Common Logistics Command and Control System

Concept of Operations (CONOPS)

United States Marine Corps

Office of Naval Research

Naval Facilities Engineering Service Center

Marine Corps Systems Command

Impact Resources Technologies

Sapient Corporation

19 April 2004

Table of Contents

Attribution

This CONOPS was written by Mr. Jerome McGovern of Impact Resources Technologies (IR Tech). The document was provided by IR Tech to Sapient Corporation as part of the CLC2S development effort for the Office of Naval Research.

Mr. McGovern is a retired Marine Corps lieutenant colonel with over 22 years experience as a Marine logistician.

Introduction

The purpose of this document is to provide a concept of operations (CONOPS) for the Common Logistics Command and Control System (CLC2S). The document will describe conceptually how CLC2S will be used and operated, identify standard processes and procedures required for the system to be implemented, and delineate additional opportunities for extended use and functionality.

The August 2003, Marine Corps Gazette contained several articles regarding the logistics effort in Operation Iraqi Freedom (OIF). A common theme in these articles was the call for better situational awareness of logistics operations, and the need for logistics command and control. Thus, the implementation of CLC2S comes at a very opportune time. At the same time, it faces many challenges. The challenges can be summarized in the fact that while there is common agreement within the logistics community that logistics C2 is a high demand item, there is currently little expertise regarding what logistics C2 is and how it can be achieved.

Crucial to this document is the need to show not only how CLC2S can be implemented and utilized, but equally important is to show how it fits into the roles and architecture of logistics.

Background

The following are the four basic application components of CLC2S:

Enhanced CSSOC/COC System (ECS)

ECS provides asset management and inventory management functionality, the capability to view and edit the status of personnel, equipment and supplies, and the capability to drill down within these categories in order to view status at the individual asset level (individual, serial number item or supply item by location). ESC is in essence the brains of CLC2S. It is what integrates transactional with capability.

Rapid Request Tracking System Plus (RRTS+)

RRTS+ provides request management and order management functionality, allows designated users to create new requests for supplies and services and to monitor the status of submitted requests, provides a single entry point for generating CSS requirements by a supported unit, and provides order management functionality by providing the capability to assign received requests for assignment and execution.

Logistics Planning and Execution (Log P/E)

Log P/E provides the functionality to develop logistics missions and plans. It has individual modules that enable requirements determination for a mission, estimates of supportability, Course of Action (COA) development and analysis, and preparation of a detailed plan for execution of a selected COA. This application also provides a unit readiness function which allows commanders to monitor the readiness status of personnel, supplies and equipment based on criteria that the commander may select. This function also allows the commander to define and insert system alerts when asset status approaches or falls below categories within the criteria.

Engineering Planning and Execution System (Eng P/E)

Eng P/E provides the functionality to develop engineer support plans. This module allows a planner to develop a by name/skill list of project members. Like Log P/E, it has individual modules that enable requirements determination for a project, estimates of supportability, Course of Action (COA) development and analysis, and preparation of a detailed plan for execution of a selected COA. Eng P/E also has the capability to archive project plans.

LOG C2 Environment

Today's evolving warfighting concepts, highlighted by Expeditionary Maneuver Warfare (EMW), require a fundamental change to the logistics environment. Within this transformation, a most critical element is a logistics command and control system/capability that truly ensures the effective employment of resources.

Only 10 years ago, the focus of logistics command and control was directed at task organizing and logistics mission assignments. *FMFM 4*, dated August 1993 described CSS C2 in terms of three actions: Structure, Command Relationships, and Mission Assignments. This was predicated on the traditional means of providing logistics – which was to build up a large base of supplies, the iron mountain, and centralizing logistics capabilities.

The role of IT was not a consideration. This seems antiquated now and the "systems" the Marine Corps utilized were and remain even more so. Command and control was not automated, it was functionally centric and non integrated; information was derived from after the fact reporting focused on transactional activity and latent/static white board displays of assets and resources. The predominant characteristic of logistics – responsiveness – was achieved by having large stockpiles to meet every possible requirement. Logistics capabilities may have been responsive, but they were also cumbersome. Few logisticians spoke in terms of command and control and those that did, did not speak in terms of situational awareness and decision support.

The new environment demands a logistics command and control capability that emphasizes situational awareness and decision support to meet EMW's emphasis on speed and agility. Operational speed and agility means logistics forces will need to cover greater distances, and may do so while lacking secure lines of communication. Tempo will be the key element of operations and thus logisticians can no longer count on (or cause) the traditional operational pauses that allowed the logistics effort to catch up. Logistics can become an enabler of tempo only if logisticians can observe, orientate, decide and act based on situational awareness and rapid analysis of courses of action founded in real time information.

Warfighting develops requirements; logistics must match resources to meet those requirements. *MCDP 4, Logistics*, states that Logistics command and control is the means to ensure the effective employment of resources. Since requirements may be unlimited and resources will always be limited, logistics C2 must provide the fulcrum that seeks a balanced solution. There are three essential tasks to achieve this balanced solution and form the framework for which situational awareness and decision support must focus on for logistics: anticipating future requirements, allocating resources and dealing with uncertainty.

Within this framework, there are two defining problems that command and control seeks to overcome: uncertainty and time. Command and control seeks to reduce the amount of uncertainty through situational awareness. However, reducing uncertainty comes with a cost – time. The challenge is to find the optimum balance - reduce uncertainty within the minimum time. The operational concept for CLC2S is to enhance Marine Corps logistics C2 by providing a system that improves logistics situational awareness while reducing the decision-making cycle time.

Responding to the three logistics command and control tasks while meeting the C2 challenge is achieved through an integrated process of planning and execution. The output of this demonstrates the functionality and characteristics required to achieve logistics C2 as shown in Figure 1.

Ensuring Effective Employment of Resources	Planning	Execution
Anticipating Future Requirements	• Visibility of current and forecasted asset status • Standard planning factors • Integrated tactical picture	• Request management • Messaging/ Communication infrastructure • Alert monitors

Ensuring Effective Employment of Resources	Planning	Execution
Allocating Resources	• Mission priorities • Mission planning • Asset management • Inventory management • Shared data	• Order management • Decision support tools • Course of action analysis
Dealing with Uncertainty	• Situational awareness of requirements and capabilities • Forecasting and collaborative planning • System sensors, alerts	• Sensors, alerts • Visibility of assets • Feedback and assessment loops • Agility

Figure 1: LOG C2 Functionality and Characteristics Matrix

Thus, logistics command and control must incorporate both planning and execution. Logistics is largely reactive. It does not establish a supporting mission until a supported mission is received. In this regard, logistics command and control has been largely focused on execution. In the new environment, logistics command and control will be more effective (and can better support tempo) if it brings greater weight to planning and pre-execution cycles - and if it can integrate planning with execution. This is the role of situational awareness and decision support.

The following sections will provide the concept of operations and implementing actions for CLC2S in response to the LOG C2 environment.

Concept

In describing conceptually how CLC2S will be used, this concept of operations for CLC2S focuses on four key baseline principles. These four principles are fundamental to linking the LOG C2 Environment with the necessary implementation requirements for CLC2S. The principles are:

- Highlight the construct of logistics information
- Provide a MAGTF tool for the tactical level of logistics
- Integrate logistics planning and execution
- Initiate a logistics C2 architecture

Logistics Information

There are two points of emphasis under this heading. The first is that CLC2S will be used as a *Logistics* system. This may seem somewhat obvious, but the contrasting environment does not have logistics systems – it has functional systems - supply systems, maintenance systems, transportation systems, etc.

The environment must change the perspective of "logistics" from being a collection of functional activities to being a capability that truly provides the integration and depth of vision to support the speed, agility and force for tempo. The overall capabilities of LOG C2 must provide commanders the ability to lead the logistics effort as an integration of multiple functions. CLC2S takes the information from multiple functional systems and provides any commander the pertinent situational awareness and decision support necessary to conduct command and control specific to a mission. In this regard, CLC2S is a new capability and thus changes how logistics command and control was previously practiced.

The second point of emphasis is derived from how logistics command and control will be practiced. Previously, LOG C2 was focused on management techniques for distribution, assets and fulfillment. That was because doctrine focused on structure, command relationships and mission assignments and systems focused on supply, transportation and maintenance. CLC2S now allows LOG C2 to focus on information related to capabilities. This is what provides agility and speed. Information supports tempo. ***It means that logisticians will have to know as much or more about how to use information as they currently do about distribution and supply chain management and the information must be focused on capabilities rather than simply on functions.***

Tactical Logistics C2

MCDP 4-1, Logistics Operations, describes three levels of logistics – strategic, operational, and tactical. As each of these levels has a different focus, the situational awareness and decision-making requirements are also different. As stated in *MCDP 4-1*, "tactical logistics involves the coordination of functions required to sustain and move units, personnel, equipment, and supplies". The focus of CLC2S is on the tactical level of logistics command and control system. Its capabilities are focused on situational awareness and decision support required to sustain and move units, personnel, equipment and supplies.

As previously described, CLC2S is geared towards the overarching logistics picture and not towards individual logistics functions. So as a tactical level LOG C2 tool, it provides the overarching picture at the tactical level. What is so important about this is that it then provides the interface between tactical LOG C2 and operational C2. Previous to the introduction of CLC2S, this interface could only be accomplished with multiple functional systems and unintegrated reporting processes. The best example of the new capability that CLC2S provides in this regard is that it

provides a single mechanism to link LOG C2 between a Force Service Support Group (FSSG) and a Marine Logistics Command (MLC).

In an article in the November 2003 Marine Corps Gazette entitled “Implications From Operation Iraqi Freedom for the Marine Corps”, MajGen Ray Smith made the point that there is a significant line of demarcation in communication and information capabilities between regiment and above and battalion and below. He states “Marine IT at the dismounted and mounted fighting level from battalion on down needs a radical new look.” CLC2S’ capability to specifically support the information and communication requirements at the level of battalion and below (to include CSSBs and CSSGs) must serve to ensure that it is part of any focus at this level.

Planning *and* Execution

CLC2S has grown from the ground up. Previous versions (and user groups) were focused on the Rapid Request Tracking System (RRTS) and the Enhanced CSSOC System (ECS). These applications were groundbreaking in that they contributed towards providing the fulcrum for uncertainty and time. But these applications are focused on execution activities and are reflective of command and control that is transactional based and reactive. The missing link to a holistic Log C2 capability is to integrate planning activities that are mutually supportive of and for execution activities. As such, the value of RRTS and ECS goes beyond balancing uncertainty and time to providing the fundamental capability that bridges *execution* activities with integrated and mutually supportive *planning* activities.

For a Log C2 capability to be encompassing, it must integrate planning and execution. CLC2S v2.0 does this with the enhanced capability of Log P/E application. Log P/E will potentially become the jewel of the CLC2S crown. The core of Log P/E’s capability is its Mission Planner module. Log P/E provides the ability to plan future missions through the use of a step-by-step process that takes the user through requirements determination for the mission, evaluates if the Mission is supportable given the current on-hand people, equipment and supplies, and creates support plans for executing the mission.

Additionally, CLC2S integrates with C2PC to offer users of C2PC the ability to determine the logistics status of any unit located within C2PC along with the ability to conduct real-time mission planning through C2PC. (CLC2S is the only logistics injector that exists for C2PC in the entire Department of Defense.)

Mission Planner provides a forecasting capability that allows a planner to composite multiple mission requirements in order to identity cumulative sustainment requirements. Log P/E also provides an Alert capability that allows commanders to identify and monitor those logistics-related capabilities that are most critical to their operational picture.

The cumulative effect of these capabilities allows logistics commanders and staffs situational awareness and decision support not only during the execution of a mission, but in the preparation of that mission. And more specifically, it positions commanders so that they can actually shape the mission and not just react to it. This is how you deal with uncertainty. Because it is an integrated approach, it accelerates the decision cycle.

The point of emphasis here is that this changes the user group and focus of Log C2 from transactional activities to forecasting, thus enhancing and expanding the breadth of situational awareness and decision support.

Logistics C2 Architecture

One of the instigators of the Integrated Logistics Capability (ILC) effort was the fact that the Marine Corps utilized scores of logistics systems that were narrow in their functional capability and lacked consistent association with process. As a result, system requirements were almost always derived from a data call mentality that simply collected a wide spectrum of ideas and features within a specific functional area and sorted them out under the greasy wheel concept. Information requirements were not derived from an operational architecture (OA). One of the outputs of ILC should be that no logistics information capability/technology should ever be developed again absent an OA.

Currently there is no OA for logistics command and control. The OA developed for ILC is an OA for logistics chain management. MCDP 4 cites two logistics domains – distribution, and command and control. As logistics C2 is a different domain, it requires its own OA. CLC2S is the first logistics command and control information system in the Marine Corps. This means that it is positioned to instigate the development of a LOG C2 OA. This will be critical to institutionalizing the use of CLC2S, ensuring that there is not a proliferation of competing LOG C2 systems. It is also critical towards ensuring that CLC2S will integrate with appropriate LOG C2 systems necessary to support the operational and strategic level of logistics. (This is important to note in so much as it maintains a complementary relationship with another evolving logistics C2 capability – Seaway – which has a focus on operational logistics C2 requirements.)

The requirement for an operational architecture is arguably more important for logistics command and control than for any other domain of logistics. This is highly evidenced by the CSS organizational laydown for OIF. The FSSG has eight subordinate battalions. But C2 within the FSSG for OIF comprised over 20 subordinate CSSEs. The only way for a LOG C2 system to have the agility to support the multiple C2 configurations that an FSSG may potentially spin off is if it is consistent with an OA.

The OA for LOG C2 (and thus for CLC2S) should be one that improves logistics situational awareness while reducing the decision-making cycle time. It should integrate LOG C2 planning tasks, operational elements, and information flows with Log C2 execution tasks, operational elements and information flows. Finally, it must do this consistent with the strategy for GCSS-MC.

Employing the System

These four principles (Logistics Information, Tactical Logistics C2, Planning and Execution, and Logistics C2 Architecture) provide a baseline for the CLC2S CONOPS. This then provides a point of departure for employing the system. Figure 2 shows a notional laydown for deploying CLC2S regarding RRTS+, ECS and Log P/E (Mission Planner). Appendix A provides a more detailed depiction and description for employing the system in concert with this baseline.

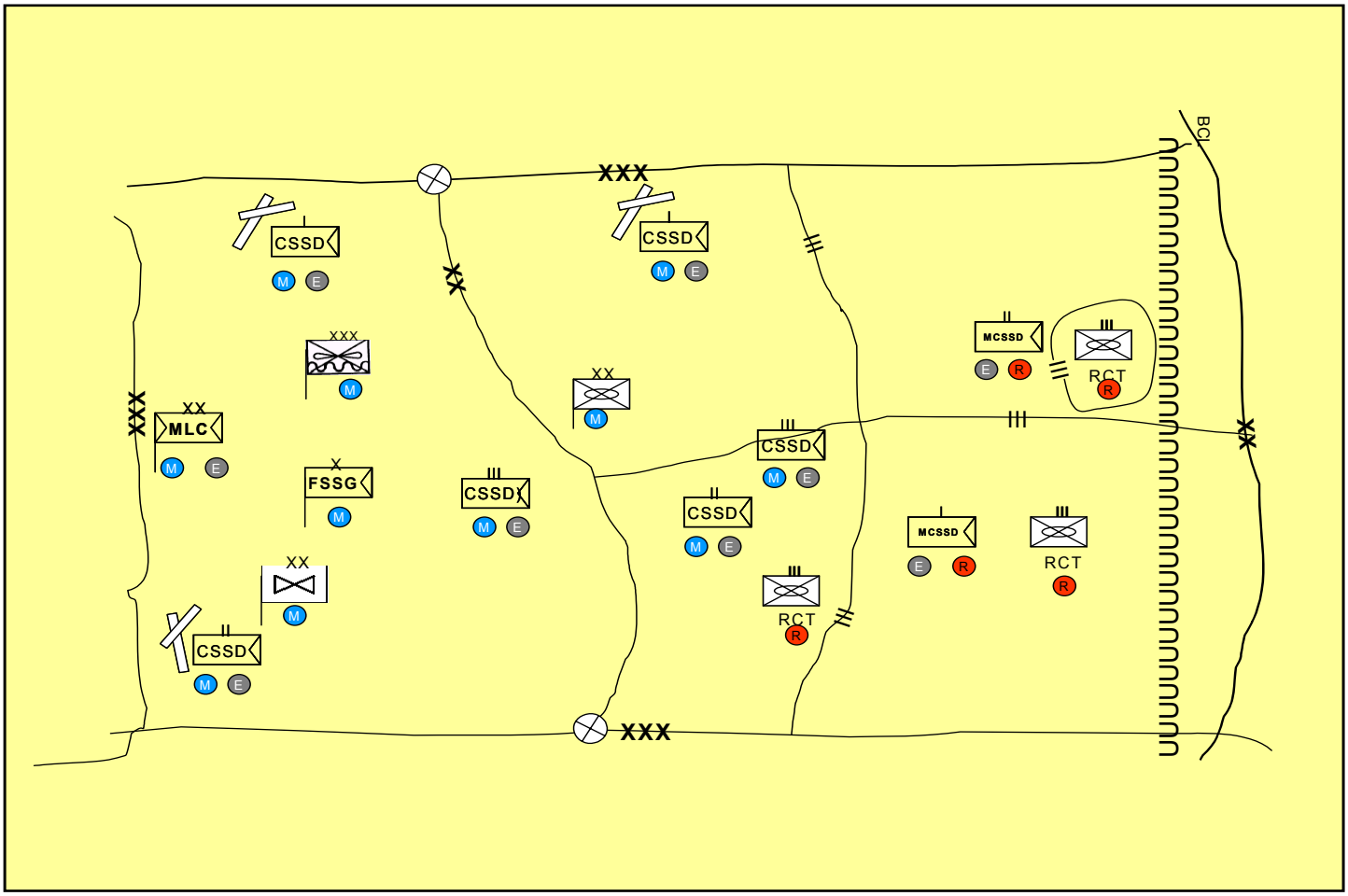

Figure 2: Employment Laydown

Implementation

This section provides a concept for implementing CLC2S in accordance with the baseline principles listed in the previous section. This concept leads to the following ten actions necessary for implementation.

First – EFDS

Successful implementation of CLC2S requires that the program exists within the parameters of the Expeditionary Force Development System (EFDS). EFDS is the Marine Corps' process for integrating operational concepts with warfighting capabilities by developing requirements and solutions. EFDS supports the combat requirement generation role of the Advocates by translating proposed warfighting capabilities into valid requirements and acquisition documentation. For any solution to be legitimate and viable, and specifically for materiel solutions, the associated program must operate within this process.

Currently, CLC2S exists only on the periphery of EFDS. In order for CLC2S to become wholly legitimate with the EFDS, it must be a validated solution by its Advocate, DC I&L, and by CG, MCCDC. Most specifically, it must have its requirements managed by CG, MCCDC (Materiel Requirements Division). This is critical to CLC2S, even at this stage of its life cycle for two important reasons:

The EFDS is the means by which any solution is coordinated and integrated with the pillars of DOTMLPF (Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel, and Facilities). This CONOPS can propose TTPs and SOPs for implementing CLC2S, but they are meaningless unless they are identified and managed via the EFDS. Advocate Validation is required in order for any program to compete in the resource allocation process. CLC2S is to some degree already resourced but unless CLC2S has undergone the rigor of the EFDS, current and future funding must be considered at risk.

Second – Log P/E User Group

Key to implementing CLC2S v2.0 will be to introduce the capabilities of Log P/E (and specifically Mission Planner) and expanding the user group. With v1.0, the primary users are those that manage and execute transactional requests for supplies and services. This group is primarily users of RRTS and ECS. These are largely functional users and do not represent a community that is specifically focused on Log C2. There is a distinction or responsibilities between RRTS and ECS and Log P/E. RRTS/ECS users are not likely to expand their use of CLC2S into Log P/E. Therefore, implementation of CLC2S v2.0 should target the following:

- MAGTF G/S-4s
- CSSE Commanders, G/S-3s and planners
- GCE and ACE G/S-4 planners

In introducing CLC2S to these three sets of users, the greatest effectiveness will be achieved if the implementation is integrated among this group. One of the prime ways this should happen is via the use of C2PC. As an operational tool, C2PC can be highly effective to integrate LOG C2 with the other aspects of warfighting C2. It is important to note here that there are really two objectives here – broaden the use of CLC2S, and integrate LOG C2 with the operational picture.

Third – CSSOC Utilization

CLC2S should be introduced into any and all training exercises where a CSSOC is to be established. CSSEs standing up a CSSOC for exercises should ideally implement CLC2S prior to deploying to the exercise site and

should use Mission Planner to develop their support requirements. Four types of exercises represent ideal candidates for introducing CLC2S:

- CAX
- MPF Exercises
- Any exercise where all support is to be untethered from the home station or from an already established support infrastructure.
- CPX (CLC2S provides a unique means to integrate logistics requirements into any CPX.)

The optimum means to introduce CLC2S into exercises would be through the advocacy of FSSG G-3s via the CSS Advocacy Board.

Fourth - MEU Implementation

While CLC2S was designed to support any of a myriad of logistical organizational configurations, it is almost as if it were specifically designed for the MEU. The suite of CLC2S applications is a perfect fit for the roles and missions of a MEU. As a tactical logistics system that is flexible enough to plug into operational play, it can support the full spectrum of Log C2 planning and execution for the MEU. It provides the perfect interface tool among the MEU S-4, the GCE and ACE S-4s, and the MSSG command and staff. With such a perfect fit, Initial Operating Capability (IOC) for CLC2S should be designated as implementation with forward deployed MEUs. This would be the baseline for establishing full implementation across all operating forces. More importantly, use of CLC2S by all MEUs would represent reaching critical mass for CLC2S implementation.

Fifth – Logistics Tasking Order

The Logistics Tasking Order (LTO) capability of CLC2S represents a key potential integrator element. It will integrate use on two levels. The first level is between execution and planning.

As previously discussed, CLC2S users are primarily distinguished by two groups. Transactional execution is the domain of those users operating RRTS and ECS. Logistics commanders and primary staff will be the users operating Log P/E and Eng P/E. For the most part, these two groups do not interface specifically via CLC2S and so may not appreciate the capability of half of the system. However, the LTO should become the means to affect this interface. The LTO will take current status and availability data from ECS to develop mission plans and taskings via Mission Planner and then promulgate those taskings back to logistics execution users (ECS) via the LTO. In this manner both user groups get a glimpse into the other sphere and an appreciation of its capabilities. This will also provide some relief to RRTS users by reducing the number of rapid requests that can be satisfied through pre-planning. The reason this is important to the implementation of CLC2S is because it broadens and speeds the spread of its usage. RRTS/ECS users will want Mission Planner implementation because it has an LTO tool that supports enhanced execution. Mission Planner users will want to use LTO because it moves their efforts from the conceptual to the actual.

The second level is between in-garrison use and operational use. Under the ILC concept, there is supposed to be a merging of logistic chain management processes so that the same processes are used in garrison as are used in an operational environment. One of the impediments to this is the continued use of legacy systems that were developed primarily with garrison processes in mind. As a system that has been developed for the operational environment, CLC2S can be marketed as a system to help break down these impediments. More specifically, since there is no system (garrison or otherwise) to support the LTO process, and since all commands use some sort of ad hoc LTO process in garrison on a daily basis, an highly effective means to implement CLC2S rapidly and without competition would be to market its LTO capability for garrison use.

Sixth - Hand Held

Hand held IT devices are currently an extremely popular technology. As such, they generate more enthusiasm for use than does new software resident on laptop or desktop platforms. Within this premise, CLC2S' implementation can be aided by the enthusiasm that would accompany its use of Hand Held. One of the reasons for this is that hand held devices provide a more tangible means to see the effects of process improvement since data visibility (collecting it or producing it) resides at the user's immediate location. In other words, the user doesn't have to return to a workstation.

For logistics C2, highly effective situations for Hand Held include use at any throughput point (ports and airheads), at temporary CSS facilities such as a FARP, or with mobile CSS organizations and resupply convoys.

Seventh – Engineering P/E

The Engineering P/E application is somewhat unique within the CLC2S suite. Unlike the other CLC2S applications whose use will be broad based across the logistics community, Engineer P/E is a niche tool. It will primarily have only a single functional user group – engineers.

Within the Marine Corps, engineers have a new advocacy where previously there was none. The Engineer Advocacy Center (LPE) within I&L has responsibility for identifying engineer and EOD requirements (capabilities/systems) needed for performing engineer and EOD functions across the spectrum of the MAGTF. LPE ensures that the right engineer and EOD capabilities and systems are properly identified, coordinated, and acquired through the POM/Budget/Acquisition process to support evolving future Marine Corps operational concepts. The LPE organization includes a Naval Construction Officer. As such, LPE should provide the relationship necessary for CLC2S to be implemented with the engineer community (to include Seabees) that is unique to this application.

Eighth - CSS Communication Infrastructure

The communications infrastructure shortcomings of the FSSGs represent a significant impact/challenge for CLC2S. While overcoming these shortcomings will be outside of the CLC2S program responsibilities, they must be addressed and potentially CLC2S can provide an impetus. This is because the issue at heart is LOG C2

Historically, the FSSG has only two communication resources – the Communications Platoon in Transportation Support Battalion, and the Communications Company in H&S Battalion. The Communications Platoon in TSB can be traced back to its origins with Landing Support Battalion. These assets and capabilities exist primarily to provide the backbone for the Landing Force Support Party (LFSP). The LFSP is the task organization whose mission is to support the landing and movement of troops, equipment and supplies across beaches and helicopter landing zones during the conduct of an amphibious landing. The LFSP is normally disestablished when the CSSE phases ashore.

The Communications Company provides the communication assets to fight the FSSG. Historically, this meant supporting the network between the FSSG headquarters and its eight battalions. This is how this organization is resourced. However, as recent operations have shown, fighting the FSSG is likely to mean that resources are required to support a network between the FSSG and over 20 subordinate, task organized CSSEs.

Clearly CLC2S alone does not provide the tools for LOG C2. A network must exist that can support the myriad of ways that CSS can be task organized. CLC2S must see itself as a platform to enable visualization of what the network resource requirements should be for the FSSG.

Ninth - Partnerships

Implementing CLC2S requires a partnership among several entities in order to ensure consistency of how CLC2S should be used and the potential relationship between a LOG C2 OA and other OAs as well as other MAGTF TTPs. The partnership should specifically include:

- MSTP
- MCU (School of MAGTF Logistics)
- ILC (a program partnership)

This will be necessary to ensure links with GCE, ACE and CE advocates. This partnership should be cultivated via DC I&L (LPV).

Tenth – Communication Strategy

There is a marketing paradigm that says that it is easier to make an impact with a brand new product than it is with a legacy product that has new capabilities. This is because the new product starts out at the same level of understanding with all potential users. The older product has to overcome its previous level of understanding with some users before it can start the new level. CLC2S 2.0 will face the challenges of a legacy product. Many users will see it only in terms of its legacy – SUL and RRTS.

To overcome this, CLC2S would benefit from a marketing communication strategy. This strategy should focus on two aspects. First, it must expand the depth and breadth of those who appreciate CLC2S, specifically within the logistics community. The breadth must be expanded to the wider number of user groups as previously discussed with LOG P/E. The depth must be expanded upward to reach stakeholders and advocates. The key message of this aspect should focus on CLC2S as a LOG C2 solution. Associated with this is the need to make clear how CLC2s fits into a LOG C2 architecture so that it is seen as consistent with GCSS-MC and not seen as competing with complementary capabilities.

The second aspect of a marketing communication strategy should focus on the specific enhancements of CLC2S 2.0 and target the user groups that will most benefit from these enhancements.

A marketing communication strategy is somewhat outside of the EFDS, which is the fundamental means to achieve use and operational impact. However, using a strategy such as this generates understanding of value, which is extremely important to the mechanics of the EFDS.

Extended Opportunities

CLC2S provides a significant leap in regards to LOG C2 capability. It also provides great potential for continued growth. As a result of the development to date, it is recognized that there are many additional opportunities and functionality that the system may yet fulfill. Through the course of user testing, many enhancements, features and functionality have been identified and have gone through a prioritization process. However, there is a critical step that must be taken first.

Primary Opportunity

Perhaps the greatest outcome of ILC was the development and incorporation of an operational architecture. An OA provides a top down view of capabilities. It provides the blueprint for the total capability as opposed to an outline for situational functionality. Situational functionality is where something is built based on what the current situation requires. Without an OA, processes and systems are designed based on situational functionality. There is no OA for LOG C2 and so CLC2S risks following a development track associated with situational functionality. Before any further requirements, enhancements or features are considered, the Marine Corps needs to design an OA for LOG C2. The opportunity for the CLC2S program is that as the only LOG C2 program, it can and should provide a baseline and the impetus for this effort.

A common misconception is that there is only one OA for logistics and that the ILC OA is it. MCDP 4 states that there are two fundamental elements to all logistics systems (where a logistics system is consists of personnel, organizations, equipment, facilities, training and education, and procedures) – a distribution system and a command and control system.

As mentioned at the beginning of this document, the use of C2 as a core competency of logisticians and the use of IT as a principal supporting arm is a relatively new concept/instrument. But recent operations, along with enterprise transformation efforts, have brought LOG C2 to the forefront of required logistics capabilities. CLC2S has provided a practical orientation of what LOG C2 can provide and it helps to visualize what a LOG C2 OA may look like.

Figure 3 starts with a doctrinal depiction of C2 components and, based on the maturity that CLC2S provides for LOG C2, provides the baseline components for a LOG C2 OA. This figure does not represent an OA but rather provides context for developing an OA and should be used as a starting point for developing a LOG C2 OA.

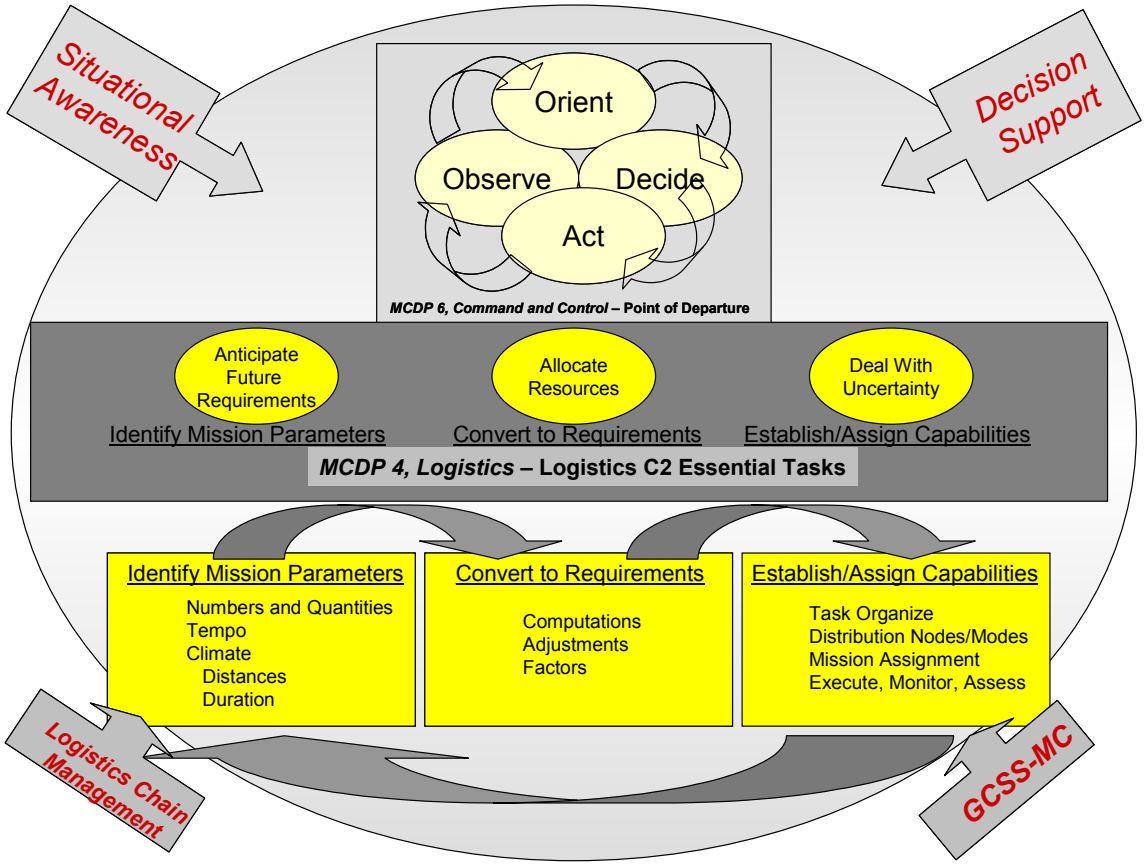

Figure 3: Logistics C2 OA Context Diagram

CLC2S can potentially represent an evolutionary way of developing logistics information technology. It can specifically provide a template for GCSS-MC. ***But it must evolve from a logistics command and control operational architecture.***

Secondary Opportunities

Aside from the OA development necessary to manage any new requirements, there are four capability sets that are recommended based on the work from CLC2S 2.0. They are:

Employment Levels

Within CLC2S, the RRTS+ application models the ILC OA process for request management, order management and capacity management. Current capability allows a request to go from an initiator, to an approver, to a receiver and on to a fulfiller. This mimics a request starting at a company, approved by battalion, received by the CSSOC and fulfilled by a CSS detachment. Users have indicated that they would like this process to be slightly broader, allowing for requests to start at a lower level than company and having the fulfillment requirement be passed deeper than one level beyond the order manager.

In software development terms this is a relatively simple change. However, before this is done, the process should be carefully engineered. The objective is to make the process as rapid and expeditious as possible. As a linear process, adding any more touch points will only make the process take longer. The optimum solution should support a process that has less touch points. In order for this to happen, several things must occur. From a technical standpoint, everyone along the process flow must have visibility of the transaction. From a procedural standpoint, the transaction must be able to flow from the initiator to the fulfiller with as few touches as possible (the optimum additional touches would be zero). Based on our current environment, this will likely only happen after the system demonstrates the capacity to build trust in this process. Nevertheless, it should be the objective.

Time/Distance and Nodes

The primary capability of Mission Planner is that it develops and identifies mission requirements. Currently it provides this in aggregate quantities. For extended use, it needs to determine requirements based on time/distance factors.

The objective is to determine the optimum intervals for resupply (which would identify the optimum DOS/DOA that a CSSE should carry), and the optimum distance to place CSS installations.

CSS concepts of operation are really based on three considerations: how much, how far, and how often. For Mission Planner to be a fully developed decision support tool, it must incorporate the equations and modeling capabilities that lead to determining options for how far and how often. The ability to incorporate time/distance factors for planning is instrumental to support the agility and tempo required for EMW.

Logistics Tasking Order (LTO) Apportionment and Assessment

The LTO concept is based on the aviation community's well-established Air Tasking Order (ATO). ATO is part of a process that apportions and allocates air assets. In developing the ATO, the aviation community uses a six-phase air tasking cycle that includes post execution analysis. The capability to develop an LTO has been added to CLC2S 2.0. There are two ATO related capabilities that should be added to the LTO – apportionment and analysis.

The focus of the LTO is on movement and distribution. The apportionment process would be very valuable for assigning a percentage of available hauling assets to forecasted or pre-planned requirements (identified more than 24 hours out) and a percentage to emergency or pop-up requirements (identified less than 24 hours out – or during the execution period). Additionally, the apportionment process could also be used to ensure a percentage of assets are assigned to different types of missions (e.g., 50% for ammo, 30% for rations, 10% for repair parts, 10% for on-call).

Besides acting as a tool for planning and execution, the LTO could also be a mechanism for assessment and analysis. Based on the input and components of the LTO, it could provide after action or historical or analysis data

that could provides such assessments as comparing planned requirements with actual execution and identifying trends and gaps. As an example, it could specifically do the following:

- Compare hauling capacity with hauling requirements to identify available capacity for each day of the 72-hour period.
- Provide feedback data of such things as how much of a class of supply has been hauled, how much a particular unit or location has received.
- Provide improved planning factors, specifically in regards to time/distance factors.

Based on these capabilities, Appendix B provides a process flow for LTO to include apportionment and analysis steps.

Additional Classes of Supply

CLC2S 2.0 provides LOG C2 planning and execution related to Class I, III and V(W). Additional capability has been planned for Class II (Batteries). Eventually it would be desirable for the system to include most or all supply classes. However, the most beneficial candidates would be Class IV, VIII and IX.

Of these three supply classes, the most viable strategy would be to focus on the Class VIII requirements of battalion aid stations and forward surgical units; and on secondary reparables under Class IX. The rationale for this is based on the relationship between distribution and C2. For Class VIII, these are life-saving items. For Class IX, the rationale relates to the fact that SECREPS represent a more manageable stock of items then consumable repair parts, they are always deadlining items, and they often are large items in terms of cube and weight.

Appendix A – Employing the System

CLC2S is an extremely agile system and has been designed to support the spectrum of ways in which the Marine Corps task organizes to provide CSS. However, there is a baseline technique for employing the system that is depicted and discussed in this Appendix. This technique is based on the relationship and capabilities of the individual CLS2S components, and the roles and responsibilities of organizations, commands, and staffs planning and executing MAGTF logistics, and the concept of operations for CLC2S.

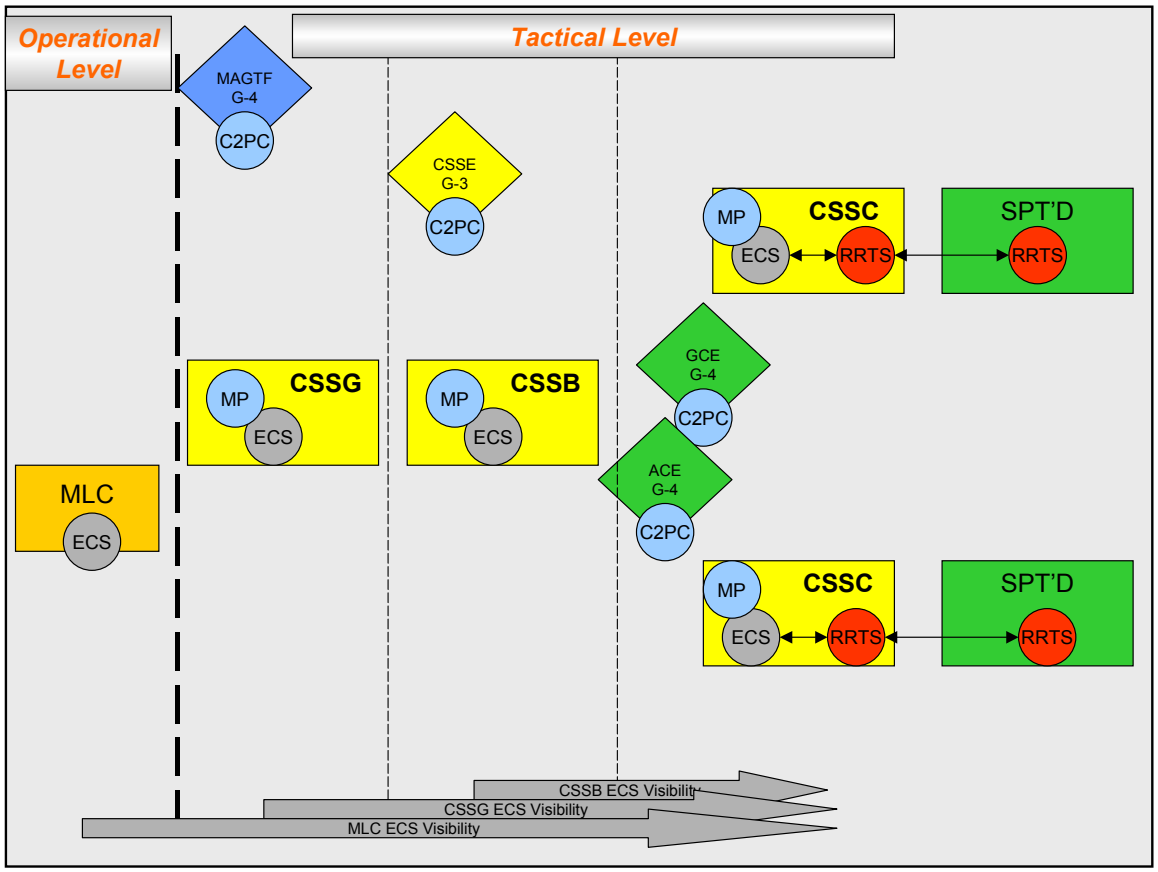

Figure A-1: CLC2S Employment Diagram

Figure A-1shows the primary employment locations of the CLC2S components of RRTS, ECS and Mission Planner. This doesn't imply that other configurations wouldn't be used. This simply provides a baseline technique.

The premise of this technique is that RRTS is used as a primary tool only between the supported unit and its supporting unit that is in direct support (in this example, the CSSCs). Each supporting unit behind the direct support unit should push CSS forward primarily based on monitoring assets and resource status from ECS.

In the example above, this means that the CSSB must have visibility into the ECS for the CSSCs. The CSSG must have visibility into the ECS for the CSSB and the CSSCs. The MLC must have visibility into all of the ECSs forward. The use of ECS by the MLC represents the means by which CLC2S interfaces with the operational level of logistics.

When the CSSC fulfills requests from the supported unit, its assets and stocking levels are drawn down. As this happens, there is a ripple effect for CSS that goes from front to rear (right to left on the diagram). Under this technique, supporting units behind the CSSC can see the effect of these requests. Knowing the CSSCs stocking level requirements from ECS, they can anticipate requirements and initiate sustainment support. The intent is for this

to happen nearly simultaneously as a “push” instead of in a drawn out “pull” sequence that happens one level of support at a time.

Units will also use LOG P/E, and in particular Mission Planner, to monitor readiness and develop plans to support mission requirements. This also uses ECS as the baseline for this technique.

For MAGTF staffs (GCE, ACE and MAGTF G/S-4s; CSSE commander and G/S-3s), LOG P/E will be their primary CLC2S tool. On the diagram, this depiction is labeled with C2PC. The intent is to use this tool, particularly with the GCE and the ACE, to promulgate and integrate the use of CLC2S with operations since they are already familiar with C2PC. It provides an optimum entry point for integrating logistics with other warfighting functions.

Using this technique, LOG C2 is provided because commanders and staffs have situational awareness based on end-to-end visibility, and a view based on capabilities (rather than individual functions). Integrated with this situational awareness are decision support tools to transform information into the ability to match resources with requirements and overcome the challenges of time and uncertainty.

Appendix B – Logistics Tasking Order Process

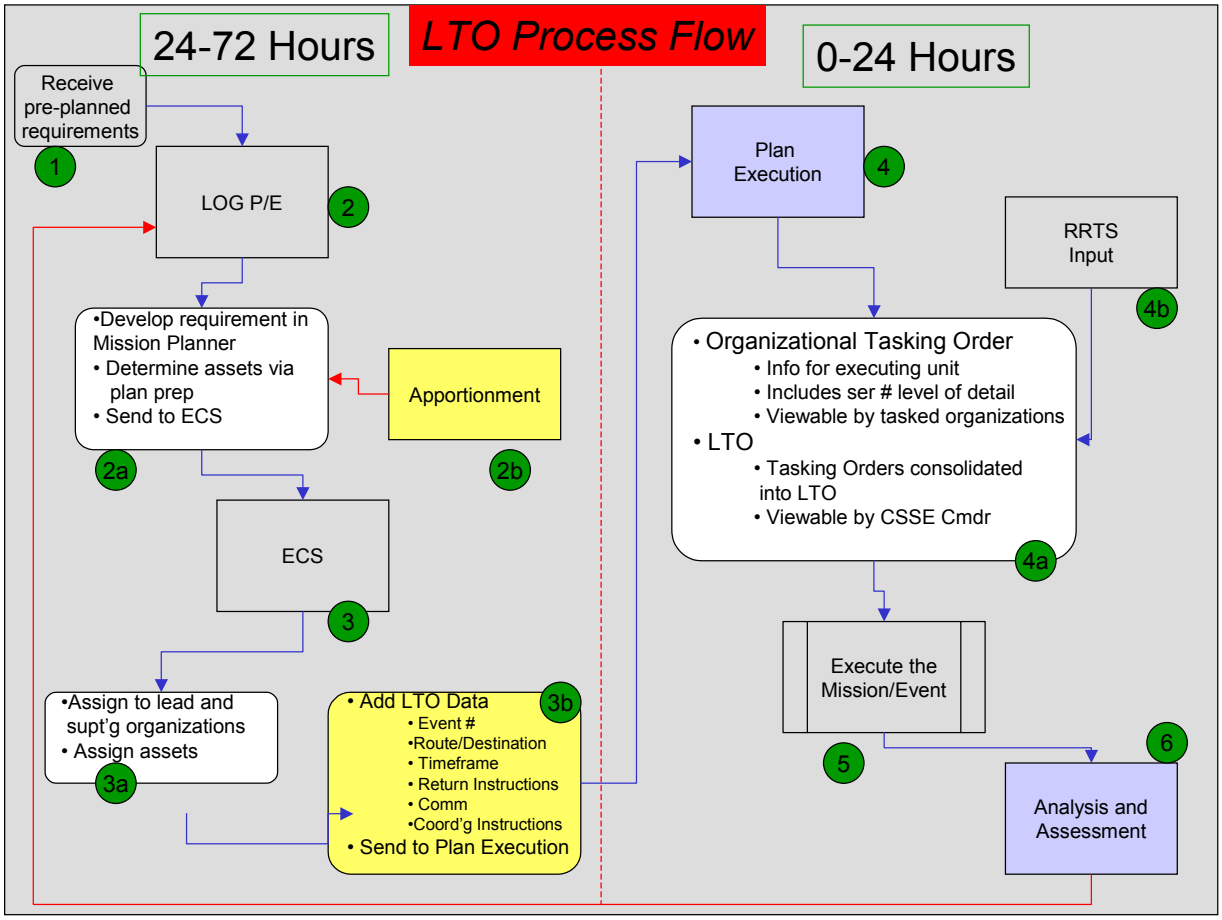

Figure B-1: LTO Flow Diagram

1. Pre-planned requirements are submitted to the CSSOC 24-72 hours before execution. These will normally be known support requirements for subsistence, fuel or ammo, or other services that are based on established mission parameters.
2. Using Mission Planner, the CSSE will develop mission requirements.
   - 2.1. Requirements will be developed into Plan Prep.
   - 2.2. If the CSSE so desires, Plan Prep will utilize apportionment procedures to determine the percentage of assets that will be used to support either different types of missions or different units. This step potentially represents new functionality within Mission Planner as represented with the yellow box.
3. The mission plan is sent to ECS.
   - 3.1. ECS assigns lead and supporting organizations and assets for execution of the plan.
   - 3.2. ECS adds the LTO data fields (Event #, Route/Destination, Timeframe, Return Instructions, Communication Info, Coordinating Instructions). This step potentially represents new functionality within ECS as represented by the yellow box.

4. The support assignment and the LTO information are sent to Plan Execution. This potentially represents a new Module within ECS as represented by the blue box.

    4.1. Plan Execution should provide two products or outputs. First, it should provide an Organizational Task Order. This goes directly to the unit or units executing a specific mission or event. It provides information down to the individual item level and is viewable by all units assigned to the mission or event. The second product is the Logistics Tasking Order. This is a consolidated list of all organizational task orders for a 24-hour period per the format listed above. It is primarily viewable by the CSSE commander (FSSG, BSSG, MSSG) but it may be viewable at lower levels if determined by the CSSE commander.

    4.2. Requirements received by RRTS (not pre-planned) are inputted at this point for the current execution period as updates to the LTO.

5. The Mission/Event is executed.

6. Feedback from the mission/event is inputted into Analysis and Assessment. This is potentially a new module for LOG P/E. It captures data from the mission (actual duration, drop off locations, quantity of cargo or pax hauled, etc). This module would have the capability to aggregate feedback data as well as chart trends or other usage data that can then be fed back into LOG P/E to adjust planning factors.