, including additional SIs nominated for consideration.

Top Security Implications Rollup

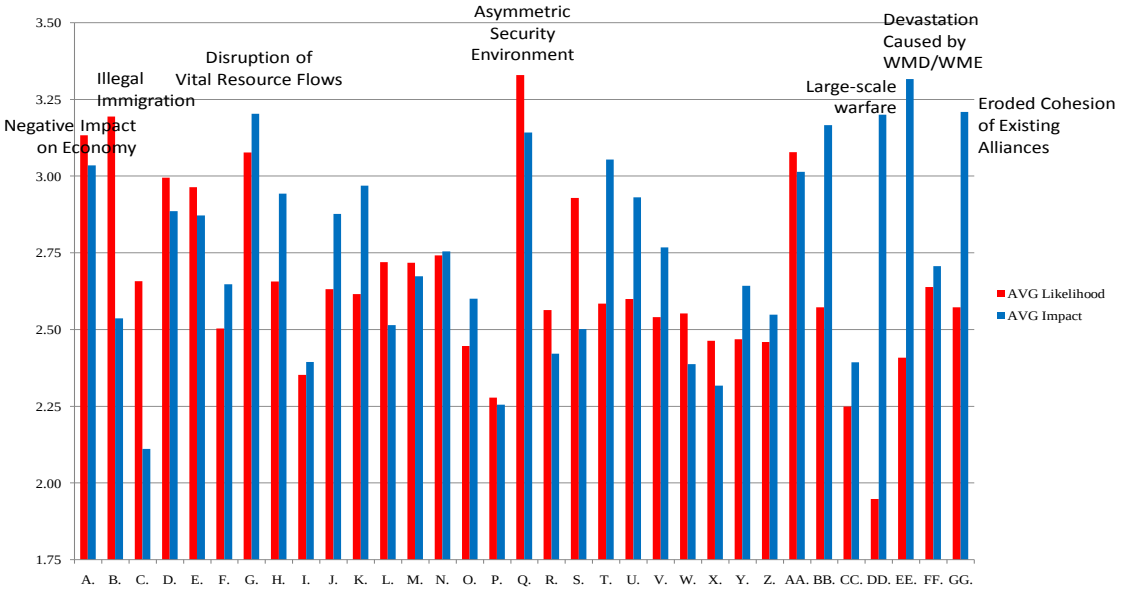


Top Security Implications Rollup

Likelihood X Impact

1. Asymmetric security environment
2. Disruption of vital resource flows
3. Negative impact on economy
4. Exploitation of communications systems
5. Issue of right/obligation to intervene

Security Implications Rollup



Security Implications Rollup

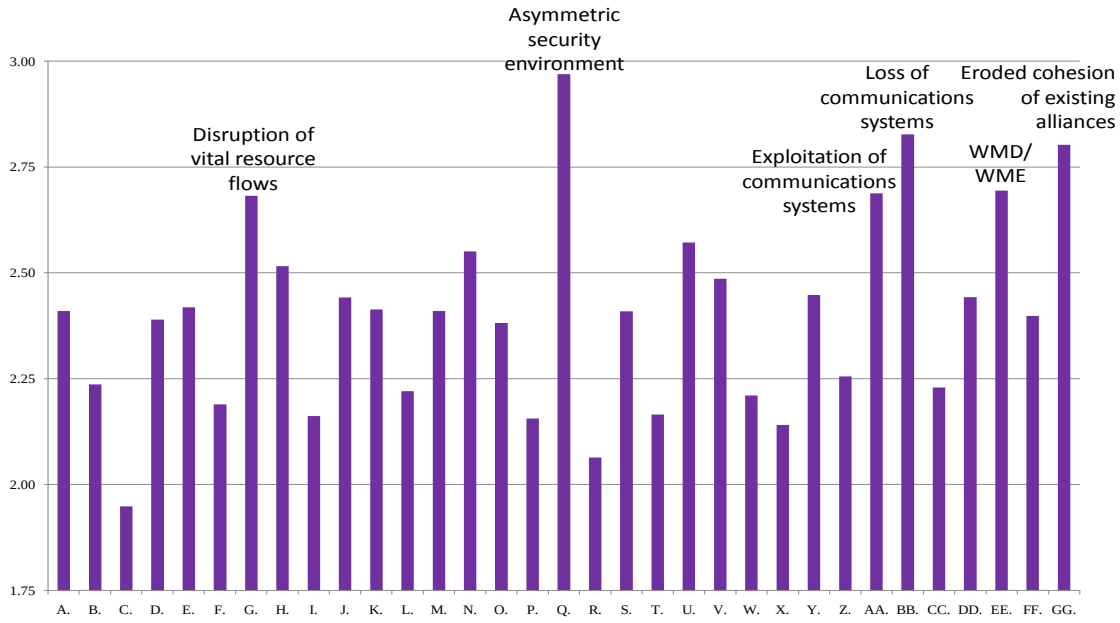
Likelihood

1. Asymmetric Security Environment
2. Illegal Immigration
3. Negative Impact on Economy
4. Disruption of Vital Resource Flows/ Exploitation of Communications Systems (tie)

Impact

1. Devastation Caused by WMD/WME
2. Eroded Cohesion of Existing Alliances
3. Disruption of Vital Resource Flows/ Large-Scale Warfare (tie)
4. Loss of Communications Systems

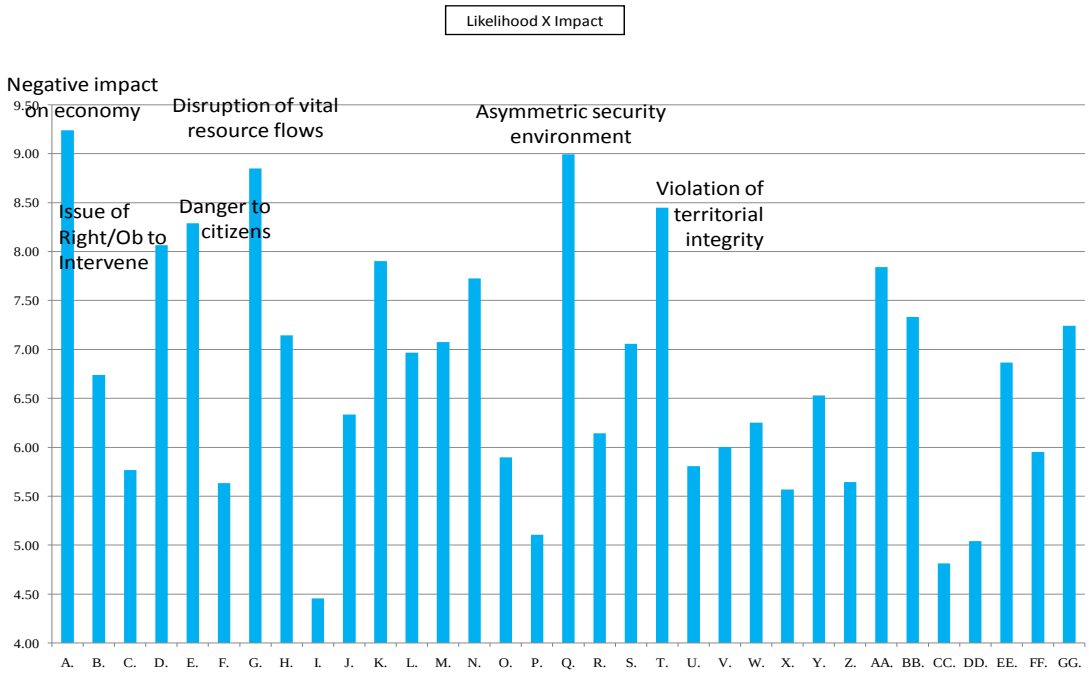
Transformational Implications Rollup



Difficult SI Transformation Rollup

1. Asymmetric security environment
2. Loss of communications systems
3. Eroded cohesion of existing alliances
4. Loss of communications systems/ Devastation caused by WMD/WME (tie)
5. Disruption of vital resource flows

Krakow Top Security Implications

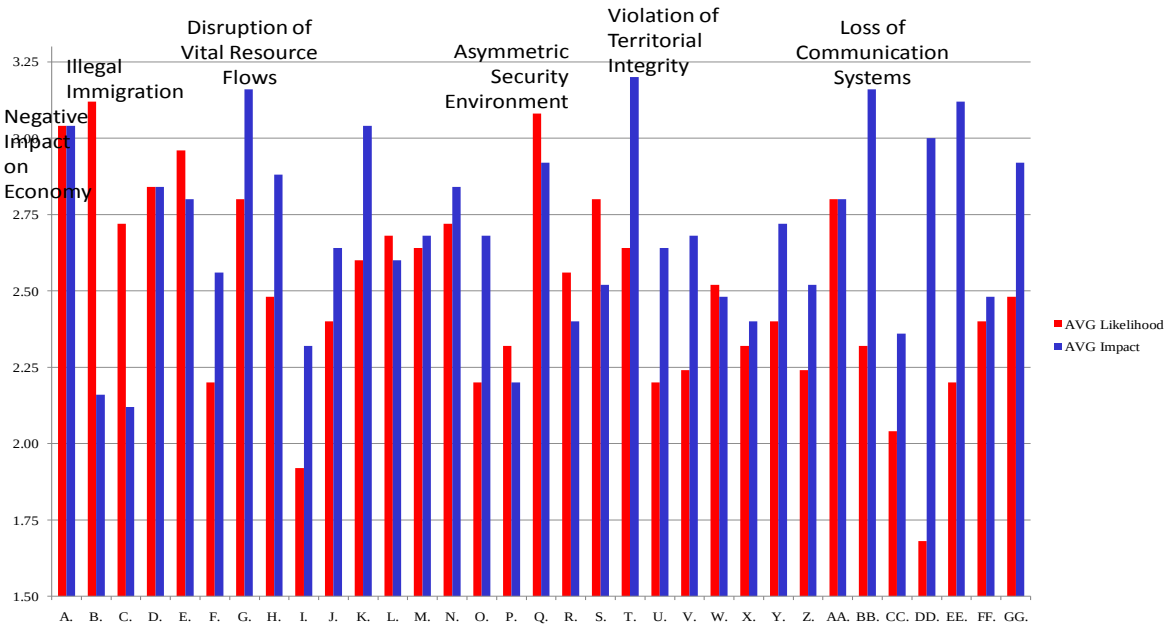


Krakow Top Security Implications

Likelihood X Impact

1. Negative impact on economy
2. Asymmetric security environment
3. Disruption of vital resource flows
4. Violation of territorial integrity
5. Danger to citizens
6. Issue of Right/Obligation to Intervene

Krakow Top Security Implications



Krakow Top Security Implications

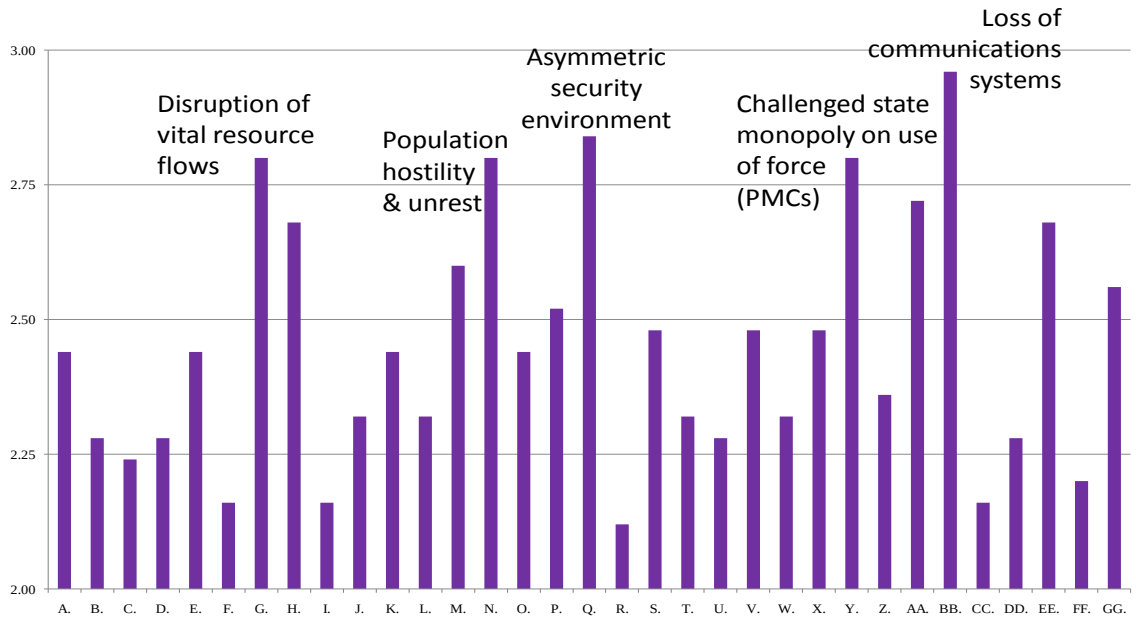
Likelihood

1. Illegal Immigration
2. Asymmetric Security Environment
3. Negative Impact on Economy
4. Danger to Citizens
5. Issue of Right/Obligation to Intervene

Impact

1. Violation of Territorial Integrity
2. Disruption of Vital Resource Flows / Loss of Communications Systems (tie)
3. Devastation Caused by WMD/WME
4. Negative Impact on Economy/Increasing # of Potentially Hostile States (tie)

Krakow Transformational Implications



Krakow Difficult SI Transformation

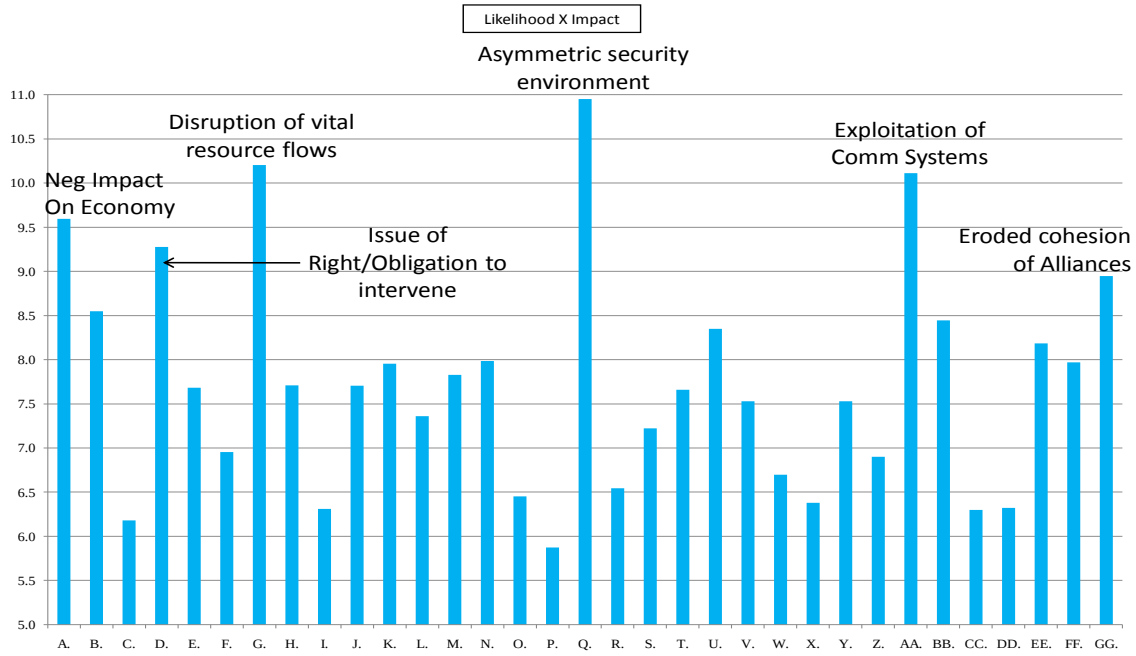
1. Loss of communications systems
2. Asymmetric security environment
3. Disruption of vital resource flows/
   Population hostility and unrest/
   Challenged state monopoly on the use of force – PMCs
   (3-way tie)

Krakow Additional Security Implications

"Outliers"

1. Disturbance of ecological balance
2. Disturbance of food supply

CD&E Top Security Implications

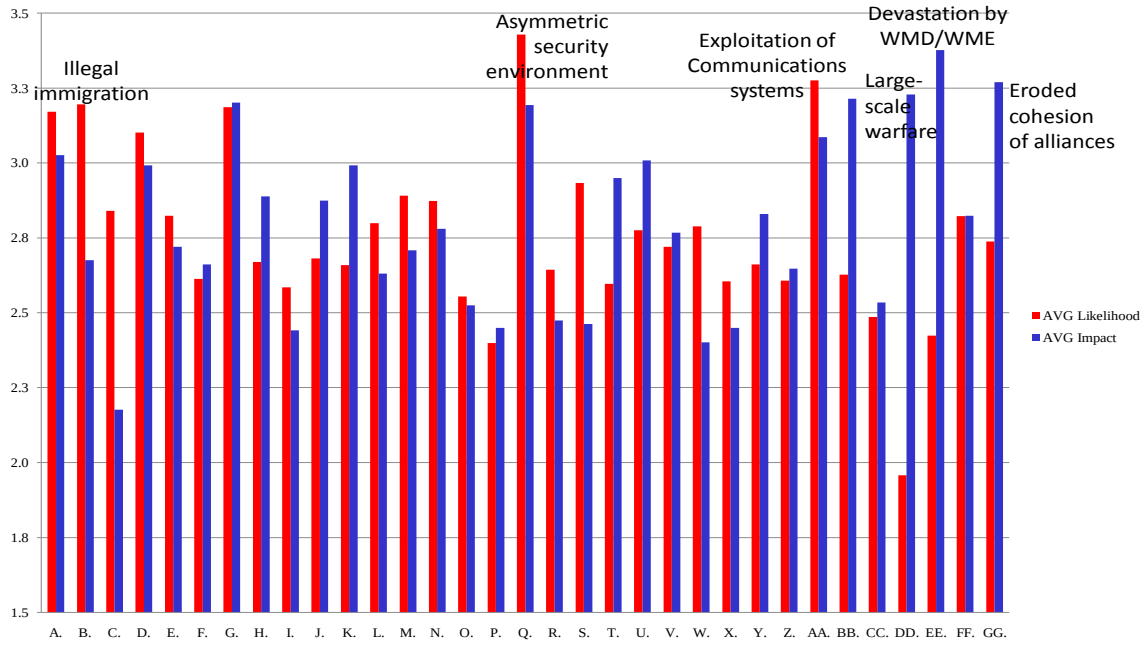


CD&E Top Security Implications

Likelihood X Impact

1. Asymmetric security environment
2. Disruption of vital resource flows
3. Exploitation of Communication Systems
4. Negative impact on economy
5. Issue of Right/Obligation to Intervene
6. Eroded cohesion of alliances

CD&E Top Security Implications



CD&E Top Security Implications

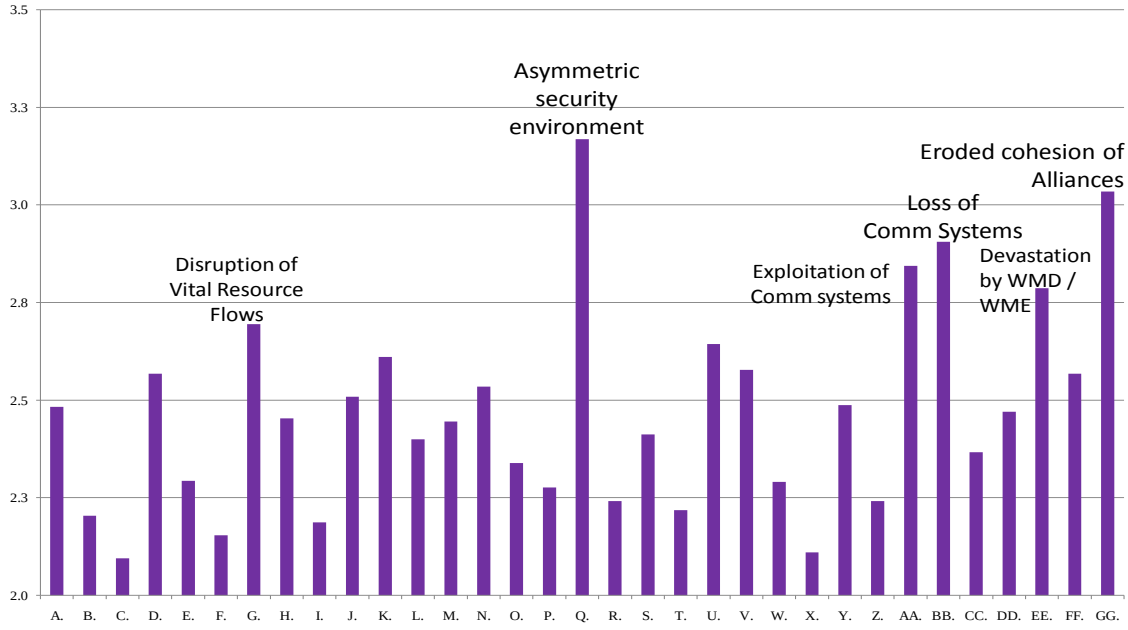
Likelihood

1. Asymmetric security environment
2. Exploitation of Comm Systems
3. Illegal Immigration
4. Disruption of vital resource flows
5. Negative impact on economy

Impact

1. Devastation caused by WMD/WME
2. Eroded cohesion of alliances
3. Large-scale warfare
4. Loss of Comm Systems
5. Disruption of vital resource flows

CD&E Transformational Implications



CD&E Difficult SI Transformation

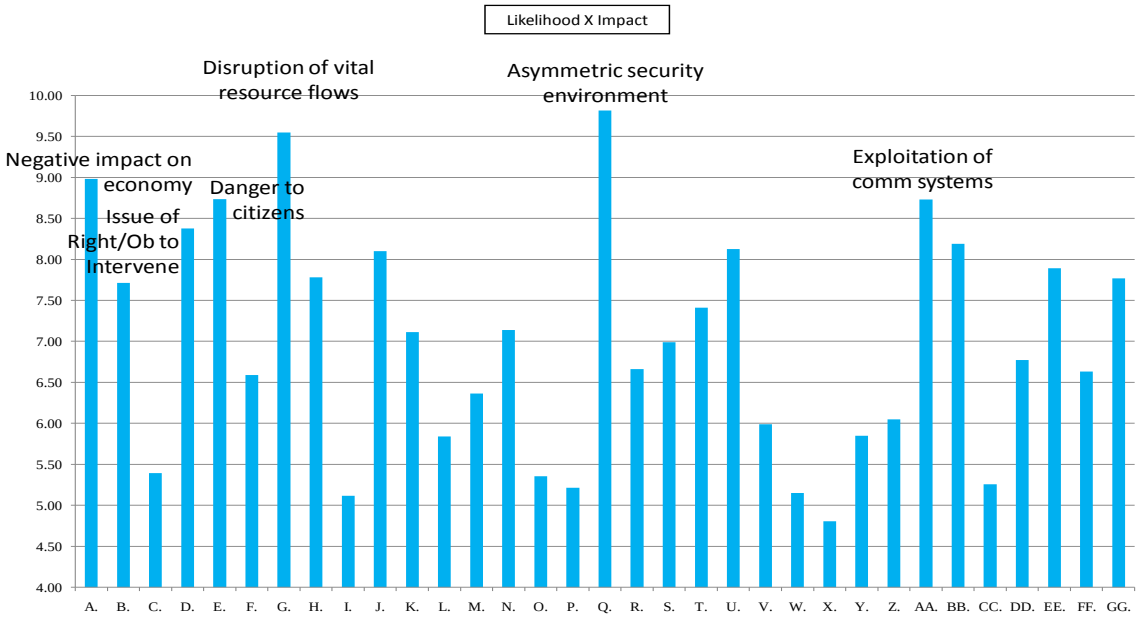
1. Asymmetric security environment
2. Eroded cohesion of alliances
3. Loss of Communication Systems
4. Exploitation of Communication Systems
5. Devastation caused by WMD/WME
6. Disruption of vital resource flows

CD&E Additional Security Implications

"Outliers"

1. Financial System Collapse (x3)
2. Reduction of Armed Forces Size
3. Space Exploitation
4. Technology that Negates Defence Strategies
5. Resurgence of Western Culture/Religious Values
6. Further Expansion of NATO

NTG Top Security Implications

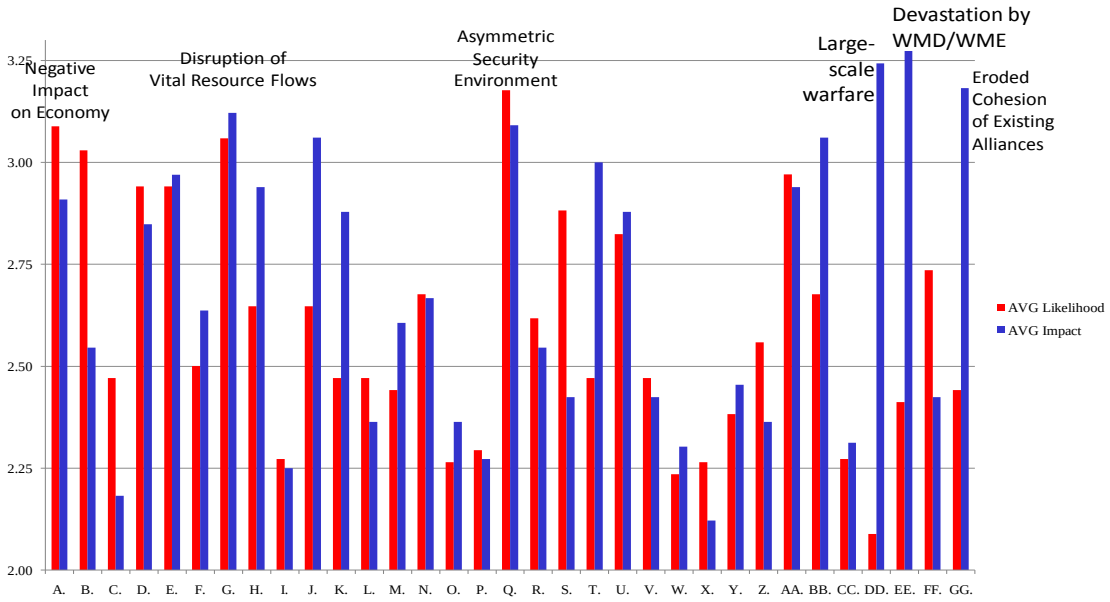


NTG Top Security Implications

Likelihood X Impact

1. Asymmetric security environment
2. Disruption of vital resource flows
3. Negative impact on economy
4. Danger to citizens/
   Exploitation of communications systems (tie)
5. Issue of right/obligation to intervene

NTG Top Security Implications



NTG Top Security Implications

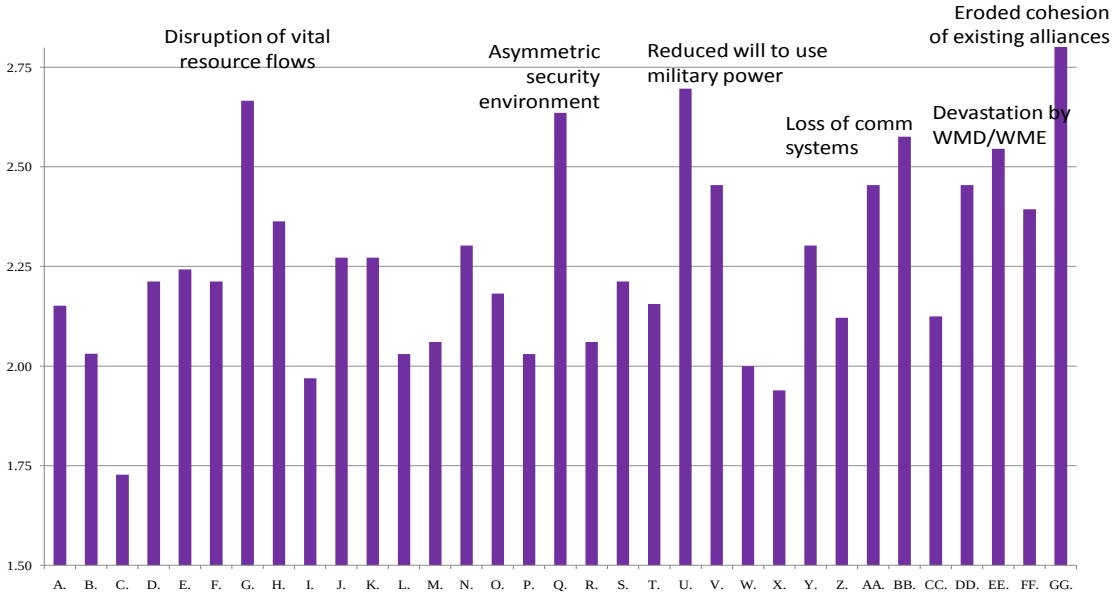
Likelihood

1. Asymmetric security environment
2. Negative impact on economy
3. Disruption of vital resource flows
4. Illegal immigration
5. Exploitation of comm systems

Impact

1. Devastation caused by WMD/WME
2. Large-scale warfare
3. Eroded cohesion of existing alliances
4. Disruption of vital resource flows
5. Asymmetric security environment

NTG Transformational Implications



NTG Difficult SI Transformation

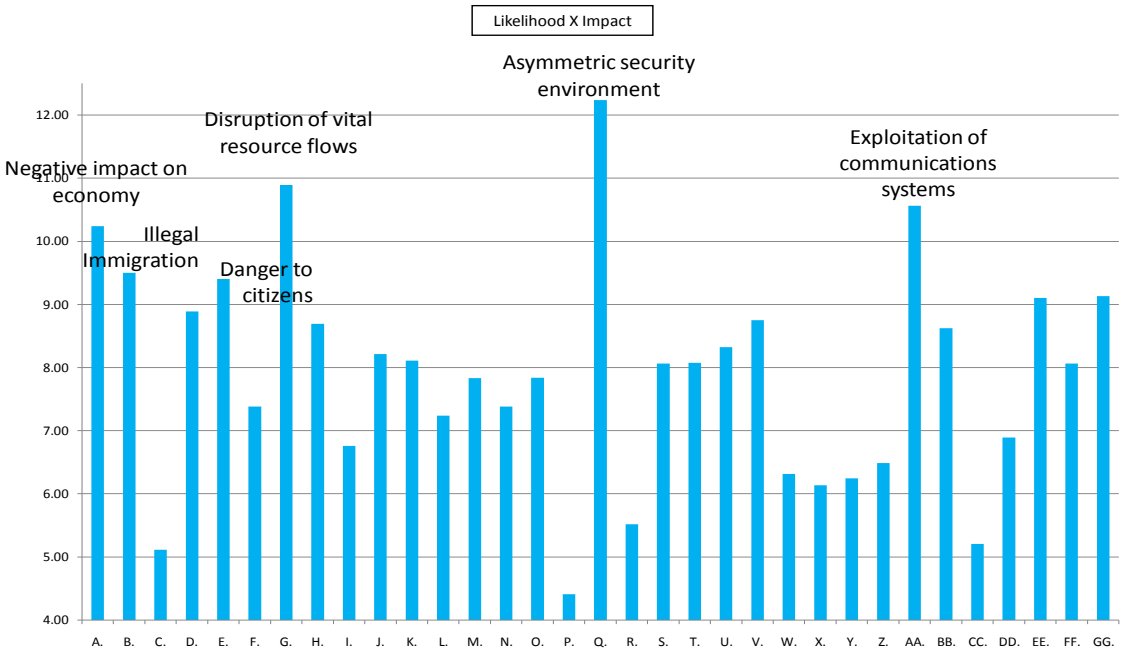
1. Eroded cohesion of existing alliances
2. Reduced will to use military power
3. Disruption of vital resource flows
4. Asymmetric security environment
5. Loss of comm systems
6. Devastation caused by WMD/WME

NTG Additional Security Implications

"Outliers"

1. Prosperity
2. Breakdown of NATO
3. Rejection of military values

Madrid Top Security Implications

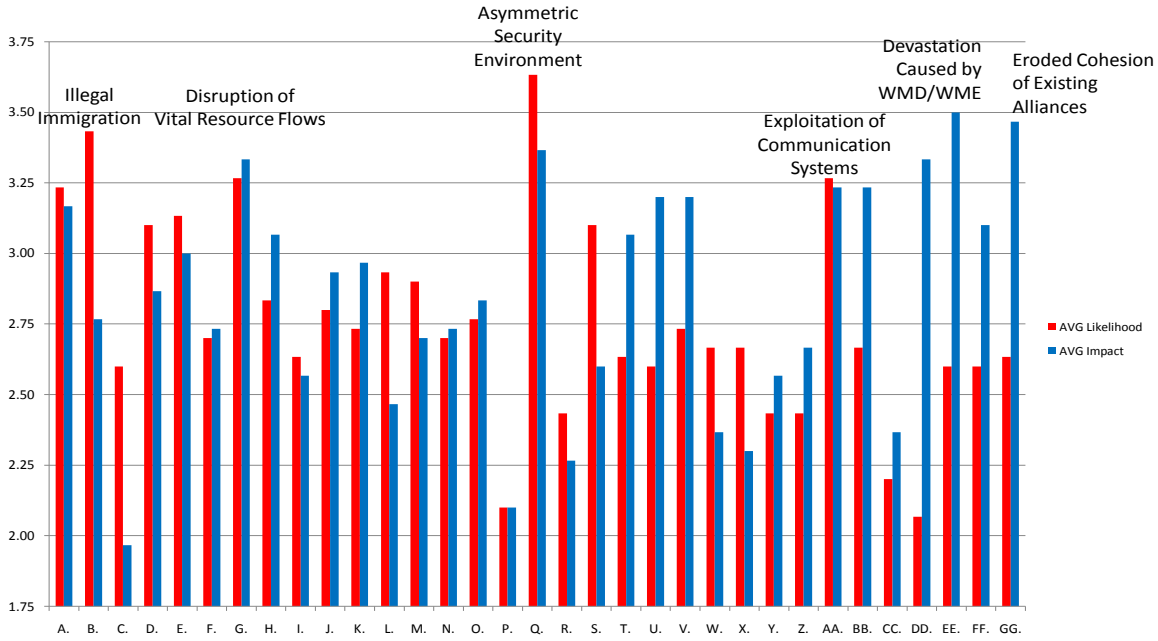


Madrid Top Security Implications

Likelihood X Impact

1. Asymmetric security environment
2. Disruption of vital resource flows
3. Exploitation of communications systems
4. Negative impact on economy
5. Illegal Immigration
6. Danger to citizens

Madrid Top Security Implications



Madrid Top Security Implications

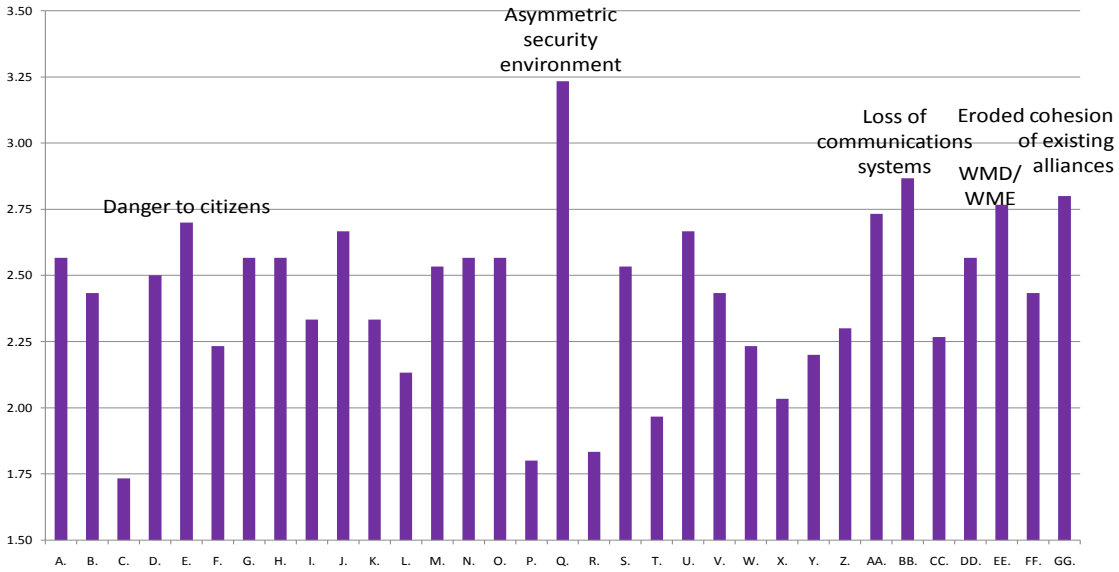
Likelihood

1. Asymmetric Security Environment
2. Illegal Immigration
3. Disruption of Vital Resource Flows/ Exploitation of Communications Systems (tie)
4. Negative Impact on Economy

Impact

1. Devastation Caused by WMD/WME
2. Eroded Cohesion of Existing Alliances
3. Asymmetric Security Environment
4. Disruption of Vital Resource Flows/ Large-Scale Warfare (tie)

Madrid Transformational Implications



Madrid Difficult SI Transformation

1. Asymmetric security environment
2. Loss of communications systems
3. Eroded cohesion of existing alliances
4. Devastation caused by WMD/WME
5. Danger to citizens

Madrid Additional Security Implications

"Outliers"

1. Impact of mass communication on public opinion
2. Pressure of social groups over governments for security/defence
3. Organized crime pervades state structures and society
4. Diversity of threats leads to lack of consensus on prioritization
5. Dilemma of force planning vs. force generation
6. Democratic (pop) awareness of complexity (communication)
7. Attacks via new tech (nano, bio, cyber, etc.)
8. Armies falling apart
9. Danger from inside (nationalism, nationalist terrorism, groups apart from the system)
10. Degraded defense industrial base
11. Diffusion of technology
12. Increased nationalist identity
13. Inappropriate use of media to undermine ideologies
14. Spreading of proxy wars
15. Re-armament of regional powers
16. Power politics in Europe
17. Pandemic
18. Speculation

Security Implication Outlier Analysis

Purpose:

The SI outlier analysis was developed to support the MFP core team's ongoing development work on the Security Implications. It was designed to provide the MFP team insight into what the Workshop participants felt were the most important Security Implications not included in the core team's work.

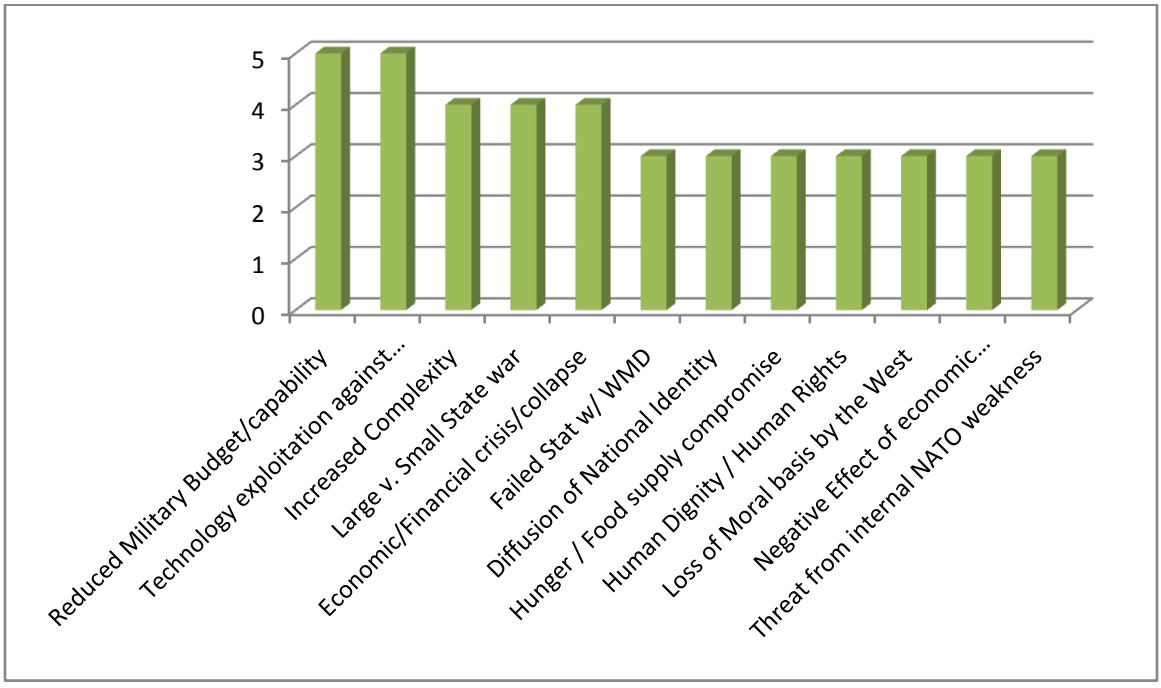
Results:

The results indicated participants' concerns of the broad future interests of Nations. The results were used by the core team to make adjustments to the project's Security Implications.

Method:

From the individual worksheets Security Implications other than the ones provided by the project team were labelled outliers. The outliers were compared and consolidated by the analysts. The numbers represent the number of times that particular Outlier Security Implication was provided.

Security Implication Outliers



Security Implications Most Urgently Requiring Mitigation Analysis

Purpose:
This analysis was developed to support the MFP core team's ongoing development work on the Security Implications. It was designed to provide the MFP team insight into which security Implications workshop participants felt were most important to mitigate

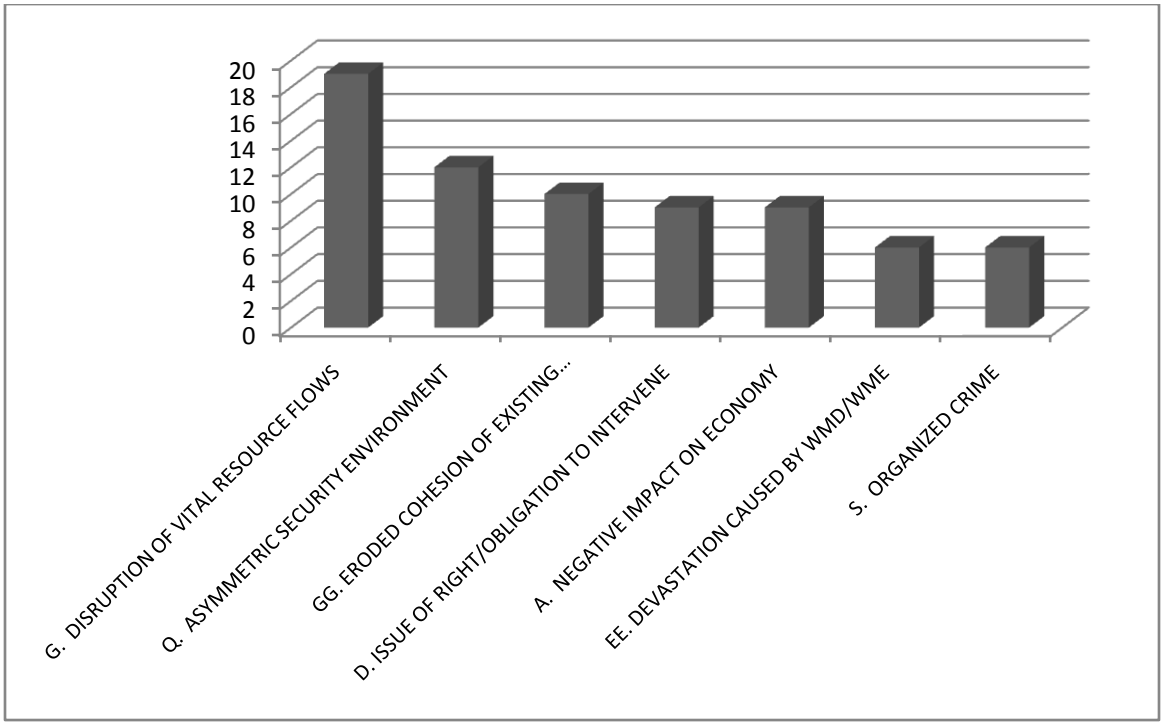
Results:

The results indicated participants' concerns were focused generally upon the same major issues as in Phase 1 of the project.

Method:

Each workshop group selected up to five rank ordered security implications. Security Implications were given tabular values based upon their ranking by each group as well as their plurality of selection.

Security Implications Most Urgently Requiring Mitigation



Group Security Implication Aggregation and Comparison

Purpose:

This analysis was developed to support the MFP core team's ongoing development work on the Security Implications. It was designed to provide the MFP team insight into which security Implications workshop groups felt were most important.

Results:

The results indicated that the groups with partners were concerned about different implications than those groups that only had NATO participants.

Method:

Each workshop group selected up to five rank ordered security implications. Security Implications were given tabular values based upon their ranking by each group as well as their plurality of selection. These tabular values were separated into a NATO category (Madrid and Krakow) and into a combined NATO and Partner category (SMPC – Strategic Military Partner Conference). The top 5 results for each category are compared in the following table.

Group Security Implication Aggregation

Security Implication Group Aggregation NATO Groups	Security Implication Group Aggregation NATO and Partner Groups
Disruption of Vital Resource Flows	Devastation Caused by WMD/WME
Asymmetric Security Environment	Destabilization of Governments
Eroded Cohesion of Existing Alliances	Reduced will to use Military Power
Issue of Right/Obligation to Intervene	Disruption of Vital Resource Flows
Negative Impact upon Economy	Issue of Right/Obligation to Intervene

NATO's Role in Security Implication Mitigation

Purpose:

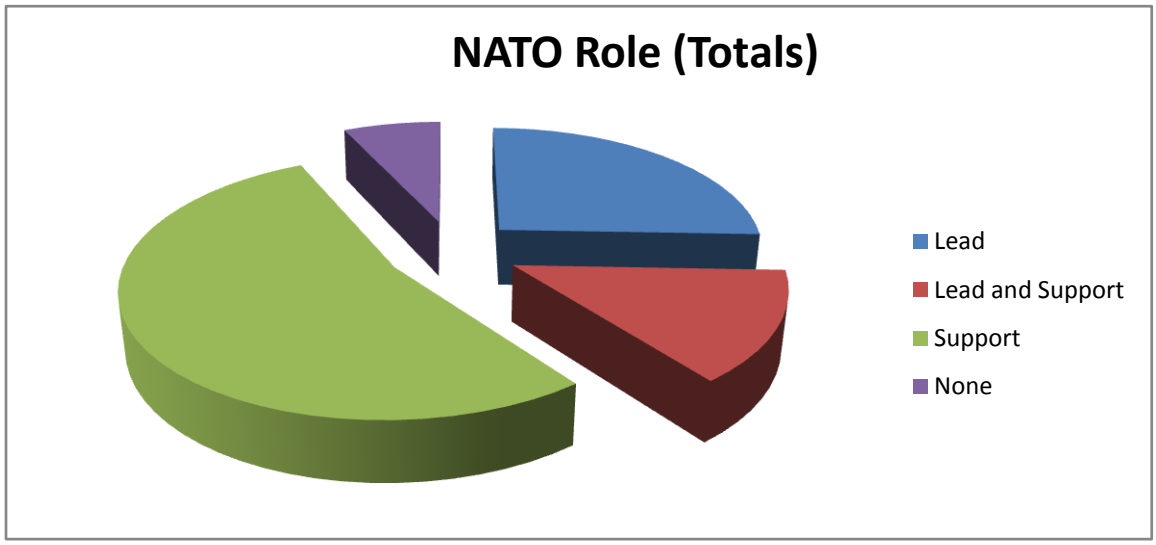
This analysis was developed to support the MFP core team's ongoing development work on the Security Implications. It was designed to provide the MFP team an understanding of what Workshop participants felt the NATO role should be in mitigating each Security Implication.

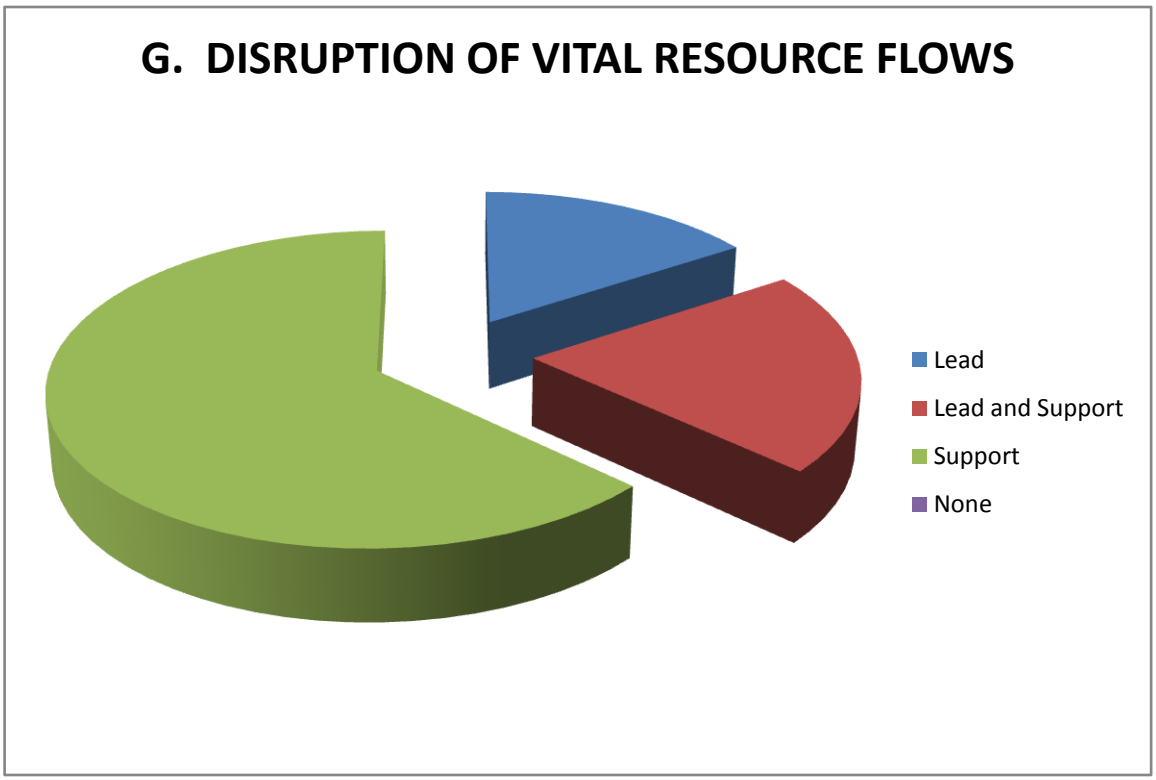
Results:

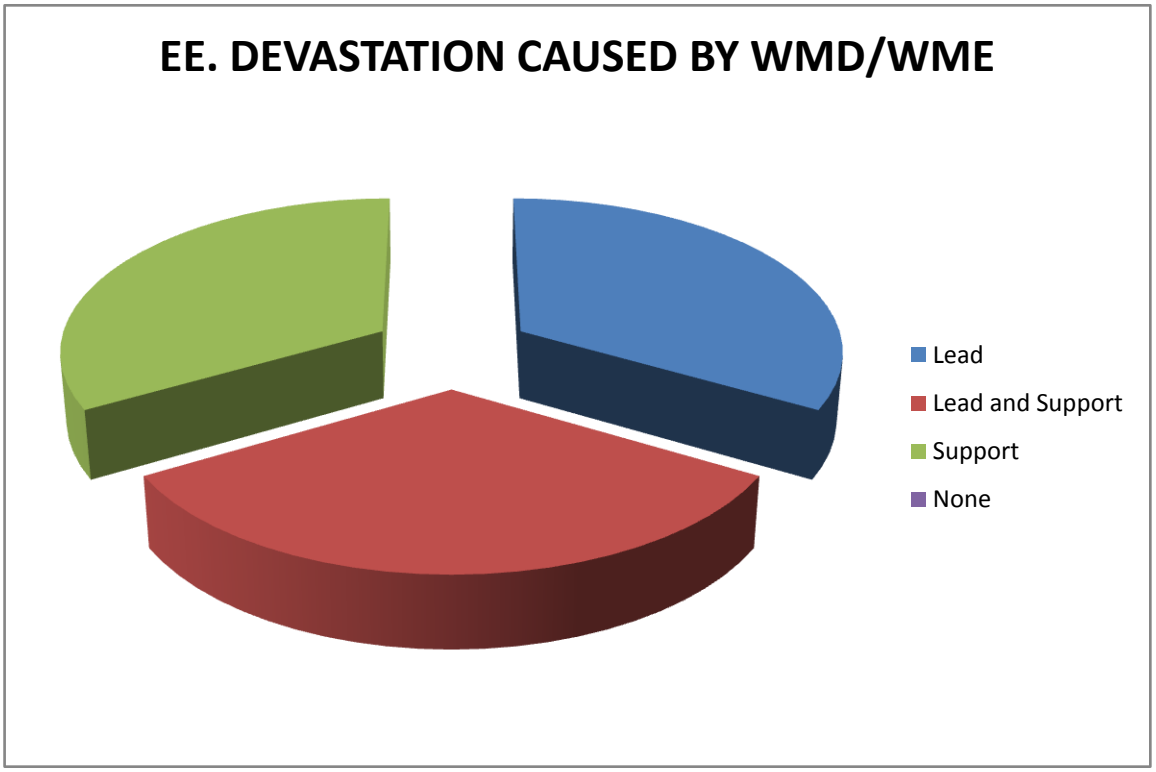
The results indicated that the Workshop participants felt that the NATO role varied based upon the Security Implication. The overall results show a relatively small NATO Lead Role and a large supporting role in the future, which is a compelling argument for NATO placing effort upon the comprehensive approach and developing collaborative command and control mechanisms for the future.

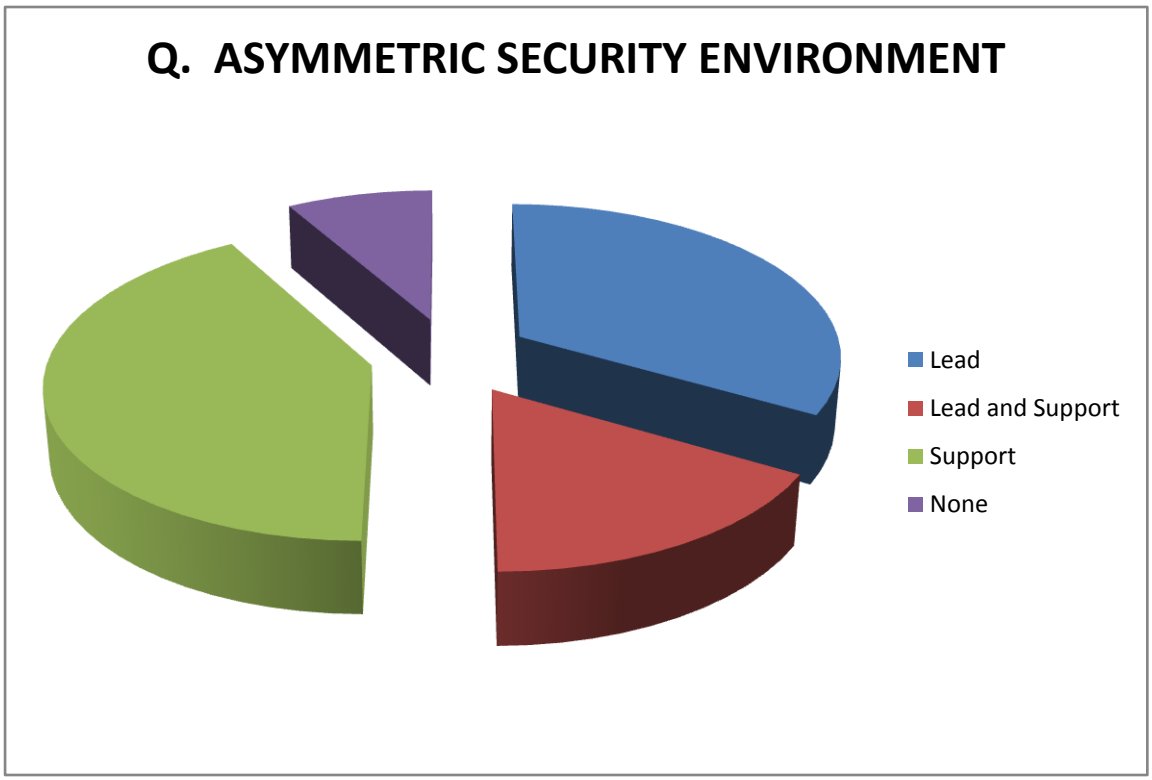
Method:

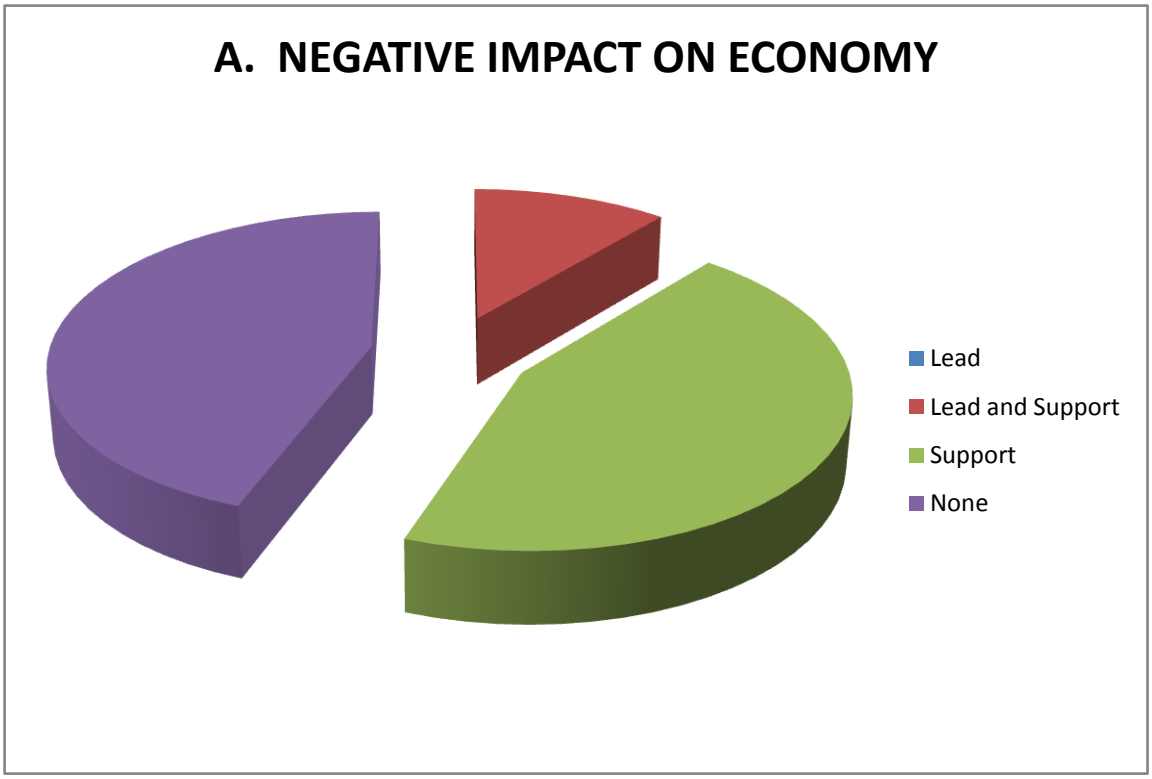
Each workshop group selected up to five rank ordered security implications. Security Implications were given tabular values based upon their ranking by each group as well as their plurality of selection. The Top 7 Security Implications were selected by more than one group and were included as significant. For each Mitigation the group was asked what the NATO role should be. Originally there were three categories Lead, support and none. The first group added a fourth category which was part lead part support. The rest of the groups used all four categories as well.

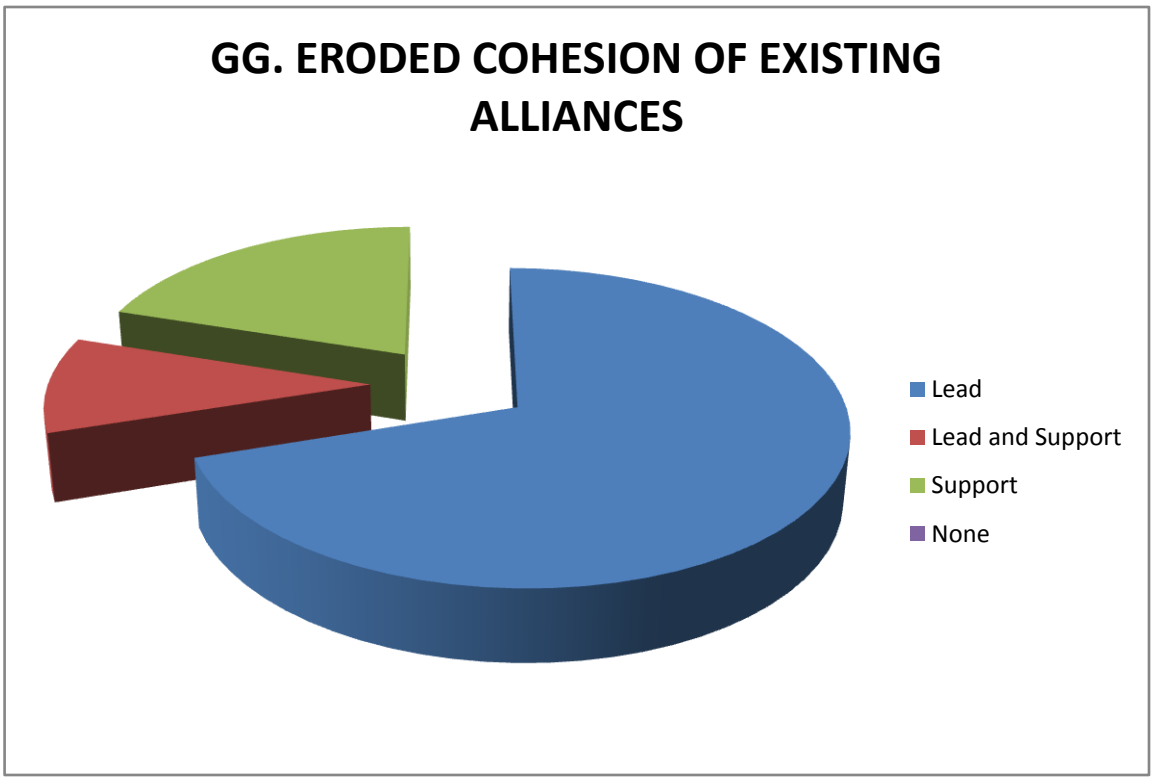


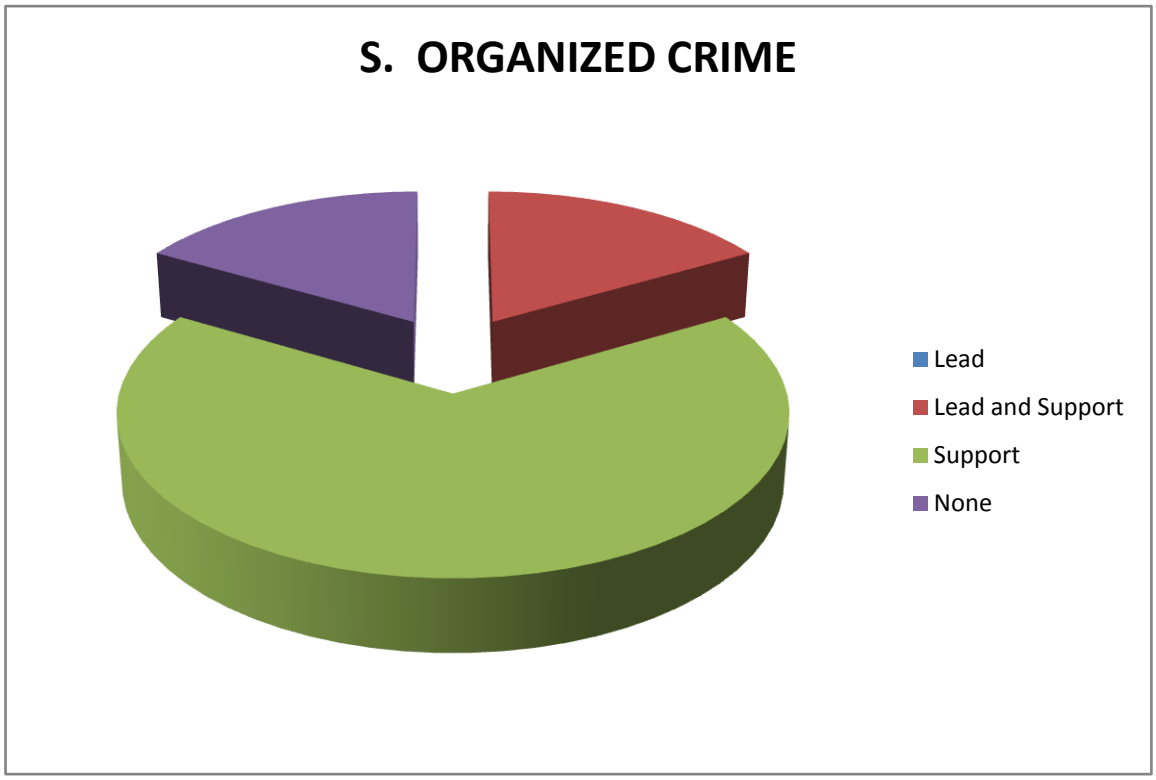

G. DISRUPTION OF VITAL RESOURCE FLOWS
Lead
Lead and Support
Support
None

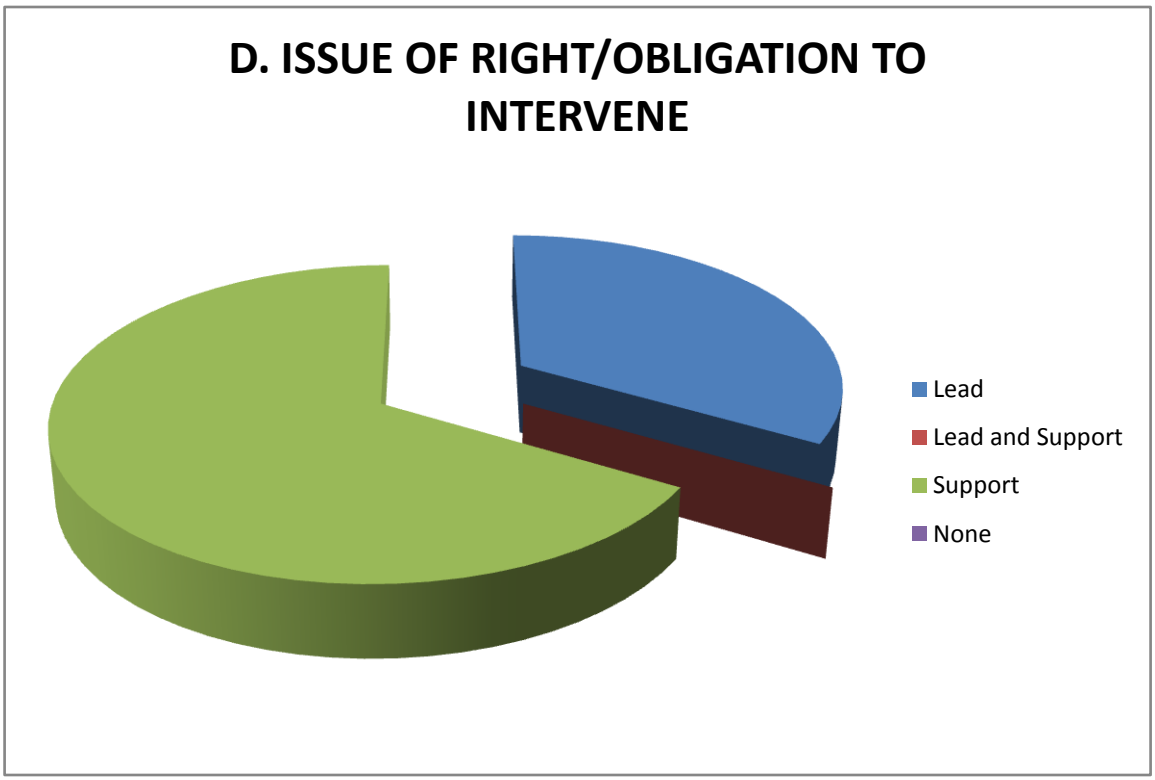

EE. DEVASTATION CAUSED BY WMD/WME
Lead
Lead and Support
Support
None


Q. ASYMMETRIC SECURITY ENVIRONMENT
Lead
Lead and Support
Support
None


A. NEGATIVE IMPACT ON ECONOMY
Lead
Lead and Support
Support
None


GG. ERODED COHESION OF EXISTING ALLIANCES
Lead
Lead and Support
Support
None


S. ORGANIZED CRIME
Lead
Lead and Support
Support
None


D. ISSUE OF RIGHT/OBLIGATION TO INTERVENE
Lead
Lead and Support
Support
None

Comparing NATO and Partner Participants Security Implication Questionnaires from the Strategic Military Partners Conference

Purpose:

This comparison analysis was developed to support the MFP core team's ongoing development work on the Security Implications. It was designed to provide the MFP team an insight into the different opinions between NATO and partner participants in the SMPC workshop.

Results:

The results indicated that there were some significant differences between the security implication concerns of NATO and Partner nation participants. Of particular note was the significance give by partners to WMD Effects and poor integration of populations that were not significant to NATO members.

Method:

Each participant was given an individual worksheet which was coded as either NATO Member or Partner participant. The results were tabulated and illustrated for clarity.

Comparing SMPC Results – Most Significant Security Implications

NATO & partner average combined	Partners average only	NATO average only
Asymmetric security environment	Asymmetric security environment	Asymmetric security environment
Disruption of vital resource flows	Disruption of vital resource flows	Disruption of vital resource flows
Destabilization of governments	Negative impact on critical infrastructure	Reduced will to use military power
Eroded cohesion of existing alliances	Reduced self-defence posture	Destabilization of governments
Negative impact on economy	Devastation caused by WMD/WME	*Negative impact on economy*
Massive Illegal immigration	*Eroded cohesion of existing alliances*	Massive Illegal immigration
Negative impact on critical infrastructure	Challenges to dominant values (poor integration)	*Eroded cohesion of existing alliances*
Reduced will to use military power	Destabilization of governments	Reduced self-defence posture
Reduced self-defence posture	*Negative impact on economy*	Negative impact on critical infrastructure

Key:

Similarly ranked between partner countries and NATO members

and Significant difference in ranking between partner countries and NATO members

Appears in only one (partner country or NATO member) but not both of the top-ranked Security Implications

Comparing SMPC Results – Highest Impact Security Implications

NATO & partner average combined	Partners average only	NATO average only
Devastation caused by WMD/WME	**Devastation caused by WMD/WME**	**Large-scale warfare**
Large-scale warfare	**Large-scale warfare**	**Devastation caused by WMD/WME**
Disruption of vital resource flows	**Asymmetric security environment**	**Disruption of vital resource flows**
Asymmetric security environment	**Disruption of vital resource flows**	**Eroded cohesion of existing alliances**
Eroded cohesion of existing alliances	**Eroded cohesion of existing alliances**	**Asymmetric security environment**
Destabilization of governments	*Reduced self-defence posture*	*Destabilization of governments*
Reduced will to use military power	*Negative impact on critical infrastructure*	*Reduced will to use military power*
Reduced self-defence posture	*Destabilization of governments/ Reduced will to use military power (Tie)*	*Reduced influence of nations or IOs to manage crises*

Key:

⟺ Similarly ranked between partner countries and NATO members

Comparing Results SMPC – Most Likely Security Implications

NATO & partner average combined	Partners average only	NATO average only
Asymmetric security environment	Asymmetric security environment	Asymmetric security environment
Organized crime	Disruption of vital resource flows	Organized crime
Disruption of vital resource flows	Challenges to dominant values (poor integration)	Massive Illegal immigration
Massive Illegal immigration	*Negative impact on economy*	*Negative impact on economy*
Negative impact on economy	*Negative impact on critical infrastructure*	*Issue of right/obligation to intervene*
Issue of right/obligation to intervene	*Issue of right/obligation to intervene*	*Reduced will to use military power*
Challenges to dominant values (poor integration)	*Reduced self-defence posture*	Disruption of vital resource flows
Negative impact on critical infrastructure	Organized crime	Destabilization of governments
Destabilization of governments	Population hostility and unrest	Challenges to dominant values (poor integration)/ *Negative impact on critical infrastructure (Tie)*

Key:

Similarly ranked between partner countries and NATO members

and Significant differences in ranking between partner countries and NATO members

Appears in only one (partner country or NATO member) but not both of the top-ranked Security Implications

Comparing Results SMPC – Largest Transformation Security Implications

NATO & partner average combined	Partners average only	NATO average only
Eroded cohesion of existing alliances	**Eroded cohesion of existing alliances**	**Eroded cohesion of existing alliances**
Asymmetric security environment	**Asymmetric security environment**	**Asymmetric security environment**
Large-scale warfare	**Reduced self-defence posture**	*Large-scale warfare*
Reduced will to use military power	*Reduced influence of nations or IOs to manage crises*	**Devastation caused by WMD/WME**
Devastation caused by WMD/WME	*Large-scale warfare*	*Reduced will to use military power*
Reduced influence of nations or IOs to manage crises	*Reduced will to use military power*	*Reduced influence of nations or IOs to manage crises*
Reduced self-defence posture	*Negative impact on critical infrastructure*	**Population hostility and unrest**
Disruption of vital resource flows	**Disruption of vital resource flows**	**Massive Illegal immigration**
Negative impact on critical infrastructure	Devastation caused by WMD/WME	*Issue of right/obligation to intervene, Negative impact on critical infrastructure (Tie)*

Key:

Similarly ranked between partner countries and NATO members

Significant difference in ranking between partner countries and NATO members

Appears in only one (partner country or NATO member) but not both of the top-ranked Security Implications

Phase 2 Data Collection Tools

Datasheet 1

Questions for Assessment of Preliminary Futures

1a) Do you think that the Preliminary Futures presented to you are plausible? Could they be extrapolated from the present?

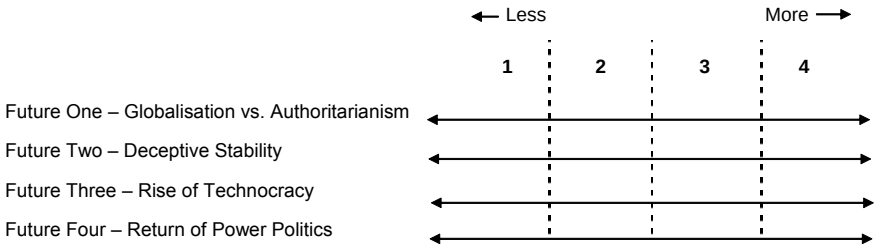
	Plausible	Not plausible
Future One – Globalisation vs. Authoritarianism	☐	☐
Future Two – Deceptive Stability	☐	☐
Future Three – Rise of Technocracy	☐	☐
Future Four – Return of Power Politics	☐	☐

1b) Do you have any specific comments about the plausibility of the Preliminary Futures?

2) Do you think the name adequately reflects the characteristics of the Preliminary Future? If not, do you have any suggestions?

	Name is appropriate	Name is inappropriate	New Name Suggestions
Future One – Globalisation vs. Authoritarianism	☐	☐	
Future Two – Deceptive Stability	☐	☐	
Future Three – Rise of Technocracy	☐	☐	
Future Four – Return of Power Politics	☐	☐	

3) To what extent (score 1 - 4) do the Preliminary Futures stimulate you to think about the future security environment?



4a) What did we forget?

4b) What needs more emphasis?

4a) What did we get wrong?

Datasheet 2 Threatening Actions/Events Data Collection

Instructions:

STEP 1 (Optional): If you feel that any Threatening Actions or Events suggested by one or more of the Futures are missing from the list below, please add them in the spaces provided for your input (p. through z.). This step is **optional**; you do **not** have to add Threatening Actions/Events if you do not feel any new ones are necessary.

STEP 2: Circle the reference letter of **up to five** Threatening Actions/Events that you believe present the **greatest** risks to the NATO Alliance. You do **not** have to select all five (for example, if you feel only three of the Threatening Actions/Events present a great risk to NATO, you should select only three).

STEP 3: Rank order your **selections** in the rightmost column below, with lower numbers signifying greater risks (e.g. ranking a Threatening Action or Event "1" indicates it is the greatest risk to NATO, "2" indicates next greatest risk, etc.)

STEP 4: Put an "X" in **up to three** boxes to indicate that those Threatening Actions/Events pose **minimal** risk to NATO. You do **not** have to select all three.

	Threatening Actions/Events	**Rank**
a.	**Violation of territorial integrity**	
b.	**Disruption of vital resource flows**	
c.	**Disruption of access to critical resources**	
d.	**Attack on computer networks**	
e.	**Natural Disasters**	
f.	**Attack on population/infrastructure (domestic)**	
g.	**Attack on population/infrastructure (abroad)**	
h.	**Pandemic**	
i.	**Espionage**	
j.	**WMD/WME attack**	
k.	**Piracy**	
l.	**Human trafficking**	
m.	**Drug trafficking**	
n.	**Ethnic cleansing**	
o.	**Violation of personal liberties**	
p.		
q.		
r.		

Datasheet 3 Security Implications Data Collection Worksheet (Individual)

Instructions:

STEP 1 (Optional): If you feel that any Security Implications suggested by one or more of the Futures are missing from the list below, please add them in the spaces provided for your input (HH. through JJ.).

STEP 2: Rate **each** Security Implication (including any that you added on to the list) in terms of its **Likelihood** (i.e. how likely is that Security Implication to become an issue for NATO by 2030). **Circle a number** to rate the Security Implication, where 1 = Unlikely, 2 = Somewhat Unlikely, 3 = Somewhat Likely, and 4 = Likely.

STEP 3: Rate **each** Security Implication (including any that you added on to the list) in terms of its **Impact** (i.e. how large an effect that Security Implication would have on NATO if it occurs). **Circle a number** to rate the Security Implication, where 1 = No Impact, 2 = Little Impact, 3 = Some Impact, and 4 = Large Impact.

STEP 4: Rate **each** Security Implication (including any that you added on to the list) in terms of its **Stretch** (i.e. how extensively would NATO have to transform to deal with that Security Implication). **Circle a number** to rate the Security Implication, where 1 = No Transformation Required, 2 = Minor Transformation Required, 3 = Significant Transformation Required, and 4 = Major Transformation Required.

Ref	Futures	Security Implication	Likelihood	Impact	Stretch
A.	1,2,3,4	NEGATIVE IMPACT ON ECONOMY	1 2 3 4	1 2 3 4	1 2 3 4
B.	1,2,4	ILLEGAL IMMIGRATION	1 2 3 4	1 2 3 4	1 2 3 4
C.	1,2,4	HUMAN EXPLOITATION	1 2 3 4	1 2 3 4	1 2 3 4
D.	1,2,4	ISSUE OF RIGHT/OBLIGATION TO INTERVENE	1 2 3 4	1 2 3 4	1 2 3 4
E.	1,2,3,4	DANGER TO CITIZENS	1 2 3 4	1 2 3 4	1 2 3 4
F.	1,2,3,4	LIBERAL-DEMOCRATIC VALUES AND IDEAS AT RISK	1 2 3 4	1 2 3 4	1 2 3 4
G.	1,3,4	DISRUPTION OF VITAL RESOURCE FLOWS	1 2 3 4	1 2 3 4	1 2 3 4
H.	1,2,3,4	NEGATIVE IMPACT ON CRITICAL INFRASTRUCTURE	1 2 3 4	1 2 3 4	1 2 3 4
I.	1	DIFFUSION OF NATIONAL IDENTITY	1 2 3 4	1 2 3 4	1 2 3 4
J.	1	DESTABILIZATION OF PREVIOUSLY STABLE GOVERNMENTS	1 2 3 4	1 2 3 4	1 2 3 4
K.	1	INCREASING NUMBER OF POTENTIALLY HOSTILE STATES	1 2 3 4	1 2 3 4	1 2 3 4
L.	1	CHALLENGES TO DOMINANT VALUES (POOR INTEGRATION)	1 2 3 4	1 2 3 4	1 2 3 4
M.	1	UNDERMINING NATIONAL & INTERNATIONAL LAW	1 2 3 4	1 2 3 4	1 2 3 4
N.	1	POPULATION HOSTILITY AND UNREST	1 2 3 4	1 2 3 4	1 2 3 4
O.	1	DOMESTIC DISORDER	1 2 3 4	1 2 3 4	1 2 3 4
P.	1,3	DECISIONS BY MULTINATIONAL INDUSTRY CHALLENGES INTL ORDER	1 2 3 4	1 2 3 4	1 2 3 4
Q.	1,4	ASYMMETRIC SECURITY ENVIRONMENT	1 2 3 4	1 2 3 4	1 2 3 4
R.	2	SOCIAL DISORDER	1 2 3 4	1 2 3 4	1 2 3 4
S.	2	ORGANIZED CRIME	1 2 3 4	1 2 3 4	1 2 3 4

T.	1,2,3,4	VIOLATION OF TERRITORIAL INTEGRITY	1 2 3 4	1 2 3 4	1 2 3 4
U.	2	REDUCED WILL TO USE MILITARY POWER	1 2 3 4	1 2 3 4	1 2 3 4
V.	2	REDUCED SELF-DEFENCE POSTURE	1 2 3 4	1 2 3 4	1 2 3 4
W.	3	OVEREMPHASIZED SECURITY VS PERSONAL LIBERTIES TENSION	1 2 3 4	1 2 3 4	1 2 3 4
X.	3	EXPLOITATION OF CORPORATE & STATE SECRETS	1 2 3 4	1 2 3 4	1 2 3 4
Y.	3	CHALLENGED STATE MONOPOLY ON THE USE OF FORCE (PMCs)	1 2 3 4	1 2 3 4	1 2 3 4
Z.	3	ERODED STATE-SOCIETY COHESION	1 2 3 4	1 2 3 4	1 2 3 4
AA.	3	EXPLOITATION OF COMMUNICATION SYSTEMS	1 2 3 4	1 2 3 4	1 2 3 4
BB.	3	LOSS OF COMMUNICATIONS SYSTEMS	1 2 3 4	1 2 3 4	1 2 3 4
CC.	3	UNCERTAIN ALLEGIANCES OF PMCS	1 2 3 4	1 2 3 4	1 2 3 4
DD.	4	LARGE-SCALE WARFARE	1 2 3 4	1 2 3 4	1 2 3 4
EE.	4	DEVASTATION CAUSED BY WMD/WME	1 2 3 4	1 2 3 4	1 2 3 4
FF.	4	REDUCED INFLUENCE OF INDIVIDUAL NATIONS OR IOs TO MANAGE CRISIS	1 2 3 4	1 2 3 4	1 2 3 4
GG.	4	ERODED COHESION OF EXISTING ALLIANCES	1 2 3 4	1 2 3 4	1 2 3 4
HH.			1 2 3 4	1 2 3 4	1 2 3 4
II.			1 2 3 4	1 2 3 4	1 2 3 4
JJ.			1 2 3 4	1 2 3 4	1 2 3 4

Datasheet 4 Security Implications Data Collection Worksheet (Syndicate)

Table YY		
Security Implication		NATO role (Lead/Support/None)?
SI Mitigation		
SI Mitigation		
SI Mitigation		
Security Implication		NATO role (Lead/Support/None)?
SI Mitigation		
SI Mitigation		
SI Mitigation		
Security Implication		NATO role (Lead/Support/None)?
SI Mitigation		
SI Mitigation		
SI Mitigation		
Security Implication		NATO role (Lead/Support/None)?
SI Mitigation		
SI Mitigation		
SI Mitigation		
Security Implication		NATO role (Lead/Support/None)?
SI Mitigation		
SI Mitigation		
SI Mitigation		

Annex F: Security Implications Qualitative Analysis

The Multiple Futures Project
Interim Report on Security Implications

Aim

This Interim Report provides both the North Atlantic Council (NAC) and Military Committee (MC) with initial insights on the security implications facing the Alliance derived from engagements with NATO nations, partner countries, and a variety of international, governmental, and non-governmental experts. The report focuses mainly on security implications and their potential consequences for the Alliance which can be used to inform the strategic dialogue with regard to the future role of the Alliance and the capabilities required.

The report presents four initial insights and associated consequences which represents a clarion call to action. The first of these four insights touches upon the cornerstone of our defence structures by focusing on why and how the evolving nature of threats will pose new challenges for reaching a consensus on what constitutes an Article 5 response. The second insight reflects on the need for the Alliance to examine its responsibility to act outside NATO's traditional areas of engagement to preclude or minimize conflict with pro-active, integrated, and comprehensive approaches. The third insight is centered on the understanding that readily available advanced technology will enable determined adversaries to attack Alliance vulnerabilities in new and unexpected ways, thus requiring NATO to consider changes in its operating concepts, capabilities, and future force structure. The fourth insight suggests that enhanced communications and increased interaction with international partners will be required to positively shape and influence values, ideas and events in an increasingly globalized world.

The initial findings of the report convey the message that the security environment will continue to evolve and be subject to a variety of unforeseeable and dynamic political, social, technological and military developments. Therefore, the Alliance will have to maintain existing, and in some cases, develop new capabilities to grapple with these emerging security challenges. It is this complex nature of the future that

reinforces the importance, and need for, strategic unity, solidarity and coherence of the Alliance.

Initial Insights and Consequences.

> ***Insight 1****:* The evolving nature of risks and threats to vital interests will challenge the strategic unity and solidarity within the Alliance as well as the common understanding of what constitutes an Article 5 attack.

Consequences

- **In an increasingly complex security environment, the nature of risks and threats will continue to evolve, and so will the understanding of collective defence. This will challenge the Alliance's ability to reach a timely decision regarding when, where and how to respond.**

- **Alliance solidarity will be threatened by competing values and ideas from actors who promote alternatives to democracy, human rights and the rule of law. Maintaining solidarity in the face of shared threats must remain the Alliance's highest priority.**

- **Risks and threats to the Alliance's territories, populations and forces will be hybrid in nature: interconnected, unpredictable and a combination of traditional warfare mixed with irregular warfare terrorism and organised crime.**

- **The Alliance may face attacks that do not fit the traditional interpretation of Article 5. These attacks will have a direct effect on the Alliance, e.g., massive communications disruption, pandemics, cyber attacks on economic or social infrastructure. These attacks may emanate from states or from non-state actors, individuals and/or small groups who are difficult to identify and are highly adaptable and willing to operate outside the internationally accepted laws, values, norms and conventions.**

- **Some nations with different ideologies and worldviews will rise as economic, technological and military powers. While some will cooperate, others will try to reshape or reject the international system. These nations will generate competition for strategic influence, values and ideas in areas of strategic interest for the Alliance.**

- **Shifting demographics and corresponding value systems within Alliance Nations, that oppose Alliance action, will make a response to diffused and complex threats more challenging.**

- **Changing interpretations of national identity, softening allegiances, eroding social cohesion and demographic shifts will influence member nations' perceptions of threat and the preparedness for the use of military force.**

- **Nations will face recruitment and sustainment problems and a substantially reduced national support for the defence sector as a whole.**

Insight 2: Increased interaction with non-NATO nations and other international actors will create opportunities for the Alliance to extend its role in enhancing security and stability outside traditional areas of engagement.

Consequences

- **The Alliance will have to transform itself from a predominantly defence-based military Alliance into a comprehensive political and military security community.**

- **The network of global governance designed to meet 21th century challenges will continuously adapt to recurring demands emanating from the evolving nature of threats discussed in previous insights. This includes the establishment of new governance bodies, adapting the roles, responsibilities, and authorities of the actors within the existing structure of governance, and the tailoring of international law.**

- **The trends point to a multi-polar world where numerous actors will take an increasing role in global governance. Each of these changes will impact the Alliance, and NATO will need to continuously review the governance landscape to ensure clarity in its supported/supporting roles and its responsibilities related to defence/security, civil/military, public/private partnerships, and relationships with other nations.**

- **The Alliance may have to decide whether to act outside the traditional NATO's role due to growing competition in ungoverned areas such as the Arctic, denial of access to resources, space and maritime commons, spill-over of regional conflicts when one or more of the actors have nuclear weapons, and threats to NATO from radical nations and non-nation state actors who are willing to use nuclear and tailored biological weapons - or willing to create chaos for the purpose of destabilizing fragile governments.**

- **The destabilisation, or absence of governance in strategically significant areas, may require NATO to intervene to protect vital Alliance interests or avoid further regional instability, mitigate the proliferation of Weapons of Mass Destruction/Effect (WMD/E), prevent the disruption of vital resources, and address large-scale migration, regional wars, ethnic cleansing or genocide.**

- **The legitimacy on which NATO actions are based will need to be developed further to deter opportunistic actors with a clear and credible threat of military force.**

- **Alliance Nations must forge new, or strengthen existing, relationships to form a comprehensive approach to crisis resolution by engaging government agencies, notably law enforcement, border protection services, judiciaries and public health authorities.**

- **NATO will also need to adapt its internal organizational structures, authorities, and composition and decision-making process, as well as revise its policies for releasing information and cooperating with non-NATO bodies.**

- **The Alliance will have to strengthen its ability to fulfill its mandate in increasingly complex crises areas, such as hybrid warfare and support to humanitarian relief operations, where it would have to function alongside various other international actors establishing a safe and secure environment.**

- **The Alliance will have to form a comprehensive partnership policy that will enable full use of its expertise in the fields of Security Sector Reform (SSR), Education, Training and Exercise, focusing on increasing cultural awareness and improving interoperability through the use of the NATO education and training centres.**

- **The Alliance's supported/supporting roles and responsibilities will need to be addressed regarding its role in contributing to enduring solutions**

to failed states, i.e., institution building, Security Assistance, police training, security for ungoverned areas, infrastructure and energy security, non-proliferation of weapons of mass destruction and associated consequence management. Additionally, the delineation of roles will be essential when addressing security threats involving hybrid warfare. This will require a complementary approach with the EU.

Insight 3: Determined adversaries enabled by readily available technologies will attack Alliance vulnerabilities in unexpected ways requiring the Alliance to consider changes in the character of military operations and warfare.

Consequences

- **Advances and open availability of technology and the risk of WMD/E proliferation enable adversaries like never before. Alliance Nations must therefore maintain the technological advantage and ensure the security of technology.**

- **The enemy will focus his efforts against perceived weaknesses – which will magnify and compound uncertainty, ambiguity and surprise. The combination of networks, miniaturization, robotics, swarming, precision, and nanotechnology will pose new and unexpected challenges to conventional warfare -- and individuals and small groups will be more effective and lethal with easily developed, concealed, and transported disruptive and destructive capabilities.**

- **Adversaries can and will take the initiative, in any domain, to attack Alliance populations, territories, or interests. Threats will come through a hybrid form of warfare, where conventional, irregular and criminal capabilities are integrated operationally and tactically at the lowest level possible in urban environments and locations, where the Alliance lacks established support systems.**

- **NATO's military posture must not be geared to a single preclusive vision or doctrine of future warfare. It will need to achieve and sustain sufficient conventional and nuclear capabilities with adequate responsiveness and sustainability to deter and defeat those who threaten Alliance security. To effectively respond to surprise and hybrid warfare these capabilities will need to be flexible and adaptable.**

- **In the context of future risks and threats NATO needs to formulate appropriate new concepts and doctrines. Maritime security, the use of**

space and the protection of space assets and the continued expansion of cyber defence capabilities are examples that will require further examination.

- **The nature of future operations will emphasize the importance of multinational, joint and expeditionary capabilities able to succeed in demanding geographical and climactic environments. As such, efficient military operations will require flexible, adaptive, deployable forces with ethical and moral grounding, and an understanding of how enemies may use technology against the Alliance.**

- **NATO's level of ambition must ensure the Alliance's ability to conduct the full range of its operations and missions concurrently, ranging from collective defence operations, a greater number of demanding stabilisation and reconstruction operations and large-scale high-intensity operations.**

- **Success in the future will be measured also by the Alliance's ability to educate and train forces, focusing on the efficacy of military and civilian leadership, ensuring they are knowledgeable and capable of strategic foresight, well-educated in the nature of past, present and future warfare.**

Insight 4: Increased interaction with other international actors will provide NATO the opportunity to positively shape and influence ideas, values and events in a globalised world.

Consequences

- **The Alliance will have to ensure its abilities to anticipate, sense, and shape the security environment, achieve a common understanding of perceived risks and threats and better share these perceptions with the Alliance populations.**

- **Maintaining a credible defence posture and corresponding military capabilities will continue to be necessary. Lacking a well-defined and unifying adversary and the increased number of domestic non-security concerns can result in inattention and apathy with regard to matters of defence.**

- **Enhanced strategic communications, both internal and external to the Alliance, will promote public understanding of the Alliance's positive contributions to peace and stability and help ensure NATO's ability to maintain a credible defence posture with the proper mix of military capabilities.**

- **NATO will need to effectively communicate the inter-relationship between security and defence – and NATO's role, in relation to other governance bodies, both Alliance and non-Alliance.**

Commander's Assessment:

The unpredictability and complexity of the future security environment will strain the Alliance's most powerful tools: strategic unity of values and goals, solidarity among Allies, burden-sharing and commitment to its decisions.

The Multiple Futures Project is designed to "sweep" the strategic horizon to gain fidelity from nations and international organisations on the future threats to the territory, population and forces of the Alliance. The security challenges and implications being uncovered by the Multiple Future Project point to a need to redefine many of the assumptions and strategies we have been operating under for the last decade. With this in mind, I believe the Multiple Futures Project can contribute to the debate on the Declaration of Alliance Security and possibly a new Strategic Concept. Ultimately, it can support answering the fundamental question: "what is the future purpose of NATO?"

Against this background, I would like to highlight several key issues addressed in this Interim Report:

- There is a strong need for a fundamental strategic dialogue about NATO's future direction.

- The Alliance will maintain collective defence at its core; however, the nature of the challenges that could prompt an Article 5 response will continue to evolve.

- Increasingly asymmetric and unconventional threats of the future security environment will be the future operational environment of the Alliance: NATO must develop new concepts to deal with these emerging threats.

- Comprehensive Approach will be the foundation for NATO's success. Only improved partnerships can enable the Alliance to meet the complex threats of a rapidly changing security environment.

- The Alliance will have to transform itself from a predominantly defence-based military Alliance into a comprehensive political and military security community.

The Interim Report's aggregate message is that the future presents NATO with unprecedented opportunities to positively influence ideas, values and events in a globalised world – while at the same time maintaining and improving its agility and flexibility to respond to unpredictable and complex challenges.

Annex G: Military Implications Quantitative Analysis

Military Implications – Importance

Purpose:

This analysis was developed to support the MFP core team's ongoing development work on the Military Implications. This analysis was designed to provide the MFP team with an impression of the overall importance that workshop participants placed on each of the Military Implications.

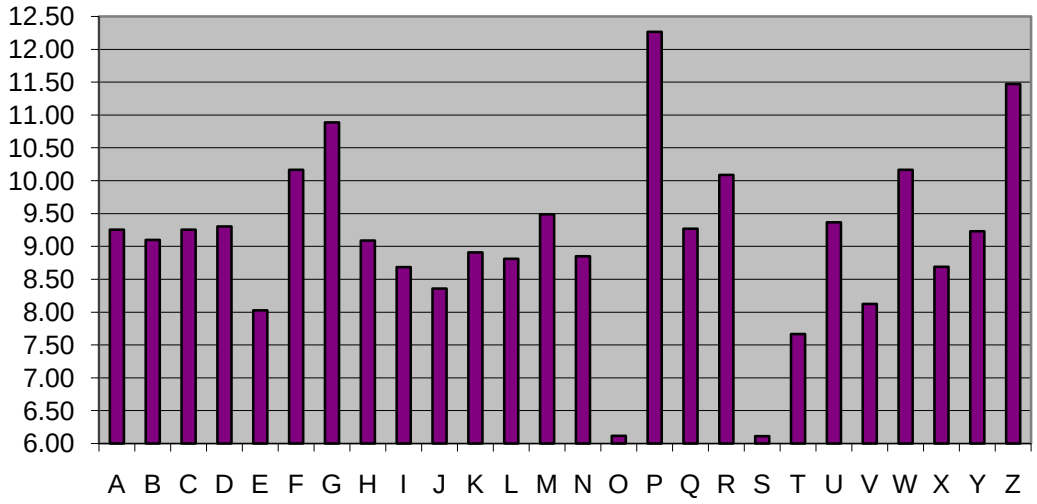
Results:

The most important Military Implications were not in traditional hard roles, but in softer interactive roles for the military. The general impression was that the most important Military Implication was Protection Against Military Threats. Conducting Military Operations Against Non-State Actors was deemed to be the second most important.

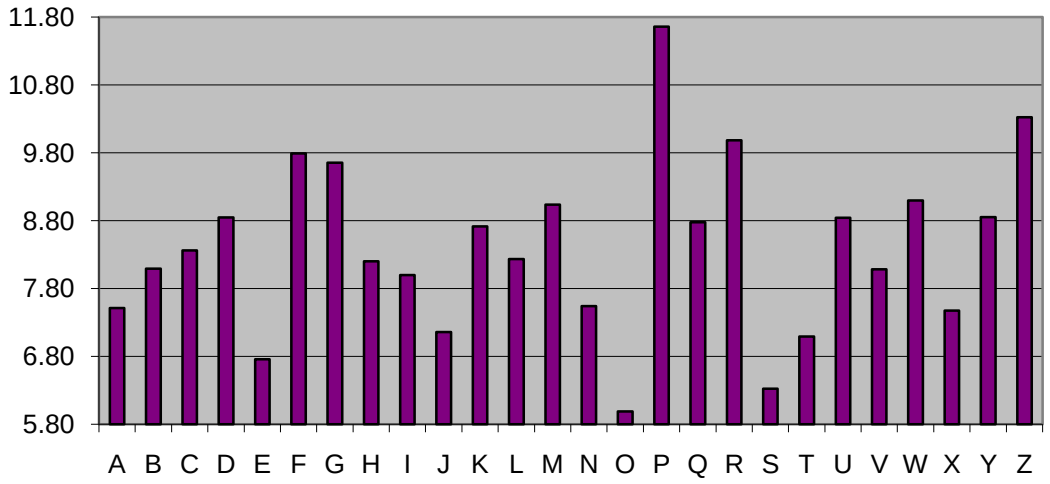
Method:

The participants were provided questionnaires where the Military Implications derived by the MFP team were listed. Participants were asked to rate each Military Implication for likelihood, impact and stretch. Importance for each Military Implication was determined by multiplying the average likelihood and the impact.

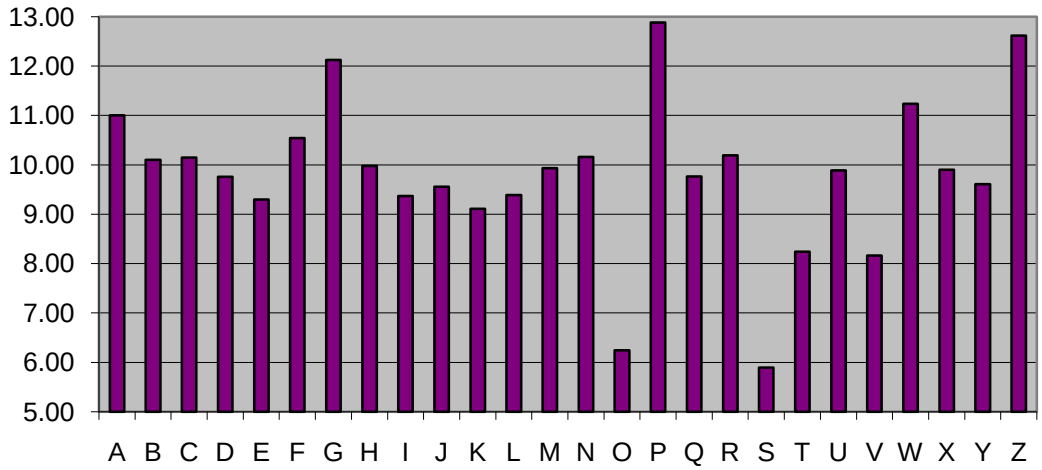
Overall Military Implications – Importance (Likelihood x Impact)



ACO Military Implications – Importance (Likelihood x Impact)



Athens Military Implications – Importance (Likelihood x Impact)



Military Implications – Transformation Difficulty

Purpose:

The transformation difficulty analysis was developed to support the MFP core team's ongoing development work on the Military Implications. This analysis was designed to provide the MF Core Team with an impression of the overall degree of stretch that workshop participants felt would be required to meet the challenge of the Military Implications. Stretch was defined as the degree of change or transformation that would be required, i.e.; the difference between the current NATO and the required NATO of 2030.

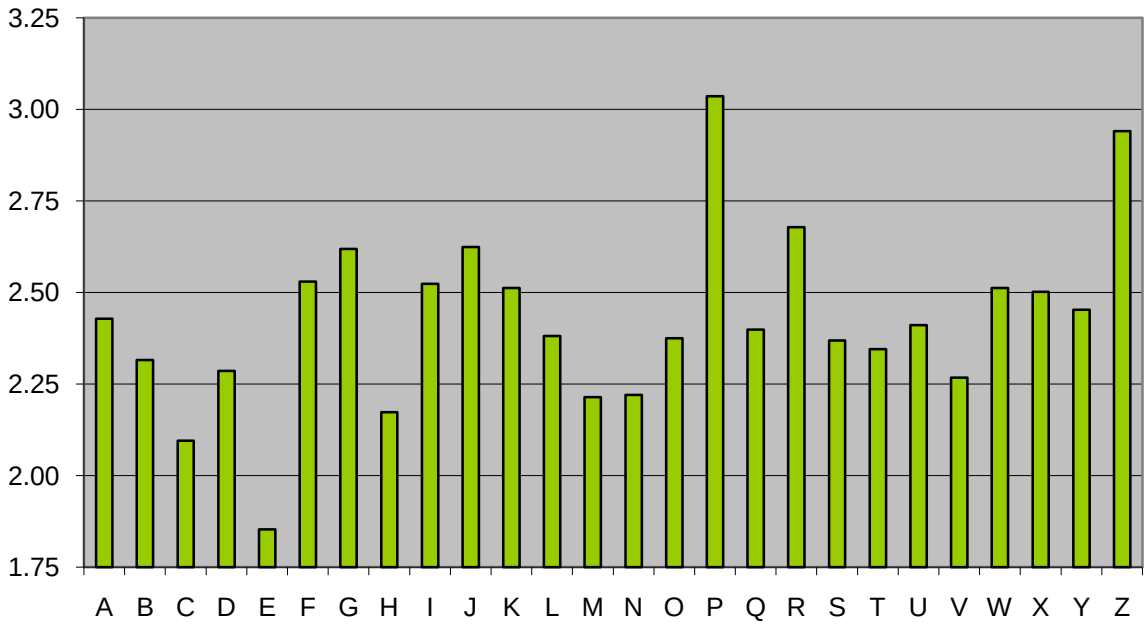
Results:

The Military Implications which will be the most difficult to meet the transformation requirements successfully are the softer cooperation and coordination, not the kinetic implications. Of particular note, the Protection Against Asymmetric Threats was seen as the most difficult. Recalling that this was also deemed to be the most important Military Implication indicates a need to address this Military Implication as a first priority for the future.

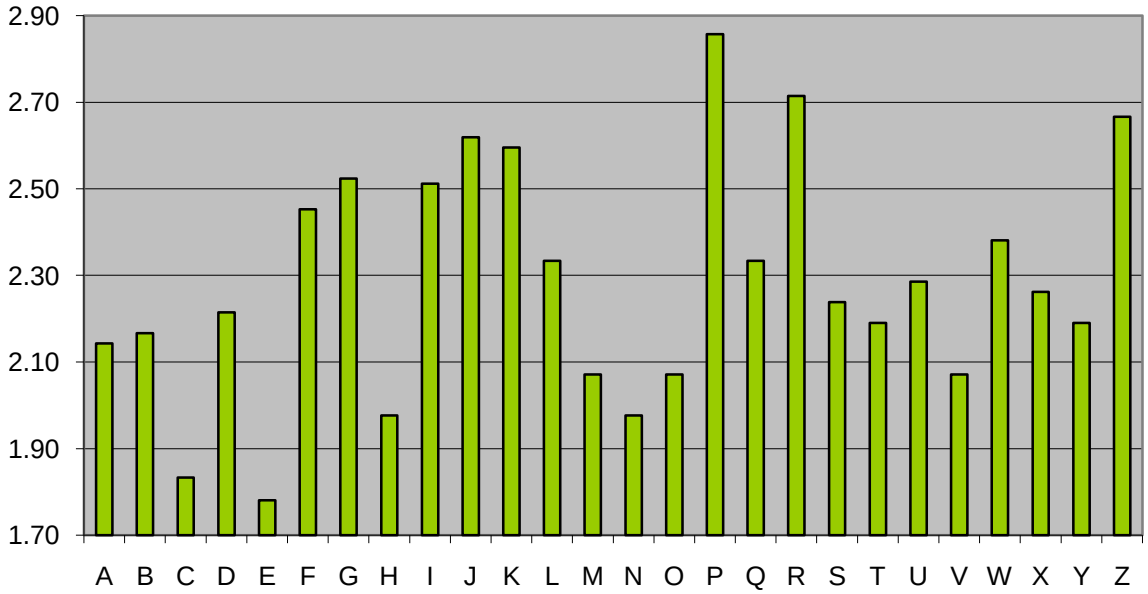
Method:

The participants were provided questionnaires where the Military Implications derived by the MFP core team were listed. Participants were asked to rate each Military Implication for likelihood, impact and stretch. The Transformation Difficulty for each Military Implication was the average stretch.

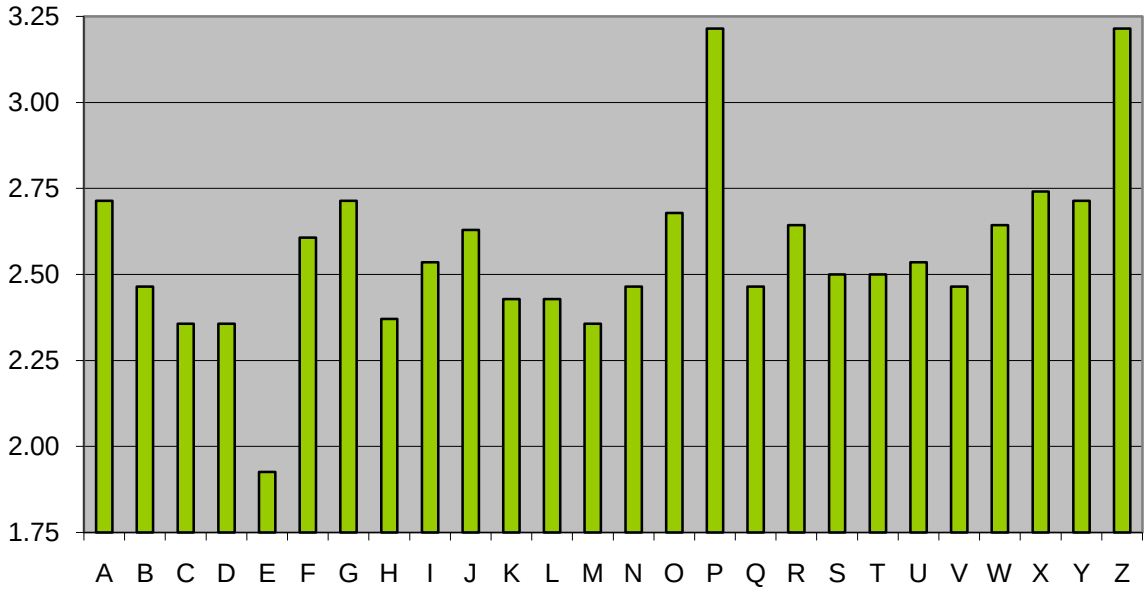
Overall Military Implications - Transformation Difficulty



ACO Military Implications - Transformation Difficulty



Athens Military Implications - Transformation Difficulty


3.25
3.00
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2.50
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A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Military Implications – Group Importance

Purpose:

The group importance analysis was developed to support the MFP core team's ongoing development work on the Military Implications. This analysis was designed to provide the MFP team with an impression of the overall importance that the groups placed upon each of the Military Implications.

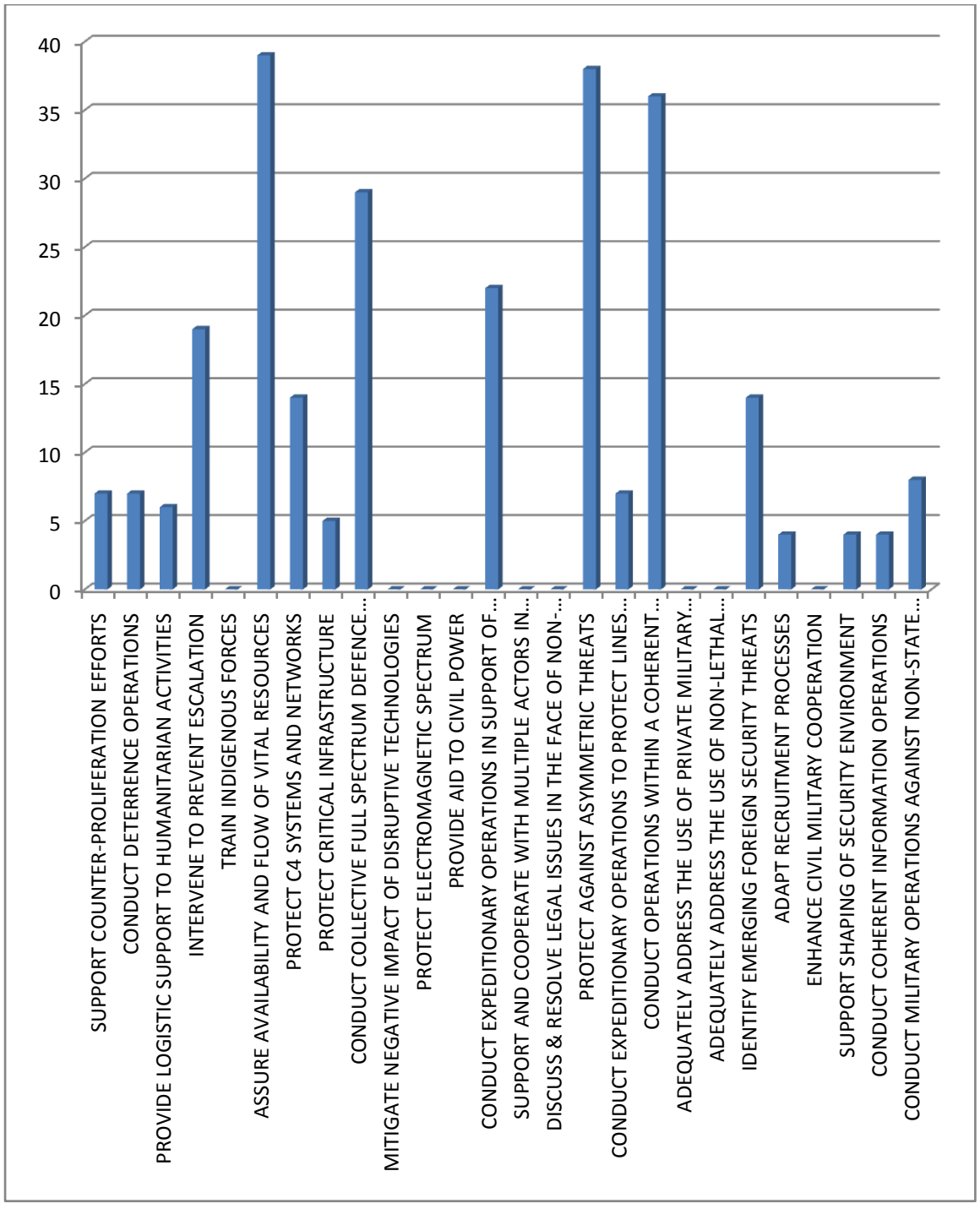
Results:

Of particular note, the group impressions were that the three most important Military Implications for the future are Assure the Availability and Flow of Vital Resources, Protect Against Asymmetric Threats and Conduct Operations Within a Coherent Comprehensive Framework.

Method:

The groups were asked to derive up to five rank-ordered Military Implications. These Military Implications were given scores for ranking and plurality which were summed to determine final scores.

Military Implications – Group Importance



NATO Role in Meeting the Challenges of the Military Implications

Purpose:

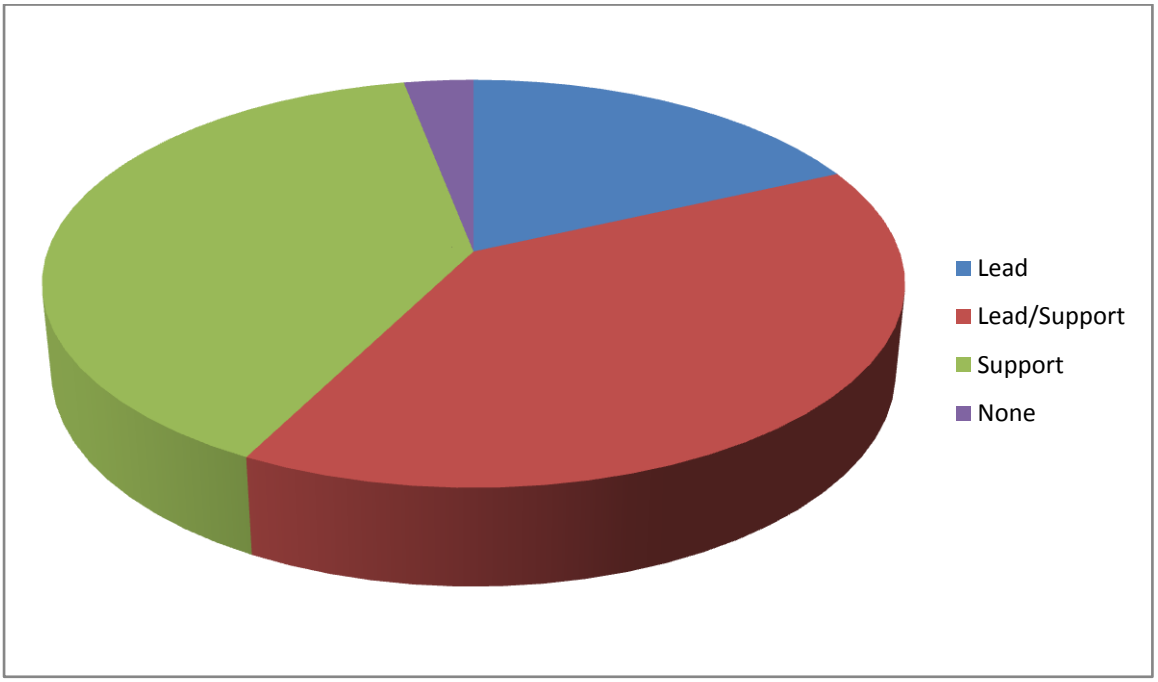
This analysis was developed to support the MFP core team's ongoing development work on the Military Implications and was designed to provide the team with the group's impression of the overall NATO role in meeting the challenges of the military implications.

Results:

The NATO Role for Military Implications was significantly higher in the lead and lead/support categories than it was for the Security Implications. Although that result would be expected for the current NATO, it indicated that the workshop participants also viewed NATO to have a "Military Heavy" role in the future.

Method:

The groups were asked to derive up to five rank-ordered Military Implications. These Military Implications were given scores for ranking and plurality which were summed to determine final scores. The groups were then asked to determine the NATO role for each of these Military Implications. The results were displayed as a percentage in a pie graph.



Military Implications – Importance of Each Challenge

Purpose:

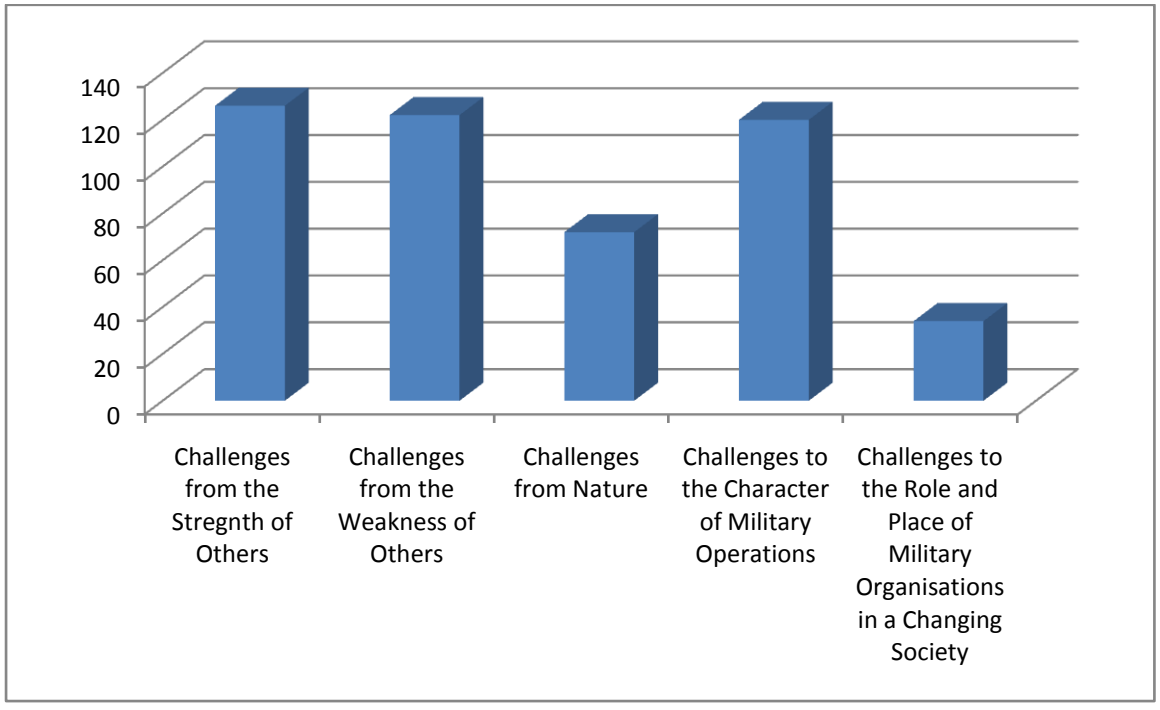
This analysis was developed to support the MFP core team's ongoing development work on the Military Implications and was designed to provide the team with an impression of the overall importance that workshop participants placed on each of the Challenges.

Results:

The most important Challenges came from the Strengths and Weaknesses of Others. Challenges from Nature showed more importance than was postulated by the analysts. Challenges to the Role and Place of Military Organisations in a Changing Society was the least important challenge.

Method:

Each of the 26 Military Implications was assigned to one of the Challenges by the core team. The Group Military Implication results were summed for each of the Challenges.



Annex H: Military Implications Qualitative Analysis

THE MFP MILITARY IMPLICATIONS

The final step in the Implications Deduction Process focuses on Military Implications with the overarching question: "What should the militaries of the Alliance be prepared for?" The Military Implications result directly from the aggregate Risk Conditions and the Security Implications discussed in Chapter 3.

Twenty-six Military Implications were created and further refined using the Command, Sense, Act, Shield and Sustain (CSASS) analysis3. This operational breakdown supports the detailed analysis and understanding of each of the implications and their potential impact on the Alliance. Specifically, it provides visibility into what may need to change militarily in the Alliance as we look towards 2030 as well as potential new areas of Alliance engagement that would have consequences in the military realm.

1. SUPPORT COUNTER-PROLIFERATION EFFORTS: State and non-state actors have shown the potential to create, sell, acquire and use WMD/WME and will continue to do so in the future. Additionally, failure or structural weakness of a nuclear capable state may pose a significant risk to Alliance security. In order to prevent inadvertent proliferation of nuclear technology, the military may be required to support protection or extraction of non-NATO nuclear assets. Furthermore, the military may be required to support existing international non-proliferation treaties and to enforce counter-proliferation resolutions. The Alliance's defence posture against the potential risks and threats of NBC weapons proliferation and their means of delivery must continue to be improved, including through work on missile defences. NATO forces supporting these efforts require capabilities that are flexible, mobile, rapidly deployable and sustainable.

COMMAND: NATO must focus and synchronize the efforts of member/partner nation in conjunction with their civilian counterparts

[3] Canadian Army Operational Functions

SENSE: Intelligence information, sharing of information and fusing these intelligence streams are critical in supporting counter-proliferation efforts.

ACT/INTERACT: To make sense and build synergy from the disperse information, the Alliance must recognize and understand the varying capabilities of Nations and other International Organisations. The Alliance must also advise member Nations where gaps exist (maintaining a technological advantage and ensuring the security of that technology is critical) in addressing the vulnerabilities (both civil and military) to WMD/WME.

SHIELD: The ability to mitigate the effects of a WMD/WME attack must be included in future planning and consist of a combination of preventative and consequence management efforts.

SUSTAIN: The Alliance must support incentive programs and support to non-proliferation regimes to combat the spread of WMD/WME. This would best be attained by supporting an ongoing strategic dialogue with the public to understand the importance of the evolving threat

2. CONDUCT DETERRENCE OPERATIONS: A Post 9/11 world requires a new concept of deterrence (reliance on the classical form of deterrence, deterrence by punishment, is likely to become less effective in an asymmetric security environment where a perpetrator is hard to identify), which conveys a single, unambiguous message to all enemies that denies them safe haven and provides a clear, credible threat of force. NATO needs to be capable of proactively creating uncertainty in the mind of those who would threaten the people of the Alliance. Proactive denial includes pre-emption when a threat is imminent, as well as prevention as the attempt to regain the initiative in order to end the conflict. In order to show Alliance resolve and commitment to international peace the military may be required to conduct deterrence operations in and across all domains.

COMMAND Communicate and demonstrate the Alliance willingness to deter sources of threat.

SENSE: The Alliance must establish a clear idea of whom or what needs to be deterred. State level deterrence will not be enough to deter against sources of threats (super-empowered individuals/groups, extremist non-state actors, organized crime, rogue states, confrontational powers) that have little or no affiliation with a state or government.

ACT/INTERACT: Conduct NATO show of forces regularly through exercises and demonstrations and work with Governmental and International Organizations to communicate, develop and promote non-kinetic deterrence.

SHIELD: Conduct effective deterrence operations by maintaining a credible nuclear/conventional capability and/or by a show of force when feasible/necessary.

SUSTAIN: Build-up, maintain and adapt (technology does not remain stagnate) deterrence capabilities through a coherent defence planning process.

3. PROVIDE MILITARY LOGISTIC SUPPORT TO HUMANITARIAN ACTIVITIES: Weakness may manifest itself in humanitarian situations such as famine, pandemic or mass movement of refugees from one area to another, placing great stress on nations' services to provide food, clothing, shelter and medical attention. These conditions can be exacerbated in areas with poor infrastructure, weak governance or civil unrest/violence. The military may be required to provide support to humanitarian activities including providing appropriate command and control of own forces and coordination with other agencies and organisations that are involved. The military should be prepared to support the efforts of numerous agencies involved in a humanitarian operation.

COMMAND: NATO will need to maintain a robust liaison cadre to coordinate support with Humanitarian Relief organisations. This may be best achieved through a reach-back type capability.

SENSE: Build awareness of developing humanitarian situations and involved actors. Comprehend the civilian and military involvement and dynamic of interaction using an organic civilian advisory function. Understand the capabilities of other agencies supporting a humanitarian operation, particularly regarding logistical capability to support and sustain their operations.

ACT/INTERACT: NATO will play an important role in supporting the lead humanitarian actors in interacting with the culture and social/political environment while providing a technological base to facilitate the coordination of multiple diverse elements taking part in an operation.

SHIELD: To provide a safe and secure environment for all actors providing humanitarian relief.

SUSTAIN: N/A

4. INTERVENE TO PREVENT ESCALATION (FORCE PROJECTION): The military may be required to deploy and intervene in conflict areas, both domestic and international, in order to prevent escalation of an ongoing armed conflict. This may become necessary to end or contain a humanitarian crisis, armed conflict and/or genocide.

COMMAND: Develop meaningful conditions and techniques to identify (planning) and respond (execution) to conflicts in a more robust fashion.

SENSE: The Alliance in conjunction with other International Organizations (such as the UN) needs to discern when and how to intervene early to prevent escalation of a conflict. Most important, however, is the assessment that an intervention to prevent escalation will succeed in ending the conflict.

ACT/INTERACT: Along with other International Organizations, the Alliance will need to have clear criteria (failing/failed governments, human rights violations, protection of civilians) that not only justify intervention but define a clear exit strategy.

SHIELD: A closer look at well defined conflict thresholds and early warning indicators will help determine when and how to intervene.

SUSTAIN: Successful intervention(s) will be determined by the nature in which they are conducted. The parties involved must act quickly and effectively to show resolution, which will not only help to solve a current crisis but prevent others from sparking up in the future.

5. TRAIN INDIGENOUS FORCES: The ability to leverage indigenous forces to stabilise, provide security and rebuild in failed states is a critical element of response to problems created from the weakness of others. The ability of military forces to train, equip, and cooperate with local forces will provide enhanced capability and increased legitimacy for operations.

COMMAND: Develop common standards relating to doctrine, concepts and training for indigenous forces.

SENSE: The degree of success in stabilizing a failing or failed state will largely be determined by the ability of the leadership to effectively gain support among the disaffected part of the population. The training, competence and leadership of an indigenous force will go a long way in achieving this success.

ACT/INTERACT: The Alliance, Nations and/or other cooperating partners, agencies and organisations must develop a common set of standards that will ensure a uniform understanding of what is needed from indigenous forces.

SHIELD: A consensus on how to recruit, train and organize indigenous forces for various contingencies will allow the Alliance to leverage local expertise and reduce the Alliance military footprint.

SUSTAIN: Develop a dedicated force of trainers and facilities to provide a tailored training capability for indigenous forces.

6. PREVENT THE DISRUPTION OF FLOW OF VITAL RESOURCES: With the worlds' heavy dependence on vital resources (oil, water, food, minerals) the flow of these materials between point A and point B is vital. Military assets may be called upon to deploy (air, land, & sea) to areas where the flow of these vital resources may be compromised as a result of a natural disaster, instability or intentional sabotage.

COMMAND: The Alliance should develop a concept and legal framework to ensure the Alliance has the ability and capacity to respond as needed to threats aimed at preventing the disruption of flow of vital resources.

SENSE: Interruption of the flow of vital resources could have a devastating effect on the populations of the Alliance. Therefore, it is imperative to clearly identify those resources deemed to be vital to its member nations.

ACT/INTERACT: Communication and coordination with civil authorities will be essential to maintaining/defending resources and their corresponding infrastructures. The location(s) and type(s) of resources/infrastructure will be the key driver in defining what military capability will be needed to assist in this endeavour

SHIELD: The Alliance must be capable of maintaining/defending its specific assets as well as any secondary or surrounding infrastructure.

SUSTAIN: N/A

7. PROTECT C4 SYSTEMS AND NETWORKS: While significant advances in technology have increased the capabilities of the Alliance, they have also benefitted the enemy's ability to attack systems and networks from anywhere in the world. Military resources (space, air, land and sea) may be needed to neutralize and/or destroy enemy nodes that attempt to disrupt, degrade, or damage the C4 systems and networks.

COMMAND: The Alliance should develop a strategic concept for cyber defence to clarify roles and responsibilities, set a legal framework, use existing capabilities and benefit from synergetic effects. Additionally, the Alliance should be able to carry out these attacks when necessary to cripple the enemies C4 systems.

SENSE: The Alliance should be able to identify and locate sources of cyber attacks to build and maintain situational awareness on the current cyber threats.

ACT/INTERACT: The Alliance should develop offensive cyber capabilities to prevent an imminent cyber attack or effectively reduce its impact (Counter Cyber Attack). This would also be a cornerstone of a NATO cyber deterrence capability.

SHIELD: The Alliance should protect its C4 systems against cyber attack (Anti-Cyber-Attack Measures).

SUSTAIN: Maintain the technological advantage through robust NATO networks to remain at least one-step ahead of the threat.

8. PROTECT CRITICAL INFRASTRUCTURE: Threats or actions by state or non-state actors on critical infrastructure may have a devastating effect on a state's territorial integrity, governance, economy and morale. Military forces may be required to possess the capability to lead or support state efforts to prevent or counter a physical and non-physical attack on critical infrastructure (e.g. resource pipelines, financial institutions, national/religious symbols, health & human services)

COMMAND: The Alliance should develop a concept and legal framework for Critical Infrastructure Protection utilizing NATO military forces in protection of CI.

SENSE: The Alliance should identify critical infrastructure (CI) within member states and build situational awareness on the Alliance wide impact if one or more national CI assets become degraded after an attack (i.e. NATO–wide critical

logistic hubs, energy hubs, etc). Intelligence indicating a threat to such an identified CI should be timely shared.

ACT/INTERACT: The protection of CI can only be successful with a seamless cooperation of existing security and defence assets. Given the multi-dimensional threats emerging in the 21 century a single nation is most likely not capable of handling a dedicated attack on Alliance pre-designated CI. Therefore, planning of cross-border mutual support may become a necessity.

SHIELD: Protection of CI remains primarily a national responsibility of the nation where the CI is located. However, a framework for CI protection related knowledge development and management as well as a framework for timely mutual support on request of a member state should be developed.

SUSTAIN: Training of forces will play a major role in achieving success maintaining/defending the CI assets of the Alliance.

9. CONDUCT COLLECTIVE FULL SPECTRUM DEFENCE OPERATIONS: Article 5 is an effective deterrence against threatening states, but is less effective against non-state threats such as super-empowered individuals/groups. The Alliance will need to collectively (under Article 5 principles) and simultaneously conduct defence operations along a broader spectrum of conflict: nuclear war, major theatre wars, smaller scale contingencies, cyber warfare, stability and reconstruction, and civil support operations (such as peacekeeping and noncombat humanitarian relief).

COMMAND: The Allies will have to define their roles in terms of capabilities and force contributions across the broad spectrum of operations.

SENSE: In order to achieve strategic unity within the Alliance, a common understanding of what constitutes an attack under Article 5 will be essential.

ACT/INTERACT: The Alliance must have the ability to reach a timely decision regarding when, where and how to act to the broader spectrum of conflict.

SHIELD: Maintaining solidarity in the face of evolving risks and threats to vital interests will be essential to a strong Alliance.

SUSTAIN: Maintaining strategic unity and a common strategic vision across the Alliance will directly impact the priorities made in the defence planning process, allocation of resources and the commitments made to operations.

10. MITIGATE NEGATIVE IMPACT OF DISRUPTIVE TECHNOLOGIES: Anticipate both the development of new technologies and the way that existing and future technologies may be used by potential adversaries. This is best achieved through robust R&D programs and information sharing across nations, strong partnerships with industry and other international organizations involved in the development of new capabilities, engaging researchers on technology and societal issues and encouraging diverse perspectives within military activities involved in research and development.

COMMAND: The Alliance should sustain and possibly increase its support (policy, personnel and monetary) of the NATO Research and Technology Organization (RTO) to maintain an edge in the technology landscape.

SENSE: The Alliance should take full advantage of the Research & Development (R&D) divisions of individual Nations and International Organizations in order to recognize, integrate and adapt new and emerging technologies.

ACT/INTERACT: NATO should conduct regular "red-teaming" events to determine if existing technologies are vulnerable to emerging disruptive technologies.

SHIELD: The Alliance will need to address its vulnerabilities by pushing for development of redundant commercial and military technologies and avoiding technologies that allow for single points of failure in order to minimize the effect of disruptive technologies on current and future capabilities.

SUSTAIN: Establish regular forums for NATO to consult/collaborate with leading technological corporations in order to understand the latest innovations and how they could impact the Alliance.

11. PROTECT ELECTROMAGNETIC SPECTRUM: The Alliance needs to ensure future access to the electromagnetic spectrum through both the application of technologies that increase channel efficiencies, ensure dynamic management, rapid reconfiguration and strength and agreements for access to other government and commercial networks worldwide. Protecting the electromagnetic spectrum requires a degree of complexity that far exceeds the deliberative planning and execution methods of today.

COMMAND: The Alliance should develop a concept that helps delineate NATO's policies regarding the use of military and civilian technologies in space.

SENSE: Identify critical nodes of the electromagnetic spectrum that are vital to day-to-day operations of the Alliance.

ACT/INTERACT: The Alliance should ensure that it has the ability to maintain unimpeded access to the electromagnetic spectrum through offensive, defensive or redundant capabilities.

SHIELD: The Alliance shall ensure that their access to critical nodes of the electromagnetic spectrum is not interrupted or compromised.

SUSTAIN: N/A

12. PROVIDE AID TO CIVIL AUTHORITIES: The Alliance must work with civilian authorities (local government and law enforcement agencies) in order to enable consultation, planning and training prior to and/or during a crisis. Ensuring proper support to these civil authorities requires militaries to have the training and capability to carry out all three phases of international crisis operation, from a possible military offensive, to the establishment of a safe and secure environment, to the transfer of authority for providing security to civilian authorities.

COMMAND: Stand up a NATO agency, command, new mission area or centre of excellence to establish doctrine and training to lead/support future crisis response missions in support of civil actors.

SENSE: Alliance nations must strengthen and/or forge new relationships to form a comprehensive approach to crisis resolution by engaging government agencies, law enforcement, border protection services, judiciaries and public health authorities in areas of operation.

ACT/INTERACT: The Alliance should ensure that the civilian, humanitarian and reconstruction aspects of a crisis are factored in by military authorities when planning operations. This is the cornerstone of the Civil-Military Cooperation (CIMIC) concept.

SHIELD: The Alliance will require forces that are trained and equipped to succeed politically and militarily in all phases of an international crisis.

SUSTAIN: Establish regular forums for NATO militaries to consult/collaborate with their civilian counterparts to plan and train forces for future crisis.

13. CONDUCT EXPEDITIONARY OPERATIONS IN SUPPORT OF HUMANITARIAN ASSISTANCE: NATO forces may be called upon to deploy to remote locations in response to humanitarian contingencies. Forces will need to be equipped with military capabilities that are mobile, interoperable and sustainable. This puts a premium on strategic air and sealift, deployable communications and information systems that are light, interoperable and capable of handling a broad spectrum of capabilities.

COMMAND: NATO will need to adjust/create doctrine that delineates the roles of the military (absent of individual national caveats) in multi-national response efforts to humanitarian operations. Implementation and understanding of the Comprehensive Approach concept will be vital in achieving this goal.

SENSE: Work with local authorities to understand the local environment in order to assess the role the Alliance will undertake and have a mutual agreement of the "end-state" or "exit strategy" for each operation.

ACT/INTERACT: Operate in concert with other local or international agencies to have a coherent approach in providing humanitarian assistance.

SHIELD: In addition to providing support to humanitarian response efforts, militaries of the Alliance must also be equipped to handle a full spectrum of operations should the situation escalate to a point where swift or prolonged military force is required. Alliance forces will need to provide armed protection and a safe environment for self-defence as well as unarmed humanitarian workers

SUSTAIN: Establish regular forums for NATO militaries to consult/collaborate with their civilian counterparts and International Organisations to carry-on, plan and train forces for success in future humanitarian crisis

14. SUPPORT AND COOPERATE WITH MULTIPLE ACTORS IN MULTINATIONAL RESPONSE EFFORTS TO NATURAL DISASTERS: In general, disaster relief work can be done best by civilian actors, such as local, regional or national authorities, international organisations, or non-governmental organisations (NGOs). On occasion when the scale of a disaster is so great that first responders are overwhelmed, the Alliance may be called upon to support operations.

COMMAND: NATO will need to adjust/create doctrine that better supports multi-national response efforts to natural disasters. Implementation of the Comprehensive Approach concept will be vital in achieving this goal.

SENSE: Work with local authorities to understand the local environment in order to assess the role the Alliance will undertake during natural disaster relief efforts.

ACT/INTERACT: The Alliance should be capable of supporting and cooperating with other Government, International and Non-Governmental Organizations during multinational response efforts to natural disasters. Combined military AND diplomatic interaction/integration with a full spectrum of actors is fundamental to a seamless and successful multinational disaster relief campaign.

SHIELD: The Alliance will need to protect its forces by understanding the operational context and environment from all outside sources NATO would encounter during disaster response operations.

SUSTAIN: N/A

15. CLARIFYING RULES OF ENGAGEMENT IN ALLIANCE OPERATIONS: Looking back at past operations where NATO militaries engaged in crisis response operations, there was an absence of specific legal framework and processes for NATO to successfully engage in operations. For example, the military may be required to provide armed protection and a safe environment for unarmed humanitarian works. A sound legal framework for military forces to support civil actors will be required.

COMMAND: Develop an Alliance concept/process for planning support to crisis response operations within the appropriate legal framework.

SENSE: The Alliance must understand the complexities and legal ramifications of using military forces in crisis response operations.

ACT/INTERACT: NATO can only be successful in providing assistance for all actors in a crisis response operation under the umbrella of providing armed protection and a safe environment. Therefore a proper legal environment is necessary to ensure success.

SHIELD: With the unique capabilities the Alliance can offer to aid in crisis response operations, a legal framework for its forces to operate will help protect NATO's objectives.

SUSTAIN: N/A

16. PROTECT AGAINST ASYMMETRIC THREATS: The Alliance may be required to quickly adjust to the specific nature of asymmetric attacks on the vulnerabilities of its territories, population, economic and social structures as well as forces.

COMMAND: Asymmetric threats demand adaptable command structures as threats rapidly shift from attacks on local populations that require local responses to broader, far-reaching attacks that overwhelm local/state capacities. Clear policies and role delineation that takes into account multifaceted attacks are required to assure clear unity of command in response.

SENSE: The military, in concert with other government and civilian agencies, will be required to anticipate vulnerabilities in new domains (cyber, space) where traditional military capabilities, rules of engagement, integrated command structures and policies are least mature. Threats will be increasingly difficult to identify in the context of hybrid warfare, heightening the importance of shared intelligence information across civilian and military lines and the creation of policies that protect against credible threats while preserving civil liberties.

ACT/INTERACT: The Alliance must act to promote awareness of potential threats to the populations, territories and interests as well as plan and train with civilian and other agencies using realistic urban environments and simulations/scenarios that represent the broad spectrum of asymmetric threats that may be faced.

SHIELD: The magnitude of asymmetric threats will vary from conventional to irregular attacks on territories, population, economic and social structures as well as forces. In some cases, civilian authorities may have sufficient capacity to deal with these threats. However, the military must be prepared to support civilian authorities and protect against attacks that exceed civilian capacities e.g., catastrophic economic or cyber infrastructure failure resulting in population unrest, simultaneous attacks across NATO countries or WMD/E attacks.

SUSTAIN: Asymmetric threats are characterized by shifting tactics and warfare that is unrestricted in nature. As a result, the military must be prepared across the full spectrum of warfare and stability operations. The military must be prepared to conduct operations in urban environments followed by support to essential services.

17. CONDUCT EXPEDITIONARY OPERATIONS TO PROTECT LINES OF COMMUNICATION: The military may be required to conduct expeditionary operations in all domains in order to ensure free trade, information transfer, transportation of goods and safe passage across critical lines of communication. This may include missions to combat piracy or to counter efforts to deny free access to international waters. Access to and protection of Space assets may become increasingly important in the information age to ensure Alliance prosperity and spread of information.

COMMAND: In expeditionary operations command needs to be at the lowest level possible, enabling the military members in the field/at sea to make the decisions needed to protect lines of communication.

SENSE: In concert with civilian authorities and other agencies, the military will need to anticipate potential threats in space, cyberspace and traditional domains that may threaten critical communication lines. Intelligence and policies that support the sharing of information are critical to protect against this threat. Awareness of the capabilities that potentially hostile nations or groups might launch to degrade critical networks will need to be shared across military and civilian command structures.

ACT/INTERACT: Expeditionary operations will require that the Alliance train its militaries to interact with the civil authorities to understand the local populations and their interests and ensure potential threats are identified, mitigated and confronted if they mature in a way that engages the local authorities with the support of local populations.

SHIELD: The Alliance should be prepared to counter and prevent attacks on traditional LOCs (e.g. piracy) as well as space and critical cyber node assets. A clear identification of critical communication networks, nodes and assets needs to be defined as well as the associated policies and public expectation that will allow NATO to act when required.

SUSTAIN: Determine the military resources necessary to ensure essential services as a part of military operations. Support the establishment of adequate military police, CIMIC (Civil Military Cooperation), construction engineers and military medical personnel to provide public security, temporary governance and the essential services. Ensure forces are culturally aware and accustomed to working with both traumatized populations and civilian actors, including NGOs

that may already be in the conflict area. Prepare to conduct integrated military-civil relations through information sharing procedures and practice, role integration, comprehensive planning and operational support.

18. CONDUCT OPERATIONS WITHIN A COHERENT COMPREHENSIVE FRAMEWORK: Determine the military resources necessary to achieve, stabilize and ensure essential services as a part of military operations. Support the establishment of adequate military police, CIMIC (Civil Military Cooperation), construction engineers and military medical personnel to provide public security, temporary governance and the essential services. Ensure forces are culturally aware and accustomed to working with both traumatized populations and civilian actors, including NGOs that may already be in the conflict area. Prepare to conduct integrated military-civil relations through information sharing procedures and practice, role integration, comprehensive planning and operational support.

COMMAND: Clear roles and lines of authority need to be specified, with realistic contingencies for command structures that are effective if planned operations fail.

SENSE: The military will need to have the capacity and ability to share information on threats and operations with other agencies and authorities, particularly in the event of natural disasters and catastrophic disasters such as a WMD event.

ACT/INTERACT: Interaction through planning and training will critical actors is crucial to rapid and smooth operations in conflicts or disaster responses requiring a comprehensive approach.

SHIELD: The military will play a role in the protection of other agencies and civilian actors in conflict areas

SUSTAIN: The military will need to be culturally aware and accustomed to working with traumatized populations, civilian actors and other agencies, including NGOs that may already be in the conflict area. The military will need to have the capability to support the training of local authorities and establish communications and resource supplies when essential supplies are lacking.

19. ADEQUATELY ADDRESS THE PRESENCE OF MILITARY COMPANIES: Private Military Companies (PMC) may be utilized beyond existing methods of contracting and outsourcing, establishing the requirement to create a firm legal basis for the use of such companies where they operate together with the

Alliance. Additionally, large corporations may also employ PMC in order to protect their assets, in turn forcing NATO to deal with the PMC without jeopardizing Alliance mission goals. In both situations, PMC allegiance may become a critical factor if the company reassigns assets to a higher bidder without proper warning. Finally, opposing forces may also utilize PMCs and Alliance troops may face a significantly advanced force in an area where it did not expect.

COMMAND: For conflict situations, the Alliance will need to have the ability to expand its situational awareness for all actors in the area of responsibility to reduce casualties, fratricide and collateral damage that may occur through PMC movements or conflicts in operational objectives.

SENSE: In conflict areas, the military will need situational awareness of what PMCs are in theatres, their missions and planned operations.

ACT/INTERACT: In non-conflict situations, the military should engage with PMCs to understand how to improve partnerships in theatre and in the development of capabilities.

SHIELD: The military will have a role in protecting PMCs in conflict environments. That role may vary based upon the situation and PMC involved. Liberal legal and policy constraints need to enable the military to broadly respond to situations.

SUSTAIN: N/A.

20. ADEQUATELY ADDRESS THE USE OF NON-LETHAL FORCE: The use of non-lethal force may be required for urban operations under strict rules of engagement as well as in direct support of police efforts, where the traditional military tools are not applicable but local police forces are overwhelmed with an existing situation. This may include non-combatant evacuation, counter terrorism or riot control operations.

COMMAND: The military will be called upon to support local authorities when their capacities are exceeded. The degree of support will require rules of engagement, laws and policies that support military action in a variety of cases to prevent, mitigate or confront population unrest.

SENSE: The Alliance, in concert with local police, will need to be able to foresee potential 'flash point' issues and actors who may incite riots or unrest.

ACT/INTERACT: Regular and sustained relationships between the military and local police to understand respective lethal and non-lethal capabilities and limitations are required to promote effective operations when required.

SHIELD: The military, in concert with local police, will need to be able to protect populations against physical attacks without using traditional military kinetic force.

SUSTAIN: The military will need to train and experiment with local authorities on a number of potential situations. The non-lethal capabilities developed need to be socialized with populations to ensure the agreement on the most effective employment that meets ethical and legal considerations.

21. IDENTIFY EMERGING FOREIGN SECURITY THREATS: In order to prepare for future threats, it will be necessary for Alliance nations to share information regarding emerging security threats. While traditional forms of intelligence (SIGINT, HUMINT, IMINT) will be an important step in identifying these threats, the sharing of this information across the Alliance will be vital to coming up with a collective approach in suppressing these threats.

COMMAND: In conflict situations, policies and procedures need to be established to ensure the right information gets to the right people, at the right time.

SENSE: Anticipate emerging threats to the populations, territories and interests of nations that may evolve from foreign source by sharing information across the Alliance and International Organisations.

ACT/INTERACT: Interact with local and national intelligence agencies to share information on potential foreign threats.

SHIELD: Protect Alliance interest, people, territories, secrets and intellectual properties.

SUSTAIN: Improving intelligence gathering capabilities, source and intelligence sharing and biometrics will help improve the effectiveness of identifying emerging foreign security threats.

22. ADAPT RECRUITMENT PROCESSES: Demographics have had a significant impact on many European members of NATO. With many states suffering declining populations due to low birth rates and ageing populations, an influx of immigrants has helped curtail the population loss. The decline in birth rates and a movement away from military conscription presents a challenge for military recruitment. States will need to adapt/invent military recruitment processes (to include conscription) that target immigrants to augment the dwindling pool of available personnel.

COMMAND: This is inherently a national policy that greatly affects Alliance force structure.

SENSE: Identify potential recruitment opportunities and develop key messages that will encourage non-traditional, as well as traditional groups of society to serve.

ACT/INTERACT: Militaries will need to interact with a broader pool of people to encourage recruitment in the armed services. The ability of a state to assimilate immigrants will have a positive effect not only on society as a whole but on the recruitment of these immigrants into the military.

SHIELD: N/A

SUSTAIN: Continued innovation and maturation of recruitment messages and methods are necessary to ensure a viable Alliance military capability.

23. ENHANCE CIVIL MILITARY COOPERATION: International and Non-Governmental Organizations may increase their level of involvement in areas of tension, crisis, and conflict. Therefore, the military may be required to increase CIMIC efforts, especially planning and liaison/coordination with IO/NGO on the operational level.

COMMAND: Develop effective integrated command structures for a broad variety of civil/military operations.

SENSE: In concert with civilian partners, identify potential areas of tension, crisis and conflict that will require civil-military cooperation.

ACT/INTERACT: Improve civilian/military capabilities to share information as well as plan, train and experiment in realistic environments.

SHIELD: Protect, in concert with civilian partners, Alliance populations, territories and interests against potential crisis and conflict events.

SUSTAIN: Develop long-term sustainment plans and capabilities including adequate civilian and military force structures and forces trained for a variety of crisis and conflict environments.

24. SUPPORT SHAPING OF SECURITY ENVIRONMENT: Credible actors in the future security environment are likely able to positively influence and shape the environment in order to manage crises before they erupt into conflict. This requires Alliance cohesion and determination to act timely and adequately whenever Alliance security interests are impaired.

COMMAND: Promulgate rules of engagement with respect to militant group activities for Alliance forces which contain no caveats that will limit a Commander's ability to conduct coherent operations.

SENSE: With the growing power of transnational, irregular militant groups that are persistent in their direct opposition to Western values, the Alliance must have a sense of the security environment in which this unconventional enemy will operate (often within failing for failed states).

ACT/INTERACT: NATO forces may be deployed as peacekeepers in failing or failed states as these nations become undesirable neighbours as their instability threatens bordering nations. These forces will need to be equipped to deal with an adversary that will likely engage in conflict dominated by irregular warfare.

SHIELD: These groups retain certain characteristics akin to a military organization, but do not carry lawful combat status. The Alliance will have to protect its populations and forces in the face of an enemy that does not adhere to the laws of war.

SUSTAIN: N/A

25. CONDUCT COHERENT INFORMATION OPERATIONS: As the nature of the threat continually evolves, the Alliance must sharpen their skills and take advantage of existing individual national capabilities in the information operations domain (defined as: co-ordinated military activities within the Information Domain to affect selected information and Information Systems to achieve desired effects on will and capabilities of adversaries and others in support of mission objectives

while sustaining own information and Information Systems). Simultaneously, it will be imperative to communicate clearly with the public (both locally and internationally) about the nature and necessity of NATO's security and/or military operations wherever they take place.

COMMAND: Address information operations in Alliance exercises and training.

SENSE: As the emphasis in current affairs continues to shift toward domestic issues of individual nations, the ability of the Alliance to anticipate, sense and shape the external security environment will be vital to the future security of NATO.

ACT/INTERACT: Ensure the reasons for continued military support of NATO are well defined and ensure the purpose of the Alliance is understood, as well as advocating for the most effective use of Alliance resources. At the same time, the Alliance should effectively manage its resources in the Information Operations domain to relay this message internally (within the Alliance) but also externally to discourage potential adversaries.

SHIELD: The Alliance must adopt communications strategies that define security, describe the national security environment clearly to the populace and identify the exclusive capabilities of the military to preserve the current security state.

SUSTAIN: Encourage nations to embed their coherent messages of continued need for security in media and education.

26. CONDUCT MILITARY OPERATIONS AGAINST NON-STATE ACTORS: As these groups and individuals continue to assimilate non-combatants to engage in hostilities, militaries will find it extremely difficult to pursue an enemy that is a civilian one minute and an unprivileged combatant the next.

COMMAND: A well defined Commanders' intent and clearly established ROE are necessary for military forces to successfully engage non-state actors.

SENSE: The lines of the battlefield will continue to be blurred by an enemy that does not fight a conventional type of warfare. As such, it will be increasingly difficult to engage an enemy that for example lives amongst and is supported by the same group of people the Alliance is trying to aid or protect.

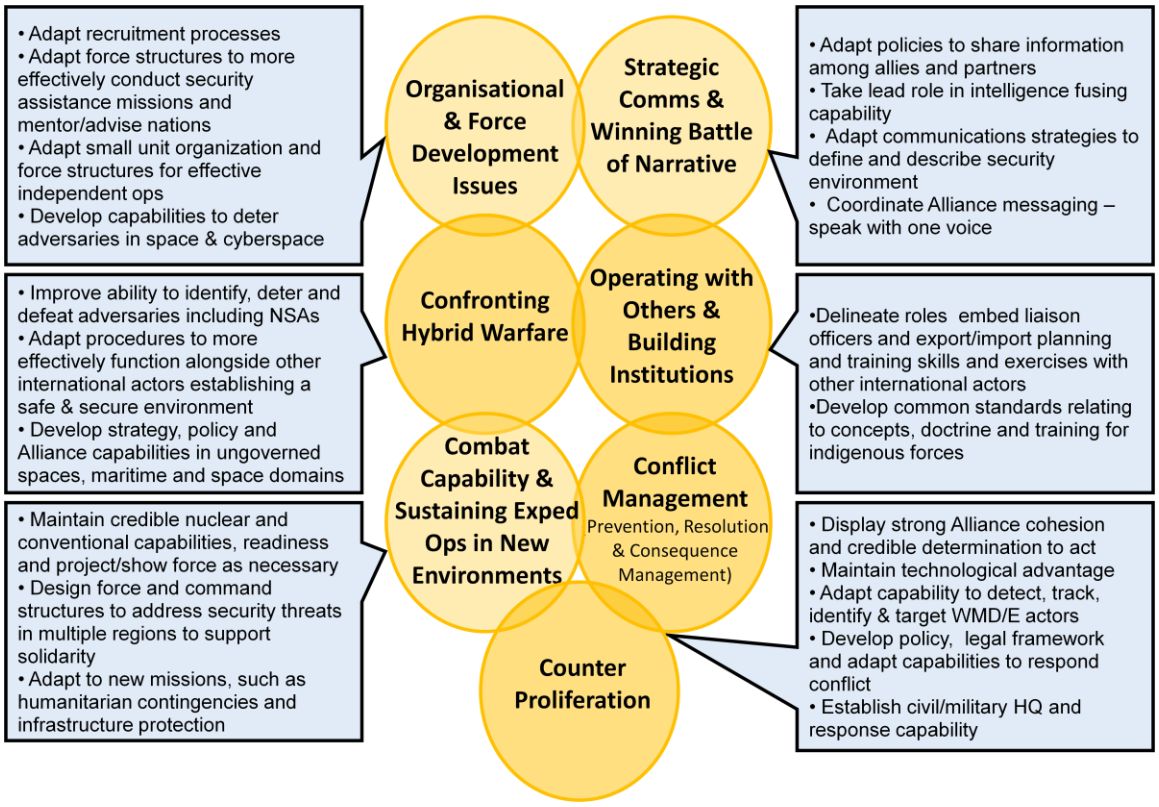
ACT/INTERACT: The Alliance must interact with the local populations to gain cultural and situational awareness in order to establish and maintain support for its mission.

SHIELD: NATO militaries will need to be able to defend themselves as well as the people they are aiding and protecting. Therefore it will be necessary to have distinct rules of engagement common to all militaries involved in an operation.

SUSTAIN: N/A

THE MFP FOCUS AREAS

The Military Implications were assessed as a whole and organised into seven focus areas. This assessment provides a useful context to support a dialogue of political-military decision makers while also pointing out potential action areas for the Alliance. Instead of attempting to jump to prioritisation drills that are ultimately national decisions, the focus areas will be used to provide an indication of relationships between groups of Military Implications.



THE MFP RECOMMENDATIONS

Each of the focus areas is followed by recommendations related to proposed changes in concepts and doctrine as well as capability enhancements. The recommendations provide the Alliance with SACT's military advice generated through, and derived from the MFP that can be used to inform the strategic dialogue, policy considerations, and subsequent guidance to Alliance planning disciplines. These recommendations are explained in detail in the main document.