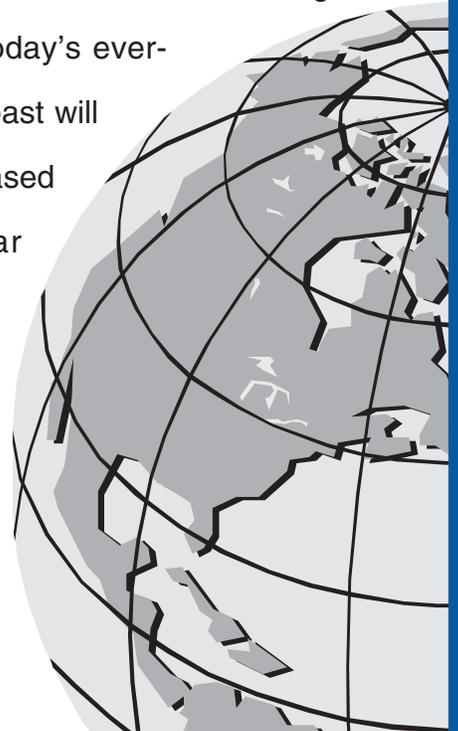




ECSS and Transformation

the way ahead

To effectively support the Expeditionary Air Force, an integrated logistics chain must establish better ways to respond to two critical warfighter questions: “Where is our part?” and “When will we get it?” Clearly, this is no small task in today’s ever-changing world. The solutions of the past will not work for the future. The garrison-based processes born out of the Cold War posture must be fundamentally rethought. Air Force logistics must also become more expeditionary—satisfy operational requirements, be rapid in its response, flexible in its structure, consistent in its delivery, reliable, and economical in its actions.





Enterprise Architecture

Discussion

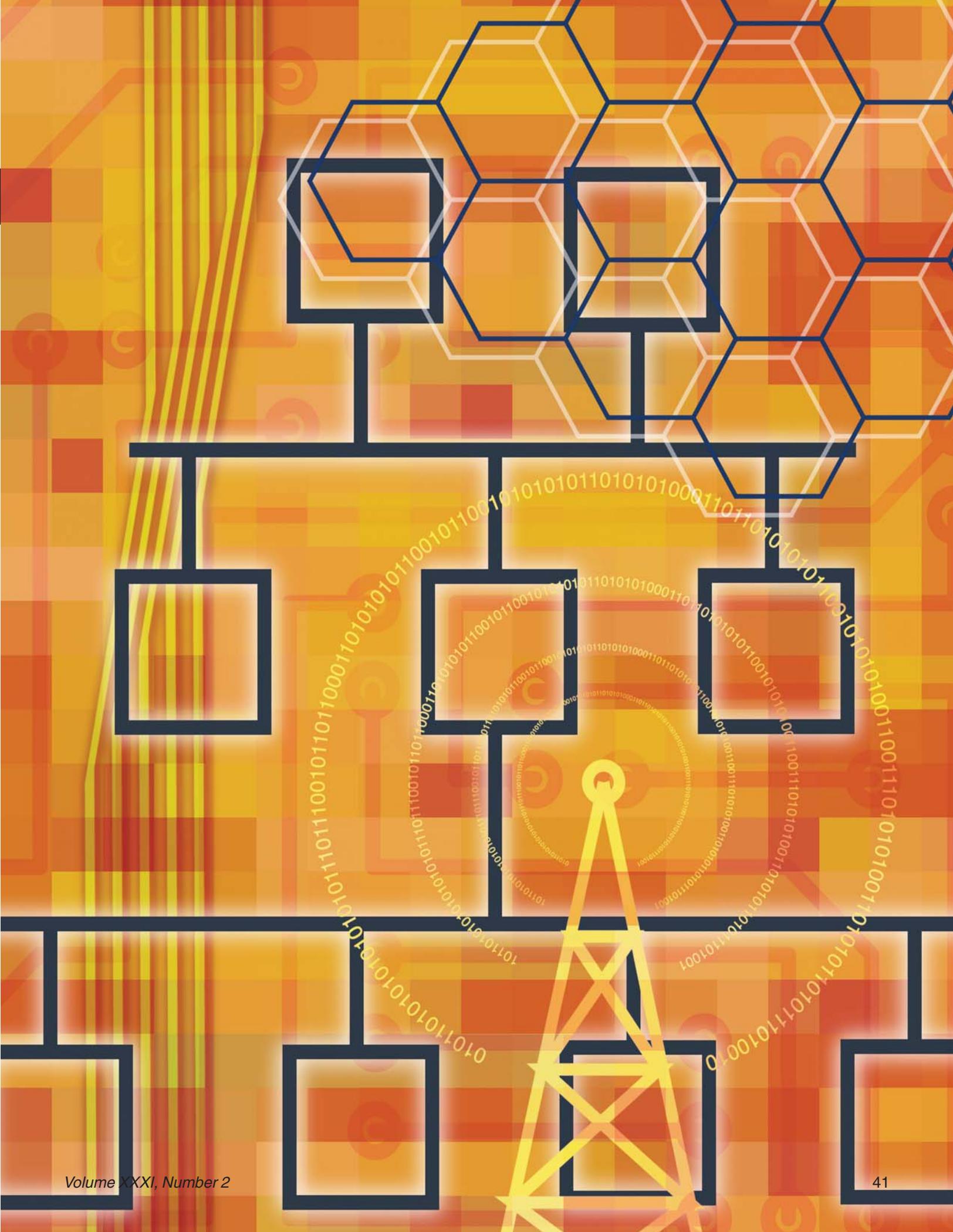
The Air Force logistics enterprise is defined as the collection of processes, technology, and resources that deliver logistics support to the warfighter. This enterprise operates across all products lines, and includes delivery, transportation, maintenance, procurement and purchasing, inventory management, and product life-cycle management. The Air Force supply chain is also part of the larger Department of Defense (DoD) supply chain, both of which include internal and external suppliers of goods and services. The Air Force logistics supply chain is one of the largest and most complex supply chains in the world, involving millions of parts, thousands of business and production processes, and hundreds of information systems. There are significant opportunities to improve Air Force logistics operations in terms of performance and cost. However, current processes, organizational alignments, and information technology systems limit the ability to realize the dramatic improvements needed to transform the way we operate today. The repeated years of budget reductions and increased operations tempo, coupled with current and pending manpower reductions, require that we change the way we do business, while still producing the high-quality support we have always provided to the warfighter.

There are many ongoing initiatives within the logistics community that have produced beneficial improvements and changes to independently improve elements of the logistics supply chain. However, while all of these initiatives are creating

positive improvement, they are not necessarily integrated to a level that achieves enterprise goals in a synchronized manner. There is limited common awareness or understanding of how much these initiatives are dependent on each other and must be integrated in a coordinated effort to meet Air Force corporate goals. A key element that has and will continue to guide the transformation and focus initiatives on desired future state attributes is the Logistics Enterprise Architecture (LogEA).

The LogEA is the single authoritative strategic roadmap of future logistics business practices, systems, and organizations. It is a compilation of operational architecture, systems architecture, and a transition plan that will provide the overall future state direction for logistics. LogEA is defining and implementing the guiding principles for logistics transformation via the implementation of key business processes, enabling systems, and organizational alignments. In addition, it provides the framework for centrally managing the implementation of enterprise-wide initiatives, and providing enterprise architecture guidelines for decentralized





execution implementation of initiative driven activities.

Before getting into a more detailed description of LogEA, you must first understand what enterprise architecture (EA) is. EA is the specific description and documentation of the current and desired relationships among operations and management processes and information technology. It describes the *current state* (as-is) and *future state* (to-be), to include the rules, standards, and systems life-cycle information to optimize and maintain the environment which an organization wishes to create. The EA must also provide a strategy that will enable an enterprise (logistics) area to support its current state and also act as the roadmap for transition to its future state. This transition plan includes capital planning and investment control processes, EA planning processes, and systems life-cycle management methodologies. The EA defines principles and goals and sets direction on such issues as operational business processes and the promotion of interoperability.

Enterprise architectures typically use a framework that provides a structured, repeatable method for evaluating investments and investment alternatives, implementing organizational change, creating new systems, and deploying new technologies. In the DoD, the DoD Architecture Framework (DoDAF) was established to serve this purpose. The DoDAF contains the guidance and rules for developing, representing, and understanding the architecture based on a common denominator that ensures architectures can be compared and related across programs, mission areas, and the enterprise it supports to establish a foundation for analysis and decisionmaking throughout the DoD.

LogEA uses both the DoDAF and a reference model, known as the Supply Chain Operations Reference (SCOR), and linkages to the Design Chain Operations Reference model to organize, graphically depict, and communicate the future state we are striving to achieve. The benefits of developing an enterprise architecture using SCOR are to:

- Provide a common supply chain language to communicate with other supply chain owners, the DoD, and commercial entities

Article Acronyms

DoD – Department of Defense
DoDAF – DoD Architectural Framework
EA – Enterprise Architecture
LogEA – Logistics Enterprise Architecture
MRO – Maintenance, Repair, and Overhaul
SCOR – Supply Chain Operations Reference

- Ensure the ability to use standard cascading metrics with traceability throughout the supply chain
- Ensure the ability to benchmark across industry and the DoD
- Provide a foundation of standardized high-level processes as a starting point to build upon

The Expeditionary Combat Support System (ECSS) process blueprinting efforts will continue to decompose LogEA SCOR level 3 processes down to specific tasks, activities, and steps required to seamlessly accomplish the core processes in the dynamic, diverse, and widely-dispersed logistics enterprise.

SCOR was developed by the Supply Chain Council, which is a conglomerate of over 800 manufacturing, distribution, and retail companies operating around the world, along with several DoD agencies and military services. Council members share in the development of the SCOR model, and have produced eight revisions thus far. LogEA, based on SCOR, consists of five core processes, a standard naming convention, common process element definitions, performance attributes, metrics, business best practices, specific process flows, and individual process inputs and outputs.

The five core processes are:

- Plan
- Source
- Make
- Deliver
- Return

Each process is decomposed and identified by an alphanumeric notation from Level 1 to Level 3. Level 1 describes the core process types, known as chevrons, which are annotated with the first character of the title, such as, *S* for Source. Level 2 is a further decomposition of the process types to process categories, which are annotated sequentially using the first character of the title and a number starting at one. For example, Source Stock Product is *S1*. Level 3 is the first level of process design for each process category, which adds a sequential number to the category notation after a dot. For example, Schedule Product Delivery is the first step (process) in Source Stocked Product (*S1*) and is labeled as *S1.1*. The only exceptions to this labeling construct are at Level 1 in the Return and Enable areas where they have 2 alpha characters to represent an association with other process categories. For example, Source Return and Enable Make are annotated as *SR* and *EM*, respectively. Levels 2 and 3 use the same notation construct across all process categories and elements. Figure 1 shows the alignments, notation schema, and explains elements of each core process area.

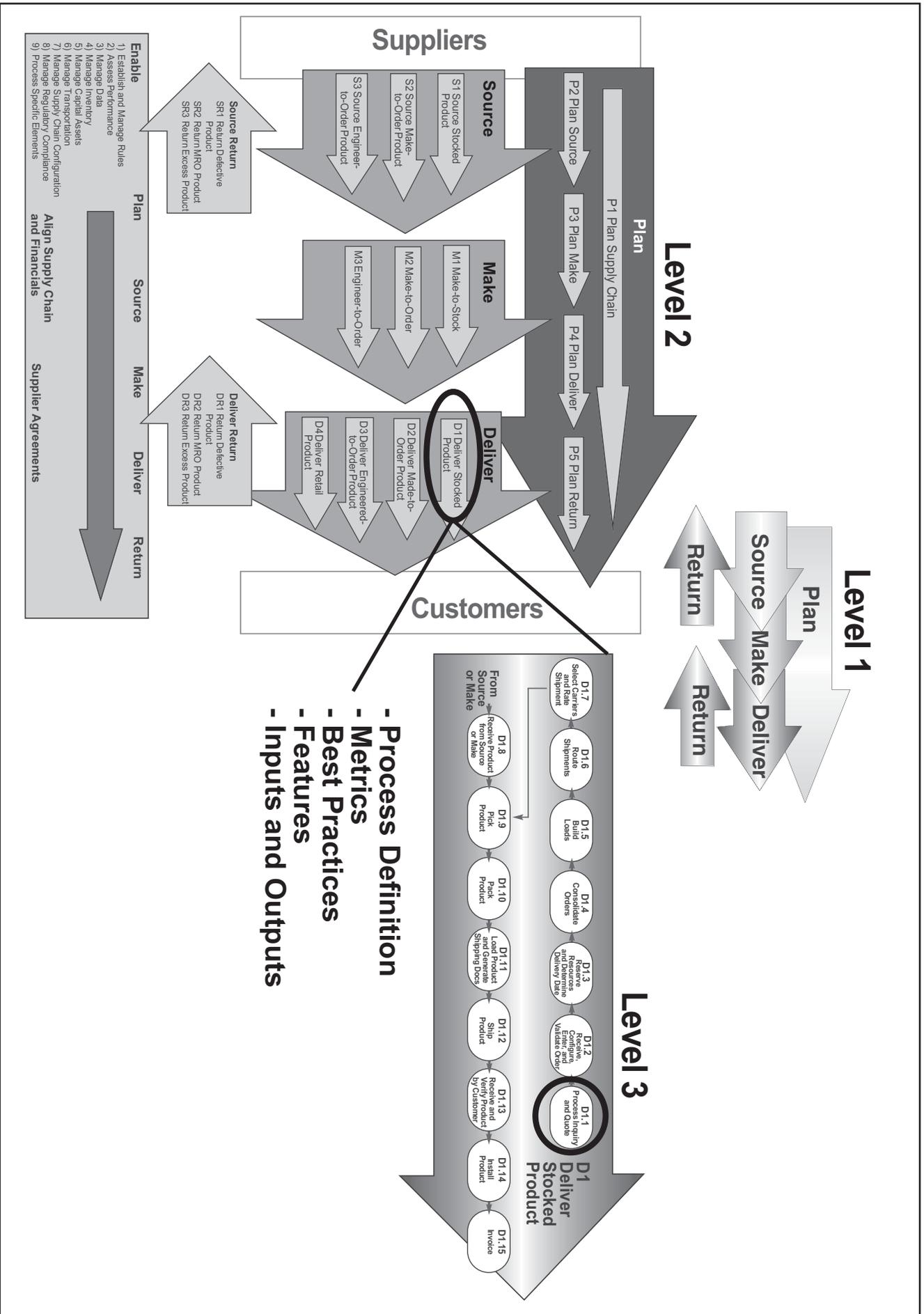


Figure 1. Levels of SCOR

LogEA Core Processes and Process Categories

Plan – Demand and Supply Planning and Management

These planning processes identify, aggregate, prioritize, align, and balance supply chain resources and requirements. All logistics chain-planning actions fall in one of five subprocesses, each of which addresses a set of requirements and resources. Plan Supply Chain is concerned with the expectations and capabilities of the supply chain in its entirety. Plan Source is concerned with determining a time-phased plan of identifying resources (currently available and to-be acquired) to meet demand requirements. Plan Make is concerned with production related requirements and resources. Plan Deliver is focused on order fulfillment. Lastly, Plan Return addresses the planning of materials returned for all reasons. These plan processes are interdependent, each providing to the others forecasts of requirements, assessments of capabilities, and identification of situations where requirements may be misaligned with capabilities.

Source – Sourcing Stocked, Make-to-Order, and Engineer-to-Order Product

This execution process includes the scheduling of product deliveries, receipt, verification and transfer of product, and authorization of supplier payment. This process is executed in direct response to demands, both actual and forecasted. It also includes the creation of demand signals from internal and external suppliers for replenishment of end items, component materials, or repair services based on plans and actual activities. It has critical linkage to the enterprise goals and related plans. The discipline employed in sourcing is key to ensuring the sourcing plan aligns with operational goals. Source establishes priorities and due dates for specific demands. It assigns those demands to specific sources for procuring—making, delivering, and returning based on the enterprise goals and established plans. Source also redirects requirements to alternate sources when necessary to meet due dates, if that can be accomplished within the existing plans and business rules.

Make – Make-to-Stock, Make-to-Order, and Engineer-to-Order Production Execution

This execution process includes all those activities directly involved with (or supportive of) production, maintenance, and repair of materials. It includes

preparation for the work, execution of the work, and conclusion of the work. Make is initiated by, and is linked to, enterprise goals through sourced requirements and production plans. It includes new production, maintenance, and repair. The production of items from a bill of materials or other planning documentation as well as the induction of unserviceable carcasses into the maintenance and repair process are considered in the Make Process. If a production or maintenance, repair, and overhaul (MRO) action is triggered to fill an inventory requirement, the item is considered a Make-to-Stock item. If a production or MRO action is triggered to fill a requirement for an item that the supply chain plans to not stock, that item is considered a Make-to-Order item. Shop scheduling and sequencing determines and provides shop routing, tools, manuals, recipes, and operator directions and other items required for doing the work. The process determines shop floor sequencing based on shop capability, shop load and due dates, and creates work instructions. These are driven directly from the Make (production) Plan.

Deliver – Order, Warehouse, Transportation, and Installation Management for Stocked, Make-to-Order, and Engineer-to-Order Product

This execution process provides for the receipt and validation of customer orders, reserving of inventory and determination of delivery dates, shipment planning and actual shipping, material handling and receipt, and invoice processing. Deliver includes delivery of both stocked products and make-to-order products. It is through the Deliver Process that requirements (demands) are satisfied. Deliver includes all those activities directly involved with or supportive of the movement of materials from one place to another. It includes those activities required prior to the movement, the actual movement, and activities that follow or complete the movement. Deliver is initiated by, and is linked to enterprise goals through, source requirements and delivery plans. It includes delivery of inventoried materials and produced (new or repaired) materials.

Return – Return of Raw Materials and Receipt of Returns of Finished Goods

This execution process includes all activities directly involved with and in support of materials to be returned or redistributed. This includes defective materials and MRO, as well as return or redistribution of excess material. This process includes the activities to identify

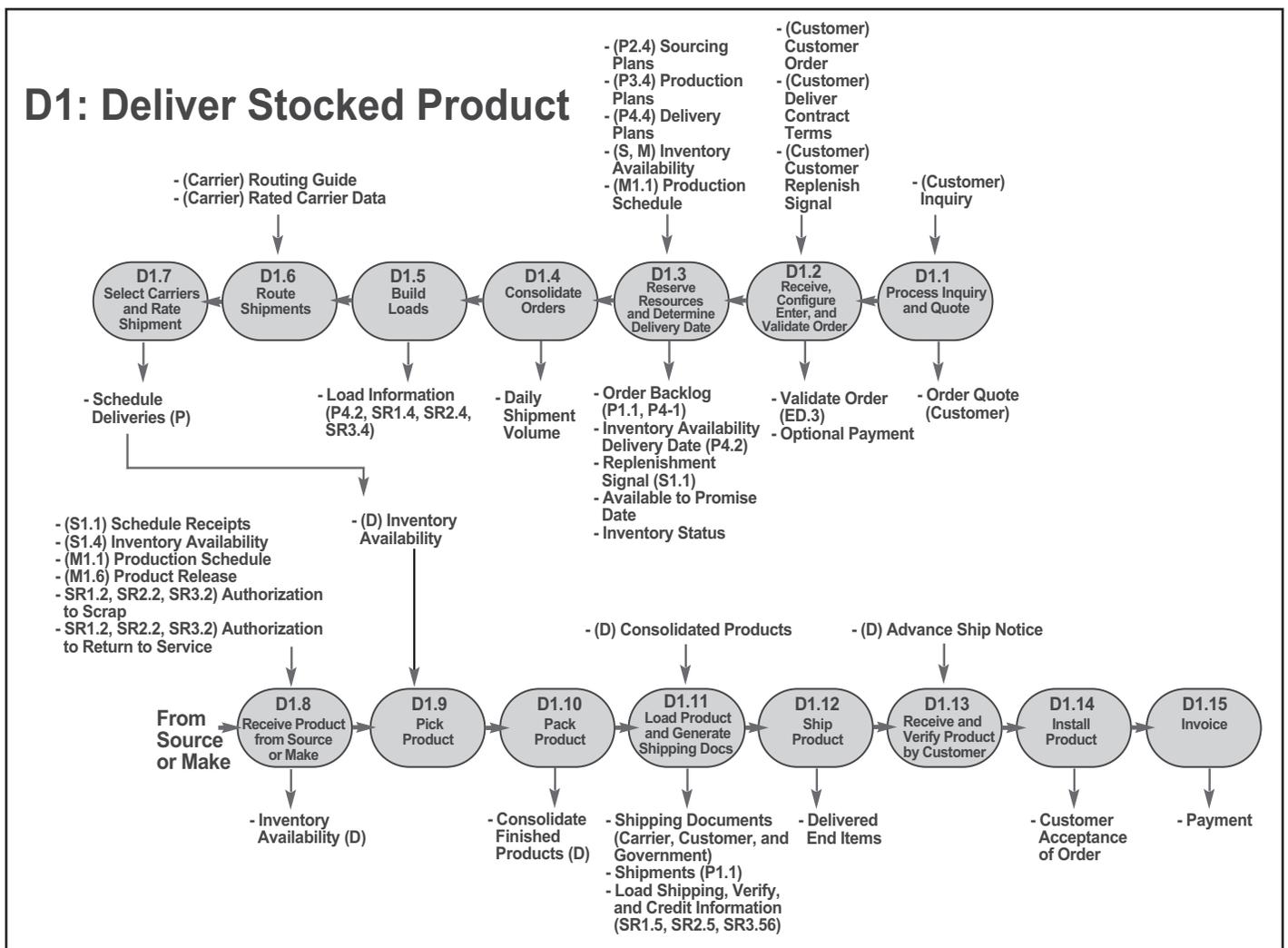


Figure 2. SCOR Level 3 Inputs and Outputs

and disposition the material to be returned, the management of the return, and steps required to complete, close, and account for the return.

At LogEA (SCOR) Level 3, each sequential process contains a description and inputs and outputs required to support the process (see Figure 2) and may have metrics and best practices associated to assist in better performing and measuring the success of the process.

To most effectively support the warfighter and deliver *best-in-class* support, the Air Force must transform key areas of its logistics operations by adopting an end-to-end focus on customer support. To accomplish this, LogEA contains a single set of goals and objectives that are focused on achieving an overarching mission and vision, as shown in Figure 3. In a broader sense, the LogEA also complements the Agile Combat Support architecture to ensure that future state logistics processes are aligned with processes resident in the other functional domains such as financial management, acquisition, human resources, installations

and environment, strategic planning, and budgeting. LogEA supports the business enterprise priorities as described by the DoD Business Enterprise Architecture, which provides higher level guidance for developing enterprise architectures. The integration provided by LogEA allows the Air Force to manage logistics from an enterprise-wide perspective focused on meeting warfighter requirements effectively and in a cost effective manner. The result enables the Air Force supply chain to efficiently provide the right stuff, to the right place, on time, every time.

Conclusion

The LogEA is also scalable, responsive, and able to support the Expeditionary Air Force concept at home and during deployed operations. It is focused on delivering reliable, time-certain, and effective support. It is designed to incorporate network-centric operations to leverage centralized planning and decentralized execution with real-time command, control,

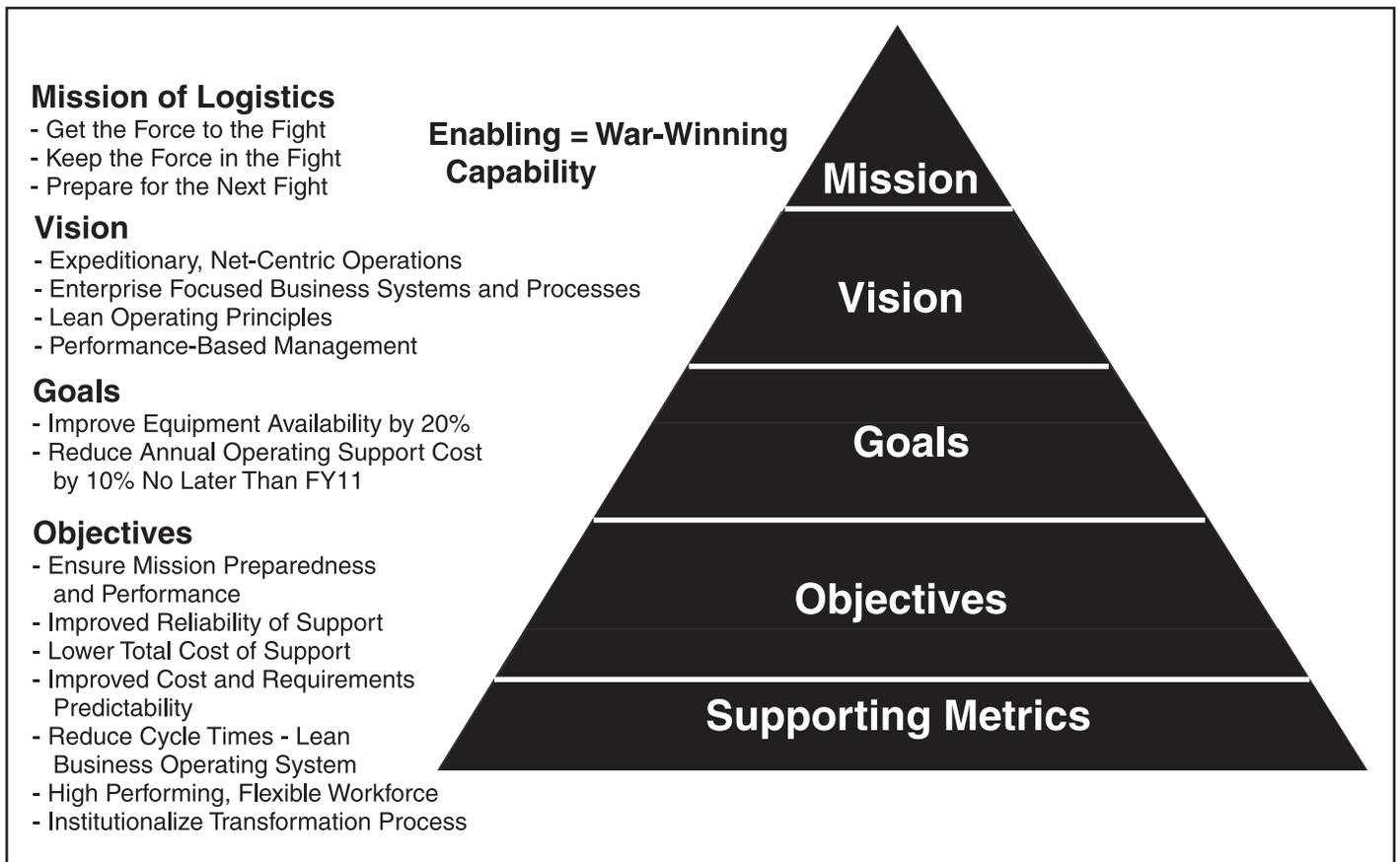


Figure 3. LogEA Mission, Vision, Goals, and Objectives

communications and interoperability. Ultimately it promotes predictive and proactive actions while being responsive and maintaining an enterprise-wide perspective that drives behavior at all levels.

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current duties include ensuring logistics and supply chain process improvement initiatives, information technology systems, and programs are in compliance with the Logistics Enterprise Architecture and aligning logistics activities with Air Force and Department of Defense strategic goals and objectives. Mr Fri started his Air Force career in 1979 and has over 28 years experience in maintenance and supply chain management. 

Logistics...embraces not merely the traditional functions of supply and transportation in the field, but also war finance, ship construction, munitions manufacture, and other aspects of war economy.

—Lt Col George C. Thorpe, USMC

...no success is possible—or even conceivable—which is not grounded in an ability to tolerate uncertainty, cope with it, and make use of it.

—Martin van Creveld

Who bravely dares must sometimes risk a fall.

—Tobias George Smollett



Routine

has its reasons.

Change isn't one.

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