

**CENTER FOR ARMY LESSONS LEARNED**

**SUPPORTING THE WARFIGHTER**



## **Establishing a Lessons Learned Program**

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## Foreword

For many years, the U.S. Army recognized the need to share information or lessons gained from training and actual combat operations. During World War II and the Korean War, the Army published “combat bulletins” in an attempt to share combat experiences with other Soldiers. During the Vietnam War, Army units published quarterly operational reports that made an effort to share lessons from combat operations. By doing this, units learned from the mistakes others made and were given an opportunity to avoid the same problems.

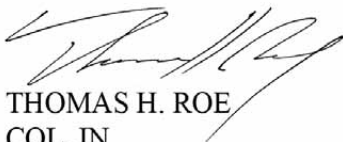
Although these procedures were successful, the Army did not have a formal or permanent program in place to collect, analyze, and share lessons in both peacetime and wartime. As a result, the Army established the Center for Army Lessons Learned (CALL) in 1985. The Army had officially recognized the need to share lessons gained from training experiences and actual combat operations. Since the inception of CALL, the Army, as a learning organization, greatly evolved over time. CALL also evolved.

Now, military communities, civilian governmental agencies, and the corporate world recognize the importance of sharing knowledge and learning from past experiences. In many ways, the U.S Army led this effort by allowing commanders to make honest mistakes in training, talk about those mistakes openly, and share what was done to correct those mistakes with other units about to undergo the same training experience. This is an essential precondition for having an effective lessons learned (LL) program: the ability to self-analyze and self-criticize in an atmosphere where there is no blame. The results were instrumental in changing the Army and creating a learning environment that won the Cold War, ensured victory in Desert Storm, and continues to support our Soldiers in Iraq and Afghanistan today.

With that said, the intent of this handbook is not to explain how CALL does business. Rather, it takes a holistic look at what CALL does today and combines that with numerous, successful LL programs to lay a foundation for a “generic” LL capability that can be used as a “menu” of options to develop your own LL program. There are no hard-and-fast rules for how to set up an LL program. Typically, any LL effort will depend on what the organization is trying to achieve and its level of resourcing. Every

organization must develop its own way of working with observations, insights, lessons, and best practices that suits the nature of the knowledge it requires and its organizational culture.

Our hope is this handbook will assist you in either refining your LL capability or establishing a new organizational goal toward LL. We wish you the best of luck in that endeavor.



THOMAS H. ROE  
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Director, Center for Army Lessons Learned

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The Secretary of the Army has determined that the publication of this periodical is necessary in the transaction of the public business as required by law of the Department.

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**Note:** Any publications (other than CALL publications) referenced in this product, such as ARs, FM, and TMs, must be obtained through your pinpoint distribution system.

## Introduction

This handbook provides leaders and members of an organization with a “how-to” guide for establishing a lessons learned (LL) capability. It promises to detail what the LL process is and how to apply all the available tools to establish your own LL program.

Different organizations in the LL community vary terms that are not necessarily consistent. This handbook attempts to simplify and explain these terms to satisfy the development of a generic LL capability. In developing this LL handbook, the Center for Army Lessons Learned (CALL) drew from the experience and techniques used by the Army, Marines, Air Force, NATO, and other U.S. government agencies. It examined the processes in place to collect, analyze, disseminate, and archive observations, insights, lessons, and best practices and distilled them down to a simplified list of functions any organization could choose from to establish an effective program that fits its level of resourcing. The goal of this handbook is to provide a one-source document that anyone can use to understand how a basic program is achieved to improve organizational effectiveness.

All organizations must learn to adapt and change. An enabler to do this is understanding the value of a lesson learned. The military has been a leader in understanding the vital importance of an LL capability. LL processes have been used in commercial, government, and military organizations since the late 1980s to capture, store, and share experiential working knowledge.

Although this is a CALL product, it is not a primer on how CALL does business. We believe this handbook will have applicability for military, government, and civilian organizations that want to develop an LL capability. Although it does use some military examples, we will try to demystify military terminology and keep the explanations as basic and simple as possible.

There are three chapters in this handbook, followed by a series of appendices. Chapter 1 briefly discusses what an LL program is and why you should have one. Chapter 2 outlines the functions of an LL program. Chapter 3 discusses the organizational considerations involved when establishing a program. In the appendices, you will find examples of how other LL centers operate their programs and supplemental information on after action reviews/reports, collection plans, and interviews.

Some organizations that have developed LL programs:

Government	
Military	Nonmilitary
<b>U.S.</b>  Air Force Army Coast Guard Joint forces Marine Corps Navy	<b>U.S.</b>  Department of Energy Society for Effective Lessons Learned Sharing NASA (Ames, Goddard)
<b>International</b>  Canadian Army Lessons Learned Centre	<b>International</b>  European Space Agency Italian (Alenia) French (CNES) Japanese (NASDA) United Nations

“Those who cannot remember the past are doomed to repeat it.”  
— George Santayana, Philosopher

## Chapter 1

### Why a Lessons Learned Program?

Why does an organization need a lessons learned (LL) capability? Before we discuss that, it is important to understand what is a “lesson” and what is a “lesson learned.” A lesson is knowledge or understanding gained by experience. The experience may be positive (a best practice), as in a successful test, mission, exercise, or workshop, or negative, as in a mishap or failure. Successes and failures are both considered sources of lessons. A lesson must be significant in that it has a real or assumed impact on everyday operations. It must be valid in that it is factually and technically correct; applicable in that it identifies a specific design, process, or decision; and it reduces or eliminates the potential for failures and mishaps or reinforces a positive result. Basically, it is the knowledge acquired from an observation or an adverse experience that causes a worker or an organization to improve.

A lesson is an LL when you can measure a change in behavior. Obviously, this change in behavior needs to be of a positive nature that improves performance. The U.S. Army, with over 25 years of focused LL experience and one of the world’s leaders in experiential learning, still struggles with actually “learning” lessons once identified. Even though there are many understandable reasons for this, you cannot give up. Other organizations complain that once you identify a lesson, it ends up in some database and you quickly forget it. The irritation of every LL specialist is seeing important lessons collected and never being shared or resolved. This takes time and effort and, in most instances, money. Often there is no obvious “owner” of the lesson identified, and there is rarely a system set up to resolve the issue and implement corrective actions.

Do not be discouraged. There are some very sound reasons why your organization needs an LL capability that can evolve into an effective program. Here are just a few:

- It saves time by providing a central location for efficient searches of valuable LL information.
- It helps reduce or avoid costs by providing information on success stories that you may be able to implement or mistakes that you may be able to avoid.
- You can expand your information network by providing information-sharing opportunities by connecting with other sites, “experts,” or people doing similar work.

- Most importantly, it can reduce the risk of repeated mistakes and improve the chance that success is continual.

Once you have decided that an LL program is what you want to implement, consider the following points:

- Secure executive and leadership “buy-in.”
- Avoid the “evaluation or inspection” tag.
- Push best practices out.
- Start small, then grow slowly.
- Show that the process can bring change.

These are also some advantages to capturing project lessons and turning them into knowledge:

- To improve project management processes.
- To improve management decision making (develop new strategies).
- To improve personnel performance.
- To increase organizational knowledge.
- To save lives and resources (money, supplies, time).

“[ It is estimated] that Fortune 500 companies lose \$31.5 billion each year because they don’t share knowledge.”

— “20/20 Foresight,” *PM Network*, September 2004

As mentioned in the foreword of this document, there is one important implication that is critical to understand before implementing any LL program. This implication involves the “culture” or attitude of your organization. Is your organization willing to openly discuss its mistakes, and is it willing to share those mistakes across organizational lines to make everyone better? If not, it will be very difficult to implement an effective LL program. If you are willing to share those mistakes, can you do so in an atmosphere that avoids direct blame on those willing to bring problems forward? You must be able to do this to be a learning organization that facilitates knowledge sharing. Within some cultures, this is very difficult to do. The act of “saving face” precludes individuals from admitting their mistakes. However, some armies have successfully overcome this cultural difference after working with the U.S. military and understanding the importance of learning from their past. Again, being able to self-examine and self-criticize in an atmosphere where everyone can avoid blame is

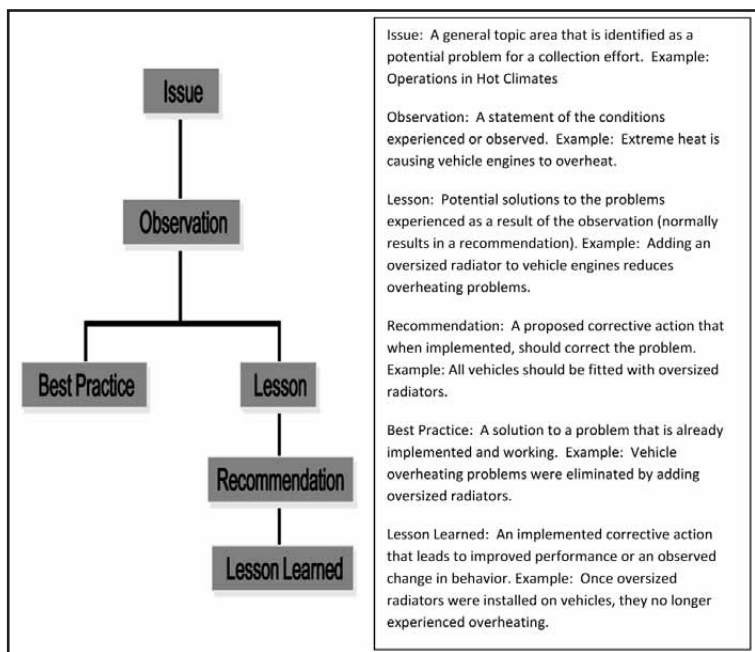
essential for honest and open discussion. This is an essential precondition for an effective LL program.

The LL program can be a linking mechanism that connects existing LL initiatives, a series of tools that facilitate learning and information transfer, and a broad network of individuals who contribute to the sharing process. It has the potential to be a multifaceted initiative that uses information technologies to link LL programs, rapidly transfer time-critical LL information to key points of contact, and provide access to pertinent information available outside of the organization.

Every project your agency undertakes demands substantial concentration and focus, creativity in problem solving, and a wide range of practical skills. However, unless your agency makes a specific effort to retain the knowledge and experience learned on one project, much of the value will be lost. Establishing an LL process will help your agency learn from its mistakes and apply new knowledge and experience to other projects. Activities are a routine part of life, allowing us to build up and share our experience as human beings, thus leading us to LL.

In the military context, LL are a natural product of operations, training, and exercises and, indeed, any routine work. During the course of our activities, most of us will recognize easier, more efficient ways of doing things, problems that are avoidable, or issues we can prevent our colleagues and successors from suffering from. The LL process is simply the process of trying to ensure that you repeat good practices or that the same problem does not occur again.

Although observations are the first building blocks of the process and initial identification of a good or bad practice or event, an organization generally has topics it wants to focus on or issues it has determined are problematic. Each of these issues requires a determined method to collect information that can be subject to further analysis. Analysis results in the development of lessons, best practices, and recommendations for corrective actions to help resolve the issue. To learn a lesson, you will need recommendations to lead you to the work that will help resolve and implement the lesson. Figure 1-1 provides the terms and definitions that will be used throughout this handbook.



**Figure 1-1. Definitions**

Following is a brief explanation of the functions that are important to any viable LL program. These functions will be explained in greater detail in Chapter 2.

## Collect

You must first have the ability to collect information on specific topics or issues of interest. There are many ways to do this. Information can be “pulled” into the process through direct collection efforts or it can be “pushed” into the process by organizations, units, and individuals from the bottom up. This information is usually unrefined observations requiring additional analysis. You can accomplish collection through direct and indirect methods and run a full range of processes from answering data calls in support of a request for information, to formal collections involving well-developed questionnaires, to a team of experts brought together to specifically gather further information for analysis. Different techniques and tools for collection include direct observation, in-person interviews, surveys, database submissions by participants, data and database mining, and document capturing.

A good way to accelerate an LL collection effort is to motivate individual and organizational behavior using a “market strategy.” A market strategy treats the exchange of information as a tangible transaction between someone who has information and someone who needs the information. In the commercial world, this equates to linking a buyer and a seller with currency exchange based on the value of the product or service. In an information-exchange market, the dynamic is the same, but the “currency” involved is usually not cash.

## **Analyze**

The transformation of an observation to lesson identified occurs when the analysis reveals the root causes of the problem and identifies the appropriate remedial action or corrective action. Analysis typically answers the “who, what, when, where, and why” to identify the root causes of the problem or success. Analysis results in lessons that lead to recommendations, which ultimately enhance organization performance once implemented. Thorough analysis, when done properly, is one of the most difficult and time-consuming aspects of the LL process.

## **Share**

The sharing of lessons in and between organizations ensures everyone benefits from the knowledge gained. Lessons are shared through many venues: briefings, bulletins, reports, e-mails, websites, database entries, etc. Sharing lessons and making them available to everyone should be the primary goal of a good LL program. It can potentially reduce risk, improve efficiency, and enhance the cost effectiveness of processes and operations. Sharing of data between LL professionals, historians, and other learning organizations is also encouraged. The guiding principle in executing a sharing strategy is to get the right information to the right person at the right time. While conducting shared activities using different approaches, it is imperative to make sure we disseminate accurate information. The next and sometimes more difficult challenge is to have a means to rapidly get the information to those who need it the most to leverage the power of this information by reducing organizational obstruction to the dissemination of knowledge.

## **Archive**

The archive function is a broad term that encompasses several required capabilities that most LL programs desire. The ability to archive information and manage records, both print and electronic, allows access to them at a future date. To accomplish this task, develop digital repositories (called digital libraries or archives) to store information, facilitate the historical preservation of information, and allow users to conduct research. It should provide a logical system for organizing information that is easily retrievable

and provided to any requestor. Powerful search engines are required that permit rapid, user-friendly searches. If required, repositories should have the capability to store and guard classified, sensitive or proprietary, and unclassified data. Understand that the archive function needs to become and remain an ongoing process or the repository will soon die of its own weight and growing irrelevance.

### **Resolve**

The most challenging component of any LL program is establishing a process to legitimately resolve issues once analysis is completed and as early and quickly in the process as possible. Whether or not the LL program has responsibility for the issues-resolution process, the organization's ability to change behavior by implementing a lesson is ineffective unless that change can be observed and a determination made that the lesson is learned. In other words, the corrective actions have enhanced performance. To do this requires a deliberate process to commit resources, make decisions, implement those decisions, and observe the results. If the process is cumbersome and too difficult, expect the results to be less than optimal. The first objective is to handle the corrective action at the lowest level possible. The issues that rise to the next level of attention are those that units or organizations are unable to correct internally. They are issues that require outside assistance to correct or assistance from external sources.

### **Assess**

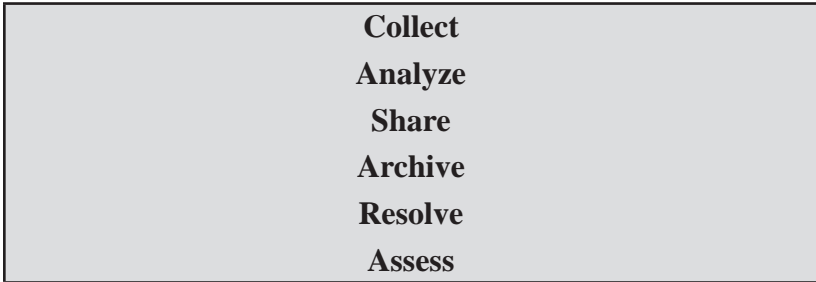
There are several ways to determine if the LL program is effective. Any LL program evaluates the expenditure of resources against the desired results. This is difficult to determine through quantitative analysis. However, some ways to evaluate the effectiveness of an LL program may validate and justify its continued resourcing. Assessment of LL effectiveness can be broken into several components: organization behavior, organization or unit performance, and mission effectiveness. Each of these techniques are ways to determine if your program is effective.

By reading this handbook, you have taken the right step in establishing an LL program. Additional LL references and contact information are located in Appendix D should you need further assistance.

## Chapter 2

### Functions of a Lessons Learned Capability

Lessons learned (LL) programs will vary according to the needs of the organization; however, most will have at least six functions as shown in Figure 2-1. Each of these functions is explained in greater detail in this chapter.



**Figure 2-1. LL functions**

#### Collect

The first function of any LL capability or program is the collection of information relevant to an issue that someone has determined requires analysis. In an LL program, the issues are usually topics the organization realizes are causing concern or problems, and the organization wants to determine a better way to do business or enhance performance. Historically, most organizations are passive when it comes to reporting problems and potential solutions shared with other like organizations so those other organizations do not encounter the same difficulties. Normally, if someone does not make the effort to “pull” these issues from the organization, do not expect them to “push” them to you. Many reasons exist for this, such as operational pace, shortages of manpower, time constraints, a lack of understanding the importance of sharing information, or no process in place that facilitates the sharing. Ultimately, the goal of any collection effort is to gather enough information to have informed analysis that resolves the issue so other organizations can benefit from the experiences of those who have gone before them.

We do not collect lessons to evaluate an organization; rather, we collect lessons to help organizations improve. If perception of the LL program is as an evaluator, an inspector, or an agency of internal review, no one will be willing to share problems and corrective actions. A policy of nonattribution may be appropriate. Make every effort to avoid personally naming individuals; instead, use duty positions or work positions. Try to

avoid naming specific units or offices if possible. For example, if you were collecting on the 1st Battalion, 502nd Aviation Regiment, instead of saying 1-502 Aviation, simply say an aviation battalion. In other words, be generic when it comes to sources but specific when it comes to issues. To get the desired access and have credibility with your organizations, the LL program must be seen as trustworthy, unbiased, and able to guard sources when asked to do so. That said, information gathered from a collection should not be watered down or altered. Collect the facts and only the facts, and try to avoid opinions.

Finally, there is a tendency in any LL program to focus on what is not working well (the negative). A good LL program should also collect information on what *is* working well (the positive). “Best practices” are what we call positive observations. Certainly, the tendency is to focus on the problem areas, but you may find organizations that have mastered a certain task and now can share those best practices with others. As a rule of thumb, expect that 80 percent of what you collect may be negative (in an attempt to improve); however, 20 percent should be positive best practices.

### **Collection opportunities**

Opportunities to collect information on issues conform to the mission of the organization the LL program is supporting. For example, a military organization may have the responsibility to protect our nation from foreign adversaries but also provide support to civil operations in times of national emergency. When you analyze that mission, there are many collection opportunities that exist that have the ability to provide vital observations and lessons on how to best conduct those operations in the future. Although the participants should be the first line of observation reporting, often it becomes necessary for the LL organization to be proactive in the collection process. The following is a potential list of collection opportunities:

- Training events and exercises that prepare the unit for each of its specified missions.
- Experiments and testing that support the unit’s mission.
- Planning sessions and conferences that support the unit’s mission.
- Observing the actual event or mission.

As you can see from this list, there are several opportunities to gather information. To get the maximum benefit from these opportunities and match them to the available resources requires a long-range collection schedule be developed that overlaps the various opportunities and phases them in over time so the workload is manageable. Typically, this schedule runs for one year and makes an effort to lock in dates and locations for each collection effort. In the example above, the occurrence of a natural disaster

is difficult if not impossible to plan for; therefore, the LL program must have the capability to initiate impromptu collections on very short notice. Independent LL organizations may need a collection schedule; however, organizations with smaller, internal LL programs may not.

### **Determining critical issues**

One of the greatest challenges of the collection phase is determining what exactly are the issues that require a collection effort be analyzed. There are several ways to accomplish this. Often issues are “command directed.” A higher headquarters, agency, or organizational leader directs you to collect on a certain issue of interest to them. This makes life simple and usually allows you to avoid a deliberate process whereby the LL program must decide what issues are most important. Sometimes a “shotgun” approach is effective. This approach understands that in every complex operation there are always issues that require work, and if the LL program is working, the issues will certainly be discovered. The disadvantage with this approach is that you do not focus and you have a tendency to look at everything, which dilutes your efforts.

Another method might be the feedback gained from multiple units or organizations that have expertise performing a certain function that is not working properly. When numerous experts in the field are all reporting the same issue, it is probably critical. For example, after the initial invasion of Iraq in 2003, the U.S. Army experienced problems defeating the rocket-propelled grenade that was destroying the new Stryker combat vehicle. Because of this immediate feedback from commanders in the field, the Army devised a defensive shield that could be constructed around the vehicle to detonate the missiles prematurely, rendering them ineffective.

Finally, a more analytical and deliberate approach would require some degree of analysis at home station to determine the issues that are most important to your leadership. A deliberate approach focuses your time and resources but requires a decision process to be developed to determine what is critical. One way to do this is to study past operations, reports, articles, and briefings and begin to compile a list of issues that seem to reoccur and cause difficulty. You can weight each issue with its degree of importance, assess risk, rank order the issues, prioritize resources, and make a recommendation to senior leadership on which issues are most important for the purpose of collection. Each collection effort will more than likely uncover new issues that can be added to the existing list. Once again, you will need to go through a process to determine which issues are most critical for future collection efforts.

## The collection plan

Once you have determined the critical issues, you will need to develop a collection plan to guide the collection. A collection plan can be as simple as a list of questions you desire to ask the organization and its subject matter experts (SMEs) or as detailed as the following:

- Specific guidance for the observers.
- A delineation of collection responsibilities for each observer.
- A list of questions for each issue.
- A determination of the collection methodology for asking each question, which includes who will be asked each question.
- Identification of documents and resources to be used in conjunction with the collection effort.
- A schedule of interviews.
- Travel, support, and information management.

However, the common threads in all collection plans are the questions. You never answer a good question with a yes or no. The question should be worded in such a way that the person answering the question must give a full account of the process the organization is using. Follow these examples:

WRONG: Is your unit performing route clearance operations?

Are we measuring performance improvements in the targeted areas?

RIGHT: How is your unit performing route clearance operations?

How might we measure performance improvements in the target areas?

As stated previously, you must avoid the tendency to collect on too many issues. More is not necessarily better. As a general rule but based on the size of your collection team, more than 10 issues for any one collection effort gets cumbersome. If a collection team can deploy with six to 12 lead questions already prepared for each issue, that normally gives you the degree of fidelity you need to get good results. Additionally, the collection plan is only a plan. Once you begin to ask questions to the interviewees, there is nothing wrong with developing new questions “on-the-fly” that better address the issues based on the information you are gaining from the unit’s SMEs. Do not get locked into the plan. It is only a start-point to get you moving in the right direction.

Finally, there is another collection plan technique you may or may not elect to use. It involves the use of a hypothesis statement for each issue. The hypothesis statement is a statement that defines what you want to confirm or deny about the issue. For example:

Hypothesis: Brigade combat teams continue to have difficulty clearing routes due to the enemy's use of improvised explosive devices (IEDs).

In this example, there is probably some anecdotal information that indicates units are experiencing problems with this enemy tactic. Focusing on the collection plan will confirm or deny this issue. The use of a hypothesis statement is sometimes more beneficial in focusing your collection efforts when you are trying to confirm that a corrective has been applied and a change of behavior is anticipated for the better. For example:

Hypothesis: The implementation of counter IED-defeat mechanisms has greatly reduced the threat of IEDs along routes traveled by brigade combat teams.

Figure 2-2 gives a sample collection plan format for briefing purposes on one issue. Again, the plan can be as detailed or as simple as the observer desires. The sample shows the issue and hypothesis, lists lead or key questions to ask, and describes the interviewees or individuals who will be asked the questions. Appendix A gives an example of a very detailed collection plan, and Appendix B gives an example of interview techniques.

### **Direct and indirect collections**

Now that you have a collection plan, you must begin to decide (if you have not already done so) how you intend to conduct the collection. An LL program will normally use two different types of collections, both accomplishing the same tasks but each using different resources. The direct (sometimes called formal) collection effort always involves detailed planning and is generally a top-down driven process. The indirect (sometimes called informal) collection effort uses much less planning and generally fewer resources, but is typically a bottom-up process.

An example of a direct collection would be a team of SMEs assembled and trained on the collection process and how to build a collection plan, focused on specific issues generated by a higher authority, and deploying overseas to complete a 30-day collection on a specific organization. An example of an indirect collection could be as simple as a Soldier in a military unit submitting an observation he wrote to his headquarters, which forwards it up the chain of command, eventually getting to the LL organization. This is sometimes called an unsolicited observation. It may or may not be tied to an existing issue, but it is information that someone deems critical enough

to take the time and effort to submit in writing from a lower echelon. Although it is always challenging to get organizations to submit unsolicited observations, they are typically some of the best lessons an LL organization receives.

- Issue: Field artillery (FA) core competencies
- Hypothesis: FA personnel participating in Operation Enduring Freedom (OEF) and conducting nonstandard missions are degraded in their FA/fire support core competencies.
- Lead Questions:
  - What nonstandard missions did you conduct?
  - How much of your time was spent on other than FA mission sets?
  - How much time are you spending on conducting FA missions?
  - How has this experience impacted your primary skills of providing fire support?
  - What can Fort Sill do to help units doing nonstandard missions?
  - What sort of predeployment training would have better prepared you for nonstandard missions?
- Interviewees: FA enlisted Soldiers, sergeants, and lieutenants in a maneuver battalion; FA enlisted Soldiers, sergeants, lieutenants in an FA battalion on a brigade combat team; FA battery commanders; FA battalion S-3 officers; and FA battalion commanders.

**Figure 2-2. Example collection plan briefing**

Another informal collection technique may be simple research. If a qualified analyst or researcher conducts extensive research on an issue and finds the right information and lessons, it may prevent the requirement for a direct collection effort, saving time and resources. In either case, the researcher or observer in each instance should have some degree of expertise in the area he or she is exploring, hopefully an SME who can provide valuable insights into the operation.

The only reason for understanding the distinction between direct and indirect collections is to realize there are many ways to get LL. Some ways are more challenging than others. It may sound difficult to put together a direct collection team, but it is sometimes harder to get feedback from the field. Anyone involved with LL programs for any amount of time

understands this. If timely feedback was so prevalent, there would be little need to deploy direct teams.

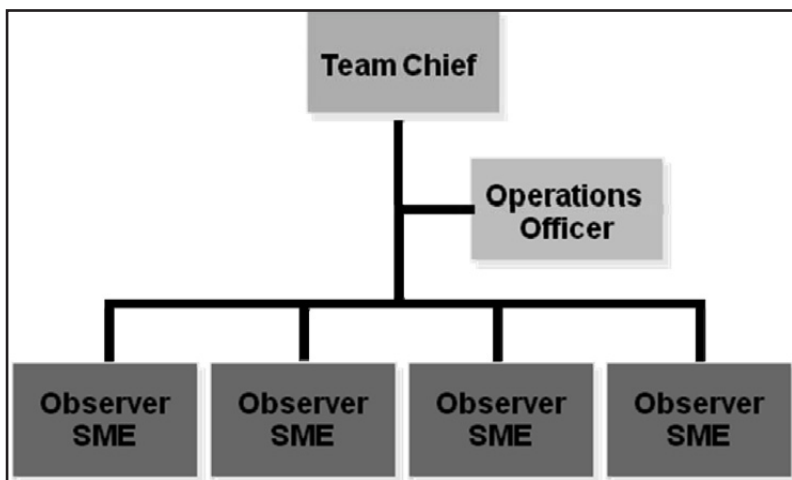
Another technique for collection could at times be direct or indirect. It concerns the use of embedded teams or liaison officers. The U.S. Army has effectively used this concept during the Iraq and Afghanistan wars. They brought Reserve officers on active duty, formally trained them on collection techniques, helped them develop a collection plan, and then deployed them into theater for periods of six months to one year. Each officer was embedded with a unit or a headquarters. They provided vital and timely information on unit operations; tactics, techniques, and procedures; and lessons learned. This effective “push” system was probably a direct collection due to the planning and resources involved. Other techniques might involve the use of survey instruments, or the positioning of liaison officers with various organizations that have their own LL programs, to maximizing the sharing of lessons across agency boundaries.

The military uses a very instructive process as outlined in Appendix C called the after action review/report (AAR). You would think that this is an indirect process but one that requires a great deal of effort and time to execute. This process is one that produces some of the best and most timely lessons.

- The after action review is a verbal discussion held at the completion of an operation or event with key participants to determine what happened, what worked, what did not work, and how to improve for the next event.
- The after action report is a written document that highlights unit accomplishments and LL. It works well as a historical reference tool and is given to other organizations getting ready to participate in the same event.

Although the U.S. Army developed these concepts, with some modification they could be adapted for interagency, intergovernmental, or civilian uses.

Since the direct collection is probably the most complex to execute, it is beneficial to understand the process to execute this task. Figure 2-3 depicts an example of what a direct collection team may look like. This example shows four observers/SMEs, but the team could be as many as 12 members if the issues support that size. More than 12 are cumbersome, especially if you are traveling overseas.



**Figure 2-3. Generic direct collection team composition**

The team chief has the responsibility to lead the team, validate the collection plan, review observations drafted by observers, meet regularly with the team to review progress, assist in writing the observation report, and conduct any briefings required to introduce the team or provide an out-briefing when the team departs the organization it is observing. The team chief should be of sufficient position or rank to “open doors” if the requirement exists. In the military, the team chief is usually a colonel.

The operations officer is the team chief’s deputy and his “right-hand man.” He is usually a full-time member of the LL organization with prior experience supporting collection teams. He performs administrative tasks such as equipping the team, making travel arrangements, and scheduling interviews, and helps the team chief review observations for correctness.

Observers/SMEs make up the remainder of the collection team. Observers have the responsibility to be objective, do unbiased reporting, have no personal agendas, and be good writers, since they are responsible for drafting all of their observations for the observation report in the formats described below. Besides the use of a survey tool, the primary way to get information as an observer is through an oral interview. The observer should be an SME as well as the person he is interviewing. Information on how to conduct an oral interview is in Appendix B.

Training for any collection team is important. Normally, three or four days of training before the team departs is sufficient. Subjects taught in this “predeployment” workshop are observer duties; security training;

collection plan development; and any training required on issued equipment such as laptop computers, cameras, satellite phones, and voice recorders. However, the main purpose of the predeployment workshop is to finalize the collection plan to the team chief's liking. It is also important to conduct a "post-deployment" workshop. The primary purpose of this workshop is to draft the observation report as described below. A secondary purpose is to return issued equipment, finalize travel arrangements, complete a security debriefing to ensure there is no compromise of classified information, and give a commander's or director's briefing.

### **Observation reports**

The result of a direct collection effort should be a well-written observation report. Although modification may be necessary to correspond to any situation or desired format, the following sections are included:

- **Introduction:** The introduction may discuss the mission of the collection team, dates of the collection, and who was involved, and typically thanks the organizations observed for their support. It gives any other special instructions and may highlight the classification of the report.
- **Executive Summary (EXSUM):** The team chief leading the collection, with input from the individual observers, usually writes the EXSUM. It summarizes the results of the collection by issue. A good technique in the EXSUM is to list the overall top three or four issues that require immediate attention. Additionally, the EXSUM should cover what is working well. If someone reads only the EXSUM, they should get a good sense of what the collection was about and the results.
- **Chapters:** There should be one chapter for each collection issue. Each observer responsible for an issue should write his or her own chapter. The chapter should start with a brief paragraph summarizing the major findings in this area. It should then list each observation and the associated lessons, recommendations, and any best practices in the prescribed format.
- **Appendices:** Miscellaneous information such as maps, charts, checklists, photos, operation orders, and briefing slides can be included here.

You can use several different formats to write an observation. One of the easiest to use is the issue-discussion-recommendation or observation-discussion-recommendation format. Another format the U.S. Army uses is the following:

- **Title:** The topic of the observation.

- Description: One sentence explaining the observation.
- Discussion: The major analysis of the problem supported by facts and examples.
- Lessons: A list of any lessons observed to share with other units supported by the discussion.
- Doctrine, organization, training, materiel, leadership and education, personnel, facilities (DOTMLPF) Recommendations: Recommendations for corrective actions under each category that applies supported by the discussion.

The joint community uses the following observation format:

- Topic/Issue: The title of the observation.
- Observation: One sentence explaining the observation.
- Discussion: The major analysis of the problem supported by facts and examples.
- Recommendations: A list of recommended corrective actions supported by the discussion.
- Implications/Lessons: A statement of what happens if the recommendations are not adopted.

NATO uses the following observation format:

- Title: Brief but specific description of the topic.
- Observation: Brief factual description of what happened.
- Discussion: What is relevant to determining the root cause? (May include history of the event and the what, where, when, why, who, and how.)
- Conclusion: Summary of the underlying issue arising logically from the observations and discussion.
- Recommendation: Specific actions that should be taken and by whom to deal with the underlying issue presented in the conclusion.

NATO also has a format for a best practice:

- Title: Topic of the best practice.
- Context: Sets the context for the best practice and the problem area or situation that it resolves or improves.

- **Process:** Covers the main body of the best practice; an explanation of how to execute the best practice, and what processes and products it requires.
- **Benefit:** Justifies why it should be classified as a best practice. (Provide a clear reason why it saves lives, time, money, resources, etc.)

The key to any format is that you thoroughly discuss the observation using facts and examples while trying to avoid opinions, highlighting any lessons and making recommendations to fix the problem if you have the expertise to do so. When dealing with LL, do not mistakenly write a truism instead. A truism is something we know to be true at all times. At one point, it may have been an LL (a long time ago), but over time, it becomes enduring. For example, IEDs are a major killer on the battlefield. Years ago, at the start of the war on terrorism, this was a lesson learned; today, it is a truism. The LL, in this example, would be ways to defeat IEDs.

A good length for a written observation is one to two pages. Another thing to keep in mind is that the “shelf life” for an observation is about six months. This means that anyone who attempts to use the observation to justify an effort after about six months needs to confirm with the source that the observation is still valid. For example, maybe the source organization determined the observation will not be corrected for whatever reason, or maybe the observation was corrected and it is no longer an issue. Using an old observation or observation report that is no longer valid to substantiate or justify a project without making sure it is still an accurate assessment of the issue will show that you have not done thorough research.

For this reason, some LL organizations prefer to keep raw observations as internal reports, disseminated only to those who have a need for the information. One technique to use is putting a statement in the front of the report that “warns” the user after a certain period of time to make sure they verify the status of each observation before citing them in another project. If you have the time and energy, a very good procedure is to update the status of each observation once any new information develops concerning its resolution. This requires a conscientious staff and considerable time and effort to monitor and track the actions associated with each observation, most of which may not directly involve the LL organization. The issues-resolution process, which will be discussed later, can provide information to support this effort.

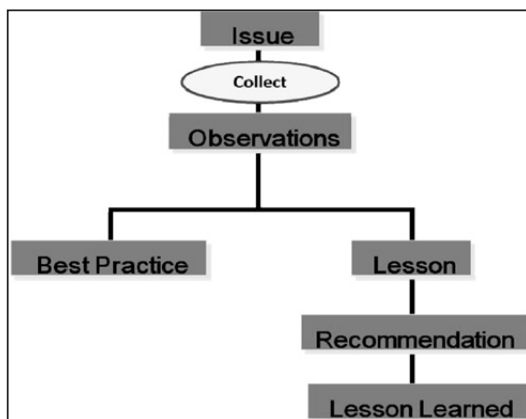
Make every effort to keep the observation report classified at the lowest level possible. That said, it is the responsibility of the observer to ask the interviewee the sensitivity of the material he is receiving. If there is any doubt, always have the unit intelligence officer or facility security specialist confirm the classification of the information in question. Be especially

careful with photographs taken or briefing slides with embedded pictures. Organizations that deal with classified information on a daily basis are sometimes sloppy in their handling and marking of documents.

Finally, out of courtesy, it is appropriate to let the organizations interviewed review a final draft of the observation report. In some instances, they may make recommendations that clarify what was given in the interviews. Typically, they should have at least two to three weeks to review the observation, a time you need to factor into your planning sequence.

What you must avoid is the tendency for the reviewing organization to “correct the report.” Any LL program has the responsibility to present only the facts. One way to compromise on points of tension is to include the unit’s opinion as an appendix. This should keep both sides happy.

Figure 2-4 highlights the LL process and where the collect function fits.



**Figure 2-4. The LL process with the collect function**

## Analyze

Analysis is a process used to thoroughly understand areas of activity identified to have potential for improvement. You can accomplish this action at the end of the event or after the active collection has been completed; however, a certain amount of analysis may be done throughout the LL process. Transforming the raw data into actionable recommendations requires a systematic process to examine the information that has already been collected and understand why or what contributed to the need for improvement. The level of analysis may be determined by the expertise or resources available or by time limitations in developing a final product. In some cases, it may be more important to conduct a surface analysis and

expedite the results back to the user so they can start to take corrective action, where as with other observations, the complexity of the issue or resolution may necessitate a more detailed analysis and explanation. In either case, raw observations may change in context, content, conclusion, and applicability during analysis.

### **Validation of the observation**

During this part of the analysis, you start to organize the data you have collected, ensure you have explored every possible resource, and agree on the direction and method the analysis should follow.

**Frequency of occurrences.** Review previous observation reports, AARs, LL databases, and other reports to determine the frequency and conditions in which the observations have occurred. Is there a solution on record? An effort should be made to determine if the issue has been previously identified and a solution initiated but not yet implemented.

**Understand the objective.** It is important to understand where to focus your analysis. While conducting the analysis, it is easy to identify additional issues that may cause you to stray away from the intended objective or the customer's needs. Consider capturing these issues and setting them aside for later collection efforts.

**Review findings with the host organization or other stakeholders.** If not already accomplished during the collection phase, review the observations with the unit or organization where it was collected to determine if there were any unusual or contributing conditions for the issue. Do not provide recommendations at this point, since they may be based on incomplete analysis.

### **Analysis of observed data**

This is the step where the analysts start to analyze, brainstorm, and dissect the information collected. Use different perspectives when looking at the data to fully understand the issues, examine each piece to see if other issues exist, and start to develop the full story. It is critical to discover not only what happened but why it happened.

- Conduct additional research on the observation(s). This may require making follow-up interviews or phone calls, reviewing AARs or other collection reports, and searching existing LL databases for related information. Talking to other SMEs who are knowledgeable of the issue may also provide some missing information or confirm the data you have already collected.
- Seek expert consultation on the issue to help you understand the data you have collected, identify contributing factors, and help make

informed recommendations. In most cases, you will not be an SME on the particular issue, so it is important to find someone who can answer questions, review the observation and recommendations, or participate in the analysis of the collected data. If the issue is a piece of equipment or system, it may be necessary to contact the manufacturer or designer. If it is a training issue, you may want to contact the training center or proponent for the issue to see what is being taught and what is missing.

- Organize group discussions or “murder boards” to examine the observations in more detail, identify capability gaps, understand the root cause of the finding, and determine if there are related issues. Organize these discussions with someone designated to keep the discussion on track and the analysis of data moving in the right direction. Designate someone to record the results of the discussion. Displaying the data on a screen can be useful for the group to view and agree on the outcome, but it can also cause the discussion to get bogged down in “wordsmithing” and delays in the final product.
- There may be a requirement to conduct some basic statistical analysis of answers you received in questionnaires or interviews. It is important to interpret and sum up the results for the purpose of the analysis and final report. Model the patterns in the data in a way that accounts for randomness and uncertainty in the observation. It may be useful to display this information in the form of charts or graphs in the final product to emphasize the frequency of an observation, gaps in a capability, or need for a particular solution.

### **Corrective actions/recommendations**

During this phase you start to organize the results of the analysis and determine appropriate recommendations. If you do the collection and analysis correctly, the recommendations should be intuitive. The recommendations should say what needs to be done and not just what effect needs to be achieved.

- Prepare the results of the analysis in a format that is accurate and easy to understand. It may be best to first capture the data on briefing cards or in briefing slides to help organize the main points in a logical order. Add to the observation report once the data is developed and organized, as described in the Collect section above.
- Provide realistic, actionable recommendations. Making recommendations that are not feasible may only slow down the process of making any corrections. Try to designate the agency or organization that should lead the corrective action. It may also be

helpful to include an implication statement or what the impact would be if the situation is not corrected.

- Support any conclusions with interview transcripts, statistical data, or other documents that will provide credibility to the observation and help facilitate the solution process.
- The analytical process transforms initial observations into best practices and lessons by grouping common observations to organizational functions. As previously mentioned, the military uses the DOTMLPF construct to group solutions; however, other categories may be more suitable for other organizations.

The end state of the analysis process should be a well-defined list of recommendations or potential corrective actions with sufficient detail to be shared, achieved, and entered into the issues-resolution process. If done correctly, the analysis will help determine the action plan and resources required to implement the corrective actions.

Figure 2-5 highlights the LL process and where the analyze function fits.



**Figure 2-5. The LL process with the analyze function**

## Share

LL programs must have the ability to share and disseminate information to be effective. Besides the ability to share information, the LL program must be able to determine what information is important or urgent and how rapidly it must be passed to other organizations that could benefit from the knowledge. The LL program must have a process and medium to do this. You can share through several means, such as printed “hard copies,” electronic forms like e-mail and messaging, collaborative forums,

and websites. The process should support the capabilities of the medium. Additionally, you should have the ability to handle both classified and unclassified material.

Resourcing of the LL program will usually determine what dissemination means are used; however, it helps if the resourcing conforms to the information required by the target audience to successfully execute their missions. For example, printing professional, hard copy documents can be expensive and may exceed the budget limits of the LL organization, but some deployed units who are the target audience may not have access to computers, printers, or copiers in a field environment and need hard copy materials to do their mission effectively. In the future, social networking sites similar to Facebook, Twitter, and LinkedIn may provide additional capability to share lessons if they can be adapted to the requirements of an existing LL program. Finally, it is imperative that all LL organizations within a common community be linked to facilitate the flow and rapid exchange of information.

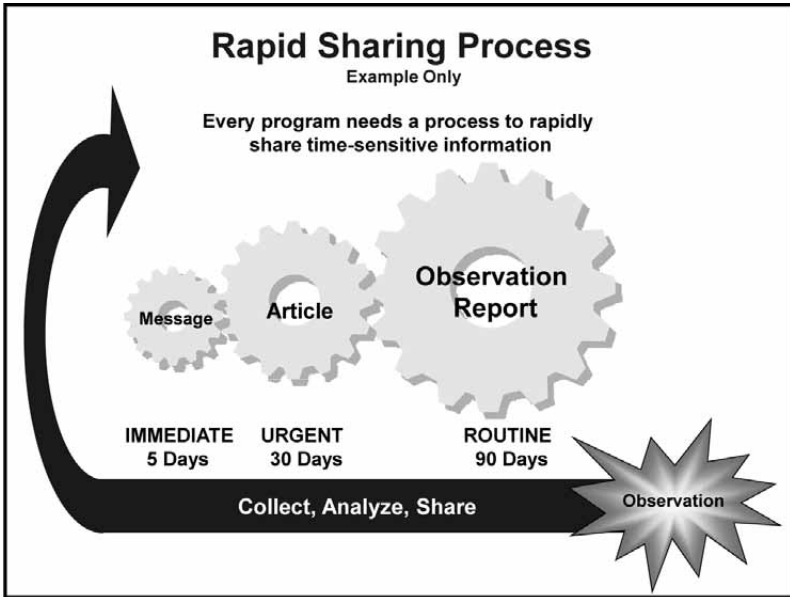
### **Prioritization of Information**

The key to information or LL dissemination is a rapid sharing process. This requires an ability to rapidly analyze information from collections, determine relevancy and timeliness, and gain permission from leadership to share. The challenge in this process is the quicker you need to get the information out, the more risk you assume in conducting a thorough analysis to make sure you are drawing the correct lessons.

An example of one way to construct a rapid sharing process is depicted in Figure 2-6. In this example, the LL program has created timelines for sharing that are tied to the urgency of the information and a medium to disseminate that information. The terms immediate, urgent, and routine would need to be specifically defined to meet the goals of the supported organizations and their mission. For example, in the military, an “immediate” requirement to share a particular lesson, if not shared, may result in the injury or death of a Soldier. However, once rapidly shared, information should continue through the analysis process and eventually be formally vetted, archived, and become a part of the issues-resolution process, if it rises to that level of importance.

You can publish lessons of less priority as articles, reports, bulletins, and so forth. The U.S. Army has a medium where any Soldier in an operation can write an article that can be posted on the LL program website for anyone to read. It is called “News From the Front.” This is an excellent way to post timely, thought-provoking pieces that discuss best practices; lessons learned; and tactics, techniques, and procedures. An observation report, discussed in the Collect section, requires a longer lead time to produce because it is usually part of a direct collection effort involving a deliberate

planning process. Finally, the production of a newsletter, handbook, or other periodical that may or may not go to a print plant for production usually requires the greatest resources and the longest lead times to produce. They may require anywhere from three to six months to develop and print; however, they additionally serve as excellent historical documents that may be very beneficial in supporting future operations.



**Figure 2-6. Example rapid sharing process**

### **Publications and automation**

As previously mentioned, the production of publications and the ability to disseminate information may be a consideration for any LL program. If you cannot share the information you collect, it is virtually useless. Some of the major functions of a publications capability may be the following:

- Manage the publications process from first draft to final product to ensure consistency, clarity, and correctness.
- Ensure funding is available.
- Retain necessary editorial and graphic artist support.
- Accomplish all staffing actions before final publication.

- Coordinate with the printing office and print subcontractors to ensure a quality product is disseminated in a timely fashion.
- Work with proponent and supporting agencies to coordinate solutions and exchange ideas on production efforts.

Some examples of categories of potential publications based on subject matter, size, and frequency are:

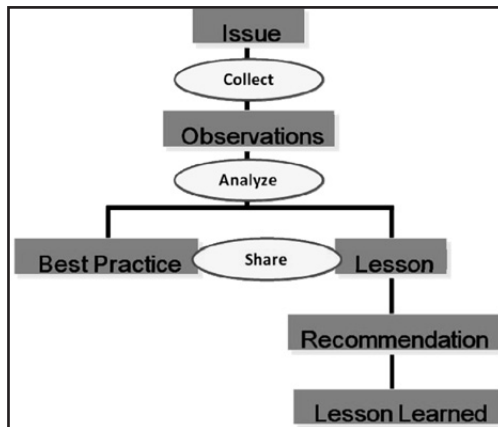
- **Handbook:** A “how-to” manual on a specific subject that generally takes a longer time to produce than most other publications.
- **Newsletter:** Normally less intensive than a handbook to prepare but focused on a specific topic of interest that may include opinions from a wide range of SMEs used to stimulate discussion and thought.
- **Periodic Bulletin:** Published weekly, monthly, quarterly, etc. Less intensive to produce than a newsletter and used to update the audience on information that is continually evolving or changing.
- **Article:** Prepared by an author to highlight a specific topic of interest.
- **Special Study:** A publication related to a specific operation, exercise, or subject, such as a country’s history, environmental cautions, cultural do’s and don’ts, and emerging doctrine or policy.
- **Observation Report:** Published after the completion of a collection effort that summarizes the observations, lessons, recommendations, and best practices from the collection. An AAR would also be another form of an observation report the LL organization could publish.

Before publishing, one challenge to sharing information is the degree to which the LL program wants to edit material. There will be times when the editorial process should be eliminated or modified to facilitate the expeditious release of information critical to the success of the organizations being supported. As the saying goes, “perfection is the enemy of good enough.” The editorial process should not become so burdensome that it prevents a document from being published in a timely manner. On the other hand, if time is not an issue, a professional product is always a good option.

Automation obviously enhances the capability to share information. Although some organizations may prefer to retain a paper-based capability, that capability is usually expensive. Others may prefer a purely automated dissemination system using electronic distribution techniques such as e-mails, websites, and collaborative sites. Some organizations may prefer both capabilities, paper and electronic. However, making a portable document format (PDF) version of a document allows for easy document exchange and is low cost once the initial investment in automation is made.

You must give consideration to what extent the LL program wants to handle classified information. However, if your goal is widest dissemination, it is best to avoid over classification. Some LL programs have the ability to create databases for cataloging observations and lessons that can be shared with other organizations. Not only can these databases store observations, but also they can archive the source material and reports that support each observation. For example, the joint military community uses a system called the Joint Lessons Learned Information System (JLLIS), and the homeland security community uses a system called Lessons Learned Information Sharing. In any event, the challenge of publishing information and sharing it rapidly reduces by the sophistication and level of automation existing in most organizations and agencies today.

Figure 2-7 highlights the LL process and where the share function fits.



**Figure 2-7. The LL process with the analyze function**

### **Why don't people share?**

- It's not convenient.
- They do not know what they know.
- They do not know the value of what they know.
- They believe knowledge hoarding is job security.
- They do not get credit for it.
- They do not have the time.
- They do not know how.

- They do not know who is interested.
- Sharing of issues sometimes leads to additional work to fix.

If your LL program can begin to break down the barriers to sharing that are listed above, then you will be on your way to increasing the productivity and performance of the organization. Today, there are organizations and companies that have done just that.

### **Archive**

The archive function is a broad term that encompasses several required capabilities that most LL programs desire. The ability to archive information and manage records, both print and electronic, allows access to them at a future date. To accomplish this task, digital repositories (which may be called digital libraries or archives) must be developed to store information, facilitate the historical preservation of information, and allow users to conduct research. Make it easily retrievable and available to any requestor by providing a logical system for storing information. Powerful search engines are required that permit rapid, user-friendly searches. Finally, repositories must have the capability to store and guard both classified and unclassified data.

### **Databases and websites**

Databases and websites are necessary to store and access information. Some examples of what an LL program may desire are:

- Stand-alone applications to build collection plans.
- Stand-alone applications to save and catalog individual observations resulting from collections.
- Stand-alone applications to build AARs.
- Digital repositories to archive current information and/or older information.
- Programs that interface with other LL organizations.
- Organizational websites.
- Collaborative websites to share information.

The LL program can take advantage of this technology to increase its efficiency and ability to access information in a rapid manner. One of the greatest challenges an LL organization will eventually face is the sheer volume of information that will accumulate in its archives. You will need to be constantly planning ahead and determining the best new software to use to upgrade your capabilities and be open to new technologies.

## Research

The primary reason to archive information is to have the ability to conduct future research. Research today no longer takes place on library shelves; it takes place electronically using the Internet. Searchable electronic archives will generally be of three types:

- Classified/Sensitive repositories.
- Unclassified repositories with access limited to specific groups, such as members of select organizations.
- Public repositories available to all Internet users.

Searchable databases provide the researcher easy access to the information required. This capability necessitates the use of highly refined search engines. The use of standardized filing and naming conventions, protocols, and accurately tagging documents with the right metadata facilitates the search. The metadata describes what is in the document that leads you to the material you are trying to find. To ensure documents are properly processed, you may want to establish a quality assurance check. Additionally, the LL organization may require the capability to store printed material, therefore requiring a “vault” or physical repository for storage. The vault is also a good place to store back-up compact discs of all digital material archived electronically.

It is also beneficial to determine criteria for inclusion of information in the repository. Some parameters are as follows:

- The item is from an official approved source.
- The item will add value for future research.
- The document’s handling restrictions are within the organization’s permissions.
- The security classification is within the organization’s authority to store.
- The document is not copyrighted, unless you have on file a written permission attached to the document.

The archives of the LL organization may be for internal use only. However, if outside agencies are permitted to gain access to the archives, they usually have read-only and download permissions.

Finally, the way information is cataloged or organized must be simple and easy to understand. One trap many organizations fall into is when these procedures are designed by information technology personnel and not by the users. To be simple and easily understood, the user must have input. The

ability to quickly find what you are looking for is paramount to any research capability. Simplicity is the key; the fewer keystrokes it takes to find a document the better.

### **Historical**

Archived information serves a historical purpose, though the archiving and adding to the repository should take place as soon as possible after the creation of the document or information. Years from now, future generations may desire to study the accomplishments of your organization. They may also find those historical examples applicable to current operations. Archiving material where it can be easily retrieved serves this purpose.

For example, when the U.S. Army first realized it would be involved in counterinsurgency operations in Iraq, it was able to draw on documents archived within its LL program from the Vietnam War. Since these documents all existed before the advent of the computer, over the years great efforts were made to scan this information into the Army archives. Having done this, great time and effort was saved when it became necessary to review the lessons of that war to see if they had applicability for the new conflict, which they did.

A more recent example concerned Hurricane Katrina and its impact on the Gulf Coast. The Center for Army Lessons Learned (CALL) searched the Army LL program archives before the hurricane hit shore, looking for information relating to the 1992 Hurricane Andrew disaster in south Florida. CALL then rapidly shared the lessons contained in those reports with Army units preparing to deploy and support Hurricane Katrina recovery efforts.

The lessons were instrumental in assisting units in their planning efforts. As a result, archiving information for future generations is a much-desired capability within any LL program. It will mean your hard work may get used more than once.

### **Requests for information (RFIs)**

Every LL program should develop a system to answer questions or RFIs submitted to it from individuals outside the organization. Providing timely responses to questions is another way of sharing information. Some examples of this process were explained in the Share section of this chapter. The RFI system should be able to operate in both classified and unclassified communication networks. The system, to operate efficiently, should include an e-mail system, a workflow process, a document management application, a structured query language database, Microsoft Web services, and a Web interface. Once information is located to provide a response to the RFI, it can be sent by using links to the documents with the requested information. While anyone outside your organization should be able to submit an RFI,

responses are provided based on the individual's rights as determined by their security classification or clearance. The key to any good RFI system is providing a timely response with some degree of analytical underpinnings, so the requestor gets the information in a manner requiring minimal analysis on his part, thereby making the information instantly usable.

## **Security**

If your LL program handles classified information, it must have the capability to review, store, and archive classified publications. Reviewing documents to determine the correct classification instructions or to ensure that documents are properly marked is a time-consuming procedure, typically requiring a separate security office to perform these duties. It will normally require dedicated personnel specifically trained to execute these tasks. Due to the sheer volume of publications coming from various sources, there can be mistakes made by the originators whereby briefings, reports, documents, etc. are improperly marked, which could lead to a security violation or "spillage" of classified data over an unclassified network.

The LL program must have the capability to perform electronic "key word" searches on each document received to determine if classified information is embedded accidentally in a supposedly unclassified document. Additionally, you should require the security team to brief and debrief all direct-collection efforts, so personnel are trained on the procedures to handle, store, and transport classified material. Scrub for classified information, and destroy or properly secure all notes and working papers once the collection is completed. Establish rules for the use of removable media such as thumb drives and compact discs early on to avoid loss or spillage of information not intended for public release. In addition, all laptop computers used by a collection team should be purged of all information once the team returns and is done with their use. Finally, consider other aspects of security, which include operational security to protect the organization's plans and procedures and physical security to protect the facility, equipment, and personnel.

Figure 2-8 highlights the LL process and where the archive function fits.

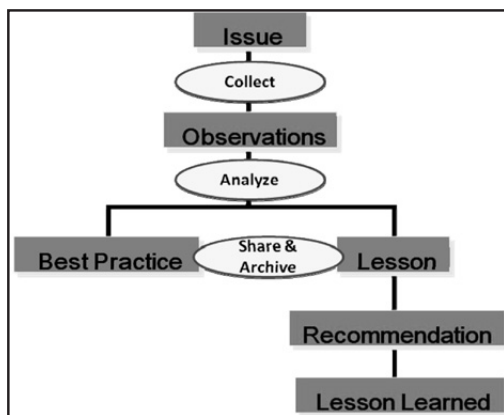


Figure 2-8. The LL process with the archive function

## Resolve

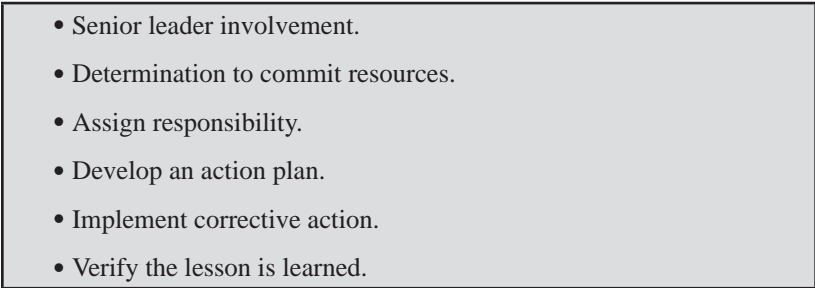
The most challenging component of any LL program is establishing a process to legitimately resolve issues once analysis is completed and as early and quickly in the process as possible. Issues resolution beyond the organization is challenging for several reasons:

- Issues resolution requires a “forcing function.” This means it typically needs executive-level support and involvement. In the military, this translates into general officer or flag officer participation in the process. Ideally, you should involve leaders at all levels who are willing to dedicate time and effort to resolve issues at whatever level they occur.
- Someone must determine which issues to tackle, and are they willing to invest time and resources (funding and people) to bring about a change in behavior. Do not resource LL programs to accomplish this task.
- To resolve any issue typically requires the involvement of more than one agency or department.
- Many issues require long lead times to resolve, especially if the issue requires a materiel solution.
- You can make a strong case that the LL organization is not the best organization to lead this process, since it has a vested interest in the collection process and any follow-on efforts to determine if the corrective actions are working.

Whether or not the LL program has responsibility for the issues-resolution process, the organization's ability to change behavior by implementing a lesson is ineffective unless you observe that change and a determination made that the lesson is learned. In other words, the corrective actions have enhanced performance. To do this requires a deliberate process to commit resources, make decisions, implement those decisions, and observe the results. If the process is cumbersome and too difficult, expect the results to be less than optimal. If the process takes on too many issues, expect the system to become overwhelmed and collapse on the sheer weight of taskings to agencies that simply cannot handle the additional workload. It is better to resolve your top three issues than to attempt to solve the 70 or 80 observations from the last collection. Understand that the level that developed the issue generally has the highest interest in resolving it.

Not all issues require a formal process to resolve. In the military context, if unit commanders have the capability to correct an issue internally, they should do that. It is possible that during a collection effort the unit or organization becomes aware of an internal problem unknown to the leadership. The first objective is to handle the corrective action at the lowest level possible. The issues that rise to the next level of attention are those the unit or organization are unable to correct internally. Most LL programs will focus on these issues. They are issues that require assistance from sources outside the unit's chain of command. For example, a major modification to a vehicle system would be an issue that requires outside assistance and generally exceeds the ability of a typical military unit to correct.

The issues-resolution process requirements are summarized in Figure 2-9.

- 
- Senior leader involvement.
  - Determination to commit resources.
  - Assign responsibility.
  - Develop an action plan.
  - Implement corrective action.
  - Verify the lesson is learned.

**Figure 2-9. Issues-resolution process requirements**

### **Senior leader involvement**

Senior leader involvement or executive-level participation in the issues-resolution process is the key to success. Without senior-level leadership involvement with the authority to task agencies to work issues and reallocate resources, the process fails. For example, successful issues-

resolution steps in the U.S. Army required involvement at the three-star general officer level. This commander had the ability to task his subordinate two-star commanders with responsibility for their respective service branches and combat development processes to drive changes to doctrine, training, education, or materiel. If you cannot fix responsibility at the appropriate level, then the process becomes the end state. The process is not as important as the product. The product, in this case, is a corrective action that when implemented, changes behavior. To develop that product is not an easy task and always requires someone to take ownership at a level able to direct others to complete actions and hold them accountable for their progress.

### **Determination to commit resources**

If you want an effective LL program and an issues-resolution process, you should at some point present the issues gathered and analyzed to a leader who can assist in the prioritization process and make decisions to commit resources to solve problems. There will be few if any corrective actions that will not require the expenditure of some resource, be it time, additional manpower, or money. You will quickly determine you cannot fix everything. Obviously, you can accomplish some things with fewer resources than others. For example, a change to written doctrine or policy typically requires less effort and expenditure of resources than a materiel solution for a piece of equipment or new operating system.

To determine where to place your efforts requires a prioritization process or an ability to rank the issues from most important to least important. This may involve a risk assessment. Normally, risk assessments are subjective, and qualitative analysis becomes the norm. In some instances, a military commander, based on his experiences, professional judgment, and “gut” instincts, can make a good assessment of risk. In other instances, the assessment requires the collective input and wisdom from a group of SMEs or other professionals. For example, the military sometimes uses a “council of colonels” to assist in making recommendations to more senior officers for final decision. Civilian organizations may convene a director-level working group or use a board of directors. Eventually, you reach a consensus or you are directed where to place your efforts based on a combination of risk levels and resource availability.

The key is to focus your efforts on the most important things that need to be fixed, where you can get the greatest “bang for the buck.” For example, in a military organization, every effort is made to fix those issues that may have life-or-death consequences; they are considered high-level risks. However, the challenge is sometimes greater in prioritizing issues that do not have that clear distinction. The goal of this requirement is to determine what you have the ability to correct and then begin to develop a plan to do so.

### **Assign responsibility**

The person in charge with the authority to commit resources needs to pick a lead agency to work the issue. In most instances, there will be supporting agencies that must assist the lead agency. It is rare in today's operational environment that only one agency can fix a problem by itself. Additionally, the LL program should not be the lead agency. The LL program supports the resolution effort by providing guidance and information relating to ongoing or subsequent collection efforts that may inform or assist the lead agency in its work. Typically, the LL program does not have the specific subject matter expertise or the resourcing to resolve major issues of a very important nature that require a formal action plan. Its focus should remain on continued collection efforts, analysis of information, and sharing the lessons with other organizations that may experience the same challenges as the agencies working to correct the issue. As stated previously, the first place an issues-resolution process will fail is by not having senior leadership involved in the process from the start. The second place it will fail is by not assigning responsibility to a single agency to be the lead for a corrective action.

### **Develop an action plan**

Once a determination is made to solve an issue, an action plan should be developed by the lead agency with responsibility to work the issue. You should approve the plan, usually at the level that has authority to assign resources. The action plan summarizes the issue, weighs the risk, outlines a way ahead or timeline for resolution of the issue, and assigns responsibility. The plan can also specifically assign the resources required. It can be as complex or as simple as needed. The example at Figure 2-10 shows a simple "quad" sheet format for briefing purposes. Establish more elaborate and detailed timelines in separate enclosures.

Risk levels are more important in initial decision briefings to determine prioritization. If you use risk levels, you must define what each risk level means. Once those are established and accepted, you can replace them with other necessary information categories, such as required resources/constraints, essential tasks, or proposed end state. You can use any combination of categories to convey the necessary information and satisfy the desires of the briefing audience, as required. The goal of the action plan is to track the progress and milestones of the lead agency toward resolution of the issue.

Issue Title	
<ul style="list-style-type: none"><li>• <b>Issue Statement:</b></li><li>• <b>Lead:</b></li><li>• <b>Assists:</b></li></ul>	<ul style="list-style-type: none"><li>• <b>Risk Level if Not Resolved and Why:</b><ul style="list-style-type: none"><li><input checked="" type="radio"/> High</li><li><input type="radio"/> Medium</li><li><input type="radio"/> Low</li></ul></li></ul>
<ul style="list-style-type: none"><li>• <b>Issue Discussion:</b></li></ul>	<ul style="list-style-type: none"><li>• <b>Way Ahead/Timeline to Resolve:</b></li><li>• <b>Required Resources:</b></li></ul>

Figure 2-10. Example quad sheet action plan

**Implement corrective action**

Implementation of a corrective action is seldom the responsibility of the LL program. This, again, is one reason why senior leadership must be involved in the process. In some instances, training may be required before implementation. Implementing a corrective action could be a long and deliberate procedure well beyond the ability of any LL program to manage or control, or it could simply be a change to an existing policy or procedure. Like any solution to a problem, there will usually be costs to implement in terms of time, people, and/or money. For example, the U.S. Army categorizes change using seven categories: doctrine, organization, training, materiel, leadership and education, personnel, and facilities (DOTMLPF). However, changing doctrine is generally easier to do than changing an organization design, etc. The LL program exists to facilitate the change process by providing observations and lessons for analysis and consideration for incorporation into an issues-resolutions process whose goal is to enhance organizational performance.

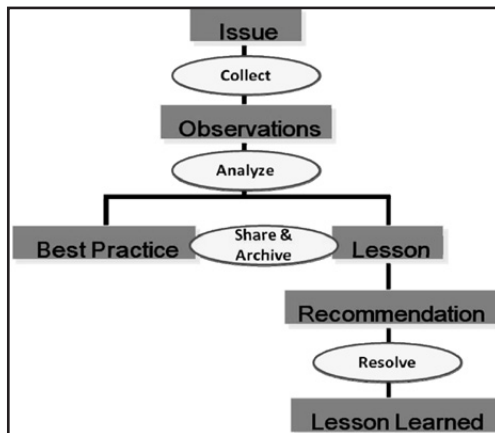
**Verify the lesson is learned**

Verifying the corrective action or lesson is “learned” once again comes under the oversight of the LL program. It will require an additional

collection effort to validate the results. Whether that feedback is gained by a direct or indirect collection effort, the process is not complete until someone determines there is a change in behavior as a result of the corrective actions applied to the problem. The LL program must consider these additional collections as part of its overall responsibilities and plan/budget for them. This requirement to verify the lesson is learned is one reason why the LL program should remain as a “player” and not the “coach” of the issues-resolution process. By doing this, the LL program can remain the “honest broker” within the process.

You can make a case that in the military community a lesson is never really learned because of many factors such as personnel turnover, level of training, and changing operational environment. From the perspective of a doctrinal or materiel solution, this may not be as true. However, what this does point out is the human dimension of military operations. When an organization is centered around people, as is the U.S. Army, the ability to change behavior is an ongoing process. This at times can frustrate an LL program, because it may begin to see the same mistake made over and over again, even after a corrective action was applied. This should not discourage the program or indicate it is ineffective. Any good LL program understands this and adjusts accordingly by continuing to provide the most accurate information possible, so decision makers can decide how they want to prioritize and focus resources to resolve new deficiencies while maintaining an ability to observe the success of implementing past corrective actions. The most important point to remember is that an observation does not become an LL until behavior has changed.

Figure 2-11 below highlights the entire LL process by function.



**Figure 2-11. The LL process**

### **Assess**

There are several ways to determine if the LL program is effective. You can evaluate any LL program by the expenditure of resources against the desired results. It is difficult to determine through quantitative analysis. However, there are some ways to evaluate the effectiveness of an LL program that may validate and justify its need. Assessment of LL effectiveness can be broken into several components: organization behavior, organization or unit performance, and mission effectiveness.

### **Observed behavior**

If the training, education, or testing plan/program is not exhibiting the same errors or mistakes identified and addressed by the LL program, it is reasonable to conclude that the LL program has had a positive effect. Some factors that may affect this are time required for the lesson to be disseminated and time for changes in the training plan to take effect. You can discover observed behavior in plan and program reviews, event AARs, project reports, retrospectives, and summaries.

Lessons learned (and applied) are re-examined during active collection by the LL activity. Collection teams can look for older issues and determine if the problem still exists or if the problem was solved by information disseminated in the LL program.

### **Organization or unit performance**

Verify LL and lessons applied by charting organization or unit performance against established measures of performance (MOPs) for mission-essential tasks that must be performed by the organization or unit. MOPs are simply metrics of tasks the organization or unit must be able to perform with its organic resources to accomplish its mission. Examples of this are enough trained drivers; personnel properly trained and certified on equipment; and the ability to perform operational, logistical, and administrative tasks in keeping with organization policy, regulations, and, if applicable, civil laws.

### **Mission effectiveness**

Lesson learned and lessons applied effectiveness can also be judged by charting organization or unit performance against measures of effectiveness (MOEs). MOEs are more goal and objective centric. The chief criteria for MOE success are the questions, "Is the organization effective in the accomplishment of its mission, and is it supporting the overall goals, objectives, and missions of the parent organization?" If an organization has increased mission effectiveness over previous performances, you can attribute it to lessons learned and applied from the LL activity. However, there may be other factors that account for an increase in mission

effectiveness; therefore, additional collection may be required to verify the effectiveness of the LL program.

### **Establishing written procedures**

Once you have decided the size and scope of your LL program, it is a good idea to formalize your program by developing a set of written guidelines, responsibilities, policies, and procedures. The military would call this a standing operating procedure. Whatever term is used, it is necessary to standardize your procedures in writing for several reasons. First, it is one way to get decision makers and leadership to agree to the specifics of the program. Second, it is a document that everyone can read and become familiar with all procedures. Third, it allows participants to understand their specific responsibilities. Fourth, it can be used to support funding decisions, since you will have established procedures approved by your executive leadership. Finally, it gives you a plan that can be adjusted over time to accommodate changing priorities or direction in your organization or unit. The goal of written procedures is to enhance unity of effort.



## Chapter 3

### Organizational Considerations

Do you ever have problems finding the answers you need?

Have you ever wanted to find someone who has done this before and could give you some pointers?

Do you ever think there has to be an easier way to do something?

How much time have you spent looking for a document on the Web and not been able to find it?

#### General

If you are determined to create a lessons learned (LL) capability within your organization, you have one basic question to ask yourself: What is the purpose of my LL program? Answering this question should help you determine what functions from Chapter 2 you require. Most organizations also have constraints, be they people, time, funding, etc. These limitations will impact the extent to which an organization can devote resources to creating what is probably a new program. For example, the “low-budget” approach might be the implementation of a program that focuses only on the collect-analyze-share functions. The “high-budget” approach may focus on the collect-analyze-share-archive-resolve functions.

Organization structure also plays a role. Organizational structure is a key component for sustainability of information empowerment. You should address organizational considerations from the very beginning, allowing the organizational transformation to occur gradually and positioning the company or military unit to fully leverage newly acquired information once it is available.

More often than not an inherent challenge lies within corporate organizational structures to accommodate the functional responsibilities of everyday business. Departments may need to work collectively only when they are focused on specific initiatives. Unfortunately, LL systems are usually ineffective because they invariably introduce new processes, when instead they should be embedded into the processes they are meant to improve. An LL program will thrive under the following conditions:

- Where people continually expand their capacity to create the results they truly desire, where new and expansive patterns of thinking are nurtured, where collective aspiration is set free, and where people are continually learning to see the whole together.

- In situations of rapid change, only those that are flexible, adaptive, and productive will excel. For this to happen, organizations need to discover how to tap people's commitment and capacity to learn at all levels.
- Where systemic thinking is the cornerstone of the learning organization, as the training that integrates all others to comprehend and address the LL as a whole.

Military organizations with distinct levels of command and well-defined hierarchies admittedly have fewer challenges when it comes to implementing and integrating LL programs. Militaries, which are faced with life-and-death decisions, unlike corporations, which focus primarily on making a profit, have real motivational reasons to learn from their mistakes to prevent the needless loss of life and equipment, to say nothing about winning their nations' wars. From that point of view, corporations might benefit from understanding the success the military has achieved integrating LL processes into daily operations.

### Questions

Following are a few questions to help you determine the purpose and scope of your LL program:

- Is your organization willing to expose problems or mistakes for the betterment of the collective whole, and can you do this in a way that does not intimidate employees or workers?
- Do you want a centrally managed, formal program, or do you want a decentralized program that places more responsibility at the lower levels for LL implementation?
- Who is the best person or office to put in charge of your LL program?
- How do you intend to identify issues for analysis?
- What ways does your organization have to share information?
- After you identify issues and analyze them, do you want to have a way to recommend corrective actions and then monitor their implementation?
- When sharing information, what are your release procedures for this information beyond your office or organization?
- What additional automation requirements are necessary to support the purpose of your program?
- How will you know your LL program is working?

## Management and Coordination

The common practice is to perform LL at the end of a project phase; however, timing is everything. Do not wait for the phase or project to be over; do LL early and often. LL should not be an afterthought but a key component of all project management processes. (See Appendix C, Military After Action Reviews/Reports.)

Initiating and planning:

- Identify similar projects.
- Gather useful information.
- Determine mitigation strategies, if applicable.
- Incorporate LL into the new project plan.

Identify projects from which to gather data:

- Look for common threads to projects similar in nature.
- Common topics.
- Common learning.

Gather useful information:

- Interview people.
- Review historical project data.

Tips for best results:

- Capture LL as close as possible to the learning opportunity (e.g., after an issue has been resolved, change in scope has occurred, or a risk has been mitigated).
- Identify project management processes that can be improved because of LL, and make the improvements.
- Maintain an LL log throughout the life of the project.

Learning in organizations happens in two ways:

- Learning by individuals.
- Investing in team members who have knowledge the organization did not have.

Key take-aways for any organization:

- You must gather and implement valuable knowledge to be reused for the betterment of future project success.
- LL are gathered and implemented during and not just at the end of the project.
- Timing is crucial in gathering LL.
- You must build LL documents that can be effectively used for future projects.
- Plan for LL.

## **Knowledge Management**

### **What is knowledge?**

Knowledge is more than data or information. Knowledge comprises a range of strategies and practices used in an organization to identify, create, represent, distribute, and enable the adoption of insights and experiences. Such insights and experiences comprise knowledge, either embodied in individuals or embedded in organizational processes or practice.

Knowledge management (KM) efforts typically focus on organizational objectives, such as improved performance, competitive advantage, innovation, the sharing of LL, integration, and continuous improvement of the organization.

### **Types of knowledge**

There are three types of knowledge:

- **Tacit:** Personal knowledge that resides within an individual, which relies on experiences, ideas, insights, values, and judgments. Knowledge that is resident within the mind, behavior, and perceptions of individuals. Knowledge developed and internalized by an individual over a long period of time, incorporating so much accrued and embedded learning that its rules may be impossible to separate from how an individual acts.
- **Explicit:** You can convey formal knowledge from one person to another in systemic ways such as documents, e-mails, and multimedia. This is knowledge easily codified and conveyed to others.
- **Organizational:** The combination of critical data, information, and knowledge with collective intellect, which enables an organization to learn from experiences, innovate, make decisions, create solutions, perform tasks, or change positions.

Eighty percent of an organization's knowledge is tacit. Organizations must value and capture both.

KM efforts overlap with organizational learning and may be distinguished from that by a greater focus on the management of knowledge as a strategic asset and a focus on encouraging the sharing of knowledge. KM efforts can help individuals and groups share valuable organizational insights, reduce redundant work, avoid reinventing the wheel per se, reduce training time for new employees, retain intellectual capital in an organization during employee turnover, and adapt to changing environments and markets. The challenge for any LL program is to find a way to get people to share tacit knowledge among themselves.

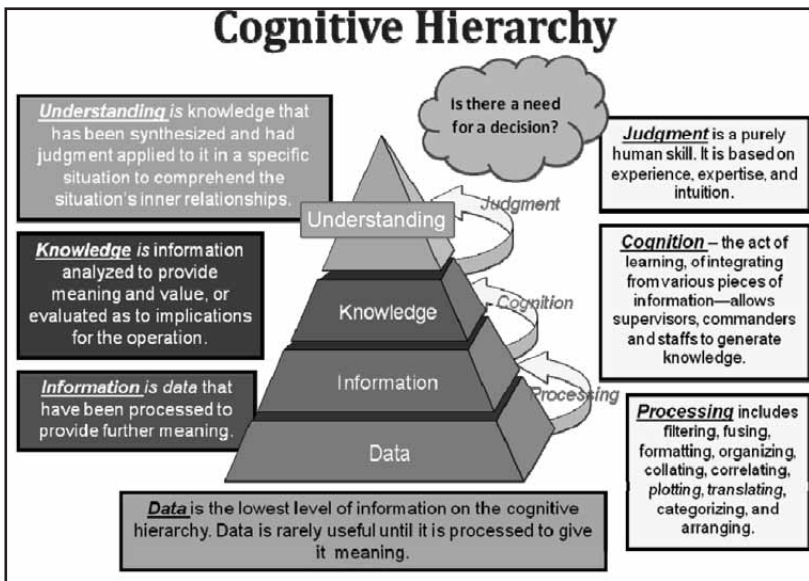


Figure 3-1. Cognitive hierarchy

Knowledge is meaningfully structured and based on experience. Some is usable as the basis for achieving understanding and making decisions. Other knowledge forms the background against which administrators or commanders make decisions. The cognitive hierarchy, shown in Figure 3-1, portrays the place of data, information, and knowledge in developing understanding. This figure also shows the roles of KM and information management in this development.

## Lessons Learned Examples

In 2007, Mattel Chairman and CEO Bob Eckert's organization learned some valuable lessons after issuing a major toy recall just prior to a significant shipping month. Faced with angry consumers and lawmakers, Mattel had to take responsibility for the recall. Regrettably, the media also chose to saturate the news with the Mattel story as the lead. Mattel had to act fast to reclaim traction with consumers and stakeholders, which ended in praise for the way the company handled the situation. Bob Eckert states the most important thing in a crisis situation is to be straight about it and be quick. Below are five key LL from the crisis at Mattel:

- **Always act fast.** Confront the issue; do not hide from it. In Mattel's case, the company was very public about the recalls, and the CEO even issued a public apology. A quick reaction makes it easier for companies to cope with and take control of the situation. Reacting quickly helps companies score "bonus points" with the public, slightly reducing the negative impact that a recall has on the company's reputation. When companies are slow to react or spend most of their time placing blame on others, the public reacts negatively, criticizing companies for their negligence and irresponsibility. A quick reaction won't solve all of the problems, but failing to do so will open up a new can of worms to deal with.
- **Keep an eye on your supply chain.** To save on costs, Mattel has shipped manufacturing overseas to China. Having multiple offices and operation sites makes it difficult to keep an eye on day-to-day operations. According to the *Financial Times Press* article "Trouble in Toyland: New Challenges for Mattel—and 'Made in China'," one of the main issues in the lead paint crisis at Mattel was that Chinese contractors had subcontracted the painting of the toys to another company that used inferior and unauthorized products. A lot of companies get caught in similar traps.
- **Take responsibility.** Be the bigger person and take the blame — public finger pointing is not going to get you anywhere. In the *Reuters* article "Mattel Sued Over Toy Recall," it was reported that Mattel's CEO stated that the company was increasing the aggressiveness of toy-testing methods, which would likely result in additional recalls as a precautionary measure.
- **Tighter regulations and inspections.** In the *Wall Street Journal* article, "Mattel Settles Suit Over Lead in China-Made Toys," author John Kell writes: "Toy makers were hurt by a number of product recalls in 2007, leading to millions of dollars in costs for testing, legal expenses, advertising, and product returns. Mattel recalled millions of toys that year, including those produced under licenses for characters

including Elmo, Big Bird, Barbie, and Polly Pocket. The issue later led to mandatory federal toy-safety standards, which included testing and tough new regulations for lead and chemicals in products intended for children under 12.”

- **Take action and communicate.** During a crisis, such as the one experienced by Mattel, a lot of business leaders say that changes are going to be made and policies will be followed more consistently, but do they actually follow up on their word once the storm has passed? Do not say something just to look good in front of the public; they will know if you mean it or not. Give weekly updates and use the power of social media to communicate to consumers about the progress your company makes as it works toward a solution. If 100 products have been tested, let the public know. There are enough resources available today to control the media and communicate a company’s commitment to its consumers. It is never more important than in a time of crisis to communicate and reassure the public that things will be all right.

### **Thoughts on a Lessons Learned Program at Brigade Level and Below for Military Units**

Generally, a brigade-size military organization (3,000 to 4,500 Soldiers) is the first level within the military that would be appropriate for establishing an LL capability. At this level, there are no dedicated individuals to perform the LL mission. It would be necessary to assign this responsibility to a person as an additional duty. These duties would generally reside in the operations section of the staff.

In terms of specific functions, you would more than likely focus on the collect-analyze-share functions. Collection might be as simple as directing subordinate organizations or battalions to provide after action reports (AARs) at the completion of each mission or operation. This could be directed in the operation order or it could be codified in the unit’s tactical standing operating procedures. The format may be similar to the one at Appendix C or more simplified.

The observation-discussion-recommendation format works nicely for this purpose, as a simplified version. Once the brigade receives the AAR, it is provided to the various staff sections for review and minimal analysis. If the recommendations are deemed appropriate by the staff, the unit commander can elect to share the report with other organizations in the brigade. A copy should also be provided to the brigade’s next higher headquarters for its assessment, for information, and for further dissemination. The goal should be to rapidly provide the observations and recommendations or lessons to as many interested units as possible to effect change.

Another collection technique could be the use of a small team to observe, with permission, a training event or exercise conducted by another unit in your organization. Your team becomes informal observers who are not directly involved in the event but benefiting from the actions or inactions of another unit. Once you gather the observations, you can prepare a report or briefing to inform your Soldiers on what you saw and the best way to execute specific missions.

In most instances, analysis of the observations should not be so rigorous that it slows the sharing of information. Rapid sharing of information remains paramount to the success and effectiveness of your program. As stated previously, the key to a viable program is honest and open communication at all levels and a work/training environment where individuals can learn from their mistakes.

The following is a small sample of organizations and their visions, mission statements, and intents that dictate their LL programs. More details on the agencies and their methods of working LL are covered in Appendix D.

### **U.S. Army**

The Army's mission is to fight and win our nation's wars by providing prompt, sustained land dominance across the full range of military operations and spectrum of conflict in support of combatant commanders. The Army does this by learning from its experiences and documenting them for forward units to use on a daily basis. The documentation is done through the Center for Army Lessons Learned (CALL) and the Joint Lessons Learned Information System (JLLIS). CALL collects, analyzes, disseminates, integrates, and archives Army and joint, interagency, intergovernmental, and multinational (JIIM) observations, insights, lessons (OIL), and tactics, techniques, and procedures (TTP) to support full-spectrum military operations. One of the most important operative tasks in CALL's mission statement is collection. Collection of the latest OIL and TTP and their subsequent integration into the operational and institutional Army helps units and Soldiers meet the serious challenges posed by today's operating environment. CALL collects OIL, TTP, and operational products and records from the field primarily through five methods:

- OIL from the operational Army.
- AARs.
- CALL liaison officers.
- CALL collection and analysis teams.
- Operational products and records submitted from the operational Army.

## Department of Energy (DOE)

DOE's overarching mission is to advance the national, economic, and energy security of the United States; to promote scientific and technological innovation in support of that mission; and to ensure the environmental cleanup of the national nuclear weapons complex. The department's strategic goals to achieve the mission are designed to deliver results along five strategic themes:

- **Energy Security:** Promoting America's energy security through reliable, clean, and affordable energy.
- **Nuclear Security:** Ensuring America's nuclear security.
- **Scientific Discovery and Innovation:** Strengthening U.S. scientific discovery, economic competitiveness, and improving quality of life through innovations in science and technology.
- **Environmental Responsibility:** Protecting the environment by providing a responsible resolution to the environmental legacy of nuclear weapons production.
- **Management Excellence:** Enabling the mission through sound management.

Within these themes are 16 strategic goals that are designed to help DOE successfully achieve its mission and vision. One of these goals is to develop an LL center.

The DOE corporate LL database provides a central clearinghouse that allows ready access to and communication about collected information on a timely, unimpeded basis by all DOE elements. The database is used to collect and share LL and best practices pertaining to all DOE activities.

DOE corporate LL is a Web-based LL tool designed to facilitate the sharing of information in a consistent and timely manner among headquarters elements, contractor, and subcontractor entities. The DOE LL application provides a mechanism for communicating experiences throughout management and across functional areas. The sharing of LL can potentially reduce risk, improve efficiency, and enhance the cost effectiveness of DOE processes and operations. DOE LL is a feedback mechanism for the DOE complex intended for facility management use and promoting continuous improvement in defining and planning work. It can be used to identify LL for improving performance, planning, and for correcting hazardous conditions.

DOE LL also provides an LL feedback mechanism for the job planner for selected types of work. DOE's integrated safety management, feedback, and improvement function encourages the use of LL during hazard analysis and

work-planning activities. DOE LL uses an integrated, user-friendly, Web-enabled PC browser interface capable of generating topical LL extracted from the DOE LL database and external sites. The output generated is based on previously established user profiles to provide customized LL reports. The data in DOE LL is updated daily and compiled after SME review of DOE LL reports submitted from across the DOE complex.

### **National Aeronautics and Space Administration (NASA)**

NASA's mission is to pioneer the future in space exploration, scientific discovery, and aeronautics research. To do that, thousands of people have been working around the world — and off of it — for 50 years trying to answer some basic questions. What's out there in space? How do we get there? What will we find? What can we learn there, or learn just by trying to get there, that will make life better here on Earth?

### **NASA Procedural Requirement (NPR)**

The NPR establishes the agency's requirements for collecting, assessing, validating, documenting, and infusing LL recommendations involving but not limited to engineering, technical, science, operations, administrative, procurement, management, safety, maintenance, training, flight or ground-based systems, facilities, medical, and other activities. The center-level LL committees are the key organizational elements in administering this process. An agency-level LL steering committee facilitates knowledge sharing of LL activities across NASA centers.

The LL process is a two-level (centers and headquarters) set of information management processes designed to preserve institutional knowledge, communicate experiences that can potentially reduce risk, improve efficiency, promote validated practices, and/or improve performance in the areas identified above. Lessons are collected from individuals, projects and programs, or supporting organizations primarily at the center level. The content of LL systems in the NASA environment are discoverable and searchable across the agency to the broadest extent possible. Lesson recommendations are assessed for potential changes to policy, procedures, guidelines, technical standards, training, education curricula, etc. and infused back into the system via existing corrective action systems. NASA's process is to capture the knowledge and the other referenced documents through two principal requirements: (1) establishment of LL committees at the center level and (2) closed-loop infusion of LL recommendations into center and headquarters documentation and training. Contractors are encouraged to use their existing LL processes and systems where they meet the requirements of the NPR.

## Appendix A

### Sample Detailed Collection Plan Format

**Background.** What is the situation this collection plan is covering?

Example: On 12 January 2010, the Caribbean island of Hispaniola was rocked by a 7.2 magnitude earthquake. The epicenter of the quake was just south of the Haitian capital city of Port au Prince, home to approximately two million of the roughly nine million people in the country. Devastation to the country was nearly total. Within minutes, tens of thousands of people were dead and hundreds of thousands were left homeless. So badly damaged was Haiti's government and infrastructure that it was virtually ineffectual and unable to adequately respond. It was one of the Western Hemisphere's most significant natural disasters in recent history. The U.S. government (USG) relief has been named Operation Unified Response.

**Purpose.** Why are you doing this?

Example: In its broadest sense, the purpose of the study is to collect best practices and lessons associated with the response by the USG and international community to the Haiti earthquake disaster. In particular, the study will examine Department of Defense (DOD) and USG interagency (IA) actions associated with Operation Unified Response in light of key lessons learned (LL) from USG participation in past international humanitarian assistance disaster relief (HADR) operations. This is to identify common themes that inform doctrine organization, training, materiel, leadership and education, personnel, and facilities (DOTMLPF) solutions that can be applied to future USG HADR endeavors.

**Key Tasks.** What are the tasks necessary for this collection to make this happen? Who will do them?

Examples:

- Research Division: Research past flood after action reports (AARs) and provide links and/or copies on the shared drive.
- Collection Division: Chair weekly meetings to review the past weeks' activities to determine what observations and lessons may have developed for rapid sharing.

**End State.** What will this effort produce?

Example: Referencing documented LL from USG participation in past HADR operations, identify challenges and issues associated with DOD and USG IA execution of Operation Unified Response, and identify and document applicable LL and best practices. The team will provide

actionable recommendations through briefings and supplemental written products as required.

**Scope.** What are the limits of this collection effort?

Example: Per its charter as codified in Chairman of the Joint Chiefs of Staff Instruction 3150.25D, the Joint Center for Operational Analysis (JCOA) will focus collection primarily at the joint and operational levels. Specifically, activities and issues related to the Headquarters, U.S. Southern Command (HQ USSOUTHCOM) and its subordinate joint task force (JTF) component commands and supporting service entities/organizations involved in the operation, as applicable. Additionally, collection will focus on aspects of DOD support to other USG entities, in particular combatant commands, and service support to the Department of State (DOS) and the U.S. Agency for International Development (USAID), where there are clear lessons that either impact considerations for joint DOTMLPF or impact the manner in which the USG participates in future HADR operations of this magnitude.

**Concept.** How will this work together? Are there specific areas that need to be looked at based on past experiences and lessons?

Example: Using U.S. Joint Forces Command resources and coordinating with DOS, USAID, and other LL organizations, JCOA will conduct an in-stride study on the international HADR response following the Haiti earthquake, documenting challenges and best practices. JCOA will also serve as a “directed telescope,” focusing on the specific issues the JTF and USSOUTHCOM leadership believe are most useful for meaningful outputs and for informing decision makers on issues they need to consider. JCOA will provide initial and ongoing feedback on the evolution of the crisis, the changing tasks, and force requirements over time based on similar incidents — anticipating emerging challenges and possible complications.

**Hypotheses and Related Questions.** The hypothesis is a statement of what you are trying to confirm or deny for each issue in the collection plan. You will probably have multiple issues. List the questions you want to ask for each issue. They can be organized or grouped by staff function or by any other categorization process the collectors want to use. This is the most important section of the collection plan. You should never answer a good question with a yes or no.

Example:

Speed of Response: The speed of response in moving people, equipment, and goods at the onset of a crisis is the most critical element of successful HADR operations.

- How would you rate the speed of response by the United States to this crisis?
- How would you compare the speed of U.S. response to other relief providers?
- What were the major enablers to a quick response?
- What were the major challenges to a quick response?
- How could the United States have better responded to this crisis?

**Methodology.** How will this effort be organized?

Example: The collection team will organize to cover three distinct areas and purposes: JCOA reach back (Suffolk, VA); JCOA forward (HQ, USSOUTHCOM); and JCOA deployed in the joint operational area. The JCOA reach back team will be responsible for managing incoming data from forward/deployed team members, building the base briefing product, and conducting external coordination/collaboration, as required. The JCOA forward team will maintain continuity with current operational concerns/considerations and focus activities on data collection — conducting interviews with key staff leaders to support the study — and provide feedback to the USSOUTHCOM staff. The JCOA deployed team will focus activities on data collection — conducting interviews with key leaders from DOD, international agencies, nongovernmental organizations, and private organizations to support the study — and provide feedback to the USSOUTHCOM staff.

**Data Collection Procedures.** What are you collecting and how?

Example: The key resources used to evaluate the study hypotheses are the data and interviews collected during the research. JCOA analysts will form data collection teams. Each team will be required to address multiple lines of activity as it collects quantitative and qualitative data and conducts interviews of key personnel at various locations.

The following documents are typical of those needed to support the study. The list is not comprehensive, and other documents and data may be discovered by the deployed teams:

- Quantitative data sources:
  - Cables.
  - Mission reports/debriefs.
  - Significant activity reports.

- Operation orders/fragmentary orders.
- Standing operating procedures.
- Organization charts.
- Daily update briefings.
- Unit AARs.
- Memorandums.
- Briefings.
- Qualitative data sources:
  - Subject matter expert input.
  - Observations from meetings, conferences, and informal discussions.
  - Interview summaries and transcriptions (vignettes to support “the story”).

### **Roster of Key Personnel and Organizations**

Example: Interviews of key personnel at all echelons involved with Haiti and other related operations will provide the key insights and professional opinions needed to validate the study hypotheses. Develop a list of key personnel and organizations to be interviewed and/or observed during the study. The list is not all inclusive; other personnel may be identified to provide details pertinent to the study.

**Data Management Procedures.** How do you manage collected data? File name conventions? Location? Who has access? Who has release authority? What are the classification procedures?

## Appendix B

### Oral Interview Techniques

#### General

The most typical way to gather information during a collection effort is through the oral interview process. In contemporary knowledge management terms, oral interviews capture what often remains as “tacit” or silent knowledge, retained and used only by that individual, group of individuals, or unit so that others can benefit from that knowledge or experience too. There are three types of interviews: structured, semi-structured, and unstructured. Each of these have associated advantages and disadvantages, as highlighted below:

Type	Advantages	Disadvantages
Structured	High control. Minimal variability. Question response analysis possible. Easier to estimate duration. Easily managed.	Scripted. Little to no opportunity for discovery. Only get answers to what was asked.
Semi-Structured	Topic/Issue consistency. Opportunities for deepening. Opportunities for discovery. Topic response analysis possible. More comfortable/relaxed.	Less controlled; introduces more variability since questions may not be identical. Requires more focus by interviewer to manage/ guide direction. Requires time management.
Unstructured	Can elicit completely unanticipated information. No constraints; anything is OK. Extremely casual. Requires little management.	Comparative analysis is difficult. Least consistent (topics/ areas).

In most instances, the structured or semi-structured interview is the type preferred. Oral interviews have “pros and cons” that are good to understand:

- Pros:
  - Captures information that would otherwise not be saved.

- Provides background information on given topics.
- Provides personal insights.
- Provides useful anecdotes and illustrations from first-hand experience.
- Cons:
  - Oral interview may contain personal biases.
  - Some interviewees may be unwilling to discuss mistakes.
  - The limitation of human memory is the greatest challenge.

### **Interview Rules of Engagement**

Interviews should be conducted by a two-person team, whenever possible. For key interviews, use a digital recorder with interviewee approval. Explain who you are up front, the mission of your organization, and the purpose of the collection effort. Explain that you are there to identify and collect information to support the “why it happened” based on factual examples and that you want to avoid personal opinions, if possible, unless they bear directly on the issue. It is also good to highlight what the final product of the collection will be and to tell the interviewees how they can receive a copy of the observation report. Generally, you will explain to the organization that it will be able to review a draft copy of the report before it goes to final print. Remind the interviewees that you are not an evaluator or inspector, and rules of nonattribution will be in effect if they so desire. You are there to get them to “tell their story” and to make recommendations on how the performance of units or organizations that follow them may be improved by benefiting from their experiences and lessons learned (LL). Tell the interviewees you do not conduct interviews “off the record,” and thank them for their time and participation.

Before you start the interview, it is appropriate to ask a few lead-in questions that are not part of the collection plan but are designed to give the interviewer an idea of the qualifications and experience level of the interviewee. This gives you an idea if you are talking to the right subject matter expert. The following questions are examples you can use:

- How long have you been with the organization?
- How long have you had this current job or position?
- How familiar are you with your personnel and with applicable policy or doctrine manuals?

- What type of training did you receive before you deployed or got this job, and were you satisfied with it?

### **Before the Interview**

- Write out a list of questions beforehand. This is your collection plan.
- Try to construct the interview chronologically or by some other logical construct.
- Contact and orient the interviewee prior to the interview.
- Provide questions to the interviewee in advance, if possible. In many instances, military units will request a full list of the questions (the collection plan) that will be asked weeks before the collection starts.
- Make sure your digital recorder is functioning properly and you know how to use it. Carry extra batteries.
- Bring notepaper and pens.
- Two sets of ears are better than one, so take a team member with you, if possible.

### **During the Interview**

- Make introductions.
- Explain the purpose of the interview and the collection effort. Ensure the interviewee understands you are not an evaluator or inspector.
- Get permission to digitally record the interview.
- Turn on the recorder, state your name, the name of the interviewee and his job position, and the date, and announce that the interview is unclassified. Do not ask for personal information, such as the interviewee's social security number.
- If possible, use two digital voice recorders at the same time for backup.
- Tell the interviewee that if he goes into a classified area, he must state so beforehand so you can turn off the recorder.
- Ask your lead-in questions to determine the experience level of the interviewee, and then start with your prepared questions.
- Take notes, but try to keep your focus on the interviewee. If two interviewers are present, one can take notes and the other can give attention to the interviewee.

- Interject new questions if necessary to clarify or go into more detail on certain points; this is the “art” of interviewing.
- Sixty minutes is about the maximum length for an interview at one sitting.

### **After the Interview**

Fully write out the observation as soon as possible following the interview. This is very important. The information is fresh and you have less chance of confusing it with other, possibly conflicting, information at a later date. It is best if you can write the full observation within 24 hours of the interview. A good goal is to write it the evening following the interview. After conducting several interviews, it is very easy to confuse sources and recommendations. If you have the time, invite the interviewee to make revisions or clarifications to the text, point out confusing passages, and ask if you have correctly stated the observation.

Label the tape with name, date, and location, as required. If there is a chance an observation is classified, have the unit security officer review it. Make the necessary changes in an attempt to keep the observation unclassified.

Thank the interviewee for his time. Ask for phone numbers and e-mail addresses and if you can contact him in the future for any additional clarifications once the observation report is in draft.

Review “due outs” from or to the interviewee. Make sure you follow through by providing any materials or information requested by the interviewee from the LL organization’s archives or databases that will help him do his job.

### **Summary**

Be prepared. Always read up on the subject you are reporting about and the person you are interviewing. Set the rules for the interview up front. Be sure your subject understands what you are working on and the issues you are addressing. Be on time. The worst impression you can make is being late for the interview. Be polite and do not rush your interviewee. It is important to establish rapport and a level of comfort. Listen but do not be afraid to interrupt when you do not understand a point. Try to maintain eye contact. This will make the interview more like a conversation and enable everyone to be more relaxed. Finally, review your notes right after the interview and make any clarifications necessary. After interviewing several people, your notes will begin to “run together” if you do not have some way to draw distinctions between each interview.

Begin the interview by reading this brief introductory statement. (The introductory statement must be recorded.)

This is (interviewer's name) \_\_\_\_\_.

The date is (month, day, year) \_\_\_\_\_.

This interview is with (first name and last name; spell out on tape)

\_\_\_\_\_

who has served as (job title) \_\_\_\_\_

for (name of organization/command) \_\_\_\_\_

since

(month/year) \_\_\_\_\_.

We are conducting this interview at (name) \_\_\_\_\_

in (city/state/country) \_\_\_\_\_.

This interview will address the topic(s) of (list major topics of discussion): \_\_\_\_\_

\_\_\_\_\_.

The purpose of this interview is to collect information based on needs, recommendations, and suggestions that can be used to improve company capabilities. The information will be used to support management in the execution of responsibilities to organize, train, equip, and move toward a more efficient running organization. This interview may be transcribed and posted to the company website for review by authorized individuals. The information from this interview may be made available to other companies. If you prefer, we can conduct the interview on a nonattribution basis, meaning the interview is recorded and transcribed, but identifying information is removed to make you anonymous.

Do I have permission to record this interview and associate your name with it? (Subject Response: Yes/No) \_\_\_\_\_. Your candidness during the interview is appreciated, but understand that we cannot offer legal immunity for information you disclose. Do you have any questions before we start the interview? (Subject Response: Yes/No) \_\_\_\_\_.

Begin interview questions.

Closing: "Thank you for your participation. This concludes the interview."

**Figure B-1. Interview outline**

Interview Summary Worksheet	
<b>Instructions:</b>  Indicate whether the interview is to be transcribed or not and indicate the priority. Summaries are to be completed by the interviewer. After completion, upload this form to the company website. Send an e-mail to the transcriptionists to notify them that the interviews and/or summary worksheets have been uploaded. An alternative is to e-mail the summary worksheets and/or interviews as an attachment.	
<input type="checkbox"/> Interview to be transcribed  Priority for transcription: <input type="checkbox"/> High <input type="checkbox"/> Medium <input type="checkbox"/> Low	<input type="checkbox"/> Interview to NOT be transcribed (due to poor audio quality, low precedence, in written form only, etc.)
<b>Identifying information</b>	
Date of interview:	
Location:	
Interviewer's name (First, MI, Last):	
Subject's name (First, MI, Last):	
Unit:	
Office:	
Primary topics of discussion:	
Acronyms:	
Needs statements:	

Figure B-2. Interview summary worksheet

## **Guidelines for Writing a Lessons Learned Report**

A report of LL should address some key issues:

- Assessment of goals and objectives.
- Identification of activities or areas needing additional effort.
- Identification of effective activities or strategies.
- Comparison of costs and results of different activities.
- Assessment of the roles of organizations in the project and the interactions among the organizations.

To assess goals and objectives, consider these questions:

- Were the program objectives appropriate for the program goals?
- Were the objectives met?
- Does any new information about the issue need to be incorporated into the program messages or design?

To determine areas where additional effort is needed, consider these questions:

- Were any objectives unmet?
- Were any strategies or activities unsuccessful?

To identify effective activities or strategies, consider these questions:

- Were some objectives met as a result of successful activities?
- Should these activities be continued, renewed, and strengthened?
- Can you expand these activities to apply to other audiences or situations?

To compare costs and results of different activities, consider these questions:

- What were the relative costs (including staff time) and results of different aspects of your program?
- Did some activities appear to work as well as others but cost less?

To assess the roles of organizations in the project and the way these organizations worked together, consider these questions:

- Did any conflicts of organizational agendas or operating styles occur?
- How did the timing of the program coordinate with the different organizations involved?

## Appendix C

### Military After Action Reviews/Reports

#### General

One of the most important collection techniques used in the U.S. Army and many other joint organizations is the after action review/report or AAR. The concept of the AAR can be easily adapted to fit anyone's lessons learned (LL) program, whether it is government or civilian. However, the examples used here are worded to support a military organization.

When the term AAR is used, it can mean two different collection techniques; however, both provide very important observations and lessons to a military unit, its higher headquarters, and the force in general. The two forms of AARs are:

- **After action review:** A verbal, professional discussion of a unit's actions that typically occurs immediately after a training event, combat operation, or other mission that determines what should have happened, what actually happened, what worked, what did not work and why, and the key procedures a unit wants to sustain or improve.
- **After action report:** A written report that is typically submitted after a training, combat operation, or other mission that normally documents a unit's actions for historical purposes but also provides key observations and LL. Portions of this document are very similar to an observation report.

Within the U.S. Army, no concept is given more credit for changing the way it trains or fights than the AAR process. AARs help provide Soldiers and units feedback on mission and task performances in training and in combat. They identify how to correct deficiencies, sustain strengths, and focus on the performance of specific mission-essential task list training objectives. The verbal AAR conducted after every operation played a major role in transforming how the U.S. Army trained and fought after the Vietnam War when it was implemented at the combat training centers (CTCs). That, coupled with the completion of a written unit AAR after the completion of operations, is the major driver of any military LL program. You cannot have an effective LL program without the AAR.

The following pages provide sample formats that are examples only and can be easily modified to meet any situation or mission. Admittedly, these examples are designed for tactical military formations. However, the basic concepts can be adapted to any government or nongovernment organization. The main point is that any good AAR must provide LL to ultimately improve and enhance organizational performance.

## After Action Review Format

### Introduction and Rules

The training exercise or operation is over. It is now time to conduct the AAR. A facilitator for the AAR should be designated. For training events, the AAR facilitator may be a CTC observer/trainer who controlled the exercise. In combat, the AAR facilitator is typically the unit commander or operations officer. The leader should start by reviewing the purpose and sequence of the AAR to ensure everyone understands what an AAR is and how it works. His introduction should include the following thoughts:

- An AAR is a dynamic, candid, professional discussion of training that focuses on unit performance against the Army standard for the tasks being trained. Everyone can, and should, participate if they have an insight, observation, or question that will help the unit identify and correct deficiencies or maintain strengths.
- An AAR is not a critique. No one, regardless of rank, position, or strength of personality, has all of the information or answers. AARs maximize training benefits by allowing Soldiers, regardless of rank, to learn from each other.
- An AAR does not grade success or failure. There are always weaknesses to improve and strengths to sustain.

Figure C-1 contains a recommended sequence for conducting an AAR.

Soldier participation is directly related to the atmosphere created during the introduction. The AAR leader should make a concerted effort to draw in and include Soldiers who seem reluctant to participate. The following techniques can help the leader create an atmosphere conducive to maximum participation. He should—

- Enter the discussion only when necessary.
- Reinforce the fact that it is permissible to disagree.
- Focus on learning, and encourage people to give honest opinions.
- Use open-ended and leading questions to guide the discussion of Soldier, leader, and unit performance.
- Appoint a note taker.

In some instances, it may be appropriate to separate AARs by Soldier rank to get candid comments. This may be more important for the lower enlisted ranks.

### Sequence for Conducting AARs

- Introduction and rules.
- Review of objectives and intent:
  - Training objectives.
  - Commander's mission/intent (what was supposed to happen).
  - Opposing force (OPFOR) commander's mission/intent.
- Summary of recent events (what actually happened).
- Discussion of key issues:
  - Chronological order of events.
  - Warfighting functions (WFFs).
  - Key events/themes/issues.
- Discussion of optional issues:
  - Tasks to sustain/improve.
  - Fratricide.
  - Soldier/leader skills.
  - Statistics.
- Discussion of force protection (safety).
- Closing comments (summary).

**Figure C-1. Sequence for conducting AARs**

### Review of Objectives and Intent

#### *Training Objectives*

The AAR leader should review unit training objectives for the training mission(s) the AAR will cover. In combat, he should review the objectives of the operation. He should also restate the tasks being reviewed as well as the conditions and standards for the tasks.

#### *Commander's Mission and Intent (What Was Supposed to Happen)*

Using maps, operational graphics, terrain boards, and so on, the commander should restate the mission and his intent. Then, if necessary, the discussion leader should guide the discussion to ensure everyone understands the

plan and the commander's intent. Another technique is to have subordinate leaders restate the mission and discuss their commander's intent.

### ***OPFOR Commander's Mission and Intent***

In a formal AAR, the OPFOR commander explains his plan to defeat friendly forces. He uses the same training aids as the friendly force commander so that participants can understand the relationship of both plans. In actual combat, this role could be performed by the S-2 or someone knowledgeable about what the enemy was attempting to accomplish.

### **Summary of Recent Events (What Actually Happened)**

The AAR leader now guides the review using a logical sequence of events to describe and discuss what happened. He should not ask yes or no questions, but encourage participation and guide discussion by using open-ended and leading questions. An open-ended question has no specific answer and allows the person answering to reply based on what was significant to him. Open-ended questions are also much less likely to put the person on the defensive. This is more effective in finding out what happened. For example, it is better to ask,

"Sergeant Johnson, what happened when your Bradley crested the hill?"

rather than—

"Sergeant Johnson, why didn't you engage the enemy tanks to your front?"

As the discussion expands and more Soldiers add their perspectives, what really happened will become clear. Remember, this is not a critique, evaluation, or lecture; the AAR leader does not tell the Soldiers or other leaders what was good or bad. However, the AAR leader must ensure specific issues are revealed, both positive and negative in nature. Skillful guidance of the discussion will ensure the AAR does not gloss over mistakes or unit weaknesses.

### **Discussion of Key Issues**

The AAR is a problem-solving process. The purpose of discussion is for participants to discover strengths and weaknesses, propose solutions, and adopt a course of action to correct problems. Leaders can organize the discussion using one of the three techniques in the following paragraphs.

#### ***Chronological Order of Events***

This technique is logical, structured, and easy to understand. It follows the flow of training from start to finish and allows Soldiers to see the effects of their actions on other units and events. By covering actions in the order they took place, Soldiers and leaders are better able to recall what happened.

### ***WFFs***

To focus and structure the AAR, the U.S Army sometimes uses the six WFFs (movement and maneuver, intelligence, fires, protection, mission command, and sustainment). By focusing on each WFF and discussing it across all phases of the training exercise, participants can identify systemic strengths and weaknesses. This technique is particularly useful in training staff sections whose duties and responsibilities directly relate to one or more WFF. However, leaders using this technique must be careful not to lose sight of the big picture. They must not get into long discussions about WFFs, which do not relate to mission accomplishment.

### ***Key Events/Themes/Issues***

A key events discussion focuses on critical events that directly support training or mission objectives the chain of command identified before the operation began. Keeping a tight focus on these events prevents the discussion from becoming sidetracked by issues that do not relate to the objectives. This technique is particularly effective when time is limited.

One of the strengths of the AAR format is its flexibility. The leader could use the chronological format to structure the discussion; then, if a particular WFF seems to have systemic issues the group needs to address, follow that WFF across the entire exercise. Once that topic is exhausted, the AAR could proceed using the chronological format. Each technique will generate discussion to identify unit strengths, weaknesses, and training the unit needs to improve proficiency. However, the leader must remember to:

- Be specific, avoiding generalizations.
- Be thorough.
- Not dwell on issues unrelated to mission accomplishment.
- Focus on actions.
- Relate performance to the accomplishment of training objectives.
- Identify corrective action for areas of weakness.
- Continually summarize.

### **Discussion of Optional Issues**

In addition to discussing key issues, the leader might also address several optional topics, included in the following paragraphs.

### *Tasks to Sustain/Improve*

This technique focuses on identifying tasks on which the unit is proficient and tasks on which they need further training. The intent is to focus training on mission-essential tasks and supporting Soldier, leader, and collective tasks that need improvement rather than training to known strengths.

Although it is important to sustain proficiency on tasks whose standards the unit has met, it is more important to train to standard on new or deficient mission-essential tasks. Train to weakness, not to strength.

### *Fratricide*

All incidents or near incidents of fratricide, whether inflicted by direct fire, indirect fire, or close air support, will be discussed in detail. The leader must focus on identifying the cause of the fratricide and develop standing operating procedures (SOPs) and tactics, techniques, and procedures (TTP) to prevent it in the future. Regardless of the environment (training or combat), the leader must swiftly deal with all fratricide incidents. As soon as possible after the event, an AAR should be held to discuss the circumstances surrounding the event, using the following discussion points:

- How and why did the incident occur?
- How were friendly personnel and equipment identified?
- What fire control measures were in place where the fratricide occurred, and how effective were they?
- How did the commander's risk assessment and overall intent for the mission address the issue of fratricide?

### *Soldier/Leader Skills*

Through discussion, the unit can identify critical Soldier and leader skills that affected unit or individual performance. The leader should note these skills for retraining or for future unit training. (Often it is best to discuss leader skills in a separate meeting or AAR specifically for that purpose. This allows for a candid discussion of leadership issues without wasting unit AAR time best spent on reviewing the entire training exercise.) The AAR leader for follow-on meetings should be a member of the unit, so participants can candidly address key training issues without fear of airing dirty laundry in front of outsiders.

### *Statistics*

Statistics is a double-edged sword. Effective feedback requires participants to measure, collect, and quantify performance during the training exercise. Statistics supply objective facts that reinforce observations of both strengths and weaknesses. The danger lies in statistics for statistics' sake. Chart

after chart of ratios, bar graphs, and tables quickly obscures any meaning and lends itself to a “grading” of unit performance. This stifles discussion and degrades the AAR’s value. Statistics and statistics-based charts should identify critical trends or issues and reinforce teaching points. An example for an armored unit would be to link the number of rounds fired to the number of enemy vehicles destroyed. This would provide a good indication of unit gunnery skills. Judicious use of statistic feedback supports observations and provides a focus to AAR discussions.

### **Discussion of Force Protection (Safety Issues)**

Safety is every Soldier’s business and applies to everything a unit does in the field and in garrison. Safety should be specifically addressed in every AAR and discussed in detail when it impacts unit effectiveness or Soldier health. The important thing is to treat safety precautions as integral parts of every operation.

### **Closing Comments (Summary)**

During the summary, the AAR leader reviews and summarizes key points identified during the discussion. He should end the AAR on a positive note, linking conclusions to future training. He should then leave the immediate area to allow unit leaders and Soldiers time to discuss the training in private.

### **Written After Action Report Format**

The template below (Figure C-2) serves as an excellent guide to what a commander may elect to cover in his unit’s written AAR. The AAR provides TTP and LL for dissemination to the Army. For example, the Center for Army Lessons Learned archives all AARs it receives and through its website makes them available to units preparing for combat operations or training events.

The AAR can be organized by WFF or by phases, as in the example. It should be arranged chronologically, where possible. The format is flexible; however, two key purposes of the written AAR should be to (1) document the operations conducted by the unit for historical purposes and (2) provide best practices and lessons in the observation-discussion-recommendation format that can be used to inform the Army’s LL program (see example in Figure C-3). What worked well should receive as much attention as what did not.

1. Report cover page:

Classification.

Preparing headquarters or organization.

Location of report preparation.

Date of preparation.

AAR title.

Period covered: (date to date).

2. Preface or foreword signed by the commander.

3. Table of contents.

4. Executive summary and chronology of significant events:

Briefly summarize operations for all phases; include key dates for each phase starting with deployment and ending with redeployment.

Include numbers of Soldiers deployed.

Summarize task organization.

Summarize casualty information.

Summarize key LL.

What was the single greatest success and the single greatest shortcoming or challenge from the unit's perspective?

5. Detailed task organization. Include any significant changes/dates as appropriate:

Wiring diagram, including attached units/elements and named task forces.

Relationship to higher headquarters and list of subordinate elements.

6. Predeployment phase with dates:

Unit's training focus.

What should have been accomplished during predeployment that was not accomplished?

What was helpful to know when planning the deployment? What did you wish that you had?

Discuss logistics and personnel shortages, if appropriate.

Discuss planning for rear detachment operations.

Discuss predeployment LL in the observation-discussion-recommendation format.

7. Deployment/reception, staging, onward movement, and integration (RSOI) with dates:

Summarize deployment/RSOI operations.

Discuss RSOI LL in the observation-discussion-recommendation format.

8. Operations phase with dates:

Summarize tactical and nontactical operations (sometimes beneficial to do this by staff section or WFF).

Include unit participation in named operations.

List of key operation orders (OPORDs) and fragmentary orders (FRAGOs).

Discuss operations phase LL in the observation-discussion-recommendation format (sometimes beneficial to address by WFF).

9. Relief in place/transfer of authority (RIP/TOA) with dates:

Discuss planning and overlap.

List or discuss key discussion topics between outgoing and incoming organizations.

Include (either here or as an appendix) any SOPs, TTP, or checklists.

Discuss RIP/TOA LL in the observation-discussion-recommendation format.

10. Redeployment activities with dates:

Summarize redeployment activities and highlight planning guidance either developed or received from higher headquarters.

How long did redeployment take? What was salvaged or destroyed (battle losses and personnel losses — killed in action, wounded in action, missing in action, and Soldiers classified as duty status whereabouts unknown) during the unit's time in theater?

Include (either here or as an appendix) any list of instructions, TTP, or checklists developed.

Discuss redeployment LL in the observation-discussion-recommendation format.

11. Post-deployment activities:

Discuss combat stress planning and reintegration activities.

Discuss plans and priorities used in reconstituting and resetting the unit.

Discuss Family Support Group operations.

Discuss post-deployment LL in the observation-discussion-recommendation format.

12. Provide an index/listing of all mid-tour and final unit AAR products, significant command briefings, or reports published separately:

Include classification, titles, and distribution/disposition of reports.

Include a staff point of contact or section for follow-up coordination.

13. Distribution (of this report).

14. Appendices (as appropriate):

List of each named operation or major event with dates.

Applicable maps.

Photographs.

Copies of key OPORDs and FRAGOs.

Particularly useful TTP or unit products developed.

Predeployment site survey information.

Rear detachment operations.

Unit daily journals.

**Figure C-2. Sample written AAR format**

**Observation:** Media-on-the-battlefield training was poorly conceived and planned.

**Discussion:** The role-player journalists were not sufficiently trained for the task they were to perform, and they were not resourced properly. They did not know the scenario and asked unrealistic questions. They did not provide a realistic representation of a journalist on the battlefield from a major news organization.

**Recommendation:** You must train role players for media-on-the-battlefield scenarios. Role players should be given a character description so they can act the part. They should understand the media credential system, ground rules, and the scenario in general. They should be capable of engaging in a dialogue to determine the essential elements of a news story.

**Figure C-3. Sample observation-discussion-recommendation format**

“You must learn from the mistakes of others. You can’t possibly live long enough to make them all yourself.”

— Sam Levenson



## Appendix D

### Government Agencies and Lessons Learned Centers

#### Center for Army Lessons Learned

The Center for Army Lessons Learned (CALL) rapidly collects, analyzes, disseminates, integrates, and archives observations, insights, and lessons (OIL); tactics, techniques, and procedures (TTP); and operational records to facilitate rapid adaptation initiatives and conduct focused knowledge sharing and transfer that informs the Army and enables operationally based decision making, integration, and innovation throughout the Army and within the interagency, intergovernmental, and multinational environment.

CALL collects OIL, TTP, and operational products and records from the field primarily through five methods:

- OIL from the operational Army.
- After action reports (AARs).
- CALL theater observation detachments.
- CALL collection and analysis teams.
- Operational products and records submitted from the operational Army.

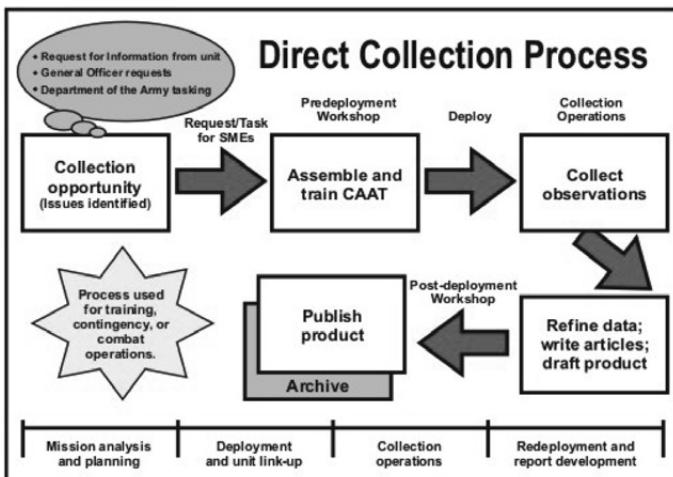


Figure D-1. CALL lessons learned (LL) process

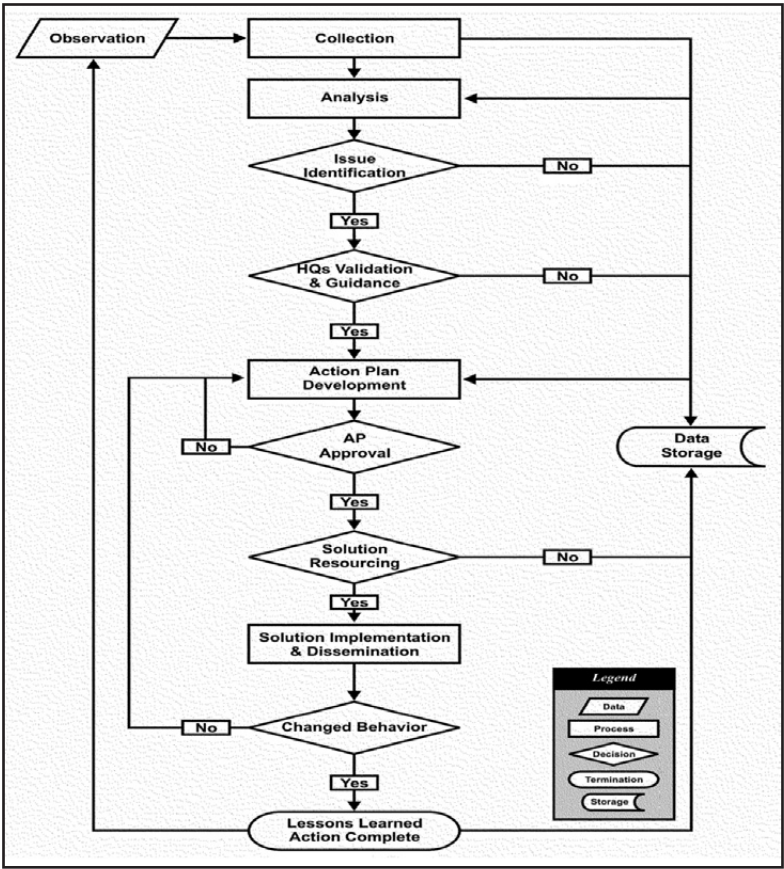


Figure D-2. CALL deliberate LL process

**Joint Analysis and Lessons Learned Centre (JALLC)**

The Joint Analysis and Lessons Learned Centre (JALLC) is NATO’s center for performing joint analysis of operations, training, exercises, and concept development and experimentation collective experiments, including establishing and maintaining an interactive managed LL database. JALLC also hosts and manages NATO’s LL database, where lessons are captured, stored, and processed.

JALLC’s Internet LL database is a tool to coordinate the staffing of NATO operational and exercise lessons in a central, accessible location and to archive these lessons. The database comprises observations, lessons identified (LI), and LL. Observations are detailed examinations

of phenomena prior to analysis, diagnosis, or interpretation. LI are observations that have been staffed and deemed beneficial to others. The staffing includes discussion of the nature and causes of the observation, recommendations of actions to be taken, and a proposed action body. LL comprise an implemented recommendation action that produced an improved performance or increased capability. This data is then submitted by users from across NATO and are refined and managed by JALLC, which analyzes the information and forwards it to appropriate commands for the coordination of remedial action.

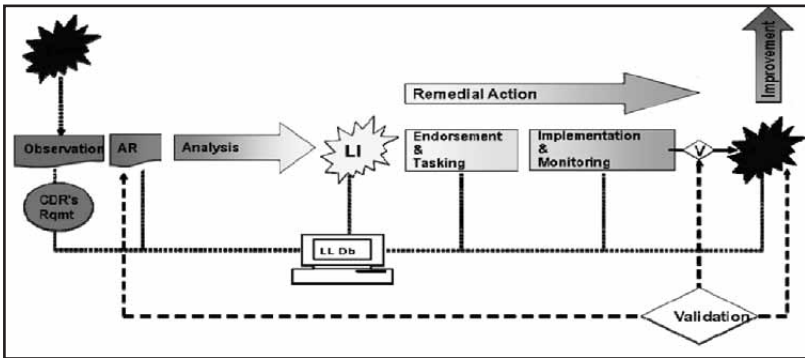


Figure D-3. NATO LL process



Figure D-4. NATO LL process (simplified)

## NASA

The LL process is a two-level (centers and headquarters) set of information management processes designed to preserve institutional knowledge, communicate experiences that can potentially reduce risk, improve efficiency, promote validated practices, and/or improve performance in the areas identified above. Lessons are collected from individuals, projects and programs, or supporting organizations, primarily at the center level. The content of LL systems in the NASA environment are discoverable and searchable across the agency to the broadest extent possible. Lesson

recommendations are assessed for potential changes to policy, procedures, guidelines, technical standards, training, education curricula, etc. and infused back into the system via existing corrective action systems.

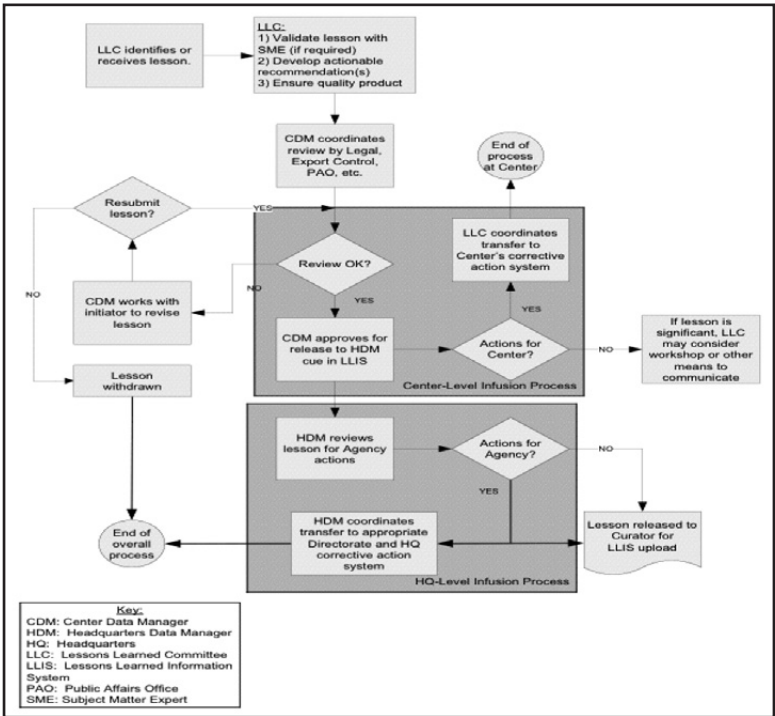


Figure D-5. NASA LL process flow diagram

## Department of Energy

The LL program facilitates continuous and systematic information sharing and learning across the Department of Energy (DOE) complex. Each DOE employee, contractor, and subcontractor is a valuable source of knowledge, information, and learning that can be tapped to provide enormous benefits — cost savings, improved safety, greater productivity, and better results. These benefits can be multiplied across the complex if information is effectively shared and employees are committed to using the LL information. One of the primary goals of the LL program is, therefore, to link these initiatives to make accessing and sharing information across sites and programs easy.

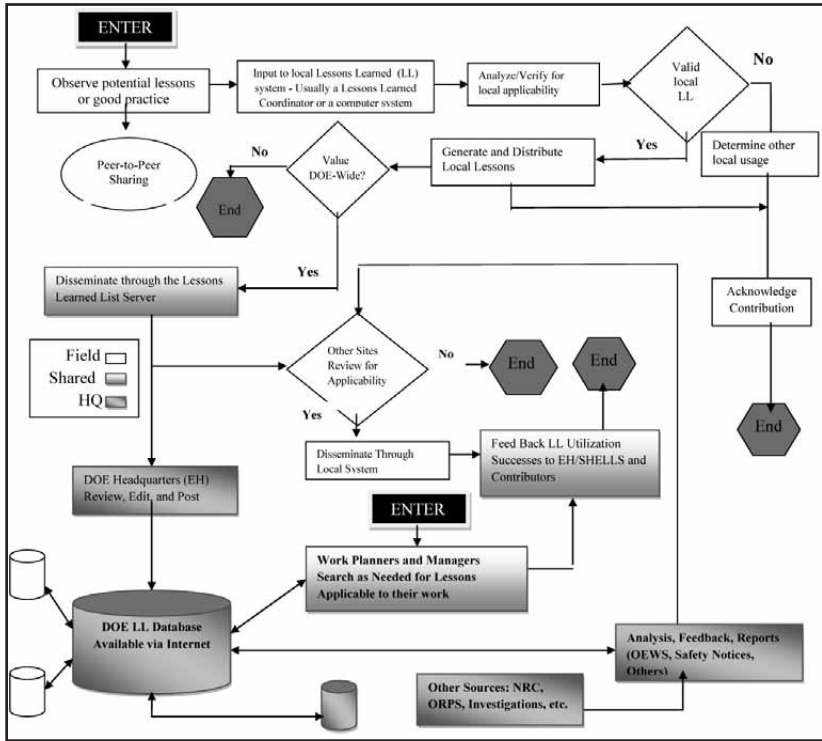


Figure D-6. DOE LL process

## Air Force (A9L)

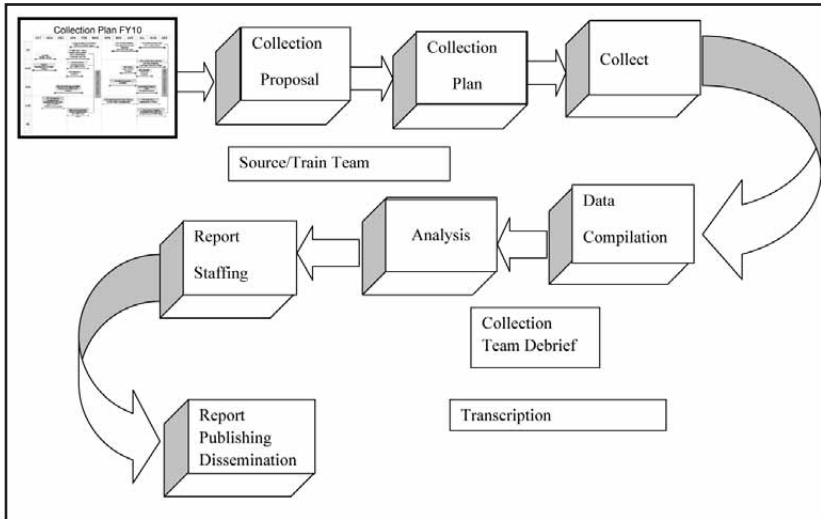
The Air Force LL program exists to enhance readiness and improve combat capability by capitalizing on the experiences of Airmen. An LL is defined as an insight gained that improves military operations or activities at the strategic, operational, or tactical level and results in long-term, internalized change to an individual, group of individuals, or an organization. Past experiences also assist senior leaders in programming, budgeting, and allocating resources to make changes to doctrine, organizations, training, materiel, leadership and education, personnel, and facilities. An LL is not a compliance “report card,” nor is it automatically accepted and implemented without the scrutiny of warfighters and functional experts. An LL is not “owned” by any one organization.

The Marine Corps Center for Lessons Learned (MCCLL) collects and analyzes information gained by Marines in operational experiences to produce reports and recommendations advancing the Marine Corps reservoir of knowledge and stimulating changes in the way the Corps organizes, trains, equips, and sustains Marines in combat.

MCCLL uses the collections process to gather information for follow-on analysis and drafting of MCCLL collection reports. Formal collections by MCCLL collection teams use interviews, questionnaires, and surveys.

At a minimum, a good collection plan will state:

- What you want to know.
- Who you are going to ask.
- Why you want the information.
- What you intend to do with the information.
- How you will collect the information.



**Figure D-8. MCCLL collection, analysis, report process**

## Lessons Learned Centers

### U.S. Army

Center for Army Lessons Learned  
 10 Meade Ave. (Bldg. 50)  
 Fort Leavenworth, KS 66027  
<http://usacac.army.mil/cac2/call/index.asp>

### U.S. Air Force (A9L)

Office of Air Force Lessons Learned  
 1777 N Kent St., Floor 6  
 Rosslyn, VA 22209-2110  
<https://www.jllis.mil/USAF/>

### U.S. Marine Corps

CG, TECOM (MCCLL)  
 1019 Elliot Road  
 Quantico, VA 22134  
<http://www.mccll.usmc.mil/>

**U.S. Navy**

1530 Gilbert St., Suite 2128  
Norfolk, VA 23511-2730

**Department of Energy**

U.S. Department of Energy  
Office of NEPA Policy and Compliance (GC-54)  
1000 Independence Ave., S.W.  
Washington, DC 20585  
<[http://nepa.energy.gov/lessons\\_learned.htm](http://nepa.energy.gov/lessons_learned.htm)>

**U.S. Special Operations Command**

HQ Special Operations Command  
7701 Tampa Point Blvd  
MacDill AFB, FL 33621-5323  
<<https://www.jllis.mil/ussocom/index.cfm>>

**Canada**

Assistant Deputy Minister (Public Affairs)  
Department of National Defence  
National Defence Headquarters  
Major-General George R. Pearkes Building  
101 Colonel By Drive  
Ottawa, Ontario, Canada  
K1A 0K2

**NASA**

NASA Headquarters  
Suite 5K39  
Washington, DC 20546-0001  
<<http://llis.nasa.gov/offices/oce/llis/home/>>

**JALLC**

Avenida Tenente Martins – Monsanto  
1500-589 Lisbon  
Portugal

**Center for Complex Operations**

Fort Lesley J. McNair  
Washington, DC 20319  
<<http://ccoportal.org/>>

**Department of the Interior**

1849 C St., N.W.  
Washington DC 20240  
<<http://www.doi.gov/index.cfm>>

**U.S. Agency for International Development**

U.S. Agency for International Development  
Ronald Reagan Building  
Washington, D.C. 20523-1000  
<<http://www.usaid.gov/>>

**Department of Homeland Security**

U.S. Department of Homeland Security  
Washington, DC 20528  
<<http://www.dhs.gov/index.shtm>>

**EMP Solutions**

<<http://www.enterprisepmsolutions.com/>>

**Society for Effective Lessons Learned Sharing**

<<http://tis.eh.doe.gov/ll>>

**Federal Emergency Management Agency**

<<https://www.llis.dhs.gov/index.do>>

**Federal Bureau of Investigation**

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**SIPR e-mail address: [call.rfiagent@conus.army.mil](mailto:call.rfiagent@conus.army.mil)**

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**ATTN: OCC, 10 Meade Ave., Bldg. 50**

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