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ABSTRACT

The Defence Logistics Transformation Plan (DLTP) has been developed in response to the vision of future logistics articulated in the Future Joint Logistics Concept 2025 (FJLC 2025). This report details the methodology developed for (and implemented in) the generation of the DLTP from the FJLC 2025. This methodology can, perhaps, best be described as ‘concept-led’ and ‘participative’. It involves the design of a modified action learning cycle by which concepts are abducted from problematic situations (usually perceived deficiencies within the extant logistics system) and then transformed into action statements which are, in turn, implemented within subsequent transformation plans. At each stage of this cycle, the authors suggest a series of recommendations based on an analysis of both theoretical and empirical studies of planning and decision making as reported in the extensive literature. As a consequence, it is hoped that in addition to developing a methodology for the generation of the DLTP, this report arms future Defence planners with a list of recommendations (or best practice principles) for instantiation in all transformation planning exercises.

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Executive Summary

This report details the methodology developed for (and implemented in) the production of the Defence Logistics Transformation Plan (DLTP). This methodology can, perhaps, best be described as 'concept-led' and 'participative'.

The idea of concept-led planning has been endorsed within Defence through such documents as Force 2020 (Department of Defence, 2002) and The Strategy Planning Framework Handbook 2006 (Department of Defence, 2006). Unfortunately, however, despite the overwhelming support for concept-led planning, little guidance has been produced as to how the approach should be conducted in practice. Accordingly, this report seeks to provide one approach to concept-led planning and discuss its implementation within the DLTP.

The authors develop an approach based upon a modified action learning cycle (see Figure E1). According to this approach, concepts (or guiding principles) are abduced from a problematic situation (usually a perceived deficiency within a particular force element). From these concepts, action statements are then deduced which in turn form the basis for experimentation and ultimately: (i) refutation (in which case the cycle repeats itself) or (ii) implementation in appropriate transformation plans (in which case the force element is irreversibly changed).

![Figure E1: The Action Learning Cycle Developed for the DLTP](image-url)
This cycle could conceivably be conducted monologically (i.e. through off-line simulation, modelling and analysis or through the imprimatur of senior management) or dialogically (i.e. through the inclusion of stakeholders via such activities as planning workshops). However, there is an increasing acceptance that monological techniques are unlikely to be able to successfully design and implement ‘improvements’ in complex organisations. In fact, both the quality (i.e. robustness) and legitimacy (i.e. successful implementation) of transformation plans tend to be bolstered by the participation of a range of different stakeholders in the planning process. Put simply, plans developed through a rigorous process of debate between competing perspectives tend to do better than those developed through the systematic use of a single, privileged perspective.

Given the above, the concept-led approach articulated in this report is also infused with imperatives from the participative school of planning and decision-making (as illustrated by the central hub of Figure E1).

Having settled the question of the general paradigm of inquiry (i.e. concept-led and participative) through which to develop the DLTP, the authors proceed to develop a list of recommendations for instantiating this paradigm at each stage in the action learning cycle (see Table E1 over page). These recommendations are derived from an analysis of both theoretical and empirical studies of planning and decision making as reported in the extensive management science literature. As a consequence, it is hoped that in addition to developing a methodology for the generation of the DLTP, this report also arms future Defence planners with a list of recommendations (or ‘best practice’ principles) for instantiation in all transformation planning exercises.

Finally, in addition to articulating the recommendations as generic ‘best practice’ principles for concept-led and participative planning, the authors describe how each of these recommendations were, in fact, instantiated in the DLTP workshops. As such, the report provides a nexus of justification from the planning and decision-making literature to the generation of recommendations for concept-led and participative planning through to the instantiation of these recommendations within the development of the DLTP.
Table E1: The Recommendations

1. Introduction
Recommendation 1 ➔ Transformation planning of a particular force element within Defence should be conducted within an action learning cycle (in order to aid the on-going assessment of the assumptions, methods and content of plans) that incorporates the principles of ‘concept-led’ and ‘participative’ planning (in order to bolster both the quality and legitimacy of resultant plans).

2. The need for multiple perspectives
Recommendation 2a ➔ Multiple perspectives should be sought on the planning problem to help aid the design of robust plans and avoid sub-optimisation.

Recommendation 2b ➔ A broad suite of stakeholders should be included in each stage of the planning process to capture the role-specific concerns associated with their organisation, group or department.

3. The generation of multiple perspectives
Recommendation 3 ➔ Explicit concepts through which to view the planning problem should be used to help generate multiple perspectives on the problem as well as a shared vision of the future.

4. The development of action statements
Recommendation 4a ➔ Action statements should be generated by small groups (or syndicates) each of which considers the problem from a different perspective (i.e. uses different concepts).

Recommendation 4b ➔ These syndicates should be populated by professionals from different parts of the system of interest (i.e. joint logistics system) with the deliberate attempt to capture the ‘expertise’ of these professionals by focussing them on: (i) perceived problems with the status quo (the ‘why’ of change) and (ii) conjectured solutions to these problems (the ‘what’ of change).

Recommendation 4c ➔ The resultant discussion should be conducted in the absence of hierarchy, power and coercion both within and between the syndicates.

5. The testing of action statements
Recommendation 5 ➔ Action statements should be subject to vigorous testing prior to implementation. Such testing should be characterised by “ingenious and severe attempts to refute them”, suggesting that structured red-teaming and/or argumentative processes would be most appropriate.

6. The implementation of action statements
Recommendation 6a ➔ In order for change to be innovation-led (or ‘concept-led’), ‘advocates’ should be identified throughout the organisation and subsequently tasked with the job of ‘championing’ the changes within their respective groups.

Recommendation 6b ➔ Where appropriate, change should occur through the development of explicit plans with corresponding projects, budgets and timelines. These should be enacted through the extant planning, programming and budgeting system in Defence (i.e. DCP, Minors, etc).

Recommendation 6c ➔ Implementation should be conducted in a participative manner in which different groups are encouraged to debate not only the nature of the change (i.e. Recommendations 4a,b,c) but alternatives ways of implementing it.

Recommendation 6d ➔ Small initial steps towards a desired future end state should be enacted first, thus enabling continuous improvement along an evolutionary path.
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1. Introduction

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The idea of concept-led planning has been endorsed within Defence through such documents as Force 2020 (Department of Defence, 2002) and The Strategy Planning Framework Handbook 2006 (Department of Defence, 2006). Unfortunately, however, despite the overwhelming support for concept-led planning, little guidance has been produced as to how the approach should be conducted in practice. Accordingly, this report seeks to provide one approach to concept-led planning and discuss its implementation within the DLTP.

The authors develop an approach based upon a modified action learning cycle (see Figure 1). According to this approach, concepts (or guiding principles) are abducted from a problematic situation (usually a perceived deficiency within a particular force element). From these concepts, action statements are then derived which in turn form the basis for experimentation and ultimately: (i) refutation (in which case the cycle repeats itself) or (ii) implementation in appropriate transformation plans (in which case the force element is irreversibly changed).

![Figure 1: Concept-Led Planning](image)

The steps described in Figure 1 could conceivably be conducted monologically (i.e. through off-line analysis or the imprimatur of senior management) or dialogically (i.e. through the inclusion of stakeholders via such activities as planning workshops). However, it is increasingly being acknowledged within the management sciences that monological
techniques are unlikely to be able to successfully design and implement ‘improvements’ in complex organisations. In fact, both the quality (i.e. robustness) and legitimacy (i.e. successful implementation) of transformation plans tend to be bolstered by the participation of a range of different stakeholders in the planning process. Put simply, plans developed through a rigorous process of debate between competing perspectives tend to do better than those developed through the systematic use of a single, privileged perspective.

Given the above, the first recommendation of this report is that the concept-led approach described in Figure 1 be augmented with the principles of participative planning (as illustrated in Figure 2).

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**Figure 2: Participation within the Concept-Led Approach**

According to the participative school, the attempt to justify organisational transformation plans by reference to the discourses of ‘expertise’ or ‘objectivity’ is a dangerous delusion. It risks assigning to applied science a role that it cannot legitimately fulfil, namely, the role of a superior arbiter among differing ideas, needs and interests of people. Moreover, it under-specifies the crucial role that ‘problem structuring’ plays in constituting the very definition of improvement within organisations. Something that appears to be an improvement from a particular point of view may not be seen as such if the boundaries around ‘the problem’ are extended or arranged in a different way. Faced with this realisation, management scientists have developed a raft of participative methods which seek to guarantee both the quality (i.e. robustness) and legitimacy (i.e. successful implementation) of plans through the inclusion of a range of stakeholders from across the organisation in the development, testing and subsequent implementation of these plans.
The combination of these two paradigms (concept-led and participative) effectively provides the planner with two pathways to the generation of multiple perspectives (and, as a consequence, more robust and legitimate plans). First, the use of concepts through which the action statements are generated provides an explicit cognitive device for the generation of different perspectives. Second, the systematic inclusion of different stakeholders (with different role-specific concerns) allows for the often implicit needs and norms of different groups to influence each stage of the planning cycle.

**Recommendation 1** → Transformation planning of a particular force element within Defence should be conducted within an action learning cycle (in order to aid the on-going assessment of the assumptions, methods and content of plans) that incorporates the principles of ‘concept-led’ and ‘participative’ planning (in order to bolster both the quality and legitimacy of resultant plans).

In addition to the perceived benefits of improved ‘quality’ and ‘legitimacy’, the participative approach allows stakeholders to engage in essential ‘learning’ activities as they involve themselves in the full planning cycle (see Figure 2). Such involvement enables organisational learning with respect to the complexities and inter-relationships inevitably involved in future capability planning. Many thinkers argue that although this is usually seen as a benign by-product of the participative approach, it is actually one of the approach’s major strengths (Barnett & Burgelman 1996, Michael 1997, Senge 1990, Toffler 1985).

The structure of this report takes its lead from Figure 2.

**Chapter 2** discusses the central hub of Figure 2, namely, the important role the stakeholder community plays in generating multiple perspectives on the planning problem under consideration. This is what the authors refer to as participative planning. It is argued that the systematic inclusion of the stakeholder community in the generation of plans aids the development (and implementation) of plans that are robust against a wide range of possible influencing factors.

Multiple perspectives could conceivably be generated in many different ways. In **Chapter 3**, the idiosyncrasies of the concept-led approach to generating multiple perspectives are presented. According to the concept-led approach, the explicit use of a suite of cognitive devices (i.e. concepts) for viewing the planning problem under consideration is what helps secure multiple perspectives. These devices may emerge from sources such as stakeholder interviews, briefing documents, focus groups, expert opinion, lessons learnt studies or futures analysis. Moreover, in addition to providing a unique lens through which to view the planning problem the suite of concepts as a whole can often enable the creation of a shared vision about the future.

Once these concepts have been generated, **Chapter 4** considers the problem of developing action statements based on them. In this chapter, three inter-related points are made. First, that small groups (or syndicates) are useful for creative brainstorming and that each group should consider the planning problem through the lens of a different ‘concept’. Second, that according to the imperatives of the concept-led approach, the focus of these syndicates should be on articulating the ‘what’ and ‘why’ of planning as it is the ‘what’ and ‘why’ that will come
in for more detailed testing prior to implementation (i.e. prior to considering the ‘who’, ‘how’ and ‘when’ of planning). Finally, the reader is reminded that, according to the methodological presuppositions of the participative approach, it is important that the resulting discussion and debate within these syndicates is free from the potentially distorting effects of power relations. If ‘the force of the better argument’ is to carry the day, then the discussion should be conducted by participants expressing themselves freely, forthrightly, and truthfully on equal footing.

Chapter 5 looks at how these action statements may be provisionally tested. The authors recommend a general discursive framework for the testing of action statements. Such a framework is reminiscent of a judicial inquiry (as opposed to an empirical test). Action statements are tested by being interrogated by those who have proposed alternative actions developed from different foundational ‘concepts’ (akin to cross-examination). Possible techniques to support testing of this sort include red-teaming, structured argumentative processes, or group decision and negotiation processes. In addition to the employment of these techniques, the inclusion of different types of stakeholders, with different role-specific concerns, helps the overall cross-examination by uncovering potentially deleterious effects that would have remained hidden by the uncritical implementation of plans founded on a single role-specific concern. Off-line analysis (in the form of modelling, simulation and/or experimentation) can also be used (in the same way that judicial inquiries seek analyses and evidence from subject matter experts). However, these techniques are never seen as definitive within a discursive framework. The overall aim is to develop a broader understanding of the possible implications of proposed actions.

Finally, Chapter 6 considers how these action statements may be implemented in practice. Here the authors turn to the organisational change literature and consider four broad theories of change found within it. It is argued that rather than being in competition, these four theories capture different, and perhaps equally important, aspects of organisational transformation and that by responding to the imperatives of each of them, the practitioner effectively covers more bases and provides herself/himself with the best opportunity for deep organisational transformation. In this chapter four points (corresponding to the four theories) are made. First, that change should be innovation-led (or concept-led). In Defence, this amounts to participation in the essentially innovative process of concept development and the systematic implementation of the consequences of future operating concepts into Defence business. Second, that where appropriate, change should occur through the development of explicit plans with corresponding projects, budgets and timelines and that these should be enacted through the extant planning, programming and budgeting system in Defence (i.e. DCP, Minors, etc). Third, that implementation should be conducted in a participative manner in which different groups are encouraged to debate both the nature of the change and alternatives ways of implementing it. And finally that, where appropriate, small initial steps towards a desired future end state should be enacted first, thus enabling continuous improvement along an evolutionary path.
2. The Need for Multiple Perspectives

2.1 The Value of Multiple Perspectives for Planning

Participative planning methods are very much in vogue within the literature (Ackoff, 1978; Checkland, 1981; 1985; 1999; Churchman, 1971; 1979; Flood, 1990a; 1990b; Liebl, 2002; Linstone, 1999; Mason & Mitroff, 1981; Midgley, 2000; Midgley & Ochoa-Arias, 2004; Ulrich, 1983; 1987; 1988 van de Ven & Poole, 1995). These methods have been variously traced to (i) interpretive sociology (ii) American pragmatic philosophy (iii) French post-structuralism and (iv) German critical theory (Matthews, 2004; 2005). What each of these have in common, however, is a thoroughgoing scepticism towards the ability of a small team of ‘experts’ to unilaterally design and implement ‘improvements’ within organisations.

Perhaps the first to articulate the participative planning paradigm was C. West Churchman. According to Churchman (1968b) planners and decision-makers are routinely faced with a fundamental epistemic problem, expressed as:

‘How can we design improvement in large-scale systems [organisations] without understanding the whole system, and if the answer is we cannot, how is it possible to understand the whole system?’

The answer to the second part of this question, according to Churchman, is that it is impossible to apprehend the whole system of relevant factors affecting most organisational planning problems. In fact, within any specific problem one finds connections to all manner of other problems (Churchman, 1982). Such interconnectedness forces planners to bound their systems of interest in ways that are intrinsically distorting to the wider context1.

Accordingly, something that appears to be an improvement from a narrow point of view may not be seen as such if the boundaries are extended or arranged in a different way.

Churchman (1971, 1979) illustrates this dilemma with the simple inventory problem. Traditional characterisations of this problem bound the system of interest by making strong assumptions about factors such as the development of demand, capital costs, availability of natural resources, manpower, etc. For example, Churchman argues that most texts suggest that the appropriate database for estimating future demands is the record of past demands. What these texts fail to understand, however, is that in so doing they are making strong assumptions, namely, that the component which generates the demand for inventory is properly designed. However, if there are awkward seasonal variations in demand, then before designing an inventory policy, you should first see if pricing or advertising can smooth out the demand. This automatically expands the boundaries of the system of interest to include

1 Uncritical adoption of boundaries leads to what Muller-Merbach (1988) describes as the ‘given-the-problem’ school of thought of OR. This school of thought sees mathematical theorems, proofs and algorithms as the raison d’être of OR and begins with the assumption that ‘the problem’ (usually stated in mathematical terms) is ‘given’, by whomever. It also aptly highlights the difference between measures of performance (MoP), which attempt to measure the efficiency with which a system performs its function and measures of effectiveness (MoE), which attempt to measure the effectiveness of these efficiencies within the broader context.
the demand-generating component. According to Churchman, inappropriate boundary judgements account for far more serious ‘errors’ than those typically associated with the paucity of data or inappropriate statistical techniques. However, formal education spends a disproportionate amount of time on these latter errors.

The real questions to be answered in determining a company’s inventory holding costs are: ‘what are the opportunity costs of holding an inventory?’ (Mason, 1988). However, as Ulrich (1994) points out, any attempt to estimate the opportunity cost bursts the definition of the inventory problem and requires us to investigate the larger system(s) of the firm’s opportunities. As such, even the relatively simple inventory problem demonstrates that it is impossible to guarantee improvement in complex systems without making boundary judgements that are distortive to the broader context.

According to Churchman, planners too often view their planning problems from an overly narrow perspective and plans too often succumb to sub-optimisation, solving the problems directly in front of them whilst ignoring (or inflaming) larger problems.

As such, Churchman argued that the planner has a responsibility to:

1. Sweep in as much information as possible about the broader system(s) in which their problem is situated.\(^2\)
2. Attempt to render explicit the critical assumptions upon which plans and decisions are based and allow for their debate.

Churchman’s way of fulfilling the dual nature of this responsibility was through dialectics. That is, he suggested pitting alternative plans (based on alternative views of the problem situation) against each other. By listening to the arguments of our ‘enemies’, claimed Churchman, we become aware of the assumptions in our own thinking and both are better for it.

With this thought in mind, Churchman developed an educational program at Berkeley in Social Systems Design (SSD).

One of the aims of SSD is to steer planners away from sole reliance on a single perspective of the planning problem, which may act as an unnecessary restriction to creative thought. Accordingly, SSD aims at rendering explicit the implicit assumptions of the planner. Once these assumptions are brought into the open an alternative set of assumptions is developed. From this alternative set, different proposals (courses of action, etc) are derived that, because of their different foundational assumptions, challenge the former ones. The aim is to develop a

\(^2\) The ‘sweeping in’ process of Churchman was derived from his philosophical teacher Edgar Singer. According to Singer, Peirce’s pragmatic maxim required a systematic attempt to ‘sweep in’ ever more aspects of a problem situation. In Churchman’s (1968a,b) language, Singer’s ‘sweep in’ process becomes a process of re-examining the system of interest in the light of the larger system in which the system of interest is situated. However, as both he and Ulrich (2001) have noted, there is no definitive way in which to bound this larger system. Accordingly, the planner’s quest for comprehensiveness is potentially endless.
deeper understanding of the complex planning problem by seeing aspects of the problem that would have remained hidden by the uncritical implementation of plans founded on a single perspective.

**Recommendation 2a ➔ Multiple perspectives should be sought on the planning problem to aid the design of robust plans and avoid sub-optimisation.**

Following on from this idea, the systems philosopher and planning systems scientist, Werner Ulrich (1983; 1987) developed a framework for the capture of multiple perspectives by systematically including stakeholders with different organisational roles in the planning process. The essential idea behind Ulrich’s framework is that different organisational roles will have different role-specific concerns and, therefore, slightly differing perspectives to bring to bear on the planning problem.

According to Ulrich (1983; 1987), there are four sources of ‘influence’ within organisations (and the broader community) that could be taken as constitutive of different perspectives on plans and decisions. These are:

**Sources of Motivation:** those developing the plan and, as such, contributing the necessary sense of direction. These are the clients whose role-specific concern is the purposes that are ultimately served by the plan. Accordingly, their particular purposes will affect their perspective of the planning problem by way of their understanding of what constitutes an improvement in the systems of interest.

**Sources of Control:** those deciding whether the plan will go ahead and contributing the necessary means, resources and decision authority. These are the decision makers who have the power over the plans implementation. Their role-specific concern is the control of those aspects of the system that they can change. Accordingly, their area of control will affect their perspective of the planning problem by way of their understanding of what constitutes their decision environment.

**Sources of Expertise:** those contributing the necessary skills and knowledge of the subject matter. These are the subject matter experts (SME) who have the know-how to determine whether the plan will succeed. The SMEs’ role-specific concern is the expertise necessary for achieving the client’s purposes. Accordingly, their determination of what expertise is required will affect their perspective of the planning problem by way of their understanding of how the various expert opinions can guarantee improvement.

**Sources of Legitimacy:** those affected by the plan and whose inclusion ultimately garners the necessary sense of legitimacy. These are the affected workers within the system(s) who will ultimately be transformed by the plan. The affected workers’ role-specific concern is their own emancipation from the imposition of inappropriate or ill-conceived plans. Accordingly, their determination of what is in their interests will affect their perspective of the planning problem by way of their understanding of their requirements of the system(s) to be transformed.

Table 1 summarises these sources of influence, along with their role in the planning process, role-specific concerns and perspectives they bring to bear on the planning problem.
Table 1: Sources of different perspectives on the planning problem

<table>
<thead>
<tr>
<th>Planning Problem (Perceived differently by different stakeholders)</th>
<th>Sources of Motivation</th>
<th>Sources of Control</th>
<th>Sources of Expertise</th>
<th>Sources of Legitimacy</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Role: Clients</td>
<td>Role: Decision Makers</td>
<td>Role: Subject matter experts</td>
<td>Role: Affected</td>
</tr>
<tr>
<td></td>
<td>Role-Specific Concern: Purpose of plans (why?)</td>
<td>Role-Specific Concern: Control of resources (what?)</td>
<td>Role-Specific Concern: Expertise needed (how?)</td>
<td>Role-Specific Concern: Emancipation (whether?)</td>
</tr>
<tr>
<td></td>
<td>Perspective: Improvement in system(s) of interest</td>
<td>Perspective: Decision environment</td>
<td>Perspective: Guarantee of improvement</td>
<td>Perspective: User requirements</td>
</tr>
</tbody>
</table>

Recommendation 2b ➔ A broad suite of stakeholders should be included in each stage of the planning process to capture the role-specific concerns associated with their organisation, group or department.

2.2 The Workshop-Based Approach to the DLTP

As discussed in Egudo et al (2007a,b), the DLTP was developed through two structured workshops which brought together a wide range of stakeholders from across the Defence organisation. These workshops sought to generate, analyse, prioritise and elaborate upon action statements through the use of small groups/syndicates, each considering the transformation problem through the lens of a different conceptual apparatus. The action statements were subsequently debated and further elaborated and prioritised during plenary sessions.

Participants at these workshops were chosen to cover the four sources of ‘influence’ discussed above. Attendees included representatives from Strategic Logistics Branch (clients), the Defence Logistics Committee (decision makers), experienced ADF logisticians as well as future logistics planners from Capability Development Executive and the Defence Materiel Organisation (SMEs) and, finally, ADF logistics practitioners from each of the services and HQJOC (affectees). The systematic inclusion of these stakeholders in the production of the DLTP helped hedge against the development of inappropriate and/or ill-considered action statements, as well as ensure the development of a number of different perspectives on the transformation problem under consideration.

However, notwithstanding the broad participation described above, the deliberate inclusion of a broad sweep of stakeholders was not the only planning technique used to develop multiple perspectives on the problem. Of perhaps more importance (at least for the generation of the initial action statements) was the use of a suite of explicit concepts as ‘lenses’ for viewing the transformation problem. It is the use of different cognitive devices by different syndicates that is the hallmark of the ‘concept-led’ approach and the subject of the next section.
3. The Generation of Multiple Perspectives

3.1 The Generation of Multiple Perspectives through Concepts

This report highlights two broad approaches to ensuring the development of multiple perspectives. The first of these approaches, discussed in Section 2, is to identify significant stakeholders and use their role-specific concerns as the basis for the generation of different understandings of the planning problem (Liebl, 2002; Ulrich, 1983; 1987). The advantage of the stakeholder approach is that the roles and interests brought to bear are likely to be vigorously argued. The limitations of this approach include the difficulties in gaining access to a representative suite of stakeholders and the lack of support the approach provides for the generation of creative and/or imaginative ideas (Weick, 2006). It is this latter limitation that the concept-led approach seeks to overcome.

The concept-led approach to planning and decision-making seeks to develop multiple perspectives on the planning problem through the use of a suite of explicit cognitive devices (or ‘concepts’) for reflecting on the problem situation. These concepts may emerge from sources such as stakeholder interviews (Jackson & Trochim, 2002), briefing documents (Alexander, 1964), focus groups (Alexander, 1964, List, 2001), expert opinion (Linstone & Turroff, 1975) or lessons learnt studies which suggest undesirable futures that the concepts can be contrasted against (Dorner, 1989; Flueler, 2006; Wilson, 1963). Alternatively, they may emerge from surfacing underlying assumptions about the future (Malaska, 2001; Mitroff & Emshoff, 1979; Stewart, 1993; Ziegler, 1991).

Alexander’s (1964) concept mapping method is particularly useful for imaginative reflection on problems. His approach is to first list and then number conditional statements extracted from stakeholders when discussing the problem domain. These statements are then analysed to determine the inter-relationships between them, resulting in a network of related insights on the problem domain. If the resulting network is a ‘small world’, then the clusters can be used to form the basis of the concepts used for concept-led planning.

In addition to providing a unique lens on the planning problem, concepts enable the creation of a shared vision about the future. In this sense, concepts can represent desired characteristics of the particular force element to be transformed. They can play a part in identity formation and be used in both a constructive (i.e. concept-led planning) and critical (i.e. measuring rod by which to assess current progress) capacity.

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3 ‘Small world’ networks are ones which have: (i) a high average clustering coefficient and (ii) small average path lengths between nodes (Babarasi, 2003; Watts, 1999). The high clustering coefficient indicates that the resultant graph will have a high representation of cliques and/or sub-graphs. Many naturally occurring networks, including the internet and social networks, exhibit the phenomenon. The term ‘small world’ is widely traced to the experiments of social psychologist Stanley Milgrim who examined the average path length for social networks and is often credited with the term ‘six degrees of separation’ (Milgram, 1967; Travers & Milgrim, 1969).
Miller’s (1956) magic number suggests that 7 ± 2 simple concepts would be optimal.4

Recommendation 3 ➔ Explicit concepts through which to view the planning problem should be used to help generate multiple perspectives on the problem as well as group identity and a shared vision of the future.

3.2 Concept-Led Planning and the Future Joint Logistics Concept

As discussed previously, the idea of concept-led planning has been endorsed within Defence through such documents as Force 2020 (Department of Defence, 2002) and The Strategy Planning Framework Handbook 2006 (Department of Defence, 2006). Moreover, Defence has produced, and is still currently working on, a suite of future operating concepts to guide the transformation activities of the Department. These can be categorised as Joint (i.e. JO21C), Environmental (i.e. the Future Air & Space Operating Concept, Future Land Operating Concept and Future Maritime Operating Concept) and Enabling (such as the Future Joint Logistics Concept (FJLC) 2025). Of these, the enabling FJLC 2025 serves as the cornerstone for logistics planning out to the year 2025 (see Appendix A). This document articulates a vision for the provision of logistic support to future ADF operations. Further, it describes the future logistics system in terms of:

- Three complementary networks that will act as lines of development (control, information and physical).
- Six desired characteristics of the FJLC 2025 (agility, robustness, precision, networked, interoperable and deployable).
- Six conceptual themes through which change will be implemented (cultural and organisational change, network integration, capability enhancements, preparedness, business practices and processes, and protection).

In accordance with the principles of concept-led planning, these fifteen descriptors were used as explicit concepts through which the task of generating a prioritised list of actions necessary in order to achieve the vision of the FJLC was undertaken. In particular, action statements were generated by considering the six desired characteristics of the FJLC 2025 independently through the lens of each line of development (see Chapter 4). Thus, the concepts that led the planning exercise for the DLTP were:

1. Control/Agility  v  Inf./Agility  v  Phys./Agility
2. Control/Robustness  v  Inf./Robustness  v  Phys./Robustness
3. Control/Precision  v  Inf./Precision  v  Phys./Precision
4. Control/Networked  v  Inf./Networked  v  Phys./Networked
5. Control/Interoperable  v  Inf./Interoperable  v  Phys./Interoperable
6. Control/Deployable  v  Inf./Deployable  v  Phys./Deployable

4 By using the term ‘simple’ we refer to a ‘chunk’ of information. Miller’s experiments measured short-term memory in terms of ‘chunks’ such as a digit in part of a telephone number or a name of a concept or some other single unit of information.
Although the concepts themselves were not assessed prior to the planning exercise, it was thought appropriate to conduct a concept mapping analysis on the action statements generated by the planning exercise in an attempt to reverse engineer these concepts from the ideas generated in the syndicates. The details of this analysis are discussed in Egudo et al. (2007b), a visual representation of which is provided in Figure 3. Of particular interest for our purpose is the fact that the resulting network diagram suggested a close relationship between the characteristics ‘networked’ (node 34) and ‘deployable’ (node 203), perhaps indicating that these two characteristics could be amalgamated. Moreover, the ‘precision’ characteristic did not seem to feature strongly in the resulting action statements (perhaps due to the fact that delivering the right stuff to the right place at the right time was seen to be the role of logistics past, present and future and not an essentially different characteristics of the future joint logistics system).

Figure 3: Concept Mapping of the Action Statements generated from Workshop One
4. The Development of Action Statements

4.1 The Discursive Approach to Developing Action Statements

As we have seen, concepts are used to elicit multiple perspectives on the planning problem by asking planners and stakeholders to consider the problem domain through the lens of one concept at a time, the intention being to extract a consolidated list of action statements suggested by each concept. It is this consolidated list (and the processes by which the list is agreed upon) that is said to be multi-perspectival.

Accordingly, having established a coherent set of concepts, the next phase of the concept-led approach is the generation of a suite of action statements deducible from these concepts. These action statements will eventually form the core of the transformation plan – but only after they have been sufficiently evaluated (see Chapter 5).

So, whence do these action statements arise?

The principles of participative planning dictate that the broadest possible suite of stakeholders should be involved in the generation of these action statements. In fact, the literature is replete with group brainstorming techniques and participative design methods that would potentially be applicable to this stage of the concept-led approach. Whilst the specifics of many of these methods are distinct, it is possible to discern several common elements. These include:

1. The use of small groups (or syndicates) each of which considers the problem from a different perspective (i.e. uses different concepts).
2. The harnessing of professionals from within different parts of the system of interest (i.e. joint logistics system) and the deliberate attempt to capture the ‘expertise’ of these professionals by focussing them on: (i) perceived gaps between the status quo and the characteristics suggested by the concepts (the ‘why’ of change) and (ii) conjectured solutions for filling these gaps (the ‘what’ of change).
3. The absence of hierarchy, power and coercion from debate within and between the syndicates.

In the following sections, each of these elements is discussed in turn.

4.1.1 The Use of Syndicates

A small group can be defined as a group that enables direct communication among all members, with no cliques and/or liaison persons (Hare, 1976). As groups increase in size, possible pairs of interaction increase exponentially thus increasing the probability that side discussions and/or cliques will form. If meaningful interaction between all members of a group is sought, then syndicates should seek to avoid such interacting pairs. Fortunately, the literature on the relationship between decision quality and group membership is vast. Unfortunately, however, the conclusions generated by this literature are inconsistent. Yetton
and Bottger (1983) conclude that ‘it would be difficult, at least with respect to decision quality, to justify groups larger than five members’, whilst Libby and Blashfield (1978) conclude that a group size of three is optimal. Huber and Delbecq (1972) suggest that optimum group size is ‘at least five’, while Hogarth (1980) argues that it is ‘at least six’! Studies have been conducted to consider the effects of individuals competence (i.e. experience, IQ, etc), communicative capacity and expectations on the optimal group membership with, once again, conflicting results. Notwithstanding the difficulties posed by summarising such an enormous literature, or the conflicting results within said literature, or the problems associated with extrapolating these studies to the specifics of Defence planning, it is safe to presume that a syndicate membership of between three and six would be valuable (if not optimal) for balancing the needs of stimulating robust discussion whilst reducing the chance of disengagement by members and/or cliques.

Recommendation 4a ➔ Action statements should be generated by small groups (or syndicates) each of which considers the problem from a different perspective (i.e. uses different concepts).

4.1.2 The Focus of Discourse within Syndicates

It is noteworthy that the approach suggested by the authors does not demand the accumulation of information from stakeholders for the purposes of model building and/or the population of data for pre-existing models. Such an approach could conceivably be termed a model-centric approach and is the stuff of mathematicians and operations researchers. Rather, the authors recommend the accumulation of ideas from stakeholders as to the perceived problems with (the ‘why’ of change), and possible solutions for (the ‘what’ of change), the system of interest. Such an approach is consistent with the development of Checkland’s (1981; 1999) ‘root definitions’ and may be termed a discourse-centric approach as it demands the development of ‘conjectured solutions’ by stakeholders as the initial stage of investigation. Modelling, analysis and experimentation may come later in the process as a way of refuting or provisionally validating the conjectured solutions.

Advocates of the discursive approach see a mismatch between the complexity of planning issues and the information processing abilities of the human mind (or the representational abilities of models), thus doom any attempt to ‘solve’ the problem in the traditional sense of the word. Planning problems are rarely ‘solved’, more often a consensus is reached by the stakeholders in a political process (Majone, 1985). Here the role of the analyst takes on quite a different form to that of the problem solver. According to the discursive view, the analyst is seen as a designer of procedures for group decision-making, and as a catalyst in the implementation process (Checkland, 1981, 1999; Lindblom, 1977). The upshot is that analysis has a procedural role as well as a substantive one; it provides an intellectual framework for the planning process as well as evidence and argumentation.

The intellectual framework for ‘concept-led planning’ articulated in this report demands that, prior to implementation within a transformation plan, action statements be tested in some way (see Chapter 5). Such a demand amounts to syphoning off the ‘what’ and ‘why’ interrogatives of planning (which will be the subject of test and evaluation) from the ‘who’,
‘when’, ‘where’ and ‘how’ interrogatives (which are the details of implementation following successful testing).\(^5\)

**Recommendation 4b** – These syndicates should be populated by professionals from different parts of the system of interest (i.e., joint logistics system) with the deliberate attempt to capture the ‘expertise’ of these professionals by focussing them on: (i) perceived problems with the status quo (the ‘why’ of change) and (ii) conjectured solutions to these problems (the ‘what’ of change).

4.1.3 The Rules of Discourse within Syndicates

All of the above presumes that the discussions within each syndicate are conducted by participants expressing themselves freely, forthrightly, and truthfully on equal footing, putting aside any extant power relationships (Habermas, 1981a,b). The discourse-centric approach is based on the fundamentally epistemic notion that by encouraging a wide range of stakeholders to participate in the planning process the resultant understanding(s) of the problem(s) facing the planner will be deeper and more robust, having already incorporated criticisms from alternative perspectives. However, if power relations are allowed to influence the course of the debate, the risk is that the resultant plan will not have legitimately overcome or incorporated alternative perspectives. As such, the exercise of institutional power has the potential to fatally circumvent the necessary process of reflexivity built into the discourse-centric approach. The result is that planners and decision makers risk not receiving the information (in the form of alternative perspectives) that they need in order to understand the problems they are tackling in all of their complexity. Dictators, large and small, are error-prone and learn far too little about the, possibly flawed, presuppositions that infuse their plans. As such, those with institutional authority, from politicians to senior civil servants to generals, make better decisions and generate better plans if they encourage critique on the presuppositions associated with their planning and decision problems under consideration.

As Kant (1781) claimed some 200 years ago:

’Reason must in all its understandings subject itself to criticism; should it limit freedom of criticism by any prohibitions, it must harm itself, drawing upon itself a damaging suspicion. Nothing is so important for its usefulness, nothing so sacred, that it may be exempted from this searching examination, which knows no respect for persons. Reason depends on this freedom for its very existence’.

**Recommendation 4c** – The resultant discussion should be conducted in the absence of hierarchy, power and coercion both within and between the syndicates.

4.2 The First Workshop and the Use of Syndicates

As discussed previously, the DLTP was generated principally through two structured two-day workshops. In accordance with recommendation 4a, participants at these workshops were organised into different syndicates which viewed the transformation problem from a different

\(^5\) Mintzberg (1994) and Yardley & Kelly (1995) suggest a similar ordering of interrogatives.
DSTO-TR-2022

perspective. Each syndicate comprised five to eight senior serving logisticians from across Defence, which was deemed slightly more than optimal, but allowed for three syndicates which mapped neatly onto the ‘lines of development’ articulated in the FJLC.

In Workshop One, each syndicate examined their given line of development independently through the lens of a specific FJLC characteristic (i.e. concept) with a view to generating and then prioritising action statements (see Appendix B). These statements were recorded by DSTO analysts into a template designed specifically for the workshops. In accordance with recommendation 4b, the ‘what’ and ‘why’ of planning was decoupled from the ‘who’, ‘how’ and ‘when’ so that it could become the subject of further testing through debate and analysis (see Chapter 5). Accordingly, the first workshop focussed solely on the ‘what’ and ‘why’ of planning, that is, the identification (and prioritisation) of actions (‘what’) required to transform the joint logistics system along each line of development (‘why’). In order to aid the intended focus on the ‘what’ and ‘why’, syndicates were required to record action statements (‘what’) against a perceived problem statement (‘why’). It was only during the second Workshop (which is the focus of Chapter 6) that participants considered the ‘who’, ‘how’ and ‘when’ of planning, that is, the specifics of implementing the priority action statements.

In accordance with recommendation 4c, some consideration was given to ensuring that syndicate discussions were conducted by participants expressing themselves freely, forthrightly, and truthfully on equal footing. The command structure of Defence acts as an obvious impediment to such discourse. Accordingly, in addition to analysts inputting action statements into the template, DSTO provided trained facilitators charged with ensuring that syndicate discussions were conducted in a manner conducive to the ‘force of the better argument’ (rather than institutional authority) carrying the day. In order to aid these facilitators, a Facilitators Guide was prepared prior to the workshop. This guide provided facilitators with a quick reference to potential issues associated with each line of development in the event that the syndicate discussions stagnated.

5. The Testing of Action Statements

5.1 The Discursive Approach to Testing Action Statements

The concept-led approach developed by the authors has been embedded within a modified action learning cycle reminiscent of Popper’s (1969; 1972) hypothetico-deductivist model of inquiry. Accordingly, following the development of conjectures (in our case, action statements) inquiry should be characterised by ‘ingenious and severe attempts to refute them’ (Popper, 1969). It is only through surviving such attempted refutations that action statements gain credibility.

Unfortunately, within the context of organisational planning, it is rarely feasible to ‘test’ an action statement empirically (in the sense of implementing the action and observing its results). Not only is direct experimentation with organisations a risky (and potentially ethically fraught) affair, but any implementation of proposals would irreversibly change the
organisation. Accordingly, testing is usually conducted along one of two lines, similar to those discussed in Chapter 4. These are by simulation, modelling and analysis within a model-centric approach or by red-teaming, debate and argumentation within a discursive approach. Unsurprisingly, the authors recommend a general discursive framework for the testing of action statements. Such an approach is reminiscent of a judicial inquiry (as opposed to an empirical test). Action statements are tested through interrogation by those who have proposed alternative statements developed from different foundational ‘concepts’ (akin to cross-examination). The benefits of a discursive approach include avoiding certain epistemic fallacies associated with over reliance on models and enabling participants to engage in a learning process via the attempted refutation of confederate action statements. In particular, participation in learning processes of this sort inevitably aids participants in the refinement of action statements in subsequent iterations of the action learning cycle. Simulation, modelling and analysis may be provided as tools to support this learning process. However, as opposed to the model-centric approach, within the discursive approach such techniques are not seen as definitive. Rather, they represent simply another perspective on the possible implications of particular actions.

The above approach takes its cues from Churchman’s (1979) argument for systematically seeking different ‘rationalities’ for testing the pre-suppositions in our own thinking as well as Ackoff’s (1979a,b) call for replacing the problem-solving orientation of Operations Research with one that focusses on planning and system design. In the words of Ulrich (1994):

‘What the systems designer [planner] needs beyond even new analytical techniques is a dialectic framework that would enable him to enter into a discourse with these other rationalities and to learn to understand them as what they are: mirrors of his own failure to live up to the systems idea.’

That is, what the planner ultimately needs is a discursive framework for testing his/her action statements against those developed from different role-specific concerns, foundational presuppositions and/or concepts, whether through red-teaming, structured argumentative processes or group decision and negotiation processes. The overall aim is to develop a more critical understanding of the possible implications of action statements by uncovering potentially deleterious effects that would have remained hidden by the uncritical implementation of plans founded on a single perspective. Accordingly, the whole process should be an exercise in applied dialectics.

The literature contains a number of specific methods appropriate for this stage in the concept-led planning cycle. Egudo et al (2007b) provide a brief overview of some these approaches, including Strategic Options Development & Analysis, Strategic Choice Approach, Soft Systems Methodology (SSM) (in particular, stages 3, 4 & 5 of SSM as presented in Checkland (1981)), Robustness Analysis and Strategic Assumptions Surfacing & Testing. However, this is just a small sample of the myriad techniques available. Meyers and Seibold (1989) provide a more extensive review concluding that the use of structured argumentative processes contributes to higher quality decisions, and that it is both useful for surfacing assumptions and for evaluating information in uncertain and ill-structured situations. They go on to say that arguments are both the ‘medium’ and ‘outcome’ of group interaction: ‘well-managed
argument is a group social practice [argument as outcome], which is why it works so well for negotiations between powerful stakeholders [argument as medium for achieving outcome].

For our purposes, rather than list an unavoidably small subset of these techniques, it is perhaps more instructive to consider a framework for categorising all such methods. To this end, Walton (1998) has updated Aristotle’s (400 B.C.) forms of Rhetoric in Table 2.

Table 2: Walton’s Interpretation of Aristotle’s Forms of Rhetoric

<table>
<thead>
<tr>
<th>Type of Dialogue</th>
<th>Initial Situation</th>
<th>Goal</th>
<th>Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Critical Discussion</td>
<td>Difference of opinion</td>
<td>To convince other party</td>
<td>Understand different positions better</td>
</tr>
<tr>
<td>2. Debate</td>
<td>Adversarial contest</td>
<td>Persuade third party</td>
<td>Clarification of issues.</td>
</tr>
<tr>
<td>3. Inquiry</td>
<td>Lacking proof</td>
<td>Prove or disprove conjecture</td>
<td>Knowledge</td>
</tr>
<tr>
<td>4. Negotiation</td>
<td>Conflict of interest</td>
<td>Maximise gains</td>
<td>Settlement and consensus</td>
</tr>
<tr>
<td>5. Planning Committee</td>
<td>Collective action required</td>
<td>Joint plan or decision</td>
<td>Airing of objections</td>
</tr>
<tr>
<td>6. Pedagogical</td>
<td>Ignorance of one party</td>
<td>Teaching and learning</td>
<td>Spread of knowledge</td>
</tr>
<tr>
<td>7. Quarrel</td>
<td>Personal conflict</td>
<td>Hit out verbally</td>
<td>Venting of emotions</td>
</tr>
<tr>
<td>8. Expert Consultation</td>
<td>Need for expert advice</td>
<td>Decision for action</td>
<td>Second hand knowledge</td>
</tr>
</tbody>
</table>

Walton (1998) explains that an argument (discourse) is best evaluated in terms of the goals of the particular dialogue adopted. Given that the goals of the discursive approach are to generate robust action statements, it is reasonable to suggest that (with the exception of ‘quarrel’) all of the above forms of dialogue would be useful. Accordingly, any process which systematically incorporates these forms of dialogue in the generation and, perhaps more importantly, subsequent testing of action statements would be of value.

Recommendation 5 ➔ Action statements should be subject to vigorous testing prior to implementation. Such testing should be characterised by ‘ingenious and severe attempts to refute them’, suggesting that structured red-teaming and/or argumentative processes would be most appropriate.

5.2 The Testing of Action Statements within the DLTP

The testing of proposed action statements within the DLTP took three main forms:

1. During the first workshop, syndicates presented their priority action statements to the broader planning community through plenary sessions. During these plenary sessions, action statements were critically discussed (dialogue 1) and, at times, debated (dialogue 2) with respect to their necessity and priority. Different views of these action statements were systematically generated via the process of each syndicate viewing the problem through the lens of a different line of development. The workshop concluded with a negotiated (dialogue 4) list of priority actions.
2. Following the first workshop, DSTO analysts consolidated the list of priority action statements by linking related statements and removing duplicate ones. In addition to this, a range of inquiries (dialogue 3) were conducted on the action statements, a detailed list of which is provided in Egudo et al (2007b). Moreover, the action statements were also tested with respect to their consistency with recommendations generated from previous expert reviews (dialogue 8) such as the Jackson Review (Department of Defence, 2004), Hingston Review (Department of Defence, 2003) ANAO Report (Australian National Audit Office, 2002) and a previous DSTO Study (Allen et al, 2005).

3. Finally, action statements were tested with respect to their feasibility during the second workshop, where participants developed and sequenced subordinate tasks required to implement the action statements. The result was that sixteen initial steps for transformation were jointly (dialogue 5) identified.

As demonstrated by the above (and in accordance with recommendation 5), the testing of action statements for the DLTP was conducted within a general discursive framework incorporating at least six of the seven desirable forms of dialogue identified in Table 2. Accordingly, it could be argued that the surviving action statements were instantiations of Checkland’s (1999) systemically desirable and culturally feasible solutions to complex planning problems.

Due to time constraints, action statements were unable to be tested within a future operational environment (complete with red-teaming attempts at denying support). However, it is expected that those action statements resulting in major capital acquisitions will necessarily endure testing of this sort via the annual Defence Capability Update (DCU) process and its associated force options testing.

6. The Implementation of Action Statements

6.1 The Implementation of Action Statements

As discussed, the action learning cycle for ‘concept-led planning’ articulated in this report demands that, prior to implementation within a transformation plan, action statements be tested in some way. Such a demand amounts to syphoning off the ‘what’ and ‘why’ interrogatives of planning (which are the subject of testing) from the ‘who’, ‘when’, ‘where’ and ‘how’ interrogatives (which are the details of implementation following successful testing). Accordingly, Chapter 4 discussed the processes through which the ‘what’ and ‘why’ interrogatives are translated into provisional action statements, following which Chapter 5 articulated methods for the testing of these action statements. Here we consider the issue of successful implementation of credible action statements that have survived rigorous testing.

So, how should action statements be implemented to enact transformation?

7 All but five of the DLTP action statements were specifically mentioned in these documents.
In order to answer this question, we briefly turn to the organisational change literature. According to van de Ven & Poole (1995):

‘To understand how organisations change, management scholars have borrowed many concepts, metaphors and theories from other disciplines, ranging from child development to evolutionary biology. These concepts include punctuated equilibrium, stages of growth, processes of decay and death, population ecology, functional models of change and development, and chaos and complexity theory’.

From this plethora of concepts, van de Ven & Poole (1995) identify four broad theories of organisational change: life cycle, teleology, dialectics and evolution. These four theories represent different sequences of change events driven by different conceptual motors that operate at different organisational levels. Moreover, they argue that: ‘it is the interplay between different perspectives [these four theories] that helps one gain a more comprehensive understanding of organisational life’. That is, the theories should not be seen as competing contenders for the same all-encompassing account of organisational change, but different ways of understanding change which capture different, and perhaps equally important, aspects of organisational transformation. Accordingly, the existence of four distinct conceptions of change heralds not a theoretical crisis in the management literature but the opportunity for increased competence and effectiveness for the practitioner. By responding to imperatives from each of these theories during implementation, the practitioner effectively covers more bases and achieves the best opportunity for facilitating deep organisational transformation.

6.1.1 Life-Cycle Theories of Change

Many management scholars have adopted the typically organic metaphor of growth and decay to explain organisation change (Baltes et al, 1986; Burgelman, 1991; Featherman, 1986; Kohlberg, 1969; Levinson, 1978; Mingers, 1995; Nisbet, 1970, Rogers, 1962). According to these theorists, organisations can be seen to go through specific life cycles. Change is ‘imminent’, in the sense that it results as a natural consequence of the internal logic of the organisation’s structure and/or processes. External events may influence the change, but they are always mediated by the internal logic, rules and/or programs of the organisation. Life-cycle theories, therefore, typically explain change via the progress of new ideas through a prescribed sequence. According to life cycle theory, it is the ‘start-up’, ‘innovative idea’ or ‘vision of the future’ that is the driver for change. Subsequent transformation is just the natural consequence of this ‘idea’ making its way through the organisation, either through the established planning life cycle or through social processes such as cascades (Bikhchandani, S., et al, 1992, 1998; Devenow & Welch, 1996; Hirshleifer, 1995; Rogers, 1962; Sunstein, 2003; Welch, 1992). As such, change occurs when a critical mass of the organisation adopts the new idea or vision. Given the above, life-cycle theorists pay particular attention to the front-end of ‘change’, the development of the initial idea or vision of the future (Rogers, 1962). ‘Advocates’ are often identified and/or trained in the new idea and are subsequently tasked with the job of ‘championing’ the new idea within their respective groups.

8 It should become obvious to the reader that the concept-led approach adopted thus far has systematically incorporated different aspects of these four theories at different stages.
In Defence, the generation of a future vision for the Department is the realm of strategy and, in particular, military concept development. The implications of these ‘concepts’ could involve changes to: ‘capability’ (via new equipment acquisition); culture and/or organisation (via training and development); forms of business processes and practices; levels of network integration; preparedness levels or levels of self-protection of capabilities. In fact, the multifarious nature of these implications is explicitly captured in the ‘conceptual themes’ of the FJLC2025 and DLTP. The job of ensuring that these implications are embraced within each of the above ‘conceptual themes’, according to the lifecycle theorist, is the role of ‘change champions’ or ‘advocates’ who have been identified in advance and tasked with seeing the effective implementation of change through to completion.

**Recommendation 6a →** For change to be innovation-led (or ‘concept-led’), ‘advocates’ should be identified throughout the organisation and subsequently tasked with the job of ‘championing’ the changes within their respective groups.

6.1.2 Teleological Theories of Change

Another school of thought explains change by reference to the purposes or goals that should drive the organisation, that is, the organisation’s teleology. This is the realm of ‘hard’ or ‘functionalist’ systems theory and the sort of top-down corporate strategic planning processes popular in the 1970s (Chakravarthy & Lorange, 1991; Churchman, 1968a; March & Simon, 1958; Majone, 1985; Parsons, 1949; Parsons & Shils, 1951). According to teleological theories of change, organisations construct for themselves a ‘goal’ or ‘end-state’, following which they take action to reach it (and monitor subsequent progress). Traditional systems engineering and RAND-style systems analysis processes in the form of planning, programming and budgeting systems are the quintessential examples (Hitch & McKean, 1960; McKean, 1958; Quade, 1964, 1975; Quade & Boucher, 1968). According to teleological theories, it is the ‘plan’ that is the driver for change. Subsequent transformation is driven by the successful implementation of the plan through appropriate programming and budgeting systems. Accordingly, teleological theorists pay particular attention to the development of future plans and the budgeting and programming of specific projects within them.

In Defence, this theory of change is implemented within the two-pass requirements analysis process for Defence Capability Plan (DCP) projects where the costs, effectiveness and risks associated with alternative change proposals are systematically examined and the ‘who’, ‘how’, ‘when’ and ‘where’ of change are considered. The plan itself is produced at the start of this process, during the annual DCU process leading to the DCP. Change occurs when projects make their way successfully through the planning, programming and budgeting system and are delivered into service.

**Recommendation 6b →** Where appropriate, change should occur through the development of explicit plans with corresponding projects, budgets and timelines. These should be enacted through the extant planning, programming and budgeting system in Defence (i.e. DCP, Minors, etc).
6.1.3 Dialectical Theories of Change

A third school, dialectical theory, begins with the essentially Hegelian assumption that organisations exist in a pluralistic universe of colliding events, forces, values and interests, all of which compete for domination. These oppositions may be internal (i.e. competing goals, interests or priorities within the organisation) or external (i.e. competing goals, interests or priorities with other organisations or departments). Dialectical theories of change are most famously instantiated in ‘soft’ or ‘community’ operations research, ‘soft’, ‘interpretive’, or ‘critical’ systems theory and/or ‘pragmatic’, ‘democratic’ or ‘participative’ planning processes (Ackoff, 1977, 1979a, 1979b, 1987; Checkland, 1981, 1985, 1999; Churchman, 1979, 1982; Dewey, 1909, 1929; Flood, 1990a,b; Fuenmayor, 2004; Jackson, 1982, 1985, 1987, 1990, 1991, 1993, 2000, 2001, 2004; Midgley, 1989, 1996, 2000; Midgley & Ochoa-Arias, 2004; Taket & White, 1994, 1995, 1996, 1997; Ulrich, 1983, 1987, 1988). In dialectical theories, stability and change are explained by reference to the balance of power between oppositions. That is, change occurs when opposing ideas, forces, interests or groups gain sufficient power to confront and engage the status quo. According to dialectical theories, it is the ‘contest of ideas and interests’ that is the driver for change. Subsequent transformation occurs when a new balance between opposing forces is reached within the organisation.

In Defence, this theory of change is found in the participative approach Defence adopts to planning and decision making through consultation groups and committees. Accordingly, new balances (or syntheses) usually occur within a small (but representative) group involved in the planning process. Broader change is enacted when this new balance is reflected beyond the confines of the decision makers and throughout the organisation.

**Recommendation 6c ➔ Implementation should be conducted in a participative manner in which different groups are encouraged to debate not only the nature of the change (i.e. Recommendations 4a,b,c) but alternative ways of implementing it.**

6.1.4 Evolutionary Theories of Change

The final school of thought discussed by van de Ven and Poole (1995) is the evolutionary school. According to the evolutionary school, as in biological evolution, change proceeds through a continuous cycle of variation, selection and retention. Scholars who adopt an evolutionary model to explain organisational change include Boyd & Richerson (1985), Burgelman (1991), Hannan & Freeman (1977, 1989), Massey (1999), McKelvey (1982), Singh & Lumsden (1990) and Weick (1979). According to the evolutionist, variations on the status quo can stimulate new ideas, structures, processes, projects or capabilities but are often viewed to emerge by chance. It is the subsequent competition between the variation and the status quo within the business environment, however, which determines whether the variation is selected or the status quo is retained. According to evolutionary theories, it is the ‘gradual’ or ‘incremental’ adaptation of the system in response to its changing environment that is the driver for change. Transformation occurs, in the main, incrementally, through small variations (i.e. initial steps) that prove to out-compete the status quo within the business environment. Accordingly, evolutionary theorists pay particular attention to continuous and incremental improvement (Kenney & Florida, 1993; Liker, 2004; Liker & Wu, 2000; Womack, Jones & Roos, 1991). Occasionally, however, rather than serving to aid the continual
improvement of a species (in our case, project or capability), variations are dramatic and can imply the wholesale extinction of a species and the birth of a new one. Such an account is consistent with Gould’s (1989) punctuated equilibrium theory, where dramatic changes in the environment stimulate a correspondingly dramatic change in the organisation – which, in turn, ushers in a new period of stability (equilibrium), once again characterised by gradual (incremental) change.

In Defence, this two layered approach can be seen through the phasing of projects through the capability development process in order to enable the continuous improvement of in-service capability (as well as Minors, Rapid Prototyping Development & Evaluation (RPD&E) and other programs that enable for continuous improvement) and the periodic block obsolescence and replacement of major capabilities.

**Recommendation 6d** → Small initial steps towards a desired future end state should be enacted first, thus enabling continuous improvement along an evolutionary path.

### 6.2 The Second Workshop and the Resultant DLTP

The implementation of the DLTP has yet to be initiated. However, as a result of the structure of the workshops, it remains possible for the subsequent implementation of the plan to adopt each of the recommendations described in Section 6.1.

As discussed previously, the DLTP was generated principally through two structured two-day workshops. Participants at these workshops examined their given line of development independently through the lens of a specific FJLC characteristic (i.e. concept). One of the attributes of the concept-led approach is that it operates at the level of ‘ideas’ rather than at the level of ‘actions’. This means that it has the potential to create a shared vision about the future characteristics of the particular force element to be transformed in the minds of the participants in the planning process. In order for this vision to be realised, however, recommendation 6a suggests that these participants should be identified as ‘champions’ for the FJLC and tasked with facilitating the up-take of the concepts it describes so that the action statements in the DLTP are demand-pulled into the organisation by the broader staff (Martin, 2006).

In accordance with recommendation 6b, Workshop Two was designed around the ‘who’, ‘how’, ‘when’ and ‘where’ of change. A consolidated list of action statements from Workshop One was presented to the group, following which, syndicates were asked to decompose them into sub-tasks and, where possible, flag them with respect to which planning, programming and budging system they should be implemented within (Minors, DCP, etc). Once the DLTP is endorsed, recommendation 6b suggests that those action statements which require specific capital acquisitions should form the basis of capability development projects and traverse the DCP, RPD&E or Minors planning, programming and budgeting system.

In accordance with recommendation 6c, syndicates were again allowed to develop sub-tasks in isolation from the main group by considering the action statement through the lens of their particular line of development. Subsequently, these sub-tasks, their priority, dependencies, sequencing and organisational responsibilities were debated during plenary sessions. The task
of implementing these actions, however, will fall to different groups as suggested by their organisational responsibilities. Recommendation 6c suggests that these groups should be encouraged to engage in the general debate concerning the practicalities of implementation.

Finally, in accordance with recommendation 6d, sixteen initial steps were extracted from the action statements for immediate implementation. These steps were chosen during the second workshop as part of the debate over priority, dependency and sequencing. In accordance with the principles of continuous improvement, subsequent monitoring should determine the success (or otherwise) of these initial steps.

7. Conclusion

This report details the methodology developed for (and implemented in) the production of the DLTP. This methodology can, perhaps, best be described as ‘concept-led’ and ‘participative’.

According to the concept-led approach, explicit cognitive devices (or concepts) are abduced from a problematic situation (usually a perceived deficiency within a particular force element). From these, action statements are then derived which in turn form the basis for experimentation and ultimately: (i) refutation (in which case the cycle repeats itself) or (ii) implementation in appropriate transformation plans (in which case the force element is irreversibly changed).

This cycle could conceivably be conducted monologically (i.e. through off-line simulation, modelling and analysis and/or the imprimatur of senior management) or dialogically (i.e. through the inclusion of stakeholders via such activities as planning workshops). However, there is an increasing acceptance that monological techniques are unlikely to be able to successfully support the design and implementation of ‘improvements’ in complex organisations. Given the above, the concept-led approach articulated in this report was also infused with imperatives from the participative school of planning and decision-making.

Having settled the question of the general paradigm of inquiry (i.e. concept-led and participative) through which to pursue the DLTP, the authors reviewed the literature in order to develop a list of recommendations for instantiating this paradigm at each stage in the action learning cycle (see Executive Summary for the complete list of recommendations). Following this, the authors described how each of these recommendations was, in fact, instantiated in the DLTP workshops. As such, this report provides a nexus of justification from the planning and decision-making literature to the generation of recommendations for concept-led and participative planning through to the instantiation of these recommendations within the development of the DLTP.
8. References


74. March & Simon (1958) *Organisations*. Wiley, New York, USA.


Appendix A: The Future Joint Logistics Concept (FJLC) 2025

Future Joint Logistics Concept 2025

SUPPORTING THE FUTURE JOINT FORCE: TRANSFORMING LOGISTICS TOWARD 2025
EXECUTIVE SUMMARY

Meeting the operational needs of the future joint force will require a logistics system that is fully networked and has a distribution focus. Further, logistics support must serve to enable rather than restrict a joint commander’s plan. The characteristics of the logistics system of the future should, therefore, complement those attributes of the future joint force, as described in the Future Joint Operations Concept (FJOC) and enable the ADF to implement the concept of Multi-Dimensional Manoeuvre. These characteristics must emphasise deployability, agility and the ability to operate within both a joint and combined force environment. There must be comprehensive networking of not only the three logistics networks that comprise the logistics system, but also with those other joint networks through which a commander exercises the command and control function.

The Future Joint Logistics Concept 2025 replaces the FJLC released in 2002. It is, like its predecessor, a strategic level concept with operational level implications and is one of the ‘enabling’ concepts falling within the hierarchy of future military concepts. It will support joint and environmental enabling concepts using the FJOC as its basis, and serve as the cornerstone for logistics planning out to the year 2025.

Creating a logistics system for the year 2025 will necessitate the expenditure of considerable time and resources. It will not come about through evolutionary change, but will require a significant transformation of the logistics system as it currently exists. The way in which this change will be bought about is detailed in the Defence Logistics Transformation Plan. The required outcomes will be achieved through three lines of development, which will be aligned directly with the control, information and physical networks. People will continue to be central to all future defence logistics functions and significant cultural change will be required if transformation is to be successful.
INTRODUCTION

1. The Future Joint Logistic Concept (FJLC), released in April 2002, articulated a concept for the provision of logistics support to ADF operations 15 to 20 years in the future. It was based upon the Future Warfighting Concept (FWC), which was released in December 2002.

2. The Future Joint Operations Concept (FJOC) replaces the FWC as the capstone document describing how the future force will operate. The FJOC provides the conceptual framework for ADF concept development and experimentation and will also serve to inform future capability development. It retains warfighting as its primary focus, adopts the philosophy of Multi-Dimensional Manoeuvre (MDM) and recognises the need for a balanced force capable of undertaking multiple operations across the Spectrum of Operations.

3. The Future Joint Logistics Concept 2025 (FJLC 2025) replaces the FJLC. It is, like its predecessor, a strategic level concept with operational level implications and is one of the ‘enabling’ concepts falling within the hierarchy of future military concepts. It will support joint and environmental enabling concepts using the FJOC as its basis, and serve as the cornerstone for logistics planning out to the year 2025.

Aim

4. The aim of this concept is to describe the way in which logistics support will be provided to ADF joint operations out to 2025.

Scope

5. The FJLC 2025 provides a conceptual description of how logistics support will be provided in support of operations out to the year 2025. It will:

   a. provide an overview of the FJOC;
   b. describe the enduring aspects of logistics;
   c. describe the future logistics environment;
   d. describe the key aspects of the FJLC 2025; and
   e. provide an overview of the concept for logistics transformation including conceptual themes.

6. This concept retains a broad approach to the provision of logistics support. Detailed consideration of the various components of logistics, including health, personnel services and engineering / maintenance will be detailed in subsequent functional concepts.
Methodology

7. The FJLC 2025 focuses primarily on the way in which logistics support will be provided in the future, and does so within the context of a National Whole Of Government (NWOG) approach. How the Defence logistics organisation will change, or ‘transform’, in order to be able to provide this support will be articulated in the Defence Logistics Transformation Plan (DLTP)\(^9\).

Assumptions

8. There are a number of logistics assumptions affecting the development of the FJLC 2025. These assumptions are:

   a. The future force will be expected to operate across the Spectrum of Operations and in unpredictable security environment.

   b. The logistics support system must be capable of sustaining multiple and potentially non-contiguous expeditionary operations.

   c. Logistics support within the Operational Support Dimension (OSD) will be provided by a combination of uniformed personnel and civilian contractors. Within the Capability Support Dimension (CSD) support will be provided primarily by defence civilians and civilian contractors.

   d. Manpower availability for the provision of logistics support will become problematic. Issues include:

      (1) A greater reliance being placed upon civilian contractors for the provision of logistics support in the CSD and OSD.

      (2) The availability of contractor support to meet future ADF deployed force logistics requirements cannot be guaranteed.

   e. Planning for all operations should be based upon the requirement for deployed forces to be logistically self sufficient.

   f. Technological advances in the future will enable Defence logistics to enhance its business processes.

   g. Logistics ‘transformation’ must not impact upon the provision of logistics support to operations being conducted in the short to medium term.

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\(^9\) The Defence Logistic Transformation Plan (DLTP), to be released separately, will describe how the logistics system will transform from its current form, the logistics ‘as is’, into the organisation required to support the FJOC.
9. The FJOC and its subordinate, but integral, joint environmental enabling concepts explain how the future force might fight. The FJOC articulates likely future roles, missions and methods and provides the context in which to consider future capability options. The environmental concepts provide a greater degree of conceptual detail and are to inform the longer term development of ADF combat capability.

Key Attributes of the Future Force

10. The FJOC describes a number of attributes of the future force. These attributes relate directly to a number of logistics characteristics, identified later in this concept. Considered collectively these attributes, detailed in the following paragraphs – and explained more fully in the FJOC -, provide an overview of how the future force will operate.

11. **Deployable.** The ADF will need to operate at a distance from established bases in Australia, in concert with coalition forces.

12. **Integrated/Interoperable.** The ADF must continue the transition to a force that is fully integrated and interoperable. As the degree of integration and synchronisation is developed, training, interoperable systems and networks will need to be established. Coordination and collaboration must also extend to inter-agency and coalition partners.

13. **Networked.** The ADF will need assured access to the whole-of-nation’s information capabilities. Adversaries may exploit any vulnerability in the nation’s network to undermine cohesion and effectiveness.

14. **Balanced.** The future force will possess an appropriate mix of capabilities in order to mount the range of operations envisaged.

15. **Incorporate precision/discrimination.** The goal for future operations is to achieve precise effects with minimum planning and response time, from a distance if required. Precision for the future ADF must not be limited to the mere application of kinetics, but also incorporated into executing operations and minimising unintended consequences.

16. **Survivable.** Each element of the future force must be able to protect itself. Timely investment in lower signatures, countermeasures and redundancy to match likely threats will be required.

17. **Persistence/Poise.** Persistence ensures that the joint force has the required endurance at all levels to generate and deploy forces for long periods. Persistence incorporates force protection, logistics, infrastructure development and sustaining the capacity of our people to work and fight.

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10 These environments are Maritime, Land and Air/space.
18. **Agile/versatile/robust.** The future ADF must be able to rapidly respond to a diverse range of missions and tasks. This will require versatile forces that are tailored and scalable for deployment, which will entail an enhanced ability to re-form, reconstitute, regroup and re-engage, especially during periods of concurrent operations.

19. **Lethal/non-lethal.** The ADF must increase its capability for desired effects through the use of both kinetic and non-kinetic means by leveraging technology advances in greater precision and discrimination.

20. **Sustainable.** The increase in mobility, tempo and adaptable nature of future force operations will require an adaptive and networked logistics system capable of operating in multiple, non-contiguous, mission spaces.

21. **Capacity for concurrency.** The future force will be able to conduct operations in more than one location simultaneously. The force will be able to sustain a major deployment on one operation for an extended period and at the same time support a less intensive operation deployed elsewhere.

22. **Responsive.** The future force must be responsive to Government requirements and the military and geopolitical situation in Australia’s area of interest.

23. **Legal/ethical.** The ADF operates within the Australian legal framework and the Laws Of Armed Conflict (LOAC).
ENDURING ASPECTS OF LOGISTICS

What is Logistics?

24. Logistics is defined as the science of planning and carrying out the movement and maintenance of forces. In its most comprehensive sense, logistics encompasses those aspects of military operations which deal with:

a. design and development, acquisition, storage, movement, distribution, maintenance, evacuation and disposition of materiel;

b. transport of personnel;

c. acquisition or construction, maintenance, operation and disposition of facilities;

d. acquisition and furnishing of services; and.

e. medical and health service support.11

25. The FJLC provided a useful description of logistics, when it stated:

‘…It (logistics) can be simplistically defined as the science of planning and carrying out the movement and maintenance of forces. In essence, logistics provides the resources that underpin combat power, positions those resources in the battlespace, sustains them throughout the execution of operations and redeploys and regenerates them…

Logistics can also be described as the bridge, which connects a nation’s economy with its warfighting forces. Logistics provides the means, which translates national resources (manpower, natural resources and industrial capacity) into physical elements of combat power (units, weapon systems, platforms and supplies)12.’

Principles of Logistics

26. The Principles of Logistics will be as applicable in the future as they are today. A future logistics concept that fails to incorporate these principles will be unable to achieve the optimum outcomes required of the logistics system. These principles are13:

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11 ADDP 4.0 Logistics.
12 Future Joint Logistics Concept (FJLC), Support Command Australia, 2002., p. 7
13 See also ADDP 4.2 Chapter 1
a. **Simplicity.** Enhanced interoperability, the use of mission command and the simplification of processes and systems will enhance the ability of the logistics infrastructure to respond to the future operational need.

b. **Economy.** The potential scarcity of resources, the likelihood of funding limitations, manpower shortages within the logistics component of the ADF and the need to support multiple operations over long distances all reinforce the requirement for the logistics system to be as economical as possible with personnel and resources.

c. **Flexibility.** The logistics system will need to be able to adapt to rapid changes in the operational situation, yet maintain the ability to provide effective and timely support to deployed forces.

d. **Responsiveness.** The success or failure of a mission will be dependent upon the ability of the logistics system to provide the necessary level of support. The physical distribution assets must be available to enable the logistics system to respond to changing operational requirements.

e. **Balance.** The logistics system must consider the need for redundancy and the maintenance of a reserve capacity. For example, reserve stock holdings need to be maintained. However, this will need to be balanced against the principle of economy.

f. **Foresight.** The requirement to anticipate the operational requirement and to identify, accumulate and maintain the assets, capabilities and information needed to support them will always exist.

g. **Sustainability.** The logistics system must be capable of providing the necessary level of support to all operations.

h. **Survivability.** The logistics system, particularly the physical and information networks, will be comprised of high value targets. A successful strike against the system can have an impact often out of proportion to the immediate physical damage. The logistics system must be capable of continuing to function despite suffering damage to the networks.

i. **Cooperation.** To achieve optimum use of logistics resources, cooperation is required across a large number of disparate HQ and units, some of which may have competing demands for the available resources.

**Support Dimensions**

27. Logistics operations contribute to the spectrum of force effects throughout the four operational support phases; preparation/pre-deployment, deployment, sustainment and conclusion/redeployment. In doing so, logistics support is effectively provided within two support dimensions, Capability Support and Operations Support (shown at Figure 4).  

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14 ADDP 4.2 Support to Operations para 1.20
15 FJLC, op cit., p16
28. **Capability Support.** This is the support needed to acquire, generate, manage and sustain capabilities through life, and to ensure that capabilities are prepared for deployment on operations. This dimension operates over longer timeframes, is focused on achieving designated levels of capability, and its success is measured by the degrees of preparedness that are achieved compared to the level of resources that are applied.

29. This dimension exists primarily within the National Support Base (NSB), and is a strategic level logistics function. There is significant potential to utilise civilian contractors and non-uniformed personnel for the provision of capability support. The challenge for Defence will be to determine the level of reliance on the private sector for the provision of support.

30. **Operations Support.** This is the support needed to deploy, redeploy and sustain a force for the duration of an operation. It sits within, and is enabled by, the capability support dimension. Operations support requires the establishment of a tailored logistics network that draws resources from the National (and International) Support Base, and positions those resources at the appropriate time and place using support bases and nodes to meet the supported force’s needs.

31. This dimension comprises both the theatre of operations, as well as that component of the NSB contributing to the direct support of the operation. There is considerable potential to utilise civilian contractors to undertake a range of operational support functions.

Figure 4 Support Dimensions

![Diagram showing the relationship between Capability Support, Operations Support, and Effect/Outcome]

Logistics and the Levels of Command

32. Figure 5—Support at the Levels of Command, highlights that the logistics requirements within these dimensions vary between the different levels of command. At the strategic level the logistics focus will be on determining the support required to generate and maintain capabilities at specified levels of preparedness, and ensuring their supportability during operations. The operational level will focus on achieving designated preparedness levels, and in ensuring that campaigns are mounted and supported. The tactical level will conduct support activities to meet preparedness directives and will focus on ensuring that battles are supported.
Networked Systems

Network Centric Warfare (NCW)\(^{16}\) discusses connectivity of systems and the human dimension in terms of three distinct domains: the cognitive domain, information domain and physical domain. Similarly logistics is described in terms of three complementary networks: Control, Information and Physical. These networks are shown at Figure 6 and are explained in the following terms:

a. **Control Network.** The control network consists of the decision-makers, the network managers, governance, policy and processes, that shape, influence and co-ordinate actions and effects within the system-of-systems. The control network bridges the cognitive and information domains.

b. **Information Network.** The information network is the data, the processing of that data, the communications and information systems and the infrastructure network in which they operate. It also incorporates the technology that enables the control network.

\(^{16}\) ADDP-D.3.1 Enabling Future Warfighting
c. **Physical Network.** The physical network comprises the nodes and modes, the platforms and places, inside and outside the battlespace within the land, air, maritime and space domains.

![Figure 6 Networked Logistics Systems](image-url)
THE FUTURE LOGISTICS ENVIRONMENT

What is Different?

34. The future operational environment will differ in many respects to the operational environment of today. As a consequence the logistics system will need to undergo significant change to be able to adapt to the changed environment. The operational force will be genuinely joint, configured to undertake expeditionary operations as the norm rather than the exception, and prepared to operate as part of a larger coalition force. Interoperability within the joint force and with coalition partners will become increasingly important. This will require increased commonality in the development of new logistics concepts, architecture, doctrine, tactics, techniques and procedures.

35. The implications of these changes will be significant. A greater emphasis will be placed upon reinvigorating provisioning to ensure that appropriate stock will be available to support deployed forces. The in-theatre logistics system will need to emphasise the distribution of support, particularly materiel, over the need to establish large stock holdings (velocity versus mass), and reflect a ‘push’ rather than ‘pull’ focus\(^\text{17}\). The way in which support is delivered to the user will need to reflect the latest advances in packaging and modularity. Advantage will be taken of technological developments, particularly as they affect materiel and personnel visibility.

36. It should be expected that contractors will play a greater role in providing logistics support, even allowing for the increased threat posed in an asymmetric warfare environment to the information and physical networks within the system. The ownership of logistics support and logistics assets will also need to reflect the changing nature of the operational environment, in which the joint commander exercises ownership over all logistics support within the theatre. Delivery of logistics effects will be the essential outcome, rather than the delivery of logistics support through single service dominated stovepipes.

Future Characteristics

37. The characteristics of future logistics, as shown in the adjacent text box, and explained in the following paragraphs, are linked directly to both the FJOC attributes and enduring logistics principles. This linkage between the characteristics, principles and attributes is shown in Table 3:

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Characteristics of Future Logistics

- Agility
- Robustness
- Precision
- Networked
- Interoperability
- Deployable

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\(^{17}\) Logistics support will be based primarily on automatic re-supply rather than demand re-supply.
Table 3 Principles, Attributes and Characteristics

<table>
<thead>
<tr>
<th>Logistics Principles</th>
<th>FJLC 2025 Characteristics</th>
<th>FJOC Attributes(^\text{18})</th>
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</thead>
<tbody>
<tr>
<td>Simplicity</td>
<td>Interoperability / Networked</td>
<td></td>
</tr>
<tr>
<td>Economy</td>
<td>Precision / Networked</td>
<td>Interoperability</td>
</tr>
<tr>
<td>Flexibility</td>
<td>Agility / Networked</td>
<td>Agile / Versatile / Robust Deployable</td>
</tr>
<tr>
<td>Responsiveness</td>
<td>Agility / Precision</td>
<td>Deployable / Networked</td>
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<tr>
<td></td>
<td>Networked / Deployable</td>
<td>Precision / Discrimination</td>
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<td></td>
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<td>Responsiveness</td>
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<tr>
<td>Balance</td>
<td>Agility / Precision</td>
<td>Balanced</td>
</tr>
<tr>
<td>Foresight</td>
<td>Precision</td>
<td></td>
</tr>
<tr>
<td>Sustainability</td>
<td>Precision / Robustness</td>
<td>Persistence / Poise / Sustainable</td>
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<td></td>
<td>Agility</td>
<td>Concurrency</td>
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<td>Survivability</td>
<td>Robustness / Agility</td>
<td>Survivable</td>
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<td>Networked / Deployable</td>
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<td>Co-operation</td>
<td>Interoperability</td>
<td>Integrated / Interoperable</td>
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<tr>
<td></td>
<td>Networked</td>
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38. **Agility.** Agile future warfighting components will demand similar traits from their logistics support elements. Rapidly changing dependencies operating throughout a dispersed battlespace require a flexible support force that can generate logistics effects across all domains and environments. Logistics agility can require alterations to the physical distribution network and rapid changes to logistics dependencies. It requires logistics support to be provided to users from the most appropriate source. It can be assessed in terms of how responsive the logistics system is to the changing operational circumstances. Logistics agility may utilise concepts such as sea basing, reachback and reachout, the latter of which are explained later in the concept.

39. **Robustness.** The battlespace of the future is likely to be characterised by increased transparency and lethality. Potential adversarial forces will have long-range precision and asymmetric capabilities that will increase the vulnerability of logistics nodes and information. It should be anticipated that networks will be targeted. The logistics system must be capable of absorbing such attacks whilst maintaining the ability to continue functioning effectively. This will require a degree of redundancy within the system. Force protection measures, including dispersion, may be necessary to create protected areas of limited size and duration in which

\(^{18}\) Does not include attributes not directly related to logistics, namely ‘lethal/non-lethal’ and ‘legal/ethical’. Underlining reflects multiple terms within a single FJOC attribute (see para 10-23)
logistics functions can be conducted. It may be necessary for some nodes to remain outside the battlespace.

40. **Precision.** Precision logistics, as the term suggests, is all about getting logistics right, or ‘the right stuff, at the right place, at the right time, in the right quantity’. It requires the timely distribution of supplies and support, to the precise location, without the need for undue redundancy resulting in excess volume flowing through the physical network. Logistics information systems that meet this requirement do not currently exist nor are the physical systems in place to do so. Precision logistics is actually the aspiration of Distribution-Based Logistics (DBL) (The concept is discussed in para 48). Understanding and adopting this characteristic will require training and education, building on the basic skill sets of our current logisticians.

41. **Networked.** Networking for future logistics is no different than networking for the warfighting elements – all components of the three networks need to be connected within and between each other. This connectivity requires an understanding of how all the connections interrelate and how the networks will be controlled. A significant challenge for the future will be determining how to integrate all the components of the ‘network-of-networks’ and how to control and manage the entire system. Networking will result in the following:

   a. a logistics system that demonstrates the right capacity to meet the joint operational commander’s needs;
   b. information and physical networks over which the necessary level of control can be exercised to track stores, equipment, (including classified assets) personnel, and, if necessary, redirect them as the operational situation demands; and
   c. a reduction in the requirement to hold stores and equipment in theatre, contributing to the optimisation of the logistics footprint.

The outcome of an effectively linked and networked system will be a logistics system that demonstrates the right capacity to meet the joint operational commander’s needs.

42. **Interoperability.** The ADF must be interoperable with our allies and commercial and NWOG organisations. By bringing together the unique capabilities of each of these components and understanding what effects they provide allows logistics support to be sourced from the most appropriate agency.

43. **Deployable.** Expeditionary forces need to be rapidly deployable, employable and sustainable throughout the future battlespace and be capable of operating independently of existing infrastructure. Similarly the logistics component of the deployed force must possess similar characteristics to enable it to support the deployed force.
THE FUTURE JOINT LOGISTICS CONCEPT

44. The characteristics of future logistics will reflect a logistics system that is genuinely joint in nature, demonstrates comprehensive integration of the three networks within the system, and has a distribution rather than stores holding focus. As explained previously in this concept, it will be agile and robust enough to maintain support to the operational force, and be capable of delivering precision effects within a joint and combined force structure. As a consequence, the FJLC 2025 can be described as a ‘Networked and Distribution Based’ concept.

Networked Logistics

45. Networked Logistics refers to the connectivity of the control, information and physical networks. In the information network connectivity allows people to share, access and protect information. In the control network connectivity allows people to develop a shared understanding and to identify opportunities and vulnerabilities. Logistics forces are able to synchronise actions in the physical network based on the shared understanding developed in the other networks.

46. Integration of the three networks will be enabled by an investment in advanced technology. This will provide both operational and logistics personnel with advanced situational awareness. Shared understanding, provided through a common operating picture, will allow logistics planners to provide the most appropriate support to the operational commander. Implications of networking on the three networks are:

   a. The control network of the future will enable the decentralised execution of the control function. This will require decision-making at the appropriate levels and supports the philosophy of mission command. Further, it may result in decision making by individuals outside the uniformed logistics organisation, within both the CSD and OSD.

   b. The information network must ensure that the correct information is available to enable the control network to respond accordingly. IT support for logistics activities will become increasingly important as the ADF reduces inventories and uses more agencies across the supply chain.19

   c. The physical network assumes greater importance in the future as the emphasis on DBL increases.

Networked Logistics refers to the connectivity of the control network, the information network and the physical network. In the control network connectivity allows people to develop a shared understanding and to identify opportunities and vulnerabilities. In the information network connectivity allows people to share, access and protect information. Based on shared understanding developed in the other domains logistics forces are able to synchronise actions in the physical domain.

19 Royal Australian Air Force, Logistics Support Concept, p 53
Distribution-Based Logistics

47. The change in focus from a demand-based to a distribution-based logistics (DBL) system will be critical to the transformation of logistics. The emphasis will be on materiel flow rather than static, demand-response supply and support chains. DBL will be dependent upon networked logistics. It will require the establishment of common distribution processes and procedures between the Services and wider Defence logistics community, including industry.

48. **DBL Characteristics.** DBL demonstrates a range of characteristics all of which are predicated on centralised control and decentralised execution. These characteristics are described as follows:

   a. **Velocity over mass.** This reflects the requirement to minimise the in-theatre stockholding by maximising the materiel flow through the various components of the logistics system. This may require more frequent distributions in smaller quantities and a revamped movement priority system.\(^{20}\) DBL will enable materiel to bypass nodes where necessary and flow via the optimal route.

   b. **Footprint optimisation.** The requirements of deployability, survivability and sustainability dictate that the in-theatre footprint be kept to the optimum size. This does not translate into a ‘minimum’ footprint as the need to support the deployed force adequately remains paramount. It is possible that the footprint may increase in order to support operations being conducted by the future joint force. Accessing support from outside the area can reduce the threat to the logistics system within an area of operations. This can be achieved through the use of ‘reachback’ and ‘reachout’:

      (1) **Reachback.** Reachback enables deployed forces to access military and non-military support from the most appropriate source outside the battle-space. Reach-back provides future forces with the knowledge that when contingencies do arise additional support can be accessed. Such sources could include a neighbouring unit, other force support assets, or the national or international support base.

      (2) **Reachout.** Reachout, also known as sidecasting, involves sourcing using alternative support arrangements through local purchase, from neighbouring sources and forces, coalition arrangements, Host Nation Support (HNS), UN arrangements, contracts within AO (not necessarily engaged by the ADF), Implementing Arrangements with other nations, foraging, etc, rather than relying on lines of communication back to the NSB.

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\(^{20}\) The current AUSMIMPS system allows for lead times far in excess of that required for the implementation of DBL.
c. **Total asset visibility.** Decentralised execution of the logistics function will be dependent upon the information network providing accurate and timely visibility of materiel and personnel within the physical network.

d. **Reliable delivery.** Seamless integration of the three networks, incorporating both the CSD and OSD, is the critical enabler to ensure reliable delivery of commodities and services to the deployed force. There must be sufficient flexibility to enable consignment destinations to be changed whilst those consignments are moving through the system.

49. **DBL capability requirements.** Guaranteed access to logistics transportation modes, of the scale and type required to support expeditionary operations, is required to enable DBL. Funding issues will dictate that alternatives to the purchase of transport assets, particularly strategic lift, may need to be identified to ensure their availability when operational requirements arise.

50. **Asset ownership.** This will encompass a number of areas, including ownership of major assets within Defence. At the operational level and below, the issue of ownership versus delivery of effects may need resolution. Leasing options for a range of capabilities and effects should also be considered, with it being necessary to challenge the accepted view that Defence must own its major assets, such as aircraft, tanks and ships. Breaking this ‘defence ownership’ paradigm, along with through-life management and the consideration of non-Defence disposal options will be a challenge and if accepted will require adaption of Defence’s current capability systems lifecycle.

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**The Future Logistics System**

Logistics in the future will be provided through a ‘Networked and Distribution-Based Logistics System’. It will rely on an increased level of situational awareness utilising enhanced network connectivity, and be agile, robust and capable of delivering precision logistics when and where required. The control network will be able to utilise available information and data to direct those assets within the physical network responsible for the actual delivery of logistics support to the user.
TRANSFORMING DEFENCE LOGISTICS

Lines of Development

51. The networks (control, information and physical) that constitute the Defence logistics system today will be the networks that exist in the future and as a consequence have been selected as the Lines of Development upon which the transformation is to be based. It is the nature of the networks that will change and this change will be implemented through the application of a number of conceptual themes against the Lines of Development.

Conceptual Themes

52. These conceptual themes, shown in the adjacent text box, and explained in subsequent paragraphs, have been selected as they assist in realising those logistics characteristics identified through experimentation, experience and doctrine.

Conceptual Themes

- Cultural and Organisational Change
- Network Integration
- Capability Enhancement
- Preparedness
- Business Practices and Processes
- Protection

53. Cultural and organisational change. The key to Defence logistics transformation is human behavioural change. People will continue to make the decisions, control, operate and be customers of the system. Cultural change, overall and within each of the transformation Lines of Development, remains the single greatest challenge to Defence logistics. A prime example of an area in which fundamental cultural change is needed is that of ownership of assets and functions. Put simply, people need to accept that assets and functions may not need to be owned to achieve the required effects. This will be one of a number of contributors to organisational change within the ADF logistics system. Maintaining ownership restrictions on assets and functions, without cultural change, could seriously hinder the delivery of logistics support.

54. Logisticians in the future will need to develop new skill sets associated with understanding networks, systems and concepts. Understanding the breadth of strategic partnering, future contractor support to operations and global supply chains will require dynamic mindset changes. It will need further investment in education and training of our logisticians and commanders who are, in the end, responsible for logistics. The decision-support tools and harnessing of technology will also change the way the learning of those skill sets is achieved.

55. Network integration. Implementation of the ‘centralised control’ and ‘decentralised execution’ process will require the complete integration of the three networks. In particular, it will require new information systems rather than short term enhancements to existing systems. As a guiding principle a reduction in the number of systems is considered essential to achieve this outcome.

56. Capability Enhancement. It is clear that networked logistics and DBL will require a range of new information and physical network capabilities. These will need to be
accompanied by the development of appropriate business processes and practices, such as a revised movement priority system.

57. **Preparedness.** Logistics preparedness is the responsibility of every commander and every manager involved in maintaining Defence capabilities at a specified level of preparedness. This concept augments the developing policy and doctrine addressing Defence preparedness. 21 The following aspects of preparedness are described below:

a. **Provisioning.** Reinvigorating provisioning, including maintaining realistic reserve and operational stockholdings, is a key enabler of logistics preparedness. It is one aspect of the current logistics system that is not only enduring but will shape the functionality of many of the future logistics information systems and processes. Consistency in provisioning practices across the Defence logistics organisation will be essential in the future.

b. **Readiness.** Readiness 22 requires that logistics planning staff are able to respond to operational requirements. The next generation logistics information systems, once networked, will provide logistics planners with the ability to achieve this outcome, leaving rapid logistics acquisitions response options to address contingencies.

c. **Sustainability.** There needs to be sufficient guaranteed logistics support to sustain a deployed force. Options for the future will include acquiring logistics support from a range of sources including global partners rather than relying on traditional warehousing and in-house distribution to the theatre of operations.

58. **Business practices and processes.** Business practices and processes will need to change to best meet the logistics requirements of the future force. A number of these issues are detailed below:

a. **Volume reduction.** Reducing the volume of materiel flowing through the physical network will not only ease the pressure on static nodal functions such as warehousing and stockholding, but also focus the logistics effort where it is most needed. Reduction in volume can be achieved by reducing usage. The fewer items in the system, the smaller the volume. This can be achieved through such developments as implementing a single battlefield fuel policy, increasing the range of commonly used spare parts (including batteries) and utilising precision munitions.

b. **Automation.** Functions and processes that are routine in nature, do not rely on complex decision-making cycles, or have limited influence on the overarching logistics network, should be automated.

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21 Preparedness = Readiness + Sustainability
22 ADDP 00.2, *Preparedness and Mobilisation*, 2004. Readiness is defined as the ability to be committed to operations within a specified time (availability + proficiency + serviceability).
23 Sustainment is the provision of personnel, logistics and other support to maintain operations until the mission is complete.
c. **Focus on operational logistics.** Elements of Defence logistics that do not need to be controlled, owned or run by the ADF could be handed over to the most appropriate agent, in and outside the Department.

d. **Increased sourcing options.** The ADF should be prepared to acquire its logistics support requirement from the most appropriate source. This may require connecting with external networks such as those of our collaborative partners, principal suppliers and allies.

e. **Contracting issues.** The ADF currently utilises a range of external agencies to support the ‘raise, train, sustain’ functions. It should be anticipated that as the level of contractor support to the ADF increases in the future the actual number of these agencies will decrease. This will occur as the processes mature and arrangements for the provision of this support become understood better within Defence and the commercial sectors. Of particular importance will be the need for Defence, and the logistics organisation in particular, to become familiar with the specific requirements for contract preparation and management. Defence must accept the culture change associated with outsourcing many logistics functions, and also the potential constraints this may impose and the dollar implication of removing those constraints.

59. **Protection.** The FJOC requires all elements of the future force to be capable of protecting themselves, and stipulates that they must have a level of protection commensurate with the contemporary threat. It proposes that this can be achieved in part through investment in lower signatures, countermeasures and redundancy to match likely threats. The implications for the logistics elements are significant, as the considerable effort and resources committed to the ‘self protection’ task will detract from the primary logistics functions required of these organisations. The greater the threat, the less logistics support that can be provided. Joint Force Commanders will have to determine whether other operational assets need to be tasked with protecting logistics elements, to the potential detriment of operational capability.
DEFENCE LOGISTICS TRANSFORMATION PLAN

60. Achieving logistics transformation will be based upon clearly delineated lines of development. These are the control, information and physical networks. The overarching control and governance of Defence logistics transformation will be explained in the DLTP.

61. The DLTP will describe how this transformation will be achieved by applying the Conceptual Themes to the three networks. The effect will be a logistics system which demonstrates the six Characteristics of future logistics described previously. The outcome will be Networked and Distribution-Based Logistics. Figure 7 provides a diagrammatic representation of this process. This process will be described in detail in the DLTP.

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**Defence Logistics Transformation Plan**

- **Lines of Development**
  - Control
  - Information
  - Physical

- **Themes**
  - Protection
  - Network Integration
  - Cultural & Organisational Change
  - Preparedness
  - Business Practices & Processes
  - Capability Enhancement

- **Characteristics**
  - 2025

- **Logistics**
  - 2025

- **Networked and Distribution-Based Logistics**

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*Figure 7 Defence Logistics Transformation Plan*
CONCLUSION

62. Meeting the operational needs of the future joint force will require a logistics system that is fully networked and has a distribution focus. Further, logistics support must serve to enable rather than restrict a joint commander’s plan. The characteristics of the logistics system of the future should, therefore, complement those attributes of the future joint force, as described in the FJOC. These characteristics must emphasise deployability, agility and the ability to operate within both a joint and combined force environment. There must be comprehensive networking of not only the three networks that comprise the logistics system, but also with those other joint networks through which a commander exercises the command and control function.

63. Creating a logistics organisation that will satisfy the operational requirement in 2025 will necessitate the expenditure of considerable time and resources. It will not come about through evolutionary change, but will require a significant transformation of the logistics system as it currently exists. The way in which this change will be bought about will be detailed in the DLTP. The required outcomes will be achieved through three lines of development, which will be aligned directly with the control, information and physical networks. People will continue to be central to all future defence logistics functions and significant cultural change will be required if transformation is to be successful.
Appendix B: The Defence Logistics Transformation Plan

Australian Defence Force

Joint Logistics Group

Defence Logistics Transformation Plan
Abridged

Version 1 2007
The primary responsibility of Joint Logistics Group is to ensure that logistics support is provided in an efficient and cost effective manner to the ADF and in particular those Force Elements undertaking operations. In the longer term this responsibility will translate to the provision of support to the Future Joint Force. In order to achieve this outcome and to embrace the attributes of the Future Joint Force it will be necessary to undertake significant cultural and organisational change, modernise our business practices and processes and enhance our capabilities.

The Future Joint Logistics Concept 2025, endorsed by the Defence Logistics Committee as our way ahead for the next two decades, describes in broad terms the way in which we will carry out our logistics functions. I envisage that Logistics in the future will be agile, robust and capable of delivering precision logistics to support a deployable and interoperable Future Joint Force. This will be achieved through increased situational awareness utilising enhanced network connectivity.

Whilst this Plan adopts a long term approach to Logistics Transformation there are a number of issues that need to be addressed in the short term to energise this process. From my perspective, I consider the three major issues to be:

- Ensuring End - to - End Asset visibility, particularly in support of operations;
- Reinvigorating logistics infrastructure in order to optimise the distribution function; and
- Establish a Networked and Distribution - Based Logistics System; the aspirational Logistics concept of operations as articulated in Future Joint Logistics Concept 2025.

Logistics transformation will only be achieved through a unified effort on the part of all members of the Defence logistics community. This includes uniformed members of the Navy, Army and Air Force, Defence civilians and external contractors. In particular stronger relationships need to be developed between the Joint Logistics Group and the Service Chiefs, Capability Development Executive, the Chief Finance Officer, the Chief Information and Defence Materiel Organisation.

Resources for the implementation of the Plan will be provided in the short term through Joint Logistics Group. As other stakeholders become engaged in the years to come the funding base will be broadened. The Plan is to commence immediately upon endorsement by the Defence Logistics Committee, and I anticipate that the initial outcomes will be apparent at the end of the first year. The major achievements are identified in the Defence Logistics Transformation Roadmap, which can be found on the Strategic Logistics Branch website (http://intranet.defence.gov.au/jlg/sites/SLB/). As with the Concept and the Plan, this Roadmap will be updated regularly to reflect changes, achievements and aspirations.
Logistics Transformation can only be achieved through an ongoing process of change in which all of us, regardless of rank or level, will play a vital role. We must retain a focus throughout this process on providing the best possible support to the warfighters to ensure mission success.

G. D. Cavenagh, AM
Major General
Commander Joint Logistics (include photo)
This version of the DLTP does not contain the Appendixes. These are to be found in the complete DLTP on the SLB Web site at http://intranet.defence.gov.au/jlg/sites/SLB/

Executive Summary

Recent operational experience revealed that the ADF had deficiencies in some logistics capabilities and these have been identified in various reports. The Defence Capability Plan contains a number of projects to mitigate some of these shortfalls. The DLTP, having as it does a focus on the provision of support to the warfighter, will address these and related logistics deficiencies in order to enhance the efficiency and effectiveness of logistics support to operations.

Some of the factors impacting on the ADF logistics system include; changes in the strategic environment with consequent changes to strategic policy, the conduct of future warfare, technological advances and demographic changes.

The current ADF logistics system has a peace time focus but is still inefficient. Many of the processes are manual, time consuming and unwieldy. The notional delivery times for movement of assets are not in keeping with current commercial practice. The information and control systems are not networked and there is poor connectivity between systems. In addition, the current policies and practices are focussed around supply based logistics, which emphasises the importance of mass to insure against supply disruption. The system suffers from not having reliable data on which to base decisions and a lack of responsiveness.

Logistics in the future will be provided through a ‘Networked and Distribution-Based Logistics System’. It will be agile, robust and capable of delivering precision logistics when and where required. To realise this it will rely on an increased level of situational awareness utilising enhanced network connectivity. The control network will be able to utilise available information and data to direct those assets within the physical network responsible for the actual delivery of logistics support to the user. These networks comprise the logistics system now and are enduring, therefore Logistics transformation will be conducted using them as Lines of Development.

Development of the Defence Logistics Transformation Plan (DLTP) commenced with bringing together a representative group of senior defence logisticians. They identified 299 actions, called All Actions, required to transform defence logistics to 2025. From this list the participants prioritised the top 82, called Initial Priorities and selected 23 High Priority actions. In addition, they selected 22 short term - low cost actions. Subsequent analysis combined the high priority and the short term - low cost actions into a list of 34 (11 actions were common to both lists) called the Revised Priority list.

This version of the plan focuses on the 16 actions, known as Initial Steps, taken from the Revised Priority list to be commenced in the first year with outputs feeding into the remaining actions to be further examined subsequently. The 16 Initial Steps have been grouped by Line of Development, these being Control, Information and Physical, with all but one action requiring
integration across more than one Line of Development. Additionally, the 25 sub-tasks of these Initial Steps were examined and their means of resolution identified; through the clusters of Studies, Experimentation and Training.

Commander Joint Logistics (CJLOG), through the Defence Logistics Committee (DLC), is responsible for logistics transformation including the development of metrics to assess the success of the Plan and improvements to the logistics system. CJLOG has further devolved responsibility for the ongoing development and implementation of the DLTP to Director General Strategic Logistics (DGSL). In order to maintain visibility of transformation development DGSL is required to provide quarterly briefings to the DLC, and seek direction from CJLOG as required. The DLC will review progress of the DLTP and will be required to formally endorse any changes to the plan. Additionally, Director Strategic Logistics Transformation (DSLT) will provide regular updates to the Defence Logistics Working Group. CJLOG will regularly brief the Defence Committee and the Chiefs of Service Committee on the progress of logistics transformation.

There are a number of issues that need to be addressed to energise this Plan whilst being conscience that this is part of a long term process running over some two decades. These issues are; ensuring total asset visibility, reinvigorating logistics infrastructure, and establishing the aspirational Networked and Distribution - Based Logistics System by the year 2025.

In the short term (0-2 years) responsibility for development and implementation of these issues and other aspects of DLTP will rest with the DSLT within SLB. DSLT will coordinate the activities of working groups, contractors and other individuals tasked in support of the DLTP.

The longer term achievements are identified in the Defence Logistics Transformation Roadmap, which can be found on the Strategic Logistics Branch website (http://intranet.defence.gov.au/jlg/sites/SLB/). As with the Concept and the Plan, this Roadmap will be updated regularly to reflect changes, achievements and aspirations.
Part 1 – Introduction

The Need for Transformation

Recent operational experience revealed that the ADF had deficiencies in some logistics capabilities. These deficiencies have also been reported in the Hingston\(^{24}\), Jackson\(^{25}\) and Australian National Audit Office\(^{26}\) (ANAO) reports. A number of projects have been included in the Defence Capability Plan (DCP) to mitigate some of these shortfalls. The DLTP, having as it does a focus on the provision of support to the warfighter, will address these and related logistics deficiencies in order to enhance the efficiency and effectiveness of logistics support to operations.

A number of factors have impacted on the ADF logistics system causing an evaluation of how support is likely to be provided out to 2025. Some of these factors include; changes in the strategic environment with consequent changes to strategic policy, the conduct of future warfare as described in Future Joint Operations Concept (FJOC)\(^{27}\) and Future Joint Logistics Concept 2025 (FJLC 2025), technological advances and demographic changes.

The FJOC has identified the way operations will be conducted and sets out a number of considerations that will impact upon how logistics support is provided in the future. Those with a direct impact on logistics transformation are:

- Australia’s broad security interests are increasingly global.
- The methods employed by the future ADF will include conventional, unconventional, whole-of-nation and alliance/coalition warfare.
- A major challenge facing the ADF is to raise and structure an appropriate force.
- The necessity for the future force to win a conventional warfare contest remains, even if it does not itself use conventional tactics to do so.
- The future force operating environment will comprise the physical, information and cognitive domains.
- Personnel, organisations and equipment will need to be increasingly adaptable to multiple operating environments.
- The future force will use Multi Dimensional Manoeuvre.
- The simultaneity of the future force’s roles will require flexibility and adaptability, creating greater demands on logistics, transport, training, personnel, finance and equipment.

The ADF of 2025 must have a greatly enhanced capacity to conduct networked, effects-based operations. It will possess a significantly improved capability to project force and will have a greatly enhanced capacity to conduct deployed operations.

\(^{24}\) Hingston Report: An Evaluation of ADF Logistics Support to Operations in the Middle East
\(^{25}\) Jackson Report: Operation Anode Lessons Learned
\(^{26}\) ANAO Report No 38 2001-02: Management of ADF Deployments to East Timor
\(^{27}\) FJOC is not yet endorsed.
Currently the ADF logistics system is both large and complex. It is ostensibly a joint system, however it tends to operate along single service lines. In addition, it has undergone several significant changes recently and is continuing to change. Some of the more significant changes have been in the areas of Command and Control, acquisition and an increasing emphasis on contracting.

The current ADF logistics system displays a number of characteristics. It has a peace time focus but is still inefficient. Many of the processes are manual, time consuming and unwieldy. The notional delivery times for movement of assets are not in keeping with current commercial practice. The information and control systems are not networked and there is poor connectivity between systems. In addition, the current policies and practices are focussed around supply based logistics, which emphasises the importance of mass to insure against supply disruption. The system suffers from not having reliable data on which to base decisions and a lack of responsiveness.

Despite its complexities and shortcomings, the logistics system works. This is because it is staffed by dedicated personnel who do whatever is required to make the system work. However, there are a variety of significant gaps in the capabilities of the current logistics system that can only be addressed by substantial organisational, cultural and technological changes.\(^2\) The FJLC 2025 describes the future of logistics as being Networked and Distribution – Based. The DLTP details how these changes and the aspirations of the FJLC 2025 will be implemented.

**FJLC 2025 Overview**

Logistics in the future will be provided through a ‘Networked and Distribution-Based Logistics System’. It will be agile, robust and capable of delivering precision logistics when and where required. To realise this it will rely on an increased level of situational awareness utilising enhanced network connectivity. The control network will be able to utilise available information and data to direct those assets within the physical network responsible for the actual delivery of logistics support to the user. These networks comprise the logistics system now and are enduring, therefore Logistics transformation will be conducted using them as Lines of Development.

The DLTP section of FJLC 2025 describes how transformation will be achieved by applying the Conceptual Themes to the three Lines of Development. The effect will be a logistics system which demonstrates the six Characteristics of future logistics. These Themes and Characteristics are listed below and described in the Glossary.

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The outcome will be Networked and Distribution-Based Logistics. Figure 8 provides a diagrammatic representation of this process.

**Defence Logistics Transformation Plan**

**Lines of Development**
- Control
- Information
- Physical

**Conceptual Themes**
- Business Practices & Processes
- Capability Enhancement
- Culture & Organisational Change
- Network Integration
- Preparedness
- Protection

**Characteristics**
- Agility
- Robustness
- Precision
- Networked
- Interoperability
- Deployable

Figure 8 Defence Logistics Transformation Plan

**DLTP Development Process**

Development of the DLTP followed the concept-led planning approach that has been endorsed by Defence. It commenced with bringing together a representative group of senior defence logisticians for a workshop. They identified 299 actions, called *All Actions*, required to transform Defence Logistics to 2025. Upon review the list of 299 was reduced to 257 actions by removing all instances of duplication. From this list the participants prioritised the top 82, called *Initial Priorities*, and applying a similar approach these were reduced to 57 actions. From the Initial Priorities the 23 high priority actions were selected. In addition, they selected 22 short term - low cost actions. Subsequent analysis combined the high priority and the short
term - low cost actions into a list of 34 (11 actions were common to both lists) called the Revised Priority list.

During a second workshop subordinate tasks were added to the actions in the Revised Priority list. The participants also reduced the number of actions in Revised Priority list to 27 by merging some of the actions and these were then reprioritised. This workshop also determined the timelines for the subtasks and the dependencies between subtasks. These were later used to select actions for the initial steps of the transformation. Some of the 27 actions were subsequently merged because they either had the same subtasks or addressed different aspects of the same issue. Duplicate actions were removed thus reducing the number of actions in the Revised Priority list to 23.

This version of the plan focuses on the 16 actions, known as Initial Steps, taken from the Revised Priority list to be commenced in the first year with outputs feeding into the remaining actions to be addressed subsequently, along the DLTP timeline.

The longer term achievements are identified in the Defence Logistics Transformation Roadmap, which can be found on the Strategic Logistics Branch website (http://intranet.defence.gov.au/jlg/sites/SLB/). As with the Concept and the Plan, this Roadmap will be updated regularly to reflect changes, achievements and aspirations.

**Part 2 – Conducting Transformation**

This part describes the 16 Initial Steps commencing in FY07/08 required for logistics transformation. These have been grouped by Line of Development and along the DLTP timelines out to 2012. Additionally the sub-tasks of these 16 actions were examined and the clusters of Studies, Experimentation and Training emerged. These clusters are then described.

**Initial Steps**

In the first year, FY07/08, each Line of Development contains a similar number of actions. These 16 actions, shown by Line of Development in Figure 9 following, are the Initial Steps of the DLTP.
Action is primarily in the:
Control Network
Information Network
Physical Network

Figure 9 Initial Steps Summary FY07/08 Only

The number in each box represents the unique identifier of the action (from Error! Reference source not found.) and the actions are shown in priority order from left to right by Line of Development. These actions are explained in more detail in Sections 0, 0 and 0 of this Plan.

Whilst each action in Figure 9 is addressed within its primary Line of Development, in nearly all cases, the action affects more than one Line of Development. This is shown graphically in Figure 10 below.

Action is primarily in the:
Control Network
Information Network
Physical Network

Figure 10 Initial Steps Summary Integration Aspects FY07/08 Only

The Information Action 165 is the only Initial Step that does not affect any other Line of Development. Actions 72, 146, 167, 204, 201, 271, 274 and 259 affect all three Lines of Development with the remaining seven actions affecting two Lines of Development.
Initial Steps Summary

The number of Actions and Sub-tasks for each Line of Development are shown in Table 4. In the first year all Characteristics except for Networked and all Themes with the exception of Protection are covered by the 16 actions. These Actions for each Line of Development are provided in more detail in sections 0, 0 and 0 respectively.

Table 4 Initial Actions and Sub-tasks by Line of Development

<table>
<thead>
<tr>
<th>Line of Development</th>
<th>No. of Actions</th>
<th>No. of Sub-tasks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>6</td>
<td>9</td>
</tr>
<tr>
<td>Information</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>Physical</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>16</strong></td>
<td><strong>25</strong></td>
</tr>
</tbody>
</table>

Control Line of Development

Control Steps

The Actions within the Control Line of Development that need to be addressed during the first year of the DLTP are listed below together with the Characteristics they address utilising the Conceptual Themes:

- **Influence and support relevant DCP initiatives IOT increase supply chain visibility and control (72).** This focuses on Precision through Capability Enhancement.
- **Enhance situational awareness IOT improve the integration of the networks (53).** This focuses on Agility through Capability Enhancement.
- **Develop an integrated operations/logistics picture IOT improve logistics support to operations (138).** This focuses on Agility through Network Integration.
- **Conduct modelling, testing, simulation and analysis IOT develop an understanding of logistics preparedness (146).** This focuses on Deployability through Preparedness.
- **Develop alternate options and procedures IOT mitigate effect of interruptions to communications (46).** This focuses on Deployability through improved Business Practices and Processes.
- **Develop the dashboard IOT display informational and functional requirements (76).** This focuses on Precision through Capability Enhancement.

Control Timeline

In addition to the six actions (steps) listed above there are a further 15 sub-tasks that commence in subsequent years. The actions and their sub-tasks are displayed out to 2012 in Table 5.
## Table 5 Control Steps Timeline

<table>
<thead>
<tr>
<th>Steps / Action Statement</th>
<th>ID</th>
<th>Sub-task</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Influence and support relevant DCP initiatives IOT increase supply chain visibility and control</td>
<td>72-1</td>
<td>Develop and implement a proposal to formalise logistic consideration of all DCP projects</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>72-2</td>
<td>Develop a plan for the implementation of the AIT-TAV strategy, including prioritisation of effort</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>72-3</td>
<td>Establish an agreed joint protocol, including allocation of responsibilities, for AIT-TAV activities with in the ADF in the NSB and in support of operations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>72-4</td>
<td>Incorporate protocols within DSCM IOT standardise procedures</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>72-5</td>
<td>Embed protocols within operational DSSs IOT standardise and optimise supply chain</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Enhance situational awareness IOT improve the integration of the networks</td>
<td>53-1</td>
<td>Identify triggers and key factors from the perspective of control network processes and procedures across all lines of development IOT determine where integration effort should be placed</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>53-2</td>
<td>Analyse outcomes from 53-1 and determine priorities</td>
<td>53-1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>53-3</td>
<td>Endorse priorities and insert into experimentation (5)</td>
<td>53-4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>53-4</td>
<td>Fight and win the resources to establish control network tools</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Develop an integrated ops / log picture IOT improve logistic support to operations</td>
<td>138-1</td>
<td>Undertake a review IOT identify current status of all LIS projects (majors, minors and developments - JP2077 2B.2)</td>
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<td></td>
<td>138-2</td>
<td>Scope what (log) need from ops picture, and what ops need from log picture</td>
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<td></td>
<td>138-3</td>
<td>Inform development of data protocols/templates to support automation of OPS/LOG data feeds IOT to support OPS/LOG planning and execution</td>
<td>138-4</td>
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<td></td>
<td>138-4</td>
<td>Input into experimentation (5)</td>
<td>53-4</td>
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<tr>
<td>Steps / Action Statement</td>
<td>ID</td>
<td>Sub-task</td>
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<tr>
<td>Conduct modelling, testing, simulation and analysis IOT develop an understanding of what log preparedness is</td>
<td>146-1</td>
<td>Scope the problem IOT determine what aspects of logistic preparedness are not well understood</td>
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<td></td>
<td>146-2</td>
<td>Develop tools IOT enable exploration of logistics preparedness</td>
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<tr>
<td></td>
<td>146-3</td>
<td>Embark on the testing, simulation and experimental journey</td>
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<tr>
<td>Develop alternate options and procedures IOT mitigate effect of interruptions to comms</td>
<td>46-1</td>
<td>Develop a risk mitigation strategy for the loss of comms in support of operations (including input to JP2077 and JP2030)</td>
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<td></td>
<td>46-2</td>
<td>Study to see what comms and control systems other than JP2077 are deployed both now and out to 2025</td>
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<td></td>
<td>46-3</td>
<td>Develop procedures for comms dependant systems</td>
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<tr>
<td>Develop the dashboard IOT display informational and functional requirements</td>
<td>76-1</td>
<td>Identify information and functional requirements for each level (S,O,T)</td>
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<tr>
<td></td>
<td>76-2</td>
<td>Endorsement of scope and funding to proceed to dashboard prototype development</td>
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<td></td>
<td>76-3</td>
<td>Develop/identify and test suitable prototype</td>
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<td></td>
<td>76-4</td>
<td>Insert into experimentation (5)</td>
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<tr>
<td></td>
<td>76-5</td>
<td>Decision and implementation of dashboard</td>
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</tbody>
</table>
**Information Line of Development**

**Information Steps**

Within the Informational line of development there are five actions (of the 16 Initial Steps) with 10 sub-tasks that commence in year one. These actions and the characteristics addressed utilising the conceptual themes are as follows:

- **Conduct regular and automated data comparisons/verification to prevent and/or recognise corruption (control framework) IOT prevent and limit the corruption of data** (165). This focuses on Robustness through improved Business Practices and Processes.
- **Robust validated training and SOP are required IOT improve user expertise** (167). This focuses on Robustness through improved Business Practices and Processes.
- **Develop Contract management expertise and understand the limitations of contracts in the ADF IOT improve defence contract management** (180). This focuses on Interoperability through improved Business Practices and Processes.
- **Improve RAM (Reliability, Availability, Maintainability) of equipment and increase the level of organic support IOT provide appropriate logistics support to the deployed force** (204). This focuses on Deployability through Capability Enhancement.
- **Study the effects, benefits and costs of interoperability IOT determine the appropriate level of interoperability for the ADF** (201). This focuses on Interoperability through Capability Enhancement.

**Information Timeline**

There are two additional sub-tasks within those actions (steps) that commence in subsequent years. The actions and their sub-tasks are displayed out to 2012 in Table 6.
<table>
<thead>
<tr>
<th>Steps / Action Statement</th>
<th>ID</th>
<th>Sub-task</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conduct regular and automated data comparisons/verification</td>
<td>165-1</td>
<td>Scope the problem of data corruption IOT identify and regulate data sources</td>
<td></td>
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<tr>
<td>to prevent and/or recognise corruption (control framework)</td>
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<tr>
<td>IOT prevent and limit the corruption of data</td>
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<tr>
<td>165-2 Develop a data validation and purification strategy</td>
<td></td>
<td>Develop a data validation and purification strategy and systems IOT ensure data integrity</td>
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<tr>
<td>and systems IOT ensure data integrity</td>
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<tr>
<td>165-3 Implement data entry skills training IOT minimise</td>
<td></td>
<td>Implement data entry skills training IOT minimise incidents of data</td>
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<tr>
<td>incidents of data corruption</td>
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<td>corruption</td>
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<tr>
<td>167-1 Develop training needs analysis IOT meet ongoing</td>
<td></td>
<td>Develop training needs analysis IOT meet ongoing systems or business</td>
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<tr>
<td>systems or business development requirement</td>
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<td>development requirement</td>
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<tr>
<td>167-2 Define policy and develop a procedure and testing</td>
<td></td>
<td>Define policy and develop a procedure and testing regime to ensure</td>
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<tr>
<td>regime to ensure &quot;competency&quot; for all users IOT ensure</td>
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<td>&quot;competency&quot; for all users IOT ensure compliance with expected standards</td>
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<td>compliance with expected standards</td>
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</tbody>
</table>

Legend:
- **red**: can NOT proceed until prior action is completed
- **yellow**: linked to another action
- **green**: stand-alone action
<table>
<thead>
<tr>
<th>Steps / Action Statement</th>
<th>ID</th>
<th>Sub-task</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
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</thead>
<tbody>
<tr>
<td>Develop Contract</td>
<td>180-</td>
<td>Confirm that recent DSLPOL sponsored Training Needs Analysis incorporated</td>
<td></td>
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<tr>
<td>management expertise</td>
<td>180-</td>
<td>Contract Management training IOT inform future training requirement</td>
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<tr>
<td>and understand the</td>
<td>180-</td>
<td>Examine DMO Commercial Acumen course IOT establish applicability to ADF</td>
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<tr>
<td>limitations of contracts</td>
<td>180-</td>
<td>Shape future training to cover any gaps</td>
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<tr>
<td>in the ADF IOT</td>
<td>180-</td>
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<tr>
<td>improve defence</td>
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<td>contract management</td>
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<tr>
<td>Improve RAM (Reliability, Availability, Maintainability) of equipment and increase the level of organic support IOT provide appropriate logistics support to the deployed force</td>
<td>204-</td>
<td>Develop a series of RAM standards to be incorporated within the acquisition process</td>
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<td></td>
<td>204-</td>
<td>Brief proposed standards to DCIC and gain approval</td>
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<td></td>
<td>204-</td>
<td>Conduct a study to ascertain the appropriate level of organic support for deployed forces IOT allow CJOPS to determine required force structure</td>
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<tr>
<td>Study the effects,</td>
<td>201-</td>
<td>Commission a cost benefit analysis of current and planned interoperability investment</td>
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<td>benefits and costs of</td>
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<td>interoperability IOT</td>
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<tr>
<td>determine the appropriate level of interoperability for the ADF</td>
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</table>
Physical Line of Development

Physical Steps

Within the Physical line of development there are five actions (of the 16 steps) with six sub-tasks that commence in year one. These actions and the characteristics addressed utilising the conceptual themes are as follows:

- **Need to understand how far the ADF can deploy in both independent and coalition operations IOT plan for operations within the ADF capability (DPG)** (271). This focuses on Deployability through Capability Enhancement.
- **Conduct a study of the current NSB storage and distribution assets IOT optimise the distribution function** (136). This focuses on Agility through improved Business Practices and Processes.
- **Develop an education module IOT ensure logistics personnel better understand reserve stockholding policy** (280). This focuses on Robustness through Culture and Organisational Change.
- **Identify the need for and if required develop a deployable Joint Logistics HQ IOT better use the inter service logistics capability** (274). This focuses on Agility through Culture and Organisational Change.
- **Develop a joint logistics acquisition process IOT prevent inappropriate single service acquisitions** (259). This focuses on Agility through Capability Enhancement.

Physical Timeline

There are nine additional sub-tasks within those actions (steps) that commence in subsequent years. The actions and their sub-tasks are displayed out to 2012 in Table 7.
### Table 7 Physical Steps Timeline

<table>
<thead>
<tr>
<th>Steps / Action Statement</th>
<th>ID</th>
<th>Sub-task</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Need to understand how far the ADF can deploy in both independent and coalition operations IOT plan for operations within the ADF capability (DPG)</td>
<td>271-1</td>
<td>Conduct a study to determine the logistic support implications of the DPG deployment parameters</td>
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<tr>
<td>Conduct a study of the current NSB storage and distribution assets IOT optimise the distribution function</td>
<td>271-2</td>
<td>Establish a mechanism of and implement an ongoing staff check (review) of the DPG-DCP alignment IOT identify shortfalls in current capability and capability gaps for the future</td>
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<tr>
<td></td>
<td>236-1</td>
<td>Identify and review existing studies IOT feed into new study</td>
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<tr>
<td></td>
<td>236-2</td>
<td>Identify delta and scope new study IOT adequately resource study</td>
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<tr>
<td></td>
<td>236-3</td>
<td>Conduct the study</td>
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<tr>
<td></td>
<td>236-4</td>
<td>Endorse study outcomes</td>
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<td></td>
<td>236-5</td>
<td>Manage the outcomes of the study</td>
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</tbody>
</table>

**Legend**
- Green: Action can proceed
- Yellow: Action must linked to another action
- Red: Action can NOT proceed until prior action is completed

**Stand-alone action**
<table>
<thead>
<tr>
<th>Steps / Action Statement</th>
<th>ID</th>
<th>Sub-task</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Develop an education module IOT ensure logistics personnel better understand reserve stockholding policy</td>
<td>280-1</td>
<td>Undertake training needs analysis IOT determine training shortfall</td>
<td>✔️</td>
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<td></td>
<td>280-2</td>
<td>Develop training modules IOT deliver training</td>
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<td></td>
<td>✔️</td>
</tr>
<tr>
<td>Develop a deployable Joint Logistics HQ IOT better use the interservice logistics capability</td>
<td>274-1</td>
<td>Conduct a study to better understand the logistic capabilities and effects of the three services</td>
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<td>✔️</td>
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</tr>
<tr>
<td>comment: Is a HQ construct mandatory?</td>
<td>274-2</td>
<td>Establish a process/methodology to generate the required effect from joint capabilities</td>
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<td></td>
<td>✔️</td>
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<tr>
<td></td>
<td>274-3</td>
<td>Determine requirements for a deployable joint logistics HQ</td>
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<td></td>
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<td>✔️</td>
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<tr>
<td></td>
<td>274-4</td>
<td>Determine options for the employment of deployable joint logistics HQ</td>
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<td>✔️</td>
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<td></td>
<td>274-5</td>
<td>Endorse and implement selected options</td>
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<td></td>
<td>✔️</td>
</tr>
<tr>
<td>Develop a joint logistics acquisition process IOT prevent inappropriate single service acquisitions</td>
<td>259-1</td>
<td>Undertake a scoping study to identify the nature and magnitude of the problem IOT determine the future course of action</td>
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<td>✔️</td>
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</table>
Studies, Experimentation and Training

Further examination of the steps, focussing on the sub-tasks, produced the following emergent clusters; Studies, Experimentation and Training.

Studies

Listed below are the 19 studies\(^{29}\) (sub-tasks) that need to commence during the initial stages of the DLTP. These studies will provide the knowledge and understanding that will provide a solid foundation for subsequent transformation.

- Develop a risk mitigation strategy for the loss of communications in support of operations (including input to JP2077 and JP2030) (46-1).
- Determine what communications and control systems other than JP2077 are deployed both now and out to 2025 (46-2).
- Identify triggers and key factors from the perspective of control network processes and procedures across all lines of development IOT determine where integration effort should be placed (53-1).
- Conduct a study IOT develop and implement a proposal to formalise logistics consideration of all DCP projects (72-1).
- Develop a plan for the implementation of the AIT-TAV strategy, including prioritisation of effort (72-2).
- Identify and implement an agreed joint protocol, including allocation of responsibilities, for AIT-TAV activities with in the ADF in the NSB and in support of operations (72-3).
- Identify information and functional requirements for each level (Strategic, Operational and Tactical) of the Dashboard (76-1).
- Undertake a review IOT identify current status of all LIS projects (majors, minors and developments - JP2077 2B.2) (138-1).
- Conduct a study IOT determine what aspects of logistics preparedness are not well understood (146-1).
- Study the data corruption problem IOT identify and regulate data sources (165-1).
- Develop a data validation and purification strategy and systems IOT ensure data integrity (165-2).
- Commission a cost benefit analysis of current and planned interoperability investment(201-1).
- Identify a series of RAM standards to be incorporated within the acquisition process (204-1).
- Conduct a study to ascertain the appropriate level of organic support for deployed forces IOT allow CJOPS to determine required logistics force structure (204-3).
- Identify and review existing studies (of the current NSB storage and distribution assets) IOT feed into new study (236-1).

\(^{29}\) Studies include Projects, Plans and directed tasking to enhance knowledge and understanding
• Undertake a scoping study to identify the nature and magnitude of the problem (inappropriate single service acquisitions) IOT determine the future course of action (259-1).
• Conduct a study to determine the logistics support implications of the DPG deployment parameters (271-1).
• Establish and implement an ongoing mechanism of review (staff check) of the DPG-DCP alignment IOT identify shortfalls in current logistics capability and capability gaps for the future (271-2).
• As a part of the review to determine the requirement for a deployable joint logistics HQ, conduct a study to better understand the logistics capabilities and effects of the three services (274-1).

Experimentation

The DLTP experimentation program begins after the Initial Steps and continues throughout the life of the plan. As such, many of the actions with studies as a sub-task will require experimentation, in accordance with the Lines of Development timelines, before the action can be completed.\textsuperscript{30}

Training

Listed below are the six training activities (sub-tasks) that need to commence during the initial stages of the DLTP. These training activities will enhance the skill base required to realise logistics transformation.

• Implement data entry skills training IOT minimise incidents of data corruption (165-3)
• Undertake a training needs analysis across the three Lines of Development IOT meet ongoing systems or business development requirement (167-1).
• Define policy and develop a procedure and testing regime to ensure ‘competency’ for all users IOT ensure compliance with expected standards (167-2).
• Confirm that recent DSLPOL sponsored training needs analysis incorporated contract management training IOT determine future training requirements (180-1).
• Assess DMO Commercial Acumen Course IOT establish ADF applicability (180-2).
• Undertake training needs analysis (of reserve stockholding policy) IOT determine training shortfall (280-1).

\textsuperscript{30} Actions 53, 138, 146, 76 and 274 have been identified as requiring experimentation.
Part 3 – Governance

Responsibilities and Roles

Key Responsibilities

Responsibilities for development and implementation of the DLTP are:

- **CJLOG.** Overall responsibility for defence logistics transformation. Development of metrics\(31\) to assess the success of the Plan and improvements to the logistics system.
- **DGSL.** Responsible on behalf of CJLOG for the development and implementation of the DLTP, ensuring it is an ongoing process.
- **DSLT.** The lead Director within SLB with responsibility for logistics transformation.
- **DLC.** The DLC will provide ongoing guidance on logistics transformation and will progressively endorse the outcomes of the transformation process.

JLG Responsibilities and Roles in Transformation

CJLOG has responsibility for logistics transformation. DGSL has the ongoing responsibility for the detailed preparation of the DLTP, and supervision of those supporting organisations and individuals involved in the transformation process. CJLOG is also the capability manager for Joint Logistics, and will have a direct role in determining the logistics solution to capability gaps in the future.

Transformation of logistics system will impact upon all components of the Defence logistics organisation, especially the single Service logistics elements. CJLOG has no direct command relationship with some of these organisations yet will be developing and implementing a process that will impact significantly on them. In the short term a cooperative approach will need to be taken to ensure that logistics transformation incorporates all logistics elements within Defence.

Committees

The DLTP will be influenced by a range of related documents and Defence committees. In the first instance the FJLC 2025 will primarily focus on the need to support the future joint force. The nature of that force, including the attributes required of that force in 2025, is enunciated in the overarching FJOC. That concept provides the basis for the FJLC 2025 and is therefore the foundation upon which the DLTP is being developed. It will be necessary, in the longer term, to ensure that the logistics support components of the Future Maritime Operating Concept (FMOC), Future Land Operating Concept (FLOC), and Future Air and Space Operating Concept (FASOC) remain compatible with the logistics concept as explained in the FJLC 2025.

The Defence Committee (DC) and the Chiefs of Service Committee (COSC) provide direction for the development of strategic level guidance to subordinate committees including the DLC.

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\(31\) Metrics to relate to the effects on the characteristics.
The DLC, chaired by CJLOG, will provide direct guidance, and give approval where necessary, to those individuals and groups tasked with developing and implementing the DLTP.

Resources

In the short term (0-2 years) responsibility for development and implementation of the DLTP will rest with the Directorate of Strategic Logistics Transformation (DSLT) within Strategic logistics Branch (SLB). Director Strategic Logistics Transformation will coordinate the activities of working groups, contractors and other individuals tasked in support of the DLTP.

Finance

Funding of the ongoing development of the DLTP will be managed by SLB. Bids for DLTP related activities will be submitted by SLB as part of the JLG budget allocation process. Once funds have been allocated by CJLOG, SLB will be responsible for the provision of ongoing funding support to working groups and other individuals and organisations directly involved in this activity. SLB will additionally be responsible for the funding of external contractors engaged in support of the DLTP process.

Metrics & Measures

Approach

The assessment phase of the DLTP requires the effects of the program to be evaluated, both on short-term measures and on long-term indicators of success or failure. This process is also emphasised in the Define-Measure-Improve (DMI) process, shown in Figure 11, applied in the US Army’s Velocity Management Initiative. This approach has three steps: define the process, measure the process and improve the process.

From the perspective of the DMI approach many of the actions, in particular the Studies, which have been selected to form the Initial Steps of the DLTP fit into the Define step. All the actions requiring experimentation fall under the Measure step of DMI methodology because they involve establishing processes for obtaining and analysing data. The actions relating to training fit in the Improve step because their objective is to improve the skills of personnel in various aspects of defence logistics.
Success of Actions

As detailed earlier in this section metrics will be used to determine the level of achievement for each action. Progress against milestones will form a component of the regular reports to the DLC. Where an action has been completed, the effect on the logistics system will be measured and the impact on the relevant characteristics will be highlighted and reported to the DLC. Where an action is not completed in accordance with the timeline the consequences will be briefed to the DLC and the DLTP amended accordingly.

Success of DLTP

The progress of the DLTP will be monitored throughout the life of the plan with an ongoing review process. The linkage of a range of actions against the timelines will be essential to achieving a successful outcome. Failure to successfully complete tasks along that timeline will undermine later actions in the Plan and will significantly limit the ability to achieve the aspirations outlined in FJLC 2025. The metrics are not necessarily quantitative but may include; acceptance by senior defence leaders, short and medium term actions are adequately resourced, there is a learning focus on the DLTP and integration of the DLTP within other Defence plans.

Success of Transformation

In determining the success of transformation it is necessary to demonstrate that the collective actions have contributed to an improvement in the Defence logistics system. These improvements could be measured using conventional supply chain metrics and/or measures associated with the characteristics of the future logistics system. Although not identified as an initial action or sub-task a baseline of the current system is required as part of the knowledge.
and understanding that will provide a solid foundation against which the transformation can be measured.

**Reporting and Review Process**

CJLOG, through the DLC, is responsible for logistics transformation. CJLOG has further devolved responsibility for the ongoing development and implementation of the DLTP to DGSL. In order to maintain visibility of transformation development DGSL is required to provide quarterly briefings to the DLC, and seek direction from CJLOG as required. These reports are to include formal statements of ‘progress against milestones’. The DLC will review progress of the DLTP and will be required to formally endorse any changes to the plan. Additionally, DSLT will provide regular updates to the Defence Logistics Working Group (DLWG)\(^\text{32}\). CJLOG will regularly brief the DC and COSC on the progress of logistics transformation.

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\(^{32}\) The DLWG is a subordinate working group to the DLC.
Glossary

Characteristics from FJLC 2025

Agility. Agile future warfighting components will demand similar traits from their logistics support elements. Rapidly changing dependencies operating throughout a dispersed battlespace require a flexible support force that can generate logistics effects across all domains and environments. Logistics agility can require alterations to the physical distribution network and rapid changes to logistics dependencies. It requires logistics support to be provided to users from the most appropriate source. It can be assessed in terms of how responsive the logistics system is to the changing operational circumstances. Logistics agility may utilise concepts such as sea basing, reachback and reachout, the latter of which are explained later in the concept.

- **Logistics agility**: The ability of Logistics organisations to transition between tasks quickly. This can involve altering the physical distribution network and changing logistics dependencies. It requires logistics support to be provided to users from the most appropriate source. It can be assessed in terms of how responsive the logistics system is to the changing operational circumstances. Adapted from Complex Warfighting

Robustness. The battlespace of the future is likely to be characterised by increased transparency and lethality. Potential adversarial forces will have long-range precision and asymmetric capabilities that will increase the vulnerability of logistics nodes and information. It should be anticipated that networks will be targeted. The logistics system must be capable of absorbing such attacks whilst maintaining the ability to continue functioning effectively. This will require a degree of redundancy within the system. Force protection measures, including dispersion, may be necessary to create protected areas of limited size and duration in which logistics functions can be conducted. It may be necessary for some nodes to remain outside the battlespace.

- **Robustness**: The ability of the logistics system to withstand attacks against or spontaneous failure of the three networks (control, information and physical) and continue to function effectively.

Precision. Precision logistics, as the term suggests, is all about getting logistics right, or ‘the right stuff, at the right place, at the right time, in the right quantity’. It requires the timely distribution of supplies and support, to the precise location, without the need for undue redundancy resulting in excess volume flowing through the physical network. Logistics information systems that meet this requirement do not currently exist nor are the physical systems in place to do so. Precision logistics is actually the aspiration of Distribution-Based Logistics (DBL). Understanding and adopting this characteristic will require training and education, building on the basic skill sets of our current logisticians.

- **Precision logistics**: Precision Logistics, as the term suggests, is all about getting logistics right, or ‘the right stuff, at the right place, at the right time, in the right amount’. It requires the timely distribution of supplies and support, to the precise location, without the need for undue redundancy.
**Networked.** Networking for future logistics is no different than networking for the warfighting elements – all components of the three networks need to be connected within and between each other. This connectivity requires an understanding of how all the connections interrelate and how the networks will be controlled. A significant challenge for the future will be determining how to integrate all the components of the ‘network-of-networks’ and how to control and manage the entire system. Networking will result in the following:

a. a logistics system that demonstrates the right capacity to meet the joint operational commander’s needs;

b. information and physical networks over which the necessary level of control can be exercised to track stores, equipment, (including classified assets) personnel, and, if necessary, redirect them as the operational situation demands; and

c. a reduction in the requirement to hold stores and equipment in theatre, contributing to the optimisation of the logistics footprint.

- **Networked logistics:** Networked Logistics refers to the connectivity of the control network, the information network and the physical network. In the information network connectivity allows people to share, access and protect information. In the control network connectivity allows people to develop a shared understanding and to identify opportunities and vulnerabilities. Based on shared understanding developed in the other domains logistics forces are able to synchronise actions in the physical domain. *Adapted from ADDP-D 3.1 Enabling Future Warfighting: Network Centric Warfare*

**Interoperability.** The ADF must be interoperable with our allies and commercial and NWOG organisations. By bringing together the unique capabilities of each of these components and understanding what effects they provide allows logistics support to be sourced from the most appropriate agency.

- **Interoperability:** The ability of systems, units or forces to provide the services to and accept services from other systems, units or forces and to use the services so exchanged to enable them to operate effectively together. *ADFP 101 Defence Glossary*

**Deployable.** Expeditionary forces need to be rapidly deployable, employable and sustainable throughout the future battlespace and be capable of operating independently of existing infrastructure. Similarly the logistics component of the deployed force must possess similar characteristics to enable it to support the deployed force.
Conceptual Themes from FJLC 2025

Cultural and organisational change. Logisticians in the future will need to develop new skill sets associated with understanding networks, systems and concepts. Understanding the breadth of strategic partnering, future contractor support to operations and global supply chains will require dynamic mindset changes. It will need further investment in education and training of our logisticians and commanders who are, in the end, responsible for logistics. The decision-support tools and harnessing of technology will also change the way the learning of those skill sets is achieved.

Network integration. Implementation of the ‘centralised control’ and ‘decentralised execution’ process will require the complete integration of the three networks. In particular, it will require new information systems rather than short term enhancements to existing systems. As a guiding principle a reduction in the number of systems is considered essential to achieve this outcome.

Capability Enhancement. It is clear that networked logistics and DBL will require a range of new information and physical network capabilities. These will need to be accompanied by the development of appropriate business processes and practices, such as a revised movement priority system.

Preparedness. Logistics preparedness is the responsibility of every commander and every manager involved in maintaining Defence capabilities at a specified level of preparedness. This concept augments the developing policy and doctrine addressing Defence preparedness.

33 The following aspects of preparedness are described below:

Provisioning. Reinvigorating provisioning, including maintaining realistic reserve and operational stockholdings, is a key enabler of logistics preparedness. It is one aspect of the current logistics system that is not only enduring but will shape the functionality of many of the future logistics information systems and processes. Consistency in provisioning practices across the Defence logistics organisation will be essential in the future.

Readiness. Readiness requires that logistics planning staff are able to respond to operational requirements. The next generation logistics information systems, once networked, will provide logistics planners with the ability to achieve this outcome, leaving rapid logistics acquisitions response options to address contingencies.

Sustainability. There needs to be sufficient guaranteed logistics support to sustain a deployed force. Options for the future will include acquiring logistics support from a range of sources including global partners rather than relying on traditional warehousing and in-house distribution to the theatre of operations.

33 Preparedness = Readiness + Sustainability
34 ADDP 00.2, Preparedness and Mobilisation, 2004. Readiness is defined as the ability to be committed to operations within a specified time (availability + proficiency + serviceability).
35 Sustainment is the provision of personnel, logistics and other support to maintain operations until the mission is complete.
Business practices and processes. Business practices and processes will need to change to best meet the logistics requirements of the future force. A number of these issues are detailed below:

*Volume reduction.* Reducing the volume of materiel flowing through the physical network will not only ease the pressure on static nodal functions such as warehousing and stockholding, but also focus the logistic effort where it is most needed. Reduction in volume can be achieved by reducing usage. The fewer items in the system, the smaller the volume. This can be achieved through such developments as implementing a single battlefield fuel policy, increasing the range of commonly used spare parts (including batteries) and utilising precision munitions.

*Automation.* Functions and processes that are routine in nature, do not rely on complex decision-making cycles, or have limited influence on the overarching logistic network, should be automated.

*Focus on operational logistics.* Elements of Defence logistics that do not need to be controlled, owned or run by the ADF could be handed over to the most appropriate agent, in and outside the Department.

*Increased sourcing options.* The ADF should be prepared to acquire its logistics support requirement from the most appropriate source. This may require connecting with external networks such as those of our collaborative partners, principal suppliers and allies.

*Contracting issues.* The ADF currently utilises a range of external agencies to support the ‘raise, train, sustain’ functions. It should be anticipated that as the level of contractor support to the ADF increases in the future the actual number of these agencies will decrease. This will occur as the processes mature and arrangements for the provision of this support become understood better within Defence and the commercial sectors. Of particular importance will be the need for Defence, and the logistics organisation in particular, to become familiar with the specific requirements for contract preparation and management. Defence must accept the culture change associated with outsourcing many logistics functions, and also the potential constraints this may impose and the dollar implication of removing those constraints.

Protection. The FJOC requires all elements of the future force to be capable of protecting themselves, and stipulates that they must have a level of protection commensurate with the contemporary threat. It proposes that this can be achieved in part through investment in lower signatures, countermeasures and redundancy to match likely threats. The implications for the logistics elements are significant, as the considerable effort and resources committed to the ‘self protection’ task will detract from the primary logistics functions required of these organisations. The greater the threat, the less logistics support that can be provided. Joint Force Commanders will have to determine whether other operational assets need to be tasked with protecting logistics elements, to the potential detriment of operational capability.
# Acronyms & Abbreviations

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
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<tbody>
<tr>
<td>AIT</td>
<td>Automatic Identification Technology</td>
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<tr>
<td>ANAO</td>
<td>Australian National Audit Office</td>
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<td>C2</td>
<td>Command and Control</td>
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<td>CJOPS</td>
<td>Commander Joint Operations</td>
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<td>COSC</td>
<td>Chief Of Services Committee</td>
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<td>DC</td>
<td>Defence Committee</td>
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<td>DCIC</td>
<td>Defence Capability Investment Committee</td>
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<td>DCP</td>
<td>Defence Capability Plan</td>
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<td>DLC</td>
<td>Defence Logistics Committee</td>
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<td>DLTP</td>
<td>Defence Logistics Transformation Plan</td>
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<td>DLWG</td>
<td>Defence Logistics Working Group</td>
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<tr>
<td>DMI</td>
<td>Define-Measure-Improve</td>
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<td>DMO</td>
<td>Defence Materiel Organisation</td>
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<td>DPG</td>
<td>Defence Planning Guidance</td>
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<td>DSBCM</td>
<td>Defence Supply Chain Management</td>
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<tr>
<td>DSM</td>
<td>Defence Supply Chain Manual</td>
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<td>DSLPOL</td>
<td>Directorate of Strategic Logistics - Policy</td>
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<td>DSLT</td>
<td>Director Strategic Logistics Transformation</td>
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<td>DSS</td>
<td>Defence Supply System</td>
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<td>DSTO</td>
<td>Defence Science and Technology Organisation</td>
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<tr>
<td>FASOC</td>
<td>Future Air and Space Operating Concept</td>
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<td>FJLC 2025</td>
<td>Future Joint Logistics Concept 2025</td>
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<td>FJOC</td>
<td>Future Joint Operations Concept</td>
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<td>FLOC</td>
<td>Future Land Operating Concept</td>
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<td>FMOC</td>
<td>Future Maritime Operating Concept</td>
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<td>FY</td>
<td>Fiscal Year</td>
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<td>HQ</td>
<td>Headquarters</td>
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<td>IOT</td>
<td>In Order To</td>
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<td>JLG</td>
<td>Joint Logistics Group</td>
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<td>JP</td>
<td>Joint Project</td>
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<tr>
<td>LIS</td>
<td>Logistics Information System</td>
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<td>LOG</td>
<td>Logistics</td>
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<td>NSB</td>
<td>National Support Base</td>
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<td>OPS</td>
<td>Operations</td>
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<td>RAM</td>
<td>Reliability Availability Maintainability</td>
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<td>SLB</td>
<td>Strategic Logistics Branch</td>
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<tr>
<td>SME</td>
<td>Subject Matter Experts</td>
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<tr>
<td>SOP</td>
<td>Standard Operating Procedures</td>
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<tr>
<td>SOT</td>
<td>Strategic Operational Tactical</td>
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<tr>
<td>TAV</td>
<td>Total Asset Visibility</td>
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Management science, decision science, systems science, group decision making, soft systems methodology, soft operations research, strategic operations research, strategic planning, logistics planning, capability development

The Defence Logistics Transformation Plan (DLTP) has been developed in response to the vision of future logistics articulated in the Future Joint Logistics Concept 2025 (FJLC 2025). This report details the methodology developed for (and implemented in) the generation of the DLTP from the FJLC 2025. This methodology can, perhaps, best be described as ‘concept-led’ and ‘participative’. It involves the design of a modified action learning cycle by which concepts are abducted from problematic situations (usually perceived deficiencies within the extant logistics system) and then transformed into action statements which are, in turn, implemented within subsequent transformation plans. At each stage of this cycle, the authors suggest a series of recommendations based on an analysis of both theoretical and empirical studies of planning and decision making as reported in the extensive literature. As a consequence, it is hoped that in addition to developing a methodology for the generation of the DLTP, this report arms future Defence planners with a list of recommendations (or best practice principles) for instantiation in all transformation planning exercises.