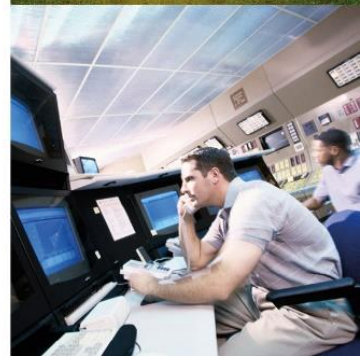
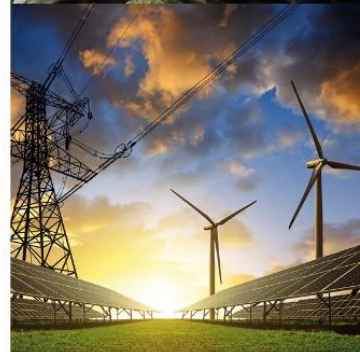


JUNE 2017



BUILDING RESILIENCE

Collaborative proposals to help nations and partners





INTRODUCTION

From the 2nd to 4th May 2017, Supreme Allied Commander Transformation and the Mayor of Norfolk hosted a conference examining “Interdependency in Resilience”, supported by leaders from 34 NATO and European Union (EU) nations and more than 30 private sector partners.

Recognising that the modern, global environment is characterised by uncertainty, complexity and ambiguity, building resilience¹ demands persistent interconnectedness between the civil, private and military sectors. The conference was designed to improve understanding and visibility of what resilience means across these sectors; establish knowledge transfer between key stakeholders; and develop actionable proposals to improve mutual collaboration with the nations, EU and other partners to build resilience.

Aim and scope. This paper develops the four key themes outlined in the First Impressions Report.² It summarises the key deliverables pertinent to those themes and identifies proposals on how to progress and integrate existing cross-sector work strands - strengthening and expanding the ongoing work by NATO and furthering cooperation with the EU. Some of the proposals are in the form of next steps, whilst others suggest how to operationalise existing strategies, tools and methodologies in the medium-to-long term.

THEMES AND PROPOSALS

The conference’s four plenary sessions synthesised interdependency and connectivity between the civil, private and military sectors, baselined against the work already underway by NATO and the EU towards enhancing resilience. By diversifying and selecting content relevant to all three sectors, the conference increased collective comprehension on how best to harness public-private cooperation and identified risks and opportunities to intensify collaboration between the private and military sectors. The outcome of which should be a clearer picture of strategic risk and where further resourcing or investigation may be required.

Resilience was considered from a number of different perspectives. There was general recognition that governments, organisations and institutions will have to adapt their approach to resilience in order to mitigate a habitual reliance on a ‘just in time’ society which has become over reliant on the capacity of others to address abnormal crises. There was also widespread acknowledgement of the importance of collaboration, to identify common threats, assess collective vulnerabilities and promote best practice. Both of these perspectives reinforce the ongoing work of NATO’s Civil Emergency Planning Committee (CEPC) and its specialised groups.

In addition to improving collective understanding of interdependency across the three sectors, the conference highlighted the importance of understanding how resilience could be built across different levels of society. There was general consensus on the requirement to develop a ‘full spectrum’ approach focused around the tenets of common understanding and shared awareness, collaboration and best practice. The following analysis captures where a collective approach to resilience may deliver most benefit.

¹ A society’s ability to resist and recover easily and quickly from shocks and stresses, combining civilian, economic, commercial and military factors. Resilience is achieved by enhancing preparedness within the civil and private sectors, supported and amplified by military capability and capacity.

² First Impressions Report – ‘Interdependency in Resilience’ conference, dated 8 May 2017.



Theme 1 - Building Persistence in Resilience

Building resilience should be considered ‘business as usual’ and individual entities (nations, cities, organisations, businesses) should conduct critical self-assessments on a regular basis in order to analyse and assess their own strengths and vulnerabilities.³ Understanding the potential consequences of not mitigating those vulnerabilities should stimulate engagement with experts and partners that may possess relevant knowledge and tools. However, to be effective, this process requires sufficient information sharing. Notwithstanding internal sensitivities and protectionism, building trusted and mutually reinforcing relationships and partnerships will, in the long term, encourage transparency and develop a shared perception of relative threats, risks and opportunities.

NATO’s approach to deter, defend and remain resilient to violent, disruptive, or military activities has continued to evolve since the 2014 Wales Summit as part of NATO’s long-term adaptation. Allies have focused on enhancing resilience across a number of areas, such as civil preparedness, cyber, decision-making, logistics and against hybrid threats. Whilst national and sector approaches to resilience are important, the modern interconnected world requires a collaborative approach to building ‘full spectrum’ resilience.

Elements of building persistence in resilience:

- *Critical self-assessment*
- *Engaging partners and experts*
- *Information sharing and building trust*
- *Developing compelling societal narrative*

In that context, there is growing significance of the deepening NATO-EU relationship and the strengths that each organisation brings to mitigate challenges to building resilience. NATO’s “Baseline Requirements for National Resilience”⁴ [the so-called ‘7 baseline requirements’] and their assessment criteria constitute an important, common framework around which information can be shared and assessed. Equally, NATO’s Resilience Advisory Support Teams represent an available and valuable capability to help nations assess and build resilience.

As NATO enhances its efforts to build resilience against broad and complex security challenges, the EU’s approach targets not only critical and internationally shared infrastructure but resilience at the societal and community levels. The EU’s regulatory power represents an important tool to build resilience within EU territory. However, one of the challenges may be the requirement to reconcile this regulatory burden against how profitable practice is maintained. The recent EU Joint Communication "A strategic approach to resilience in the EU's external action" represents a renewed strategic opportunity for enhanced NATO-EU collaboration and narrative development, going beyond existing cooperation on hybrid threats.

From the governmental perspective, the conference highlighted that the complexity of resilience needs to be fully understood by the private sector, particularly as globalisation complicates their operations and creates both opportunities and risks. Many governments have the tools available to regulate and hold industry to account, but these could be expanded to include other incentives, for example, access to intelligence in exchange for collaboration. An equally important approach is to strengthen and expand engagement with the private sector, for example through workshops and similar events, to share insights on vulnerabilities and risk which will help highlight why collaboration across the sectors is in their best interests.

³ An important first step by Alliance nations is providing a realistic assessment of their progress towards achieving the Baseline Requirements through the Defence Planning Capability Survey.

⁴ Continuity of Government; Resilient Energy Supplies; Resilient Civil Communications Services; Resilient Food and Water Supply; Ability to Deal with Large Scale Population Movements; Ability to Deal with Mass Casualties; and Resilient Civilian Transportation Systems.



Building resilience – Collaborative proposals to help nations and partners



Inherent in achieving collective alignment based on shared goals (objectives, interests, incentives and coercion) is improving communication and information sharing through cross-sector networks. In this regard, the civil, private and military sectors should no longer view each other as opposing or in competition, but mutually reinforcing, complementing and collaborative sectors. Information sharing and trust would encourage transparency, engender reciprocal relationships and new ways of thinking, planning and cooperation. Resilience built upon trust may also help a move away from relying purely on governments for crisis management responsibility and industry for continuity of supply. Alongside regulation, mechanisms such as the adoption of 'Call off contracts' or Memoranda of Understanding that include mandated sharing would be important in driving such initiatives forward.

An important part of building persistence in resilience is developing a compelling, joint narrative aimed at our societies and partners – why resilience matters to our citizens and actors across the civil, private and military sectors. Social capital⁵ is a key capacity to deal with shocks and stresses at the national level. Governments and institutions must get better at informing and involving their citizens in order to realise that capital. Therefore, there is a need for openness and transparency about the threat and its urgency. Engineering a shared narrative requires strong leadership, clear policies and protocols but also an active outreach policy.

Related to this is the more centralised option of developing resilience through the concept of total defence. This involves utilising the totality of resources for national defence and engendering a shared sense of responsibility in a national and organisational context. In the total defence concept, acknowledgement of individual, corporate and organisational responsibility within a nation is clearly articulated and understood, in turn helping identify where capacity and capability lies and how it can be harnessed.

Proposals

- 1A. NATO and the EU should jointly map their resilience efforts against the 7 baseline requirements to understand areas of overlap and where further cooperation may add value. A follow-on could involve small-scale, cross-sector exercises/workshops to further develop understanding and identify any synergies.
- 1B. NATO and/or the EU should provide a trusted forum through which actors, from across the civil and private sector, can collaborate, share information, knowledge transfer and promote best practice.
- 1C. Governments should be encouraged to adopt a more integrated approach to planning and crisis management. An optimised approach would include civil, private and military sector involvement.
- 1D. Governments should be encouraged to identify where private or foreign ownership of critical national infrastructure may impede availability of resource in a contested environment and mitigate accordingly.
- 1E. Having identified where interdependencies lie, EU tools and instruments (for example in the legislative and financial domains) could be further developed to mitigate multi-region and cross-border critical systems/infrastructure vulnerabilities.

⁵ Which could be considered as the capacity and expertise contained within society.



Theme 2 - Considering Resilience as a Capacity

Resilience should be viewed as a capacity, constituting an ability to absorb shocks, adapt to the changes in the environment and transform governance, structures and operations to withstand emerging and future challenges.⁶ This capacity represents an aggregation of the essential physical, cognitive and virtual components of resilience needed to prevail against current and emergent threats. Achieving it requires a common vision of strong leaders, shared sense of responsibility and cross-sector champions who are prepared to take control in order to encourage innovation, drive effective change and sustain progress.

Leadership, vision and innovation were considered key to driving the interdependency debate forward. They engender an ability to think at the systems level and adopt a more holistic approach in order to build systemic stability (assets and population). Respected national or international institutions must ultimately mandate change agents to deliver proposals and then find strong leaders to execute them based on the reality of today and relevance for tomorrow.

Requirements for building resilience as a capacity:

- *Common vision of strong leadership*
- *Innovation*
- *Creativity in procurement*
- *Cross-sectorial champions*

During the conference, the problem-solving ability of the private sector was acknowledged, as was their importance as the drivers of innovation; a critical tenet in building resilient capacity. Naturally there is a 'profit versus public good' equation to be considered, but equally there is a balance between stifling innovation through narrowly scoped regulations and minimising vulnerabilities and risks to wider society. It is also important for the military to understand how to harness the positive effects of capital markets for the private sector. For example, articulating the need for a capability rather than a platform will allow the private sector to generate more innovative solutions. For the military, procurement revolves around the ability to show that it has the necessary capabilities in order to initially deter, but then to respond in times of crisis, as recently demonstrated with the deployment of troops to the Baltics and Poland. Twenty years of under-funding and over-reliance on private sector logistics have left an organic deficiency.

Concerns that the private sector may not have the capacity to cope with a surge in military requirements or mobilisation must be mitigated, as should the implications of the private sector operating in a contested environment. Part of the solution inherently lies in sharing classified plans with the private sector for logistics, perhaps moving from *in-time* to *in-place* models and working better together in times of crisis for rapid resupply and reinforcement. Importantly, and particularly within the European theatre, overcoming challenging legal issues to provide flexibility for services to the military becomes an integral piece of the framework for better collaboration. The private sector's contribution to building resilience should be an integral part of the narrative.

⁶ The three critical capabilities of absorb, adapt and transform are referenced by The Rockefeller Foundation and in USAID's 'Community Resilience Framework' as long term integrated commitments necessary for improving resilience. Frankenberger, Mueller, Spangler, and Alexander. *Community Resilience: Conceptual Framework and Measurement Feed the Future Learning Agenda* (Rockville, MD, Westat, October 2013), 17.



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The perception of risk has become prominent in the resilience debate. Because each actor, whether individual, municipal, national or organisational, will perceive risk from a different standpoint it is extremely unlikely there will ever be a shared perspective; more realistic is a common and mutual understanding of requirements. By identifying, sharing and mitigating the common requirement, mutually acceptable solutions are more likely to be found.

In simplistic terms this will enable a more holistic approach to risk management and therefore help underscore how risk within this complex environment can be insured – an incentive in itself to the private sector. This requires good data, timelines, predictability and historic occurrence to build or adapt an existing resilience measurement model against which insurance may be applied. In a period of austere economic conditions the debate of who pays, under what conditions and how organisational resilience is quantified against a common standard highlights the potentially growing importance of insurance within the debate.

Because each sector considers resilience in a subtly different manner, it is considered important to empower champions with a broad cross-sector knowledge on resilience to take control within and between sectors and in doing so, drive consistency and coherence. Knowledge transfer and deeper cooperation amongst and between partners across all the sectors will provide solutions, especially where mutual trust and understanding have been engendered.

Proposals

2A. Nations and institutions should consider appointing ‘champions’ across sectors who are able to advocate, translate and articulate the interdependency challenge. In an ecosystem of transparency, these leaders should be empowered to represent and liaise across sectors and between levels.

2B. Resilience related initiatives should be documented and ideally be centrally coordinated to the best extent possible. This will add consistency and coherency to the development of a common approach to the resilience challenge.

2C. NATO should further develop and, where necessary, expand its communities of interest in order to develop a deeper understanding of interdependency. Such communities should seek to utilise the intellectual and innovative capacity of relevant Centres of Excellence. Similar models could be adopted by nations.

2D. The 100 Resilient Cities⁷ programme aggregates demand for new equipment, products and services. NATO and nations could analyse this and existing models in order to aggregate demand for the private sector. This will encourage a forum for knowledge transfer and will drive innovation.

2E. By utilising expertise that resides within the private sector, governments and institutions (including NATO and the EU, and their specialised agencies) may find ways to connect to expertise that enhance public-private partnerships and cooperation.

⁷ Pioneered by The Rockefeller Foundation, the ‘100 Resilient Cities’ programme helps cities around the world become more resilient to the physical, social and economic challenges that are a growing part of the 21st century. The City of Norfolk was one of the world’s first members. <http://www.100resilientcities.org>



Theme 3 - Developing Integrated Education on Resilience

Education and learning are fundamental building blocks in achieving resilience, developing our shared awareness and helping us understand risks and accept the subsequent actions. Educating individual citizens to comprehend the complexity and challenges of the contemporary environment can lead to a more resilient society. At the strategic level, education and shared awareness enable the collaborative dialogue required to reveal the mutually supporting tools and mechanisms necessary to build resilience. Integrated education on resilience brings together different actors and encourages shared learning, enabling them to embrace and harness different perspectives and realise potential benefits.

The importance of education and shared awareness in a contested environment are aptly illustrated when described as the ‘best weapon against manipulation’. This implies that by creating ‘informed and engaged’ citizens, they become the fundamental building blocks of a more resilient system or society.

Education on resilience:

- *Enhances understanding of contemporary threats*
- *Enables collaborative dialogue*
- *Creates ‘informed and engaged’ citizens*
- *Maximises efficiency of training*

NATO is integrating civil preparedness into military planning and exercises, but the issue of interdependencies demands that more effort be made across all three sectors in understanding how to accurately exercise resilience. A coordinated and combined training strategy requires trust, transparency, declassification, courage and strong leadership, all developed through education. Education improves the ability to maximise the effects of exercising and training in the complex and sub-optimal circumstances indicative of the contemporary security environment.

Proposals

3A. NATO and the EU should strengthen their engagement with academic institutions to discuss and promote the topic of interdependencies in resilience. The NATO Defence College and NATO School Oberammergau represent two easily accessible institutions where the theme could be addressed as a model for further development.

3B. Workshops at the national and sector level are a component of developing best practice. Building on current NATO efforts, such events should continue to be conducted and their scope widened, with nations and institutions encouraged to inform NATO and the EU of their outcomes.⁸

3C. In order to assess collective progress across domains, consideration should be given to creating a commonly understood roadmap/blueprint. This could include Key Performance Indicators (KPI) for all parties against which targets/achievements can be realised and a narrative drawn.

3D. A coordinated and combined training strategy should be developed, that is able to examine and exercise the resilience challenge, beyond civil preparedness to include cross-sector contribution and participation.

3E. To raise public participation in efforts to improve resilience, NATO, the EU and nations should use all forums to advocate the nature of the threat and help instil societal resilience.

⁸ Examples of recent national initiatives include a NATO seminar hosted by Romania focused on ‘Implementing the Seven Baseline Requirements’, and a bilateral workshop hosted by the Czech Republic and Finland which examined the training aspects of building resilience.



Theme 4 - Expanding Experimentation, Modelling and Training to include Resilience

Identifying, mitigating and managing risks are important factors in achieving resilience, but should not be viewed in isolation. In order to gauge our resilience, training should be tailored to replicate the realities of the complex environment and systems exercised to the point of failure. Such training must also take into consideration the interdependency of systems and how a failure in one adversely impacts other systems. Furthermore, stimulating connectivity between the sectors requires modelling and simulation of risk and the critical elements of resilience – the ability to resist and recover.⁹ Modelling and simulation could also provide useful tools to quantify, monetize and insure against risks.

Modern resilience requires a more holistic approach to modelling and simulation, encapsulating the physical, cognitive and human factors. As well as examining the security environment, simulation should draw out the impact of investments, human behaviours, perceptions and

Training resilience requires:

- *Replicating today's complex environment*
- *Exercising systems to the point of failure*
- *Simulating and modelling against known risks and vulnerabilities*

policies in the context of crises within systems and the population. Testing should determine how physical systems would behave/endure and how or what the impact/influence on the population may be and help develop mitigating mechanisms. Many resilience measurement models already exist,¹⁰ particularly within the private and civil sector and should be examined to help mitigate today's challenge rather than instinctively look to invent further methodologies. Adapting those models to address contemporary problems requires analysis and is complex, but is necessary to determine best practice.

At the city level, building resilience necessitates a joint domain approach. Cities offer a manageable representation of complex systems that can be modelled using real-time data. The conference generated discussion around how cities could work more with global governance institutions such as NATO and the EU, open new areas of joint interests and work to build resilience.

Proposals

4A. Exercising to failure is a concept that should be introduced. By testing the system to breaking point, our understanding of precise vulnerabilities and the potential cascading effects across sectors will be better understood and mitigated.

4B. A programme of applied research should be conducted to map existing resilience measurement models, helping to identify where further resource is required to optimise balance of investment.

4C. NATO and the EU should consider conducting a full training needs analysis to understand, within sectors, where interdependencies in resilience can be mitigated. Nations and the private sector should also be encouraged to scope national and commercial exercises and risk assessments.

4D. A series of scenario-driven table top exercises should be conducted within or between sectors and at all levels to proliferate the theme of interdependency. NATO, EU and governments would be the natural leads, although civil and corporate institutions should also be encouraged to lead.

4E. NATO could utilise HQ SACT's relationship with the City of Norfolk¹¹ and private sector conference participants to conduct table top exercises that examine the urbanisation model. The results could be scrutinised for wider utility across the 100 Resilient Cities network and used as a test case for broader city-level engagement by global governance institutions.

⁹ Resist entails enhancing preparedness and mitigating known risks, whilst recovery requires agility and responsiveness.

¹⁰ The Resilience Measurement, Evidence and Learning Community of Practice identifies 45 resilience measurement frameworks. Overseas Development Institute. *Analysis of Resilience measurement frameworks and approaches* (2016).

¹¹ Norfolk, home to international, national and regional economic and military assets, is uniquely positioned to serve as a testing laboratory for interdependency analysis at a manageable scale.



SUMMARY

Building resilience demands persistent interconnectedness between the civil, private and military sectors. The conference identified four themes that demand further development and analysis in order to strengthen and expand the ongoing work by NATO and cooperation with the EU. Failure to address the issue of interdependency in resilience across the sectors may well induce strategic risk within the Alliance and the EU. The proposals and next steps identified in this paper describe a plausible and pragmatic approach to help mitigate these risks and promote self-improvement.

Resilience should be considered as an Alliance capacity. In developing that capacity, nations and institutions must develop a shared understanding of the challenges, through collaboration to more effectively absorb strategic shocks, adapt to change and contribute to NATO-wide transformation.

Building persistence in resilience requires critical self-assessment of individual and joint vulnerabilities. The Alliance should further develop its network of partners able to share information in order to build trust and transparency. A programme of integrated education on resilience would develop shared awareness, enhance individual and collective knowledge of the threat, enable collaborative dialogue and induce a more engaged approach by citizens and society at large.

Understanding resilience and the issue of interdependencies requires the replication of the complex modern environment in the training arena. An arena which must be able to exercise systems in a manner relevant to all sectors and reach the point of failure in order to measure collective resilience. This should be achieved with the aid of modelling and simulation to develop best practice in both capability development and education and training.

In order to generate momentum, the proposals contained within this paper should be taken forward to demonstrate that they can add value to the private and civil sectors. The most rapid indicators of intent would be in the form of follow-on workshops, table top exercises, or similar educational events. To be most effective, events should ideally be coordinated, or at least recorded centrally. This will begin to build consistency and coherence, which is vital in bringing all parts of the resilience ecosystem together.

Improving our approach to NATO-wide resilience will contribute to both transformation and deterrence. A full spectrum approach to resilience is an urgent matter for the Alliance, EU and communities at large in order to safeguard our future security and prosperity.

Acknowledgement

Supreme Allied Commander Transformation and the Mayor of Norfolk acknowledge the support of Oakas Ltd in leading conference analysis and initial development of this paper.



A paper by Supreme Allied Command Transformation and City of Norfolk