Transforming NATO Logistics and Sustainability Today and Into the Foreseeable Future:

A NATO Food-For–Thought Paper

PRE-DECISIONAL STAFF PROPOSAL FOR THE NATO INDUSTRIAL ADVISORY GROUP– FOR THE PURPOSE OF BUILDING THE COMMUNITY OF INTEREST

03MAR17

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Foreword

The global security environment is rapidly changing. Threats transcend through multiple regions, multiple domains and multiple types of civil and military responses to crisis. Most instability situations and challenges are interconnected. Some of these trends and threats are proving to be of a lasting nature, with a potentially fluid, ambiguous and rapid transition to conflict. Many of the critical enabling capabilities that won the Cold War thirty years ago have rescinded from the European landscape. The complexity and uncertainty of the current security environment, trending toward greater complexity in the future, demand that NATO look beyond its current planning horizons and adapt its readiness posture and responsiveness to ensure that NATO can fulfil its three core tasks from now into the foreseeable future.

This emerging concept titled *Transforming NATO Logistics and Sustainability Today and Into the Foreseeable Future,* is a view towards developing future capability to ensure NATO maintains its edge against any adversary through a vision of **persistent, agile, scalable and resilient** support systems to project and sustain Joint Forces in a Whole of Government environment. This Food For Thought Paper, intended to generate constructive discussion leading to purposeful action, describes a view of future solutions emphasizing long-term sustainability, speed of power projection, light footprints and affordability, whilst maximizing civil-military cooperation and preparedness. This concept bridges the functions of logistics, medical, military engineering and Host Nation Support as practiced today, to an effective application of sustainment in the future where NATO collaboratively and cooperatively leverages the maximum power of nations to achieve strategic projection and sustainment ends.[1] The transformation envisioned in this concept is necessary to gain unity of effort, improve efficiencies, maximize allocation of scare resources and support for all Alliance efforts.

Transformation design is fed by foresight analysis, innovation and concept development, which support Alliance ambitions to build defence capability for all core tasks, balanced against the requirement for transformation to be affordable to implement. These competing goals require closer and continuous cooperation between Allies and partners–encompassing industry, academia, non-governmental and governmental organizations. All of which contribute to the Alliance's ability to accomplish its core tasks, separately or concurrently, while achieving the assurance and deterrence required, and ultimately the ability to compel. NATO's success is a product of the solidarity of its member Nations together. This concept builds upon ongoing transformation efforts such as the North Atlantic Council-approved Operations Logistics Chain Management, while exploiting pre-existing links to widen channels of engagement, cooperation and contribution. By removing obstacles to collective endeavour and forging closer relationships in a 360˚ perspective, greater trust and interoperability is achievable. NATO must start this future transformation, today.

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[1] For the purpose of this concept, sustainment includes functions common to Logistics, Medical, Military Engineering and Host Nation Support. Sustainment is used in the concept in the same context it is used in multiple AJPs and MC 0319/3 without formal definition. It may require defining in AAP-6.

Chapter 1 – Maintaining Projection and Sustainment Superiority

"Collective solutions for logistics requirements have the potential to provide more effective logistics support to NATO operations."
– PO(2015)0369, Political Guidance

Purpose

This *Transforming NATO Logistics and Sustainability* concept provides a strategic level vision of how a future NATO force will project forces and sustain operations in support of NATO's core tasks – collective defence, crisis management and cooperative security. The strategic *Transforming NATO Logistics and Sustainability* concept's purpose is to recognize current and planned initiatives, imagine a projection and sustainment future that addresses known challenges, and bridge the two. To achieve this objective the concept first aims to *establish a shared picture* for the NATO and national concept and capability development communities. Second, it seeks to *drive innovative solutions* to capability development, initiating conceptual and research activities and highlighting policy needs. Finally, it aims to *depict a long-term vision* as the basis for target setting and common direction into the future.

Vision of the End State

"Today and into the foreseeable future, the Alliance projects and sustains Joint Forces through a network of persistent, agile, scalable and resilient operational support systems. Partnership focused, the Alliance is fully interoperable and forged by a cooperative, innovative and mutually supportive civil and military sustainment environment."

Four Strategic Sustainment Objectives

The following four strategic sustainment objectives are components of the ways in which NATO will achieve the ends of the future sustainment vision. These objectives are introduced and described below. The next chapter describes implications for NATO's future that support achieving these objectives.

Objective 1: **Shared Awareness** Realised

NATO's ability to project power and stability persistently and quickly relies on a high level of *Shared Awareness* and a common understanding of the factors that will affect the support plan. The Alliance will achieve a common understanding of national requirements to project and sustain forces, identify overlaps and generate efficiencies through the next generation of management tools and integration of collaborative planning capability across the NATO Command Structure and into Nations as routine business. The scope of shared awareness will be broadened to include the civil preparedness levels of Nations and Partners. Enhanced integration with an increasing number of partners will be commonplace. A strategic awareness network of networks, cloud-

based and civil-military, will be utilised to share information and resources with partner organisations including contractors, international organisations (IOs), non-governmental organisations (NGOs) and governmental organisations (GOs).[2]

Objective 2: Operational **Agility** Enhanced

NATO's *Operational Agility* is underpinned by its ability to quickly combine capabilities, deploy long distances from multiple, widely-dispersed locations, through combinations of access points, and conduct a wide range of operations often in austere and contested environments. The demands placed on sustainment forces historically range from providing support to a completely self-sustaining military operation in an austere, remote and fragile region with critical infrastructure vulnerabilities, to delivering an integrated civil government / contractor military support plan in a highly stable and resilient Host Nation. The NATO Defence Planning Process (NDPP) will recognise standing, multi-national capabilities where clusters of nations formally contribute to the delivery of a capability through targeting in NDPP Step 3 and implementation in NDPP Step 4.[3]

Objective 3: **Resilience** Enhanced[4]

The identification and mitigation of the vulnerabilities within nations' forces and critical infrastructure is a key element of developing *Resilience*. Where it can complement national efforts and upon the request of nations, the Alliance could assist Allies in identifying their vulnerabilities and strengthening their own resilience. NATO either has expertise, or is able to facilitate collaboration, in an array of areas that are pertinent to building resilience. These include civil preparedness, critical infrastructure investment and energy security. The level of civil preparedness also influences the ability of the Host Nation to support NATO operations.[5] Human resilience will be improved through emerging advances in health care, and personalized medicine.[6]

Objective 4: **Persistent** Activity Enabled

Strengthening the Alliance's deterrence and defence posture will be enhanced by the persistent activity by nations or framework national forces, who can facilitate the rapid expansion of support hubs.[7] This adaptation fosters continuous activity, rapid response and forward deployment when necessary. It also supports maintaining and exercising reliable freedom of movement and efficient use of Allies assets. This takes advantage of advances in strategic awareness and rapid decision support within NATO's C2 framework. It also ensures that the Alliance can respond simultaneously and in depth across its three core tasks.

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[2] Refers to applications, services or resources made available to users on demand via the Internet from a cloud computing provider's servers.

[3] AC/281-N(2016)0081(INV) Annex 1 - review of the Outline Model dated 22 July 2016

[4] "Resilience is the ability to resist and recover" - Integrating Resilience across the Alliance, a SACT FFTP.

[5] Warsaw Summit Communique commitment to enhance resilience through improvements to civil preparedness by meeting key NATO Baseline Requirements for National Resilience according to the Resilience Guidelines approved by Defence Ministers in June 2016.

[6] Future troops will be prepared for combat with a focus on health and readiness enhancement and personalised medicine to improve physical, mental and social endurance.

[7] Planned, integrated and scalable civil-military access points in regions adjacent to (potential) instability areas.

Chapter 2 – Strategic Situation

"The trends are clear: more people than ever before in history will be competing for scarcer and scarcer resources in poorly governed areas that lack adequate infrastructure, and these areas will be more and more closely connected to the global system, so that local conflict will have wider effects."
- Dr. David Kilcullen

Future Trends and Threats

The future security environment in which the Alliance will operate is global. It encompasses all continents, all nations, and all non-national actors. It extends into space for a growing number of nations, with the potential for non-national actors to influence as well. It is continuous in both time and space. The future security environment will be comprised of hybrid threats, where nations and non-national actors will combine conventional, non-conventional, and developing warfare to achieve their objectives. It will consist of state and non-state threat networks, working sometimes cooperatively and sometimes at odds. Threats will endure beyond any one strategy or capability to combat them. The strategic situation and future operating environment are more fully described in the Strategic Foresight Analysis.[8]

Projection and Sustainment Implications

This new global context has implications for projection and sustainment which will force NATO to transform the current paradigm. These implications include developing ways to minimize support costs across the Alliance, developing multi-national logistics networks where cost and capacity burdens could be shared, in turn developing strategic hubs to support Alliance operations and activities of the future. Transformation may also entail developing long-term theatre support arrangements to account for the enduring nature of threats. More than anything though, it will force a re-evaluation of where collective and national responsibilities converge, diverge, and overlap, and how smart application of different approaches to logistics could address the seams and gaps.

Requirement for Shared Awareness

Visibility built with accurate, relevant, timely, reliable, and useful information for decision-making is critical to matching available projection and sustainment assets to satisfy NATO mission requirements and mitigate risks. True visibility in full collaboration is the key to cost-effective cooperation, and capacity burden-sharing through the next generation of projection and sustainment management tools. This visibility needs to be built into the awareness for strategic decision makers, military leaders and planners, to determine the best courses of action, and to achieve strategic persistence, agility and resilience. A future NATO joint force will require the

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[8] Strategic Foresight Analysis, 2013 Report

capability to have sufficient capacity to be able to deliver logistics support to all who require it and with the least possible impact on local market dynamics.

Effective health promotion and medical support will depend on shared awareness and an understanding of the medical situation, thereby providing Alliance Commanders' with decision space and time to respond, as well as the ability to tailor the scale of that response. This necessitates the preparation of the medical community to deal with the 'big data' associated with bioinformatics and health surveillance through the use of simulation and modelling.[9] NATO nations will enable Partners to develop synchronized medical systems: collaborating on training, education and exercises; or pre-crisis networking.[10] Collaboration with partner organisations such as the UN and EU, International Committee of the Red Cross, Host Nations, IOs and NGOs helps shape the security environment and improves responsiveness during operations, when coordinated sharing of resource and information becomes advantageous.

Federated systems will enable visibility across partners including contractors and 'whole of government' organisations for the purpose of military engineering support. Military engineering requires a comprehensive approach including joint, inter-agency and multinational elements, that will be integrated with all friendly force elements from the outset of campaign planning. This will be underpinned by mutual understanding, effective communication, and common doctrine and procedures. Military Engineering will provide and support a shared Recognized Engineer Picture, fully integrated into LOG FS, providing required situational awareness at all levels of command, and for any operation or activity.

The technical solutions for the cloud-based collaborative networks and information sharing systems will be underpinned by commitments from Nations and Organisations to share information on resource availability, the status of critical infrastructure and crisis response plans. This two-way communication should be routine to enable NATO to assist Nations and partner organisations to build resilience the pre-conflict, whilst facilitating Host Nation support and minimising the military impact on civil societies during conflict. Nations will have committed to an updated and relevant version of the Cold War NATO Precautionary Measurement System, to assist with collective defence planning.

Requirement for Operational Agility

NATO will orchestrate logistics solutions to reduce NATO's and Partners' wait time for supplies and maintenance, while actively engaging with multinational forces to improve NATO's agility. NATO will develop support concepts complementing the full range of operations to support rapid movement of equipment and the ability to reconstitute equipment readiness in complex environments. Agility is paramount in supporting and sustaining multiple operations simultaneously. NATO will provide agile logistics solutions through employment of multinational distribution channels, integrated supply chains, and collaborative maintenance capabilities.

Medical Support and health sustainment underpin NATO's combat power. Measures that enhance the modular approach will deliver scalable medical support ranging from remote

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[9] Bioinformatics is an interdisciplinary field that develops methods and software tools for understanding biological data. Health surveillance is the continuous, systematic collection, analysis and interpretation of health-related data needed for the planning, implementation, and evaluation of public health practice. Combined use with Big Data will better prevent illness and improve resilience in individuals.

[10] Civil Military Interaction is a key development area within SHAPE J9. Stakeholder network development opportunity exist for collaborative working with multiple agencies in the health arena.

diagnosis and advice dispersed to small teams, through MJO+ operations. The reduction of logistics footprint could be achieved through advances in medical treatment. Forward basing of emergency drugs together with remote diagnosis, and automated or remotely operated devices for treatment would also reduce the footprint. Semi-autonomous evacuation will reduce manpower demands. A mature innovation culture will ensure that the risks of operating in the future security environment are addressed through common research and development goals, concept development and experimentation. These will feed an acquisition process that is sufficiently fast and flexible to allow innovation and thereby improve operational agility.

Military engineering requires effective understanding and interpretation of situations to ensure that appropriate responses are developed. These must be informed by accurate, timely and viable intelligence from the whole range of available sources. Military Engineering will take advantage of advanced technology for rapid, unmanned, on-site assessment of life support infrastructure and areas of interest along lines of communication.

In the foreseeable future, in most theatres, NATO troops will still depend on HNS. Most NATO operations and activities require non-NATO assistance. Throughout NATO's expeditionary operations over the last twenty years, outsourcing of non-combat essential military tasks, requirements and capabilities became the norm. Technology will be available to mitigate against over-reliance on contracted solutions. Consequently, as Nations recognize that they will be the first responders, many are re-evaluating their own vulnerabilities and preparedness to effectively deter and defend against contemporary security threats. An adversary's actions in a non-military domain, may undermine the ability of the host nation to adequately support NATO forces. Denial strategies also have the potential to severely restrict both deployment and sustainment of forces, and degrade freedom of action or freedom of manoeuvre within a defined region.[11]

Requirement for Resilience

The severe and complex modern threats, including second and third order effects, require significant investments to revitalise societies and forces resilience.

In the future, the resilient supply chain not only reduces and recovers from risks but also anticipates, rapidly adjusts, and even capitalizes on unanticipated supply chain events or disruptions. Supply chain resilience is about growth and competitive advantage, not just disruption avoidance and mitigation. Effective supply chain risk management entails more than a simple, one-time gap assessment or prioritization exercise. It requires continuous monitoring and improvement that goes beyond NATO's borders.

Shared resilience is the characteristic of having sufficient capacity across the civil and military health and care communities to withstand strategic shocks, to recover quickly. Chaotic and complex operational environments and a high potential threat of frequent mass casualty situations may be superimposed upon failing national public health systems and be compounded by the health threats and demands of mass migration. Resilience plans should be developed in conjunction with national civilian health systems in potential host nations and with neighbouring countries in order that a regional response may be developed.[12] Other mitigation measures may include sharing and stockpiling of expensive or scarce resources or 'just-in-time' production; improving strategic communications with civilian health organisations and resilience planners in national governments. Additionally, NATO must focus on human resilience through investment in

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[11] BiSC A2AD Case Study (SH/PLANS/J5/STP2/16-312304, 5000ITSG FPX 001 OITT -160044) 18th Mar 16.

[12] Ibid.

preventive healthcare; reinforcing Nations' recognition that humans are more important than healthcare.

Military Engineering achieves the desired objectives by shaping the physical environment, enabling or preventing movement, providing life support and developing or repairing infrastructure. Military Engineering supports freedom of movement and force protection. Military Engineering support includes the provision of critical infrastructure identification, assessment protection and repair. Military Engineering technical equipment and expertise will enhance logistics networks and critical systems resilience by providing redundancy, repair and reinforcement of military and civil "lifelines".

NATO recognises that the level of Civil Preparedness influences the ability of the Host Nation to support NATO operations. NATO can also complement national efforts to building resilience, including civil preparedness, critical infrastructure protection and energy security. Addressing the second order consequences such as the civilian population's inability to access resources and support their basic needs will be equally important in maintaining the popular support for NATO's operations.

Requirement for Persistence

Forward deployed forces, continuous operations and activities, and global projection of stability will require a new normal for habitual persistent operational support where nations collaborate multi-nationally and the NCS plans, facilitates and leads.

Effective projection and sustainment of NATO forces in the future, will require reductions in the logistics burdens and improvements in the efficiency of the process through which support is provided. The complexity of the urban environment will significantly affect a force's ability to sustain expeditionary operations. All commodities will need to be brought into the operational area via a secure point of entry, with forward distribution hampered by difficulty in mobility in the urban environment and by lack of storage and warehousing capacity.

NATO sees a shift from a healthcare system to a system that promotes health and readiness as an integral part of the care continuum, to enhance the health and readiness of our military. Medical support to forces will be delivered through a scalable response based on a persistent core. At the earliest stages and the lowest response levels pre-contracted civilian agencies or the national health system will provide medical support in excess of immediate response or primary care. Facilities will be evaluated and routinely validated to ensure quality and consistency. As force levels increase the balance of support will shift towards increased military medical presence. Integrated military/national civilian health system plans, which see a ramping up of capacity in potential Host Nations, and potentially with neighbouring countries, will be essential. Modular multi-national medical treatment facilities that are able to rapidly aggregate and redeploy will be the second key element to meeting this objective.[13]

Persistence, as a characteristic of the future operating environment, enables military engineers to collaborate closely with their civilian counterparts within a host nation and provide coherent plans which address critical infrastructure vulnerabilities and identify areas for investment to support Reception, Staging, and Onward Movement (RSOM). Seamless information sharing

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[13] Civil Emergency Planning Committee - Civil Preparedness policy development; and enhancement of the emerging Graduated Response Plans.

between interagency organizations, military, national and local security forces will increase synergy and operational effectiveness of military engineering forces.

Persistence is, in part, the characteristic of the force generated by a Host Nation in sustaining NATO's enhanced forward presence. This may be achieved at the earliest stages and the lowest response levels through pre-contracted civilian agencies, commercial or governmental contracts.

Logistics and Sustainability Transformation Strategy

The proposed strategy for transforming NATO's support functions is focused on carefully arranging available means, through identified ways to achieve the envisioned end state. The means consist of arranging a comprehensive NATO logistics network spanning from national military stores and industrial bases across strategic distances, institutionalized into interoperability that is operationalized collaboratively to ensure commanders receive the required sustainment at the required time, and in the required location. The ways of shared awareness, operational agility, enhanced resilience, and persistent activity become feasible through updated doctrine, organization, training, materiel, and facilities to improve interoperability. This will enable NATO to optimize use of Allies' assets cooperatively and collaboratively, in deploying forces, and projecting power, faster.
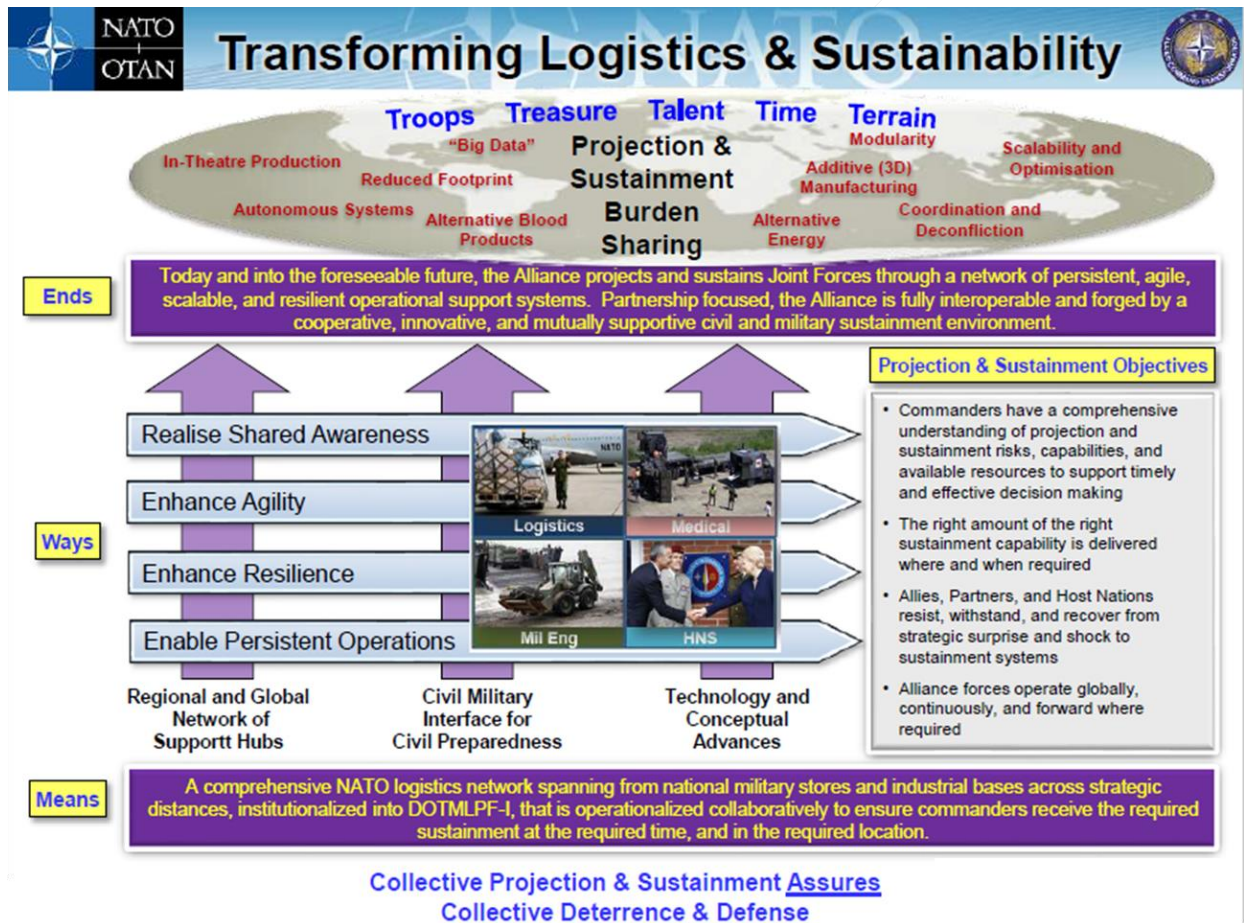

Figure 1. Logistics and Sustainability Transformation Strategy

Chapter 3 – Conceptual Proposals

"You will not find it difficult to prove that battles, campaigns, and even wars have been won or lost primarily because of logistics."
- General Dwight D. Eisenhower

After more than a decade of mainly expeditionary operations the Alliance continues to adapt to fulfil the three core tasks simultaneously. It is anticipated that the Alliance will expand both geographically and functionally; and that NATO will lead and collaborate in coalition operations related to cooperative security and crisis response operations globally. It is also anticipated that NATO operations and activities occur simultaneously and in depth, requiring appropriate methods of adapting to meet projection and sustainment requirements imposed under these conditions.

The concept lays out the broad ideas. A series of related actions and tangible outputs which develop from this concept will be found, in part, in our way ahead (see Chapter 4). These deliveries are linked together and synchronized by an overarching plan, which strives to implement the full concept. Solutions to the identified challenges are based on three main elements: A regional and global network of hubs, an effective civil-military interface and technological or other conceptual advances. It will be operationalised through the achievement of the four strategic sustainment objectives; persistence, resilience, operational agility and shared awareness.

This builds upon the Bi-SC approved OLCM implementation plan. Among other things, implementation of OLCM will deliver improved logistics planning and management, earlier and better coordination between nations and the operational planning process, better shared visibility, better coordination of national logistics plans and greater optimisation and affordability of logistics capabilities across nations.

Regional and Global Hubs

Increased outreach, persistence and agility are enabled through a regional and global support network. This consists of pre-planned, integrated and scalable civil-military hubs in regions adjacent to (potential) instability areas.[14] The Alliance has adopted enhanced measures to sustain military presence in European hubs, with an emphasis on capability burden sharing to facilitate deterrence and defence. The network expands and contracts proportionally to mission requirements, strengthened by strategic partnerships, to areas of the globe where NATO continues to project stability.

Regional and global hubs directly support enabling a theatre for operations and activities. They facilitate rapid deployability, providing NATO the ability to address infrastructure that could support RSOM activities and operations over time.[15] They provide NATO the option of

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[14] Such hubs would also be suited to support inter-organizational cooperation and could be developed in conjunction with the NATO, EU, AU or UN recognizing that the future threats may potentially be trans-national and will require an integrated approach between agencies.

[15] Use of RSOM instead of RSOI acknowledges integration as a command responsibility not necessarily done at a hub.

permanently operating nodes, to assure regional access and maintain critical lines of communication. By helping to address the tyranny of distance in military operations and activities, hubs can also allow NATO to close enabling requirement gaps as they arise.

Whilst hubs exist worldwide, the emphasis on investment begins with those hubs identified within NATO Nations. Nations must also strive to set the theater through arranging multinational diplomatic permissions essential for the speed of authority that enables the requisite speed of assembly in a sense of a Military Schengen Zone. Additionally, development of agreed multinational contracts and procedures for common user commercial readiness programs involving commercial transportation services such as air fleets, intermodal sealift, freight railway interchange and intermodal container systems to include tracking for shipping containers arranged and managed pre-crisis is a critical enabler.

Civil-Military Interface

This concept builds upon post-summit initiatives. It sees a much more enhanced collaboration between NATO and the civilian government departments of NATO nations to develop a *Resilient* approach to sustaining collective defence operations. This approach will be based upon the enhancement of civil preparedness and achievement of NATO's 7 Baseline Requirements for National Resilience.[16] This focuses on continuity of government, continuity of essential services and critical infrastructure that will reduce demand on military forces by a civilian population in crisis and reinforce their ability to provide host nation support. This concept recognises that civil preparedness is a central pillar of Allies' resilience and a critical enabler for Alliance collective defence. Additionally, this concept recognises that military support to civilian authorities in lower intensity crises will enhance NATO's strategic messaging within cooperative security tasks.

Strengthening the Civil-Military interface is a cornerstone of a whole of government approach to meet sustainment challenges. It provides a conduit through which NATO can seek to leverage national capacities not resident to national militaries. It strengthens the bonds between NATO and Nations in terms of executing host nation support. It also supports collaboration and continuous planning and preparatory activity. Collaborative planning that bolsters national resilience supports NATO freedom of movement during times of escalating crises, while simultaneously helping to maintain reliable lines of communication.

Technological and Other Conceptual Advances

The consequences of scientific and technological advances over the next 10-15 years will be embraced and opportunities seized to capitalise on industrial and academic innovation. The drive to improve resilience, operational agility, shared awareness and persistence will expand beyond the current logistics, medical and military engineering enterprises. The ability to undertake remote medicine in small scale or dispersed operations will revolutionise how the Alliance provides care to its people. This sees the expansion of current telemedicine technology to include wearable, ingestible or implanted sensors, virtual reality and robotics to enable remotely delivered diagnosis and treatment. This would have to take advantage of big data analytics, bio-informatics and cognitive computing.

Other emerging conceptual advances will also be leveraged to apply to unique military challenges. One example is taking a persistent federated approach to logistics in select cases to achieve

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[16] NATO Warsaw Communique issued by the HoSG participating in the meeting of the NAC in Warsaw 8-9 July 2016.

collective responsibility for logistics. During some NATO operations or activities, logistics assets could be shared or pooled to best support deploying or sustaining those forces. Looking further toward enduring support, forces may rotate, but what nations have committed in terms of specific capability and capacity could endure; allowing for contribution to the collective effort, over an extended period of time, while gaining efficiencies in the process. Using a persistent federated approach, this sharing/pooling can be coordinated pre-event and pre-deployment to maximize assets used to support what is ultimately a collective effort. It operationalizes capacity burden sharing to achieve logistics interdependence in operations and activities, while saving money over the long-term. More practically, a persistent federated approach optimizes the transitions across the spectrum of conflict through established habitual relationships between commanders and staffs from across the NCS and nations. These are relationships that are turned on, and left on, running in the background for when they are needed.
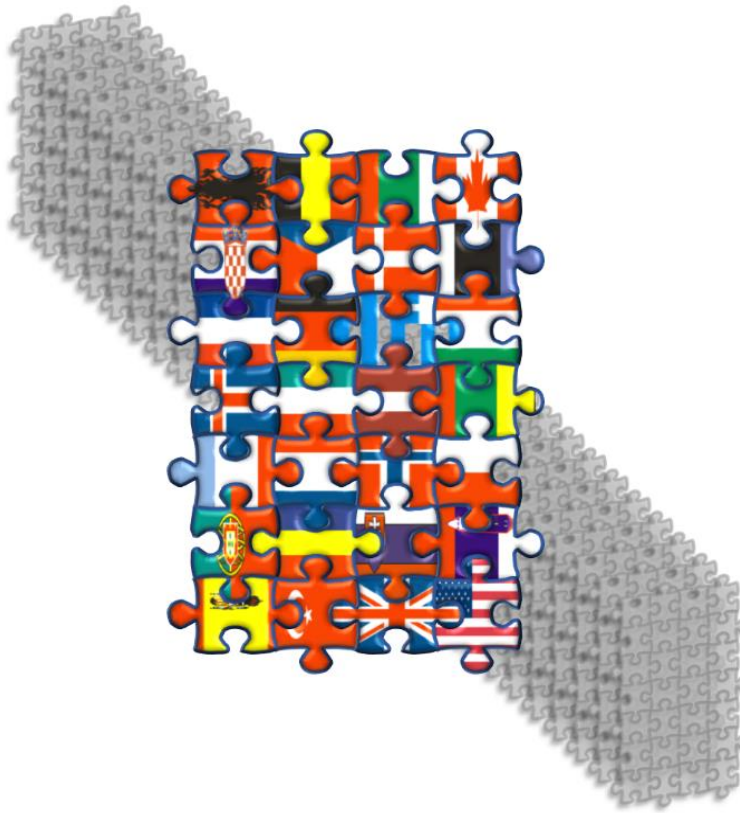
Chapter 4 - The Way Ahead

"The Alliance needs to create fresh momentum, to make sure NATO retains the initiative, to make sure the Alliance is prepared for any future and to keep the combat edge to offset any opponent. To achieve such momentum Nations need to realize the requirement to foster innovation, an innovation that must result from initiatives in the political domain, in military concepts and in the technological area."
– General Denis Mercier, Supreme Allied Commander Transformation

Long-term delivery of this concept will be driven by a solid understanding of the challenges NATO endeavors to solve, and how ideas expressed within this concept act as solutions to those challenges. Expansion of the Allies in terms of Allies and territory, a decades-long focus on out of area and expeditionary operations, growing discord within Allied and other civil populations, changing dynamics of commercial markets and shifting national military priorities among other factors, have all contributed to the nature, scope and scale of the challenges NATO faces. Challenges specific to the NATO sustainment community include:

- Early and continuous synchronization of projection and sustainment activity across 28 Alliance members, plus Partners.

- Freedom of movement challenges due to assured access to transportation assets, border crossing limitations and requirements, and inadequate infrastructure and lines of communication.

- The readiness, responsiveness and scalability of Alliance forces that provide enabling capabilities.

- Limited visibility and collaborative planning capability across the NCS and into Nations.

- How best to execute continuous planning and preparatory activity, collective responsibility for logistics, and coordinate capacity burden sharing in operations and activities.

- Integration of a whole of government approach to projecting and sustaining forces.

- The motivation to share information.

Ideas found within this concept help NATO get to solutions for these challenges quicker. For example, the application of the conceptual advance of taking a persistent federated approach to an activity like enhanced forward presence would help to shift planning, coordination for efficient employment of projection and sustainment capabilities and visibility "left" of the line for force deployments or future rotations. It also provides the basis from which enabling capabilities can be expanded within a theatre quickly to meet demands across the spectrum of conflict. Integration of technological solutions into NATO training and exercises, like autonomous systems experimentation at TRIDENT JUNCTURE 18, lead to employment during NATO operations and activities sooner.

Ideas found within this concept should also be considered as a logical extension from current initiatives. As an example, through the Operations Logistics Chain Management program, NATO delivers Logistics Functional Services. This is a material solution that provides new functionality across multiple NATO project and sustain communities of interest. This functionality can directly

support the conceptual proposals of this concept. This concept helps address the question of what to do with these tools once they are at NATO's and Nations' disposal.

The greatest risk is doing nothing to link today's challenges to the future, or begin preparing for it. Enabling gaps will continue to grow beyond NATO's capabilities to address them. In an extreme case, NATO could lose the ability to sustain operations and activities, deter aggression and defend its Allies, project stability, or meet the obligations to its core tasks with any breadth or depth.

Many of NATO's enabling capabilities that won the Cold War in the late 20th Century have rescinded from the European landscape thereby forcing NATO to transform logistics and sustainability activities to achieve the readiness and responsiveness posture required for maintaining the edge against rising threats. Today and into the foreseeable future, the Alliance must project and sustain Joint Forces through a network of persistent, agile, scalable, and resilient support systems to ensure commanders receive the required sustainment at the required times and locations. Therefore, NATO will develop a comprehensive logistics network spanning from national military stores and industrial bases across strategic distances, institutionalized into Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel, Facilities and Interoperability (DOTMLPF-I), that is operationalized collaboratively. NATO will realize shared awareness, enhanced operational agility, enhanced resilience, and enabled persistent activity. Partnership focused, the Alliance will become fully interoperable and forged by a cooperative, innovative, and mutually supportive civil and military sustainment environment.