

SUPPORT NETWORK

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Endorsed Out of Committee by the Joint Operating Concepts Committee

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Readers who do not require a deep understanding of the Concept but would find an overview useful, are recommended to read the preface and the Defence Lines of Development (DLOD) deductions at the end of each chapter.

PREFACE

1. **High Level Operational Conceptual.** The HLOC Framework identifies that 'future demands and occasions for the intervention of UK forces will be characterised by both the periodic application of intense, low footprint discriminating forces at a time and place of political choice and by the provision of more enduring forces to the stabilisation and reconstruction of societies following intervention'. It considers that future operations will take place in situations of considerable complexity and in the glare of a highly capable, omnipresent media. This rapidly changing and unpredictable geo-political future will demand a flexible force structure, with balanced capabilities, to conduct a range of operations across all environments.
2. **Endorsed Interim Concepts.** HLOC is amplified by the Operate EIC,¹ which highlights that UK military forces will be required to support the full spectrum of operations including, conventional combat, non-combatant evacuation, Disaster Relief Operations (DRO), and stabilisation operations in support of global counter terrorism. It is anticipated that fewer forces may be engaged in contact or combat resulting in a smaller footprint. However, there will be occasions, such as stabilisation, when a larger, more persistent force may be required. Force Elements (FE)² will be supported by increasing numbers of wide-area³ and non-organic resources,⁴ including some operating from the Home Base.⁵ Therefore, forces will continue to be structured to support future operational commitments and organised to provide a balanced, flexible response that will require expeditionary infrastructure support.⁶ The Sustain EIC⁷ is the most pertinent to Logistics, providing a conceptual view out to 2030 of sustaining a balanced force deployed on operations.⁸ Sustain describes 5 aspects that need to be developed: Operational Focus, Integration, Support Network (SN), Information Exploitation and Predictive/Anticipatory techniques. Of these 5 aspects, development of the SN is considered to be the key to improving operational focus and integration, whilst being enabled by, inter alia, Information Exploitation and Predictive/Anticipatory techniques.
3. **SN Definition.** The Sustain EIC identifies that 'Sustain will be delivered through a combination of appropriate logistic force structures, training and equipment, underpinned by an operationally effective, versatile and responsive infrastructure linked to industry and the broader resources of the state. It will be enabled by an increasingly mature network-enabled capability configured to deliver an overarching SN that is flexible, agile,⁹ and robust'. The sustain EIC provides the starting point for this concept paper by defining the SN as:

'A flexible set of supply chains connecting points of production and use'

4. **Provenance.** This JCC should not be read in isolation, but is an extrapolation of the concepts defined in HLOC and the EICs.¹⁰ It has been constructed using the Defence Capability Framework (DCF) to reflect the wider operational scope and address the SN aspects within each

¹ Operate EIC dated 29 Nov 2007.

² This could also be tactical elements for a Small Scale deployment/operation.

³ The term wide-area refers to a large geographical area in which resources or facilities are connected through nodes.

⁴ 'Non-organic resources' refers to those that are not an integral part of UK MOD forces, i.e. the Foreign and Commonwealth Office (FCO), Department for International Development (DFID), Host Nation Support (HNS), Other Nations military.

⁵ The Home Base is primarily the UK, but may also include UK bases in Germany or other UK bases permanently deployed to an overseas location.

⁶ Including Joint Sea Basing.

⁷ Sustain EIC dated 29 Nov 2007.

⁸ Ibid. p1.

⁹ Logistic Agility – The utilisation of whatever resources are available in the most appropriate way to meet the demand of a specific operational circumstance. A balance must be struck between the use of a rigid system and structure, which can meet the requirement for simplicity and assist with cooperative measures and the need for functional agility. JDP 4.00, Lexicon p13.

¹⁰ DCDC EICs are a suite of Concepts based upon the DCF – Operate, Command, Inform, Prepare, Project, Protect and Sustain.

of these categories to aid future development. It is consistent with Defence Strategic Guidance 08 (DSG) and UK logistics doctrine including JDP 4.00, but future development based upon this concept will need to be cognizant of pending Strategic Defence Review (SDR)¹¹ decisions and Defence funding limitations. It builds upon research^{12,13} and operational analysis¹⁴ and the evolving work of the Joint Support Chain (JSC). Furthermore, it recognises the Lessons Identified from the Logistic Capability Development Database (LCDD).¹⁵

5. **Future Conflict.** The Future Character of Conflict (FCOC) study,¹⁶ which was informed by the Future of Conflict – Logistic Support,¹⁷ identified that there may be significant capability gaps in the UK's coverage of the future operating environment and UK Armed Forces may not be best configured for them. The MOD has identified that during the next 2 decades, potential opponents will not only be foreign states, but also non-state entities consisting of loosely organised networks who, realising that they cannot win a conventional fight, have expanded conflict into new domains. Thus irregular warfare/hybrid conflict¹⁸ and, as evidenced on Op HIGHBROW 2006,¹⁹ urban warfare is increasingly likely.

6. **Comprehensive Approach (CA).** The CA is likely to place additional demands on support functions. Consequently, the SN may need to be adapted to support the Joint, Inter-Agency, and Multinational, (JIM) environment. This would require a re-adjustment of policy, logistic force structures, and training, with the incorporation of legal and cultural sensitivities.²⁰ Furthermore, it will demand a range of credible, flexible²¹ and affordable options that allow improved integration of UK Armed Forces, allies, Other Government Departments (OGD) and Non-Government Organisations (NGO).²² Consideration must be given to how cross department contingency planning can achieve increased effectiveness and efficiency in planning, delivering, and using, people and resources, whilst being cognizant of potentially different departmental aims. Military requirements for operations to maintain security or Peace Enforcement (PE) will require balance against the need to provide support to stabilisation and reconstruction activities.

7. **Information Architecture.** In order to effectively manage the future operational requirements it will be necessary to consider how the Information Architecture (IA) will be developed as part of a wider affordable logistics strategy to provide the tools to support the operational requirement. This may include linking UK, multinational, OGD, NGO and Contractor Support to Operations (CSO), taking into account cross-organisation Operational Security (OPSEC) requirements. To that end information quality will be a vital part of establishing links with industry and other partners. The strategy must acknowledge that enthusiasm for fully network enabled operations has been tempered by recognition that increased information flows are unlikely to fully lift the 'fog of war'. Therefore it will be necessary to discriminate and filter data to identify information that provides Shared Situational Awareness (SSA) and Shared Situational

¹¹ Including any further future Defence Reviews.

¹² *An Academic Review of the Support Network Sub-Concept of the Future Logistics Operating Concept (FLogOC)*, Cranfield University and Defence College of Management and Technology, Shrivenham, Oct 2005.

¹³ *Australian Future Joint Logistic Concept 2005 Ver 10* (Distribution Based Logistics).

¹⁴ Development of Logistic Support Networks – CR28680 V1.0 dated 31 Mar 08, Dstl Study.

¹⁵ The Logistic Capability Development Database (LCDD) is a web-based software tool developed within ACDS (Log Ops) that allows the capture, storage, interrogation and analysis of objective evidence from which informed decisions can be made relating to the Defence Logistics Process and Capability Development. It has been designed to improve consistency, coherence and clarity across all Lines of Development (LoD) towards realization of the five themes within the Defence Logistics Programme (DLP).

¹⁶ DCDC - The Future Character of Conflict, 17 Sep 09.

¹⁷ ACDS (Log Ops), Future of Conflict – Logistics Support dated 9 Apr 09.

¹⁸ Joint Concept Note (JCN) 1/09 – The Evolving Character of Conflict. Hybrid Conflict is defined as a form of conflict waged by a range of adversaries (conventional, irregular and terrorist) who will employ all forms of war and tactics, perhaps at the same place and time.

¹⁹ A Non-combatant Evacuation Operation (NEO) as a result of Urban Warfare.

²⁰ Joint Interim Concepts Deductions paper dated 11 Jan 2008, p21.

²¹ Flexible – the ability to adapt and reconfigure to meet operational need, without undue cost and within appropriate timescales.

²² Links to NGOs should be considered where appropriate and subject to OPSEC requirements, but may result in limited capabilities and information flows.

Understanding (SSU), within OPSEC constraints. The IA will be an integral part of the wider MOD network which will provide appropriate resilience to cyber threats.

8. **Doctrine.** JDP 4-00 states that 'there is no single model for the Command and Control (C2) of logistic operations; instead, there are a range of models that can be employed'.²³ These models are based around the Joint Force Logistic Component (JFLogC) and the National Support Command (NSC) or National Support Element (NSE). Recent operational experience of working in a coalition²⁴ has identified the need for a single national, joint focus for all logistic activity in support of the deployed Joint force; the Joint Force Support (JFSp).²⁵ This provides theatre level support to UK and embedded coalition forces deployed in the Joint Operations Area (JOA). It directs, coordinates and executes the tactical distribution of personnel and equipment arriving through the Coupling Bridge, whilst building in-theatre logistic resilience, integrating new capability and implementing enduring governance, welfare and infrastructure solutions designed for the long-term UK commitment to the operation. The JFSp HQ will provide C2 to all in-theatre support functions, including CSO elements,²⁶ but excluding Communications and Information Systems (CIS) which lies within the remit of the Joint Force CIS (JFCIS).²⁷

9. **Logistics.** Logistics as defined in JDP 4.00 encompasses J1, J4 medical, infrastructure, and makes reference to engineering, the provision of logistics to support operations, and the provision of logistic information to allow commanders to make informed decisions, and is usually described as the provision of logistic support.²⁸ Logistics and logistic support can, therefore, be regarded as interchangeable terms. However, this description fails to embrace the full spectrum of activity that a Logistics HQ would be responsible for in the operating context envisioned in the FCOC. The Defence Support Review has proposed a definition of 'Defence Support' that has been endorsed by the Defence Logistics Board.²⁹ The SN must therefore be applicable to the full range of Equipment Support and Logistic Support functions.³⁰

AIM

10. To articulate the requirements for the SN in order to inform force and capability development, UK doctrine, training and related concepts.

SCOPE

11. This JCC defines the application of the SN in the context of the FCOC with an aiming point of 2030³¹. To achieve this, the SN JCC has been developed using the DCF as chapter headings.

²³ Joint Doctrine Publication 4.00, 3rd Edition, Logistics for Joint Operations, p2-3.

²⁴ Op HERRICK.

²⁵ Defence Science and Technology Laboratory (dstl) study, Op cit. p18 para 3.9.6.

²⁶ E.g. Contractors Deployed on Operations (CONDO), Contracted Logistics (CONLOG) and embedded Contractor Logistic Support (CLS) activities. However, the model may need to be adapted to suit local operational circumstances.

²⁷ In accordance with JDP-6, p2B-1.

²⁸ Logistics – The science of planning and carrying out the movement and maintenance of forces. In its most comprehensive sense, those aspects of military operations which deal with:

- Design and development, acquisition, storage, movement, distribution, maintenance, evacuation and disposition of materiel.
- Transport of personnel.
- Acquisition or construction, maintenance, operation and disposition of facilities.
- Acquisition or furnishing of services.

- Medical and health service support. JWP 4-00 p1-1.

²⁹ Defence Support encompasses Equipment Support and Logistics Support, and is the activity that maintains Capability (FEs & enablers) at Readiness & sustainability from its in service date to disposal, and throughout is credible if it maximizes the flexibility of action for operational commanders.

³⁰ In line with the emerging Defence Support Review (DSR) Team definition for Support.

³¹ This Concept focuses on expeditionary operations and does not address the potential issues within the Home Base which are currently the domain of the Joint Support Chain. This is to enable appropriate focus to be maintained and ensure the scope of this JCC is not so wide as to make it unmanageable. Furthermore, current activity is already heavily influenced by contract solutions that have already been put in place which remain suitable for Home Base activity and would be costly to change, but may be adapted to better meet the operational focus set by this Concept.

It provides the conceptual underpinning for future Defence Support to operations encompassing Equipment Support and Logistics, in order to provide confidence and flexibility of manoeuvre to the operational commander.³² This JCC focuses on the creation of a SN for a single expeditionary operation, but must be flexible enough to support the Standing Overseas Commitments (SOC), Contingent Overseas Operations (COO) and Strategic Planning Objectives (SPO). It encompasses Reception, Staging, and Onward Movement (RSOM) and in-theatre management, from the introduction of personnel and equipment via the Coupling Bridge, up to the end user at the front line. The concept acknowledges the requirement for delivery from, and Reachback to,³³ the Home Base and includes the possibility of direct contract support³⁴ from potentially worldwide multinational military and contracted support locations. This concept encompasses the relevant aspects of Personnel Support³⁵, Infrastructure, Medical and Engineering³⁶, but must evolve to include the detailed aspects of these disciplines. Within defined operational boundaries, and subject to overcoming OPSEC concerns, the UK military SN³⁷ will link with equivalent networks operated by coalition, OGD, NGO and multinational organisations. Whilst acknowledging the requirement to consider integration of networks across the wider domain of the Home Base and routine provisioning from contractors, the detail of this is outside of the scope of this concept and will require consideration as part of the *Logistic Strategy 2030*.

12. The challenge this concept sets is the need to tie together the improvements made thus far in logistics, infrastructure, engineering, personnel and medical support³⁸ and incorporate future initiatives to deliver an affordable and efficient SN that balances requirements and risks. There have already been a number of achievements moving from the Cold War Supply Chain to the current Joint Support Chain, but there remains some significant hurdles to deliver the SN, especially in terms of delivering the IA and associated Information Systems (IS) and achieving the cultural change. Through acknowledgement of the strategic context and appreciation of the evolving character of warfare, this JCC establishes a conceptual baseline, against which DLOD owners can consider policies for SN development, force structure and capabilities to support future operations. DLOD deductions for SN Full Operating Capability (FOC) are summarised at the end of each chapter. The concept advocates evolutionary rather than revolutionary change, but acknowledges the potential for technology advancements and that political (including the pending SDR) and environmental issues may force a change of pace and direction. The future development of the SN should be considered to be a road, not a destination.³⁹

ASSUMPTIONS

13. This paper assumes that:

- a. The requirement for expeditionary operations will endure across the spectrum of operations and in unpredictable security environments.
- b. There will be a continuing drive to optimise resources through efficiencies whilst ensuring optimum operational effect is maintained.

³² Dstl Study. Op Cit. p2, para 7.

³³ Reachback is a generic term for obtaining forces, materiel, or information support from appropriate organizations not forward deployed. AP3000, Ch 2, p34, para 6.

³⁴ e.g. Joint Combat Aircraft (JCA) and its Global Support Solution, other CSO contracts and HNS.

³⁵ As defined in JDP 1-05 (Page 1-9) this encompasses administration, welfare, health, ceremonial, manning and education.

³⁶ In terms of Medical this would include patient/casualty handling, but not detailed clinical matters. In respect of engineering this would include Engineering and Asset Management Systems (EAMS), but may not include the full details of an engineering solution, but will provide forecast details of when assets will be available to fulfil a need event.

³⁷ Including the contracted elements.

³⁸ e.g. Formation and enhancements to Defence Supply Chain Operations and Movements (DSCOM), Joint Force Support (Afghanistan) (JF Sp(A)), better integration of contracted engineering support and equipment management, improved Operational Location (OpLOC), improved Expeditionary Camp Infrastructure (ECI), creation and development of Defence Medical Services.

³⁹ Dstl Study. Op Cit. p3, para 12.

- c. Defence will remain dependent on industry⁴⁰ in order to undertake combat and non-combat operations.
- d. There continues to be a requirement to operate in a joint, integrated and multinational environment.
- e. The configuration of the SN will be consistent with the support of Home Base activities, but structured specifically for operations, particularly expeditionary warfighting operations and agile FE.
- f. There will be a continuing drive for efficiency and a desire to ensure best utilisation of resources.⁴¹
- g. The capacity of the SN must match the scales and rates of effort articulated in DSG 08 and any future SDR and be capable of sustaining multiple and potentially non-contiguous operations, including SOC, COO and SPO.
- h. Operational support within the SN will be operated by a combination of UK regular and Reservist components, coalition military, Host Nation (HN) and contractor personnel. It is the combination of these resources that will enable a Total Logistic Force (TLF)⁴² and SN concept to be achieved.
- i. Future technology enhancements will enable development and enhancement of support operations.
- j. We will be able to plan, but will need to expect operational reality to be different.⁴³

SUPPORT CHAIN TO SN

14. Supply Chain. The Supply Chain in existence during the Cold War period has evolved to that typified by the complexity of support to Op HERRICK which is more complex, with numerous links in the chain, through which consignments might or might not pass during their journey through the forward or Reverse Supply Chain. These links (or nodes) signify points at which other support activities can be carried out. The increasing use of contractor supported platforms and the supplementing of military capability with contracted services have added complexity to the Supply Chain. Consequently, items can enter or leave the Supply Chain from/to industry through a number of entry points. Given the volume of stock passing through the Supply Chain, there is an ever-burgeoning need to track consignments and a myriad of Logistic Information Systems (LIS) have been introduced to achieve this. The Supply Chain encompasses multi-national/NATO interfaces and use both air and surface transportation,⁴⁴ which can be MOD owned, from other nations, or contracted civilian assets. Use is made of local contractors to provide transport and various consumable commodities thus relieving pressure on the military Supply Chain.

15. Contract Solutions. Future contracting solutions will result in different implementations with greater Industry integration, especially in terms of CLS and the development of Contracting for Availability (CFA), Contracting for Capability (CFC) and fuller exploitation of CONLOG. An example of which is the Joint Combat Aircraft programme that will introduce a Global Support

⁴⁰ Noting that in some cases these may well be Foreign Industries.

⁴¹ In the context of this SN resources encompasses equipment, material and personnel and is used to differ from the term - assets.

⁴² The TLF is the combination of military personnel (both regular and Reservist) and civilians, including those employed under Host Nation Support (HNS) arrangements, engaged in delivering support to Operations. TLF Applied Concept Paper 20070913-U-TLF

⁴³ Operational experience demonstrates that despite best intent planning will be influenced by enemy reaction and will require constant adjustment.

⁴⁴ Encompassing land and sea options.

Solution with the capability of delivering spares to a theatre direct from locations across the globe.⁴⁵ However, such solutions will require integration with the SN and may need to deliver assets to a Purple Gate⁴⁶ for onward move through and visibility within the military network and require Force Protection (FP).

16. **Joint Support Chain.** The JSC provides a single coherent End To End (E2E) support chain, which will lead to greater performance, agility and stakeholder confidence. It integrates the Defence Support Chain and Industry Support Chains to provide improvements to CLS. Furthermore, it provides the deployed space with a sustainable support chain based on quality, integrity and consistency. In the future, it will improve visibility and understanding of the differing methods of contracting support, including Contracted Logistic Support and the development of Contracting for Availability, Contracting for Capability (CFC) and fuller exploitation of CONLOG related activities across the JSC End to End. A new DE&S Operations Centre will provide the future SN with a single operations point of contact that will support PJHQ, Front Line Commands (FLC) and deployed forces. The JSC has combined the Supply Chain and contracted solutions to provide a coherent E2E support chain.

17. **J1 Support.** Support for personnel in Theatre, including contractors, will be enhanced with better Operational Location (OpLOC) and management processes and the introduction of enhanced welfare facilities, but also through its integration with other support activities in a coherent and holistic set of SN functions and activities. Medical support, in terms of medical planning, operations and supply, will be an important consideration in planning and execution and requires better integration into future SN structures. Clinical aspects of medical support within the SN, whilst related and significant drivers, are out of the scope of this concept.

THE SN REQUIREMENT

18. **Developing the SN.** The SN now and in the future is not just about logistics, but includes personnel support, infrastructure, equipment support, and engineering enacted within operations in JFSp constructs to support national requirements. This concept advocates developing early resilient ties within the planning process across these domains and across OGD and NGO as required. Improved coherence in delivering the multiple aspects of support to operations will allow greater agility in enabling the complex operations of the future. By providing coherent, agile and effective support the SN will maximise the freedom of action for the operational commander and FE, whilst delivering more efficient management of resources. The SN will also realise opportunities provided by other nations and agencies where and when appropriate.

19. **Nodes.** The SN will need the agility to match that of the FEs it supports and must therefore, be modular, scalable, flexible, adaptable and resilient. In-theatre operations will be supported by establishing nodes that connect points of supply and use, thereby providing a range of options for the delivery of the SN. This will provide the agility and resilience to react to threats and maintain support through alternative nodes. A node may be a military location, logistic hub, an industry partner, local supplier or coalition partner and will include options of Joint Sea Basing (JSB). The nodal construct offers options of lateral flow between nodes rather than through a traditional linear approach enabling the SN to react with speed and precision. Forward nodes are likely to have high activity levels,⁴⁷ with all nodes encountering a volatile demand and supply of support and as such will be technology dependant. To manage this complex activity, nodes will require a comprehensive IA underpinned by Network Enabled Capability (NEC) that is information

⁴⁵ Assets will require an onward move to sea-based units using military transportation assets.

⁴⁶ The 'Purple Gate' has been developed as a method to resolve these issues and can be defined as: "A process to ensure the regulation of materiel flow into the Joint Supply Chain (JSC) for the sustainment of operational theatres." JSP 886, Vol 3, Chapter 3, page 2.

⁴⁷ On the assumption that there will be equipment transfers between nodes as a primary solution.

enabled through Decision Support (DS) tools, asset and personnel visibility, predictive and anticipatory equipment management tools along with Engineering and Asset Management Systems. These DS tools will enable planning and decision making based upon Shared Situational Awareness and Shared Situational Understanding.

20. **SN Structure.** The SN force structure will be in line with the TLF concept being Joint, incorporating CSO and multi-national support and may be required to integrate with OGDs and NGOs, as shown at Figure 1. UK personnel will be drawn from military, civil service, or contractor environments. C2 processes will be centralised, but with decentralised execution overseen by a SN HQ. This will allow flexibility and efficiency in the delivery of support whilst remaining coherent with the operational commander's intent and provide appropriate and effective C2 and coordination.

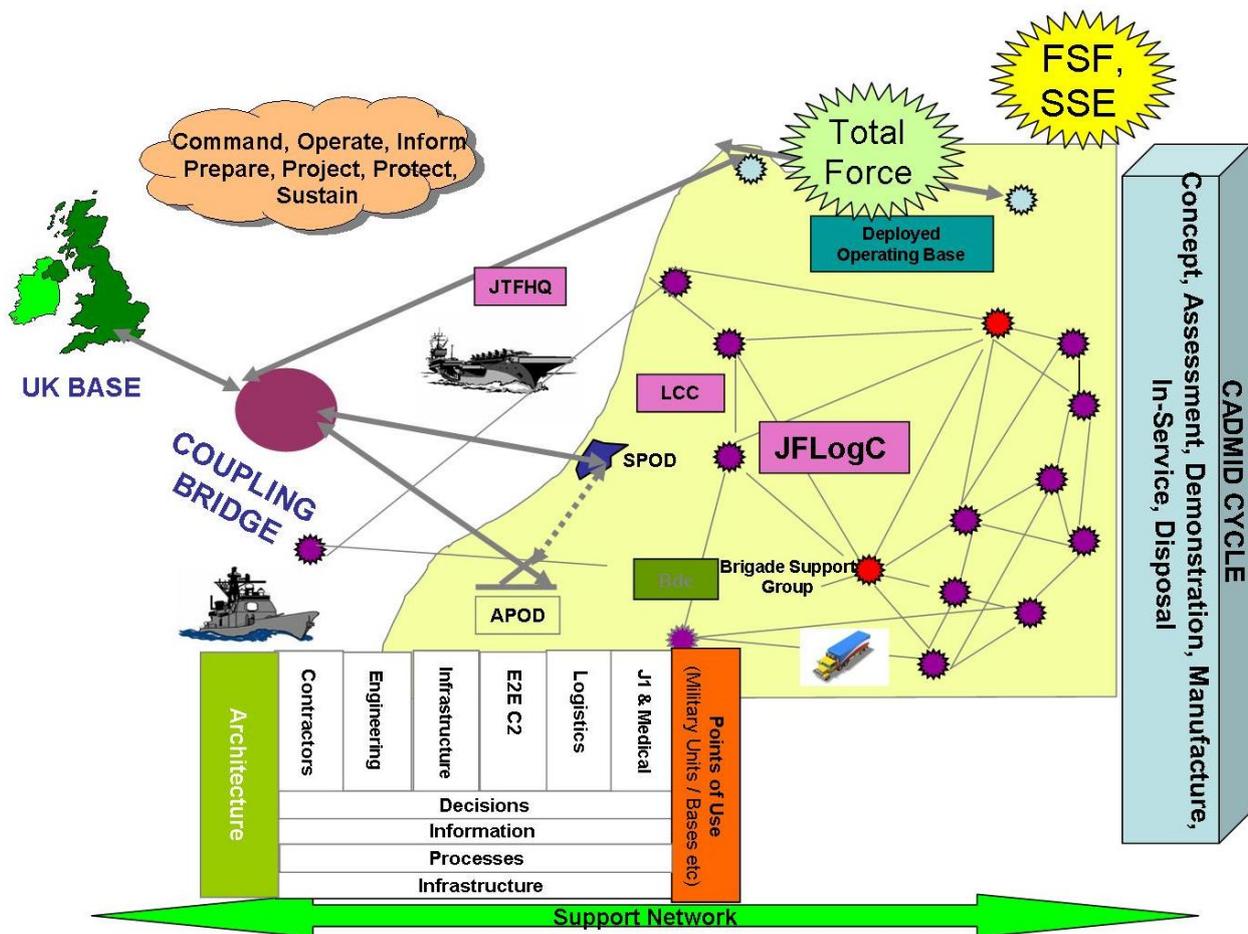


Figure 1: The Support Network

21. **Cultural Change.** If the SN is to succeed, a shift is required from the current operating practice, whereby logisticians and Quartermasters act as inventory managers/owners, to one where they become 'custodians', recognizing and accepting that assets do not need to be 'owned' to achieve operational effect. This cultural change will be fundamental to ensuring more efficient use of equipment and material.⁴⁸ This will require confidence in the SN to deliver against 'need' events, based upon accurate information, supported by effective IS. Furthermore, it will be necessary to develop the culture that will embrace and exploit the technology to enable the SN to

⁴⁸ Dstl Study. Op Cit. p3, para 10.

function effectively. To achieve this cultural change focused Training and Education (T&E) will be required at all staff levels across each environment.

22. **Doctrine & Policy.** Doctrine and policy must be updated to reflect the changes required to create an agile and effective SN and the breadth of support envisaged within the SN.⁴⁹ Critical examination of the lean versus agile debate will ensure that an optimal SN footprint is achieved, supported by contracts that are coherent with policy and provide solutions that deliver operational effect. Consideration must be given to possibilities of forward-positioning of relevant material and equipment to shorten lead times and advance initial operating capability for specific operations.

23. **Sustainment.** The SN must provide sustainment that matches levels of demand and makes efficient use of equipment and materiel. Therefore, the SN requires appropriate funding and sustainable resources, equipment and processes, including contracted support, that can be utilized in all regions and climates in line with current and future policy. This will include appropriate acquisition, storage, transport, distribution, maintenance, medical and health services, evacuation, and disposal facilities. The logistic elements should utilise Inter Modal Transportation (IMT)⁵⁰ to improve visibility and tracking and thereby the efficiency of the SN. The IA and associated IS will provide effective means for performance measures allowing monitoring of effect and not just internal efficiency.

24. **Future Development.** The intent is that the SN will integrate engineering, personnel support, and logistics (including materiel management, medical and infrastructure) to enable a holistic support solution. Improvements in SSA and SSU providing an oversight of the broader picture will aid earlier resolution of complexities and potential conflicting priorities within DE&S and FLCs to achieve the desired outcome. It is unlikely that this will be achieved in a single step; therefore the concept advocates an evolutionary rather than revolutionary approach to creating the SN. A summary of the enduring and new themes associated with the SN is detailed on the next page:

⁴⁹ Doctrine, notably JDP 4.00 requires updating to reflect the explicit expression of the SN Concept. *ibid.* p2, para 10.

⁵⁰ IMT encompasses Radio Frequency Identification (RFID), Inter-modal Loading Units and enhanced IS to improve visibility, tracking and decision support.

Enduring Themes:
Connecting points of supply and use
Maximise freedom of action for operational commander and FE
React with speed and precision
Sustainment to match level of Readiness
Appropriate and effective C2 and coordination
Incorporating contractors
Modular, scalable, flexible, adaptable and resilient
Joint and integrated; multi-national

New Themes:
Not just material, but including personnel, medical, infrastructure and engineering support.
High activity levels at forward nodes
Enhanced SN management through incorporation of Inter Modal Transportation
Technology dependant – information enabled
TLF embedded
Theatre inventory management - move from owner to custodian
Volatile demand and supply of support
Performance measures related to effect, not internal efficiency
Draws on all nodes, not just UK owned, but also coalition partners and HNS, where appropriate agreements are in place
Improved agility to react to threats and maintain support through alternative nodes
Solutions must be affordable and cognizant of future Defence planning and direction

CHAPTER 1 – OPERATE

OPERATE – The ability to apply the military instrument of power in support of Government policy at a time and place of political choice.

101. **Introduction.** This chapter outlines how the SN will operate, detailing the underlying principles and a definition of SN nodes. It includes an outline of the network operations and activities, along with how agility will be achieved and details of the SN force structure mix.

102. **Future Operations.** HLOC states that ‘future scenarios will place a premium on agile, sustainable expeditionary forces that can offer reach, endurance, flexibility, the capacity for effective containment or resolution of crisis and decisive combat power.’⁵¹ Expeditionary forces may be required to arrive with the minimum of immediate preparatory or shaping activity.⁵² Environmental changes are likely to lead to an increase in Disaster Relief Operations, which will take place in a multi-agency context as part of a Comprehensive Approach:⁵³ in these circumstances UK military forces will most likely be in a supporting role. To be effective in this complex future environment the SN will require improved responsiveness in terms of mobility, sustainability and reach with an optimised deployed support footprint capable of reach and rapid operational change to ensure that UK Armed Forces can intervene at a time and place that are politically and militarily useful. This will require the SN to be able to support operations across the full spectrum of conflict, including Major Combat Operations (MCO). Furthermore, the SN must exploit emerging technologies and new methodologies to provide effective support to operations that provides increased SSA and responsiveness.

103. **Principles.** The SN is based on the underlying Principles of War and the 5 principles of logistics: foresight, efficiency, simplicity, cooperation, and agility.⁵⁴ To increase SN agility, which will be a fundamental feature of future operations, it will be necessary to improve resource visibility, enhance information flow, provide effective management tools and identify faster delivery options. The SN must have sufficient agility to match the FEs it supports and be capable of being rapidly assigned, distributed and redirected. Therefore, it must be modular, scalable, flexible, adaptable and resilient. To achieve these effects the SN must be able to respond with speed and precision, to uncertainty, unforeseen events, and other changes in the strategic landscape with the ability to optimize the use of resources in the most agile manner possible to maximise the freedom of action for the operational commander and FE.⁵⁵ SN planning must be sufficiently responsive to allow supported FEs to continue or return to on-going missions whenever possible.

104. **SN Nodes.** In-theatre operations will be supported by establishing nodes that are points of supply and use, providing a range of options for the delivery of the SN⁵⁶ utilising air, land and sea movements. SN nodes can be distribution points,⁵⁷ ‘points of supply’⁵⁸ and/or ‘points of use’.⁵⁹

⁵¹ HLOC para 107.

⁵² The readiness profile for UK forces will entail a level of organic self-supporting capabilities for forces held at the highest readiness.

⁵³ Ibid para 5.

⁵⁴ JDP 4.00, Ch 1, Sect 2, p1-5.

⁵⁵ The SN will not attempt to resolve capability shortfalls that are managed within capability areas, but there may be a need for commanders to consider alternative solutions where capability shortfalls are exposed.

⁵⁶ The SN does not aim to distinguish between Forward and Reverse Supply Chains, but aims to facilitate the movement of equipment, materiel and personnel between nodes as required. It is not considered necessary to distinguish between forward and reverse, instead movements throughout the SN should be achievable using the same basic principles corresponding to operational requirement, including that set by DE&S Ops Centre for the urgent return of equipment required elsewhere or for the return of repairables to a military or civilian repair facility.

⁵⁷ e.g. Airport of Debarkation (APOD), Seaport of Disembarkation (SPOD).

⁵⁸ Point of Supply – a node capable of holding assets or providing services which can be supplied / provided to other nodes, consumer, or user.

⁵⁹ Point of use – the place at which assets or services are last recorded as being consumed/used. It may be possible to issue assets/provide services to a lower level formation, but no further lower level consumption/use records are maintained. i.e. Company issue to Section is only recorded at Company level.

A SN node may be a military location, logistic hub, an industry partner, local supplier, or coalition partner.⁶⁰ The inclusion of contractor-operated sites, HN, multi-national and JSB, including Royal Fleet Auxiliary (RFA), not only increases the span of the SN but also its responsiveness. In the main, these nodes will be joint, bi-modal⁶¹ and preferably multi-modal, exploiting the benefits of IMT. However, some will be 'Limited Nodes' such as a local supplier, multi-national location, or NGO, which will not necessarily have the full suite of capability or be fully interoperable; for example Limited Nodes may be limited to sending and receiving data via an external data transfer.⁶²

105. **Network Operations.** All nodes under UK Command must conform to the commander's intent and support the delivery of planned effects whilst sustaining the deployed force. Nodes within the SN will offer as wide a scope of support as is feasibly possible, but may focus on the tasks of any directly associated FE, but will retain the ability to reconfigure in line with operational need. There will also be a need to coordinate links with other agency nodes, e.g. OGD, NGO, multi-national. The network between the nodes must not be constrained by linear Lines of Communication (LOC), but must be tailored to meet the commander's intent. It is recognised in-theatre constraints may limit the options for Ports of Disembarkation/Embarkation (POD/E) and Forward Mounting Bases (FMB), but flexibility should be maintained wherever possible. The traditional hub and spoke operation will need to be adapted to operate across the force, and where appropriate across OGD/NGO and contractors,⁶³ in order to provide a SN that will offer resilience, flexibility and reliability. Availability of military transport assets in the land, sea, and air environments are likely to be limited, as might the infrastructure on which the transport relies, requiring additional support from coalition, HN, or commercial movers/carriers both inter and intra theatre and to facilitate handling.

106. **Node Activities.** Nodes will not necessarily have the same level of capability as each other, but should be able to fulfil a basic level of activity against each function. Nodes will be able to undertake a range of functions, as initially described in the JSC Blueprint Configuration Model⁶⁴ but must be capable of being extended⁶⁵ to cover the wider range of J1 to J9 support functions in response to the operational situation. In particular, nodes will enable the delivery of personnel, transfer of materiel, infrastructure development, and provide links to medical and engineering support. SN nodes (other than limited nodes) will have the ability to push, then pull high value, limited availability equipment through the SN based on operational requirement, enhanced asset visibility, consignment tracking, and predictive monitoring. Nodes will be able to satisfy requirements directly where capabilities/stocks are available and possess the ability to progress unfulfilled requirements on through the SN to an alternative node.⁶⁶

107. **Agility.** The continuous and flexible resupply of deployed forces is critical to operational success. The FE should be self-sufficient in the first instance and the policy of Priming Equipment Packs (PEPs)⁶⁷ and Deployed Inventories provides a sound basis for initial deployment and operations.⁶⁸ Early planning and identification of HN and multinational assistance may also provide a more flexible and adaptable solution, particularly if suitable agreements can be developed in support of initial deployment. This initial 'push' will need to adapt to predictive

⁶⁰ Nodes outside UK Command, but supporting UK operations, will need to operate within previously agreed guidelines as part of contractual agreements of Memorandum of Understanding (MOU) or similar arrangements.

⁶¹ Capable of transferring materiel across different modes of transport.

⁶² Suitable means of data exchange with Limited Nodes must be established to achieve the required data transfer, within OPSEC requirements.

⁶³ Support to OGDs, NGOs and contractors will require suitable accounting procedures to be put in place.

⁶⁴ JSP 886 Vol 1 Pt 2 Sect 3 B-1 Version 1.00 dated 1 Nov 05.

⁶⁵ In addition some nodes will need to undertake capability integration, equipment testing/calibration, training, contract management, J3 Ops Cell.

⁶⁶ Solutions may exist at other local Nodes within the SN rather than pursuing a solution back through a single fixed chain.

⁶⁷ For the RN this would be the Consolidated Allowance List, (CAL), Afloat Spares Pack (ASP). For Rotary Wing this would be Deployable Support Pack (DSP).

⁶⁸ However, for PEPs to provide resilience and reliability there will be a need to capture reliable and effective logistics usage data to ensure that PEPs can be continually tailored to provide enhanced support for future operations.

assessment, complemented by 'pull' as the situation and operation matures resulting in a more volatile demand and supply of support. Tracking of equipment and personnel through the SN is essential to maintain operational capability and respond to need events.

108. **Medical Services.** Medical services will be required to achieve clinical outcomes comparable to those expected in peacetime.⁶⁹ Effective Medical Support will be configured and equipped to meet the tempo and diverse demands of agile, task-organised joint forces. Deployed medical care nodes (Role 1) will need to be placed close to the point of wounding and, as such, the size and composition of future force structures will require greater agility and flexibility in matching medical support to operational requirements. Casualties should be tracked in real time where necessary. There may be a requirement to use a reversionary mode depending on the efficacy of the standard personnel tracking system – there is no room for error in casualty reporting.⁷⁰ The capture and processing of medical data⁷¹ will be required to allow medical personnel to regulate⁷² the casualty to the most suitable location and be prepared to administer appropriate care on arrival.⁷³ Medical supplies should be delivered through the SN, which must be developed to satisfy all specific-to-commodity requirements such as temperature control and time criticality.⁷⁴

109. **Engineering.** Engineering support will primarily be managed through Engineering and Asset Management Systems that will require integration within the SN. EAMS can help to identify resource requirements to maintain operational effectiveness contributing to a theatre-wide balanced view of resources to inform prioritisation of repair and resupply. When combined with information about when resources (spares, manpower and facilities) will be available to undertake repair work they can also help predict future availability of key FE/equipments that will support more effective operational planning.⁷⁵

110. **Force Structure.** The SN force must be optimised to provide the appropriate support for the deployed FE taking into account the nature, scale, context and environment of the operation along with the constraints of the TLF, coalition policies and appropriate risk assessment. The SN structure and mix of military and contracted support will need to be continually assessed during the conduct of the operation and where necessary changed to match the requirements of the current and future operational phases. Military personnel will be supplemented by contractors where appropriate. The increasing use of CLS arrangements will be fully incorporated into the SN.

111. **Personnel Support.** The ability to provide effective oversight and location of personnel will enable effective distribution of support functions such as administrative, catering, medical, and welfare support. Personnel tracking will enable effective management of all FEs and casualties. The SN should be able to incorporate the output from a variety of wide-area and discrete sensors to track personnel, offering not only information on their location, but also their status and residual capability. When individual active tracking devices for all personnel might prove impractical for security reasons a system of 'gates' at critical nodes and locations should be configured to provide 'acceptable' levels of visibility and assurance.⁷⁶ Sustainment of the moral component will demand infrastructure and personnel at appropriate nodes for the delivery of medical and welfare facilities to all personnel under UK Command.

112. **Infrastructure Support.** Expeditionary infrastructure will attract additional emphasis including accommodation, airfield preparation and operation, road repair, port operations and

⁶⁹ The detailed delivery of clinical support is outside the scope of this Concept, but the SN should provide details of clinical capacity and location to ensure effective support is provided to operational FE.

⁷⁰ Casualty reporting should be coherent with personnel tracking systems.

⁷¹ Medical data will be restricted to medical clinicians and may not be included in the SN IS.

⁷² Regulate is a medical term used in preference to direct.

⁷³ This includes Disease, Non-Battle Injury (DNBI) patients.

⁷⁴ Sustain EIC DCDC, 29 Nov 07, p17, para 47.

⁷⁵ Ibid, p21, para 58.

⁷⁶ Ibid, p13, para 39.

communications infrastructure. The ability to effectively manage both technical and domestic infrastructure requirements is essential to any operation. Infrastructure must be tailored to the environment, type and phase of operation. Once established it requires continual maintenance to ensure effective operations can be maintained. Nodes must be able to manage both maintenance and new infrastructure requirements in line with operational and climate changes.

DLOD Deductions:

Doctrine and Concepts. A fully endorsed and implemented single SN doctrine will be applied across all Support disciplines, not just logistics, but including personnel, medical infrastructure and engineering. This will include rules and definitions for E2E that support the requirement for a flexible and agile SN that can adapt to hybrid warfare.

Organisation. FE will be supported by nodes that form a SN with appropriate interfaces with FEs of all 3 Services, Defence organisations, multi-national and industrial partners. SN Capability will enable exploitation in all regions and climates as defined in DSG and will be adaptable to hybrid warfare. Nodes will provide a means of connecting points of supply and use and create a SN that

CHAPTER 2 – COMMAND

COMMAND – The authority vested in an individual to influence events and to order subordinates to implement decisions exercised by, or on behalf of, commanders and comprising 3 closely inter-related elements: leadership, decision making (including risk assessment) and control.

201. **Introduction.** This chapter outlines the command arrangements and processes for the SN, incorporating details for the importance of information management. It examines the differences between operational and tactical C2 in relation to the SN and how C2 will apply to the SN.
202. **C2 Arrangements.** The SN must encompass appropriate and effective C2 and coordination arrangements that are operationally focussed and optimised to match the operational environment and in-theatre lay down of FE, taking into account assessment of vulnerabilities and risks. C2 should enable coordination of military, OGD, NGO, CSO, and multinational support, which will ensure the agile and flexible application of the SN and exploitation of information to provide confidence to the operational commander. Detailed in-theatre SN C2 arrangements need to be determined by operational analysis and experimentation, but this lies outside the scope of this paper.
203. **C2 Processes.** Although centralized C2 will remain, decentralized execution and adaptive management processes will provide flexible and effective mechanisms for synchronisation, agility and unity of effort, which can adapt to support the operational commander's intent. Whilst there may be decentralized execution across the SN, there must be unity of intent. To that end, it is imperative that a theatre-wide support view across traditional C2 boundaries is established at the outset of the operation to coordinate support functions to meet operational requirements. These support functions are likely to extend beyond the traditional military requirements, especially in a CA, and may include multi-national, HN and contracted support. C2 should be provided⁷⁷ by staff that can interpret the operational intent and interface with nodes to ensure both agility and effect are maintained throughout the operation. It may be necessary to identify a theatre-wide inventory focal point within the SN C2 HQ to resolve any conflicting localised priorities, although ultimate responsibility would lie with the appointed Support Component Commander.⁷⁸
204. **Information Exploitation.** DS tools, personnel visibility, predictive and anticipatory equipment management tools, EAMS, and inventory management will provide the means to exploit our information. Effective Information management and exploitation will be essential to ensure that potentially overwhelming volumes of information do not inhibit the human capacity to exercise effective judgement and decision making. Information Exploitation (IX) should enable an understanding of the factors that can provide best military effect, or where risk can be taken. As such, the C2 construct is spatial as well as layered and the successful application of these practices will bring about a more reliable and better informed delivery, encouraging confidence and trust in the SN. This should generate willingness by the supported FE to travel light, but be more precise in their statement of needs.⁷⁹

⁷⁷ In some small scale operations a separate JFSp HQ may not be deployed in which case the same responsibilities should be undertaken by a suitably manned joint team located in the lead component HQ or ship.

⁷⁸ The Support Component Commander would replace the current appointment of the Logistic Component Commander.

⁷⁹ Directed Logistics Concept of Employment 26 Oct 04 p17. This will be achieved through an initial 'push' moving to 'pull' based on more precise definitions of need.

205. **SN C2.** The SN C2 will need to discriminate between competing operational and tactical priorities. At one level, inter-theatre needs will need to be balanced against wider operational priorities, and below this, intra-theatre needs will need to be balanced against tactical priorities. The SN C2 will have unprecedented SSU of the SN delivered by the Joint Logistic Picture (JLP) enabling informed decision making. Where tactical redistribution is considered the SN C2 will be able to ensure that units undertaking critical missions are considered to be 'supported nodes', and therefore preclude other in-theatre units from drawing on their resources for the duration of the mission.⁸⁰ DS tools will enable C2 staffs to implement performance measures related to effect and not internal efficiency. The SN C2 must adapt command structures and ensure effective communication to enable all nodes within the SN to work cohesively to achieve operational success. Mission command will require clear definition of responsibilities and the requirement to maintain SSA and SSU throughout the operation.

206. **Operational Command.** To achieve the correct SN structure it will be necessary to develop visibility, across commands and other organisations (including commercial, multinational, OGD and NGO),⁸¹ of resources (including stock held at Permanent Joint Operating Bases (PJOBs), sovereign areas, JSB, RFA, and by HN). This visibility will need to provide theatre level views of capability,⁸² stock levels (including those of coalition allies) and HNS (including Access, Basing and Overflight (ABO)). The challenge at the operational level will be to balance the needs between the individual SN in theatres of operations, whilst cognisant of the needs of single Service force generation / operational requirements as part of the overall prioritisation process. However, there will be occasions when critical resources may need to be diverted to meet an operational need elsewhere and these requirements must be coordinated by PJHQ/FLCs/DE&S Ops Cell/Supply Chain Managers with the individual theatre SN C2 HQ. The operational level command will have, by necessity, a wider, perspective than the tactical level, but must coordinate resources entering theatre via the Coupling Bridge⁸³ from the relevant POE or Purple Gate. The operational level command will direct staff effort to satisfy the immediate operational needs of the operational commander whilst retaining cognisance of the theatre level views on capability and stock levels (including those of coalition allies), HNS, OGD and NGOs as appropriate, taking into account individual component commander's priorities wherever feasible.

207. **Tactical Command.** At the tactical level, capabilities and competences will be focussed on providing flexibility to support the agility of the FEs. The SN will provide the operational commander with visibility of the resources at his disposal and generate synergy by corraling resources together across nodes and enabling redistribution between them. The ability to flex equipment through Reachout,⁸⁴ between units in theatre to meet an operational need may provide quick short-term gains, to be followed up by be appropriate resupply, including Reachback, where required, rather than relying on a linear Line of Communication.

⁸⁰ Consistent with the Future Manoeuvre Sub-Concept (FMSC) which states that 'Commanded at the appropriate level, Directed Logistics will allow resources (grouped at a more secure logistics hub) to be directed to support the commanders priority, thereby maximising the potential of possibly limited resources'. Para 25. FMSC: Pt 1–The Fundamentals. D/DGD&D/2/217 dated 15 Oct 04.

⁸¹ Including NGOs where appropriate and if required.

⁸² e.g. PJOB capabilities must be understood and pre-positioning of stock considered where able.

⁸³ Chief of Joint Operations (CJO) exercises C2 over the CB and will appoint a CB Commander for each operation. CJO's directive will define what constitutes the CB and what support is required from the individual FLCs and Chief of Defence Materiel (CDM).

⁸⁴ Reachout is defined as the ability to access, through NEC, expertise, information and functions in distributed locations and from wider organisations. NEC C2 Analytical Concept; Network Enabled Command and Control out to 2025, May 2006 and Command Interim Concept Nov 2007.

DLOD Deductions:

Organisation. C2 arrangements will provide effective C2 across the SN cognisant with the CA providing the ability to coordinate support for stability and transition tasks as well as military operations.

Doctrine and Concepts. SN C2 will be centralised within a SN HQ, with decentralised execution within the nodes. Support functions will extend beyond the traditional military environment encompassing the CA and support to stability and transition.

Information. C2 of the SN will be enhanced through the application of DS tools, asset and

CHAPTER 3 – INFORM

INFORM – The ability to collect, analyse, manage and exploit information and intelligence to enable information and decision superiority.

301. **Introduction.** This chapter explores how information will be managed and exploited within the SN through the implementation of an IA with NEC. It considers what security measures will be needed to protect both systems and data.
302. **Information Architecture.** An integrated IA will be required to support the functional areas of the SN, including personnel, medical, materiel and facilities. The IA will include DS tools, EAMS, personnel tracking, and predictive/anticipatory equipment capabilities and must provide Shared Situational Awareness across the entire SN. These systems should be interoperable with coalition partners and industry where necessary and must support the SN C2 to provide the most effective mechanism for commanding forces conducting the full spectrum of support activities.
303. **Information Hierarchy.** The SN will offer a dynamic and scalable construct and increase the number of sources from which support can be provided. The physical aspect of the SN must be mirrored by an IA that supports the information requirements and demand planning of both transactional and C2 functions. The C2 hierarchical layers within the SN will require different levels of detail commensurate with the level of command and influence. At the operational level, decisions must be made on resource allocation and demand planning between theatres, and between current operations and preparation of forces. Accurate information on worldwide stock and logistic capabilities is required to determine logistic risk, and to support strategic and operational planning. At the tactical level, logistic commanders must be able to advise the operational commander of the levels of Logistic risk against future Courses of Action (CoA), and must be able to manage the SN to minimise logistic risk and maximise freedom of action. Units must be able to identify and plan what they need to support themselves and what can be used to support other units, and have confidence that the SN will deliver against their requirements. External agencies would inform SN C2 staffs of relevant capabilities or requirements to enable the 'art of the possible' to be identified and risk management to be undertaken.
304. **NEC.** The SN will be network enabled to deliver Information Exploitation and underpin logistics C2. This will require investment in people, information processes and IS infrastructure. Effective C2 of the SN requires the ability to forecast the operational demands on the SN and enable the planning to then optimise the SN configuration, its material holdings and personnel. This is provided by DS capability, at both operational and tactical levels, which includes SSA, operational and tactical logistic planning and monitoring, personnel tracking, and the ability to exercise control of the entire SN. SSA of the SN, and back into the Home Base environment is essential, with the RTLTP providing accurate information on the deployed inventory, the global location of items, equipment states and personnel available to operations. This will include the need to access information on stocks held by coalition forces and supporting contractors. Increased stock visibility and asset tracking will give confidence to in-theatre commanders and their forces, providing awareness of what items are where within the SN and ensure efficient and effective management of resources through enhanced visibility, asset tracking, forecasting and logistic assurance. The RTLTP is part of both the Joint Operational Picture and Joint Logistic Picture (JLP), the latter extending across the end-to-end SN and all operational theatres. DS tools must be extended to localised inventory management within nodes to enable accurate identification and management of stocks that can be effectively replenished as required with confidence and accuracy. Forecasting of future demands requires the ability to model the impact of different operational CoA, taking into account both historical demand patterns and predictive

information, for example from EAMS and Health and Usage Monitoring Systems (HUMS).⁸⁵ These requirements will be drawn together under the Defence Logistic Requirement.⁸⁶ Transactional processes must manage material flow and tracking of personnel through both the forward and reverse elements of the SN, permit accurate stock accounting, allow the condition of material to be assured, and support other defence support functions such as safety and personnel management.

305. **Threats and Constraints.** Threats to both physical and informational aspects of the SN must be taken into account and mitigated for through business continuity/reversionary procedures. A Computer Network Attack (CNA)⁸⁷ has the potential to affect the confidentiality, integrity or availability of the information or the information infrastructure which supports the functional areas of the SN. Proactive and reactive aspects of Computer Network Defence⁸⁸ will be enacted through Operation METRIC.⁸⁹ In addition, CDM has been delegated powers⁹⁰ to enable centralised control of MOD computer networks. Nevertheless, the SN must be able to operate effectively with potentially significant constraints on information access, and must also be able to take advantage of improvements in connectivity and bandwidth when available. Within these constraints the SN must be adaptive and resilient to technological change, but capable of exploiting innovation to enable it to evolve as the operation changes.

306. **Information Management (IM).** The SN requires an effective IM strategy that recognises the needs of decision makers, and allows push and pull of information as required. Common data standards are needed to give confidence in our interoperability between, Services, contractors and coalition partners where appropriate and increased information assurance is required to ensure confidence at all levels of logistic decision making. EAMS and HUMS require integration within the SN to provide early identification of resource requirements in order to maintain operational effectiveness and enable a theatre-wide balanced view of resources to inform prioritisation of repair and resupply. This information will enable the possibility of establishing when resources (spares, manpower and facilities) will be available to undertake repair work and thus predict future availability of FEs/equipments.⁹¹ Personnel tracking systems will enable effective management of FEs and casualties. The SN should be able to incorporate the output from a variety of wide area and discrete sensors to track personnel, offering not only information on their location, but also their combat status and residual capability.⁹² Security reasons may render the use of individual personnel tracking devices impractical; however, acceptable levels of visibility and assurance could be provided by configuring a system of 'gates' at critical nodes.⁹³

⁸⁵ The requirement for HUMS will be expanded in the Logistic Strategy 2030.

⁸⁶ The Defence Logistic Requirement will be expanded in the Logistic Strategy 2030.

⁸⁷ Operations in Cyberspace Concept AH Draft, 02 Oct 09, p14, para 14.

⁸⁸ See note 1.

⁸⁹ CDS No 06/08 – Chief of the Defence Staff Directive to Chief of Defence Materiel for Computer Network Defence Operations.

⁹⁰ Defence Network Operating Authority – Delegations, CIO/J6/Ops/12/3/1/4 dated 23 Jun 09.

⁹¹ Sustain EIC DCDC, 29 Nov 07, p21.

⁹² Combat Status would not apply to contractors.

⁹³ Ibid, p13.

DLOD Deductions:

Personnel. Our people will need to be able to exploit the benefits of NEC through familiarity of the technology provided as part of the SN IA.

Information. The SN will be supported by coherent data, information, knowledge capabilities, information flows and processes that are compliant with approved standards and quality management systems to provide effective information exploitation at both the operational and tactical level. This includes the effective deployment of the JLP, RTLP, asset tracking, inventory management, personnel OpLOC, personnel admin and welfare support, medical and engineering IS, and exchange of information with multi-national and industrial partners. This will include a

CHAPTER 4 – PREPARE

PREPARE – The timely provision of forces for operations and activities through effective conceptual, moral and physical developments.

401. **Introduction.** This chapter sets out the preparation required for the SN commencing with timely planning and the need for balance between agile and lean forces in order to optimize the SN. Underpinning this planning will be the need for acquisition, in accordance with recognised policy that supports operational requirements. Consideration is given to the need for a cultural shift from ‘owner’ to ‘custodian’, which will be vital if the benefits of the SN are to be realised.

402. **Planning.** Support planning, policy and doctrine must evolve to deliver capabilities that are relevant and effective against emerging threats and support the defined SOC, COO and SPO. These must be set against the agreed Scales of Effort (SoE), frequency, concurrency readiness, endurance and expeditionary infrastructure. Early strategic direction will provide opportunities to achieve greater agility in the SN, by enabling accurate planning and appropriate positioning of the SN nodes, especially the POD/E, taking into account any nodes already being used in concurrent operations. However, early direction may not be available; therefore planning for the SN must be balanced against the most appropriate requirements, but early planning for the IA and IS implementation will be essential. Allowance must be made for contracting additional air and sealift capability where requirements/operational timescales exceed extant military capability.

403. **Agile / Lean Solutions.** Operational sustainability demands efficient solutions. The extent to which these requirements can be applied to the SN will be determined by the need to retain agility in relation to normal events, crisis, and the unexpected. Undoubtedly a compromise is required; for example, there may be situations where the high threat from enemy forces dictates the need for stockpiling at forward nodes to reduce the need for re-supply via convoys. Future SN solutions must be planned in advance of, and as part of, the preparation phase of an operation, based upon realistic risk assessment, and recognising the complexity of hybrid warfare that ensures the reality may be different. A ‘one size fits all’ approach will not provide a satisfactory solution and a balance of investment must be undertaken.⁹⁴ Strategy and doctrine must evolve to match any new threats and instabilities to ensure the SN is adaptable to meet changing operational and political conditions, covering the full spectrum of combat, Disaster Relief Operations and stabilisation tasks.

404. **Agility.** DSG 08 identifies the need for flexibility and prioritisation through ‘an agile, balanced force with a broad range of capabilities’ capable of re-configuring to meet the requirements of a diverse range of operating environments and tasks.⁹⁵ SN agility provides the commander with the ability to respond quickly to the unexpected, maintain sharpness of thought, remain effective under arduous conditions, be flexible in overcoming the unforeseen and adjust rapidly.⁹⁶ Agility is described as having its own characteristics and can be applied to the SN as follows:

- a. Responsiveness - the speed with which support is able to react to a change in the environment and or demands placed upon it.

⁹⁴ Dstl Study. Op Cit. p2 para 8.

⁹⁵ DSG 2008, 1-2-10, para 25.

⁹⁶ JDP 4-00 3rd Edn, Apr 2007 p1-7.

- b. **Robustness** - the degree to which support will remain effective under arduous conditions, particularly in close proximity with an adversary, but also the ability to conduct different missions with the same capability in the same battlespace.⁹⁷
- c. **Flexibility** - seeks to avoid foreclosing options at too early a stage in planning, allowing the supported commander to overcome the unforeseen and avoid selection of options that cease to be relevant as the dynamics of a situation unfold.
- d. **Adaptability** - embraces an aptitude to learn rapidly about new environments, especially when faced with the unexpected.

405. **Acquisition.** Whilst DSG 08 acknowledges the difficulties in ensuing agility in Through Life Capability Management (TLCM) and the need to achieve value for money by selecting the most appropriate procurement approach, future development must not limit the capability of the SN. Increased contractor involvement will require enabling arrangements for access to air, land, and sea resources and in-theatre infrastructure.⁹⁸ Where necessary, the SN will embrace the global interaction of industrial partners and recognise that stock maintained by contractors may be located in global supply nodes that will need to interface with the SN through a suitably identified Purple Gate.⁹⁹ To ensure success it will be necessary to build a good relationship between the MOD and our industrial partners based on a contractual foundation. Acquisition projects and support solutions must be compliant with current and emerging policy and provide effective and relevant support to operations, not simply what is cheapest.¹⁰⁰ Contracted support must be an integral part of the SN and adapted to match the lay down of the SN nodes.¹⁰¹ The availability of equipment will have a direct relation as to how the SN is configured and must be held at the correct readiness and in the right locations, supported by robust delivery mechanisms. Equipment must be capable of being rapidly assigned, distributed and redirected, whilst at the same time allowing for an optimised support footprint to match the agility of the force requirements and facilitate the required military capability. Furthermore, equipment should have a common look and feel in both Home Base and deployed environments in order to minimise any associated training burden for operations.

406. **Cultural Change.** To successfully implement the SN, it will require both cultural and organisation change. People will remain core to the SN as decision makers, controllers, operators and customers. They will need to move beyond the protectionism of 'their own assets' that is inherent in our current system and is a severe hindrance in terms of effectiveness and cost. Cultural changes will be required at all levels, and will be one of the greatest challenges, to deliver a SN based upon operational effectiveness, recognising that assets do not need to be 'owned' to achieve the required effects. Doctrine and policy amendments will be required to reflect this cultural change.

407. **Personnel.** Fully trained Support personnel will be a keystone for the effective facilitation of the SN. FLCs and DE&S will need to train and develop personnel who are suitable for undertaking the SN task. Military personnel will initially be developed within FLCs through employment in suitable environments and formations that will expose them to the SN within joint and multi-national environments. The development of multi-skilled personnel (Regular, Reserve, Civil Servant, or contractor) able to operate at the nodal points of the network will increase the effectiveness of the SN. Personnel will also be required to act as liaison officers to other international staffs and inter-government staffs. A strong cadre of trained personnel will enable

⁹⁷ An extension of Krulak's 'Three Block War'.

⁹⁸ Coordinated by either the DE&S Ops Cell for entry into the Support Network or through the Theatre SN Focal Point for in-theatre requirements.

⁹⁹ The Purple Gate functions are defined in JSP 886, Vol3 Pt3 Ch2 p4.

¹⁰⁰ All contracted solutions must comply with the Support Solutions Envelope (SSE) and the emerging Force Support Framework (FSF).

¹⁰¹ Subordinate to Military.

nodes to be activated quickly and efficiently to prosecute the support effort thus increasing the utility of the network. Contractors who are to deploy in support of operations will need to comply with current Defence Standards to ensure they are appropriately prepared on all relevant operational aspects including, but not limited to, interfaces with the SN, force protection, in-theatre communications, medical services and life support.

408. **Training and Education.** To achieve the cultural change necessary to implement the SN, focussed Training and Education (T&E) is required at all levels for both logisticians and non-logisticians. T&E must provide clarity on the effect of networked support, including the principles of the SN, nodes and custodianship. Defence/joint and multi-national training¹⁰² and experience must be developed in line with the principles enshrined in JSP 896¹⁰³ to allow personnel to develop their skills for employment in the Joint/multi-national environment in conjunction with Front Line FE. The development of these skills can be enhanced by allowing personnel to routinely operate systems that have the same look and feel as those that they will operate when deployed. T&E for those who undertake TLCM requires enhancement to ensure they are aware of the operational effect of decisions made throughout the life of equipment and across the DLOD enterprise. Future commanders will require appropriate individual and collective training, combined with the necessary knowledge of how to exploit the technology available. Appropriate T&E of staff is needed to ensure they understand how to achieve maximum leverage from the DS planning tools. The CA will introduce additional complexities including political and culture aspects interoperability with other agencies which must be addressed in future training.

DLOD Deductions:

Policy & Doctrine. SN policy & doctrine will be compatible with agreed multi-national (including NATO) requirements and will support Military Aid to Stabilisation and Development (MASD) and the TLF concepts, and other SOC, COO and SPO as defined in DSG. It will accommodate the need for the SN to be agile and resilient to meet the full range of future support needs in a hybrid operational environment, providing a balance between agile and lean solutions to achieve the optimum support footprint. It will have been adopted within T&E and will influence all levels of the SN from operational to tactical operations.

Equipment. Acquisition projects will be based upon contractual foundations between the MOD

¹⁰² Dstl Study. Op Cit. p45, para c-7-2.

¹⁰³ Defence Logistics Training & Education Handbook, Ch2 p3.

CHAPTER 5 - PROJECT

PROJECT – The ability to act at a time and place of political choice against threats to UK security and in support of national interests.

501. **Introduction.** This chapter considers the factors of flexibility, pre-positioning and distribution which will enable the SN to facilitate the projection of FEs.

502. **Flexibility.** The SN will allow for greater flexibility in-theatre through implementation of nodes, and potentially improved accuracy of deployment with the introduction of IMT and IS which provide asset and personnel visibility and tracking. Identification of in-theatre resources, including Joint Sea Basing, to capitalise on the SN must be undertaken early within the planning phase to ensure maximum agility. The SN must encompass robust linkages with all nodes including those within Industry and the Home Base. The challenge will be to design, implement and manage the SN to achieve optimum effect, taking into account the issues such as timing of political decision making, policy direction, urgency of need, delivery times, quality, cost, geography, desired effect, nature and capability of the FEs, coalition support, HNS, local resources and proximity to theatre.

503. **Forward-positioning.** Where forward-positioned facilities are required for a specific operation they require early identification and preparation for out-loading to the predetermined node. Consideration should be given to forward positioning of Mechanical Handling Equipment (MHE), medical support, expeditionary infrastructure, and intra-theatre surface and airlift, at locations that can become nodes within the SN in order to reduce the out-load burden from the Home Base. Careful selection of items for storage would be necessary to identify candidates of relatively low value, low maintenance items but balanced against cost, availability, the maintenance and accounting requirement, and risk.¹⁰⁴ PJOBS such as Cyprus, Gibraltar, and Diego Garcia, as well as potentially friendly host nations, could be used as forward-positioning bases and act as suitable nodes. Both PEPs and forward-positioned resources provide the potential to shorten initial lead times and provide an earlier initial operating capability. The use of forward-positioned, pre-deployed, or contracted logistic enablers at key strategic ports and air heads as part of the SN could speed up deployment of the lead elements. This may reduce the airlift requirement for early entry, if only the human operators are required to deploy from the Home Base in the initial stages of a campaign. Once in theatre, at the POD/E, operators would take charge of the pre-positioned equipment, in preparation for receipt of the main elements of the deployed force. However, in some instances allowance will need to be made for deployment of FP elements to provide essential protection and security to the SN by deterring any threat to the POD/E.

504. **Distribution.** It may be possible to establish enabling contracts for SN capabilities associated with pre-positioning, which may include the capability to offload materiel and handle passengers at the POD/E. The adoption of the IMT concept will aid the handling of equipments throughout the SN and lead to a reduction in the footprint and more efficient handling of equipment. Asset and personnel visibility and tracking will provide an element of security and aid location within the SN, particularly when the main FE arrive in theatre, enabling the forwarding of equipment and personnel to the appropriate location in a timely and efficient manner. This in turn will provide assurance and confidence in the SN, as well as speeding up the onward move of resources in support of the FEs as they deploy to operational locations.

¹⁰⁴ Forward positioning should not be regarded as a long term option due to high capital costs, maintenance costs and the difficulty in redeploying scare assets.

DLOD Deductions:

Organisation. The SN will be structured to enable the effective delivery of support to operations wherever required. The SN will be adapted to deliver people and equipment within operational timelines and, where feasible, consider the options of pre-positioning and alternative sources of supply such as HNS.

Equipment. Equipment shall be in place to prepare, transport, store, deliver, account, protect and repair/recover assets (both people and materiel) throughout the SN on a global basis, in all terrain and climates to meet the full range of DSG Military Tasks. Legacy systems will have been updated to the necessary standard and integrated with new systems.

CHAPTER 6 – PROTECT

PROTECT – The means by which operational effectiveness is maintained through countering the threats from technological, natural, and human hazards, in order to ensure security and freedom of action.

601. **Introduction.** This chapter considers how SN effectiveness will be maintained through the application of FP and the resilience of the SN nodal structure. It examines issues of environmental protection and cyber threat.

602. **Force Protection.** The future character of conflict is likely to require FP across the SN, with the notion of benign or less dangerous rear areas becoming obsolete. To ensure SN reliability and resilience FP must be embedded within the network based upon risk assessment. It is unlikely that protection against all threats will be possible, but attempts must be made to mitigate risks wherever possible. The SN will require the physical protection of in-theatre nodes and transportation routes, including the transport assets used to distribute materiel and personnel within the theatre of operations. There will be a need to assess the threat and FP requirements for the Coupling Bridge and any nodes that sit outside the JOA such as those at industry locations and PJOBs, which may be subject to asymmetric threat. Within the CA, FP must accommodate the needs of other agencies to ensure stability and transition activities are maintained. Operations are likely to involve contractor support, which must be integrated within the SN and offered appropriate FP. The SN will need to provide some of its own organic defence capability to ensure transportation routes remain open and nodes are adequately secure from any asymmetric or conventional attacks. However, in some circumstances FP of the SN may require supplementary FP from frontline combat forces to ensure it remains operationally viable.

603. **Resilience.** The structure of the SN based on nodes provides resilience in depth, allowing reconfiguration in response to unexpected threats and allows FP requirements to be kept to a minimum. The agility of the SN will allow it to react to threats and maintain support through alternative nodes. Technology will not entirely eliminate the risk of fratricide, but improved SSA and force tracking systems will enable the balancing of protection against risk in order to maintain support to operations.¹⁰⁵ Recognising each FE deployed site¹⁰⁶ as a potential node provides resilience through redundancy.¹⁰⁷

604. **Environment.** Environmental degradation of stocks will continue to be an issue particularly in harsh climatic extremes. Therefore, the introduction of environmental data logging, HUMS and effective LIS to enable monitoring¹⁰⁸ will be key to ensuring readiness and reliability of stored resources. Furthermore, appropriate infrastructure must be provided to minimise degradation. The ability to deploy some stocks at strategic sites, including sea basing, to move them as required could reduce the need for large quantities of stores to be stored in potentially unsuitable forward locations for long periods of time, before use. Nodes must be identified that provide hazard management and decontamination processes in respect of the handling of noxious and volatile products. Environmental protection and appropriate health and safety measures must be built-in to protect personnel and estate. Furthermore, appropriate measures must be included for the reclamation of equipment to the UK or other supporting nation in accordance with guidelines.

¹⁰⁵ Protect EIC, DCDC, 29 Dec 09, p4 para 15.

¹⁰⁶ Or Afloat.

¹⁰⁷ JSB has the potential to mitigate some FP risks.

¹⁰⁸ Any solutions must be compatible with future transportation, storage and consignment tracking facilities.

605. **Cyber Threats.** The dependency on information and the IA will require further protection from CNA, with protection integrated within the underlying network structure. The importance of SSA in achieving interoperability cannot be underestimated. Consequently, both hard and soft protection methods must be available to protect both the information and the underlying architecture. The SN will include procedures when the network infrastructure is either degraded or non-existent. An inability to adequately mitigate against cyber attack will have severe implications on the functionality of the SN and would require a fundamental rebalancing of the Logistic footprint, such as increasing forward positioning of stock, to reduce the risk posed by vulnerable communication links.

DLOD Deductions:

Policy & Doctrine. Effective policies will be put in place to support the requirement for FP across the SN, by means of embedded capabilities and support from combat forces.

Infrastructure. Suitable infrastructure will be developed and adapted through different phases of an operation to enhance facilities to protect people and equipment from environmental hazards and noxious and volatile products.

Information. Hard and soft protection methods will be utilized to protect both the information and underlying IA from a variety of CNA threats.

CHAPTER 7 - SUSTAIN

SUSTAIN – The capacity to generate the means by which fighting power and freedom of action are maintained as part of an Effects-Based Approach.

701. **Introduction.** This chapter reviews sustain and support of the SN. It considers the need for IS, equipment, trained personnel, and constraints on the SN future operating environment.

702. **Sustain.**¹⁰⁹ The SN will sustain Joint UK military forces on expeditionary operations. The sustainment of the SN in terms of both personnel and equipment must be as responsive and robust as the SN itself in order that the operational commander's freedom of manoeuvre is not compromised. Therefore, SN resources must be configured to match the speed and flexibility of the FE, taking into account J2 risk assessments and any mitigation of vulnerabilities. It will require that the constituent systems and equipments that enable the SN must themselves have an effective support plan. These plans must enable sustainment of SN capability in-line with FE requirement to provide assured operation.

703. **Control and Assessment.** The SN will contain an increasing use of contracted support solutions, integrated with military owned support capabilities. Given this wide range of solutions the Support Component Commander will be equipped with the DS tools and IS that provide the means to assess and control the SN's capacity and flexibility to meet the Operational Commanders intent. To achieve the required levels of agility SN activities will be enabled through appropriately supported networked IS, that delivers asset, consignment, and personnel visibility and status, data logging and predictive/anticipatory capabilities to predict current and future operational requirements.¹¹⁰ Subject to OPSEC constraints the SN will be able to access/exchange information regarding the capacity and flexibility of other actors, systems and support-chains including the Home Base, industry and other agencies. To enable this, robust communication bearers for both secret and restricted domains must be established within OPSEC guidelines, with appropriate support that assures maintenance of the SN Command, Control, Communications, Computers and Intelligence (C4I) capability. Sufficient bandwidth must be provided throughout the SN to enable reliable and timely data transfer¹¹¹ between nodes and to support the necessary data volumes allowing for future growth.

704. **Personnel.** Sufficient personnel resources will be established to allow for roulement of the SN force to meet future operational commitments in-line with Government objectives. The development of multi-skilled personnel (regular, Reserve, Civil Servant, or contractor) able to operate at the nodal points of the network will increase the effectiveness of the SN. Personnel will also be required to act as liaison officers to other international staffs and inter-government staffs. A strong cadre of trained personnel will enable nodes to be activated quickly and efficiently to prosecute the support effort thus increasing the utility of the network. Coordination planning between sustainment resources of the SN and operational FE will be essential to ensure FEs possess the appropriate material and support at the requisite time.¹¹²

705. **Constraints.** The future operating environment is likely to be constrained by concerns over the environmental impact of military activity. Such constraints are likely to be derived from a range of resource, political, moral and legislative pressures. It will be necessary to identify innovative ways of reducing the environmental impact with regard to support functions. Ecological

¹⁰⁹ The DCF definition of Sustain offered above uses the term 'Effects-Based Approach' which is now considered inappropriate and will be removed from future higher level operational concepts work.

¹¹⁰ Predictive and Anticipatory forecasting will be based on in-built intelligence able to identify component failure or lifespan. This differs from demand forecasting which is based upon analysis of consumption and requirement.

¹¹¹ Data Transfer is most likely to be near-real time rather than real-time due to bandwidth constraints/costs.

¹¹² Dstl Study. Op Cit. p19, para 3.10.3

and environmental legislation must be catered for requiring a review of doctrine, policy and acquisition directives. The SN will need to minimise wastage, recycle/reuse where appropriate, including reducing water and energy consumption. Reduction in the use of fossil fuels would not simply be beneficial to the environment, but has the potential to reduce the overheads on the SN. With the implications of climate change, it will be necessary to adopt sustainable development technologies to reduce the dependence on fossil fuels; this will include pursuing more effective power and water generation facilities to reduce reliance on transportation, which is both vulnerable to enemy interference and burdensome on the SN.

DLOD Deductions:

Infrastructure. Key infrastructures will be established or available to support both static and expeditionary operations. The infrastructure will be adaptable and flexible to meet the demands of fast developing hybrid warfare which encompasses security, force protection and environmental protection in all regions and climates as required in DSG and includes both hard and soft facility management. The SN will have robust and stable communications infrastructure that supports the IS/C4I, with sufficient bandwidth to sustain the data volumes envisaged.

Logistics. Sustainable resources, equipment and processes, will be appropriately funded.

GLOSSARY

The Glossary contains acronyms/abbreviations relevant to the Support Network and not is intended to be exhaustive, but is consistent with DSG, JDP 0-01.1 and JDP 4-00

ABO	Access, Basing and Overflight
AJP	Allied Joint Publication
APOD	Airport of Disembarkation
ASP	Afloat Spares Pack
C2	Command and Control
C4I	Command Control Communications Computers and Intelligence
CA	Comprehensive Approach
CADMID	Concept, Assessment, Development, Manufacture, In-Service, Disposal
CAL	Consolidated Allowance List
CB	Coupling Bridge
CDM	Chief of Defence Materiel
CDS	Chief of the Defence Staff
CFA	Contracting for Availability
CFC	Contracting for Capability
CIO	Chief Information Officer
CIS	Communication and Information Services
CJO	Chief of Joint Operations
CLS	Contracted Logistic Support
CNA	Computer Network Attack
CoA	Course(s) of Action
CONDO	Contractors Deployed on Operations
CONLOG	Contracted Logistics
COO	Contingent Overseas Operations
CSO	Contractor Support to Operations
DCDC	Development Concepts and Doctrine Centre
DCF	Defence Capability Framework
DCMT	Defence College of Management and Technology
DE&S	Defence Equipment and Support
DFID	Department For International Development
DLOD	Defence Lines of Development
DLP	Defence Logistics Programme
DNBI	Disease Non-Battle Injury
DRO	Disaster Relief Operations
DS	Decision Support
DSCOM	Defence Supply Chain Operations and Movements
DSG	Defence Strategic Guidance
DSP	Deployable Support Pack
dstl	Defence Science and Technology Laboratory
E2E	End To End
EAMS	Engineering and Asset Management Systems

ECI	Expeditionary Camp Infrastructure
EIC	Endorsed Interim Concepts
FCO	Foreign and Commonwealth Office
FCOC	Future Character of Conflict
FE	Force Elements
FLCs	Front Line Commands
FMB	Forward Mounting Bases
FMSC	Future Manoeuvre Sub-Concept
FOC	Full Operating Capability
FP	Force Protection
FSF	Force Support Framework
HLOC	High Level Operational Conceptual
HN	Host Nation
HNS	Host Nation Support
HUMS	Health Usage Monitoring System
IA	Information Architecture
IM	Information Management
IMT	Inter Modal Transportation
IS	Information System(s)
IX	Information Exploitation
JCA	Joint Combat Aircraft
JCC	Joint Capability Concept
JCN	Joint Concept Note
JDP	Joint Doctrine Publication
JFCIS	Joint Force Communication and Information Services
JFLogC	Joint Force Logistic Component
JFSp(A)	Joint Force Support (Afghanistan)
JIM	Joint Inter-Agency Multinational
JLP	Joint Logistic Picture
JOA	Joint Operations Area
JOP	Joint Operational Picture
JSB	Joint Sea Basing
JSC	Joint Support Chain
JTFHQ	Joint Task Force Headquarters
LCC	Land Component Commander
LCDD	Logistic Capability Development Database
LIS	Logistic Information Systems
LOC	Lines of Communication
LOD	Line of Development
MASD	Military Aid to Stabilisation and Development
MCO	Major Combat Operations
MHE	Mechanical Handling Equipment
MOD	Ministry of Defence
MOU	Memorandum of Understanding
NATO	North Atlantic Treaty Organisation
NEC	Network Enabled Capability
NEO	Non-Combatant Evacuation Operation

NGO	Non-Government Organisations
NSC	National Support Command
NSE	National Support Element
OGD	Other Government Departments
OpLOC	Operational Location
OPSEC	Operational Security
PE	Peace Enforcement
PEPs	Priming Equipment Packs
PJHQ	Permanent Joint Headquarters
PJOB	Permanent Joint Operating Base
POD/E	Ports of Disembarkation/Embarkation
RFA	Royal Fleet Auxiliary
RFID	Radio Frequency Identification
RN	Royal Navy
RSOM	Reception, Staging, and Onward Movement
RTLTP	Recognised Theatre Logistic Picture
SDR	Strategic Defence Review
SN	Support Network
SOC	Standing Overseas Commitments
SOE	Scale of Effort
SPO	Strategic Planning Objectives
SPOD	Seaport of Disembarkation
SSA	Shared Situational Awareness
SSE	Support Solutions Envelope
SSU	Shared Situational Understanding
T&E	Training and Education
TLCM	Through Life Capability Management
TLF	Total Logistic Force