



# THE NATO LESSONS LEARNED HANDBOOK

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JOINT ANALYSIS AND LESSONS LEARNED CENTRE  
*NATO'S LEAD AGENT FOR JOINT ANALYSIS*

A proud member of Allied Command Transformation



The NATO Lessons Learned Handbook

Third Edition, February 2016

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*“For it is a habit of mankind to entrust to careless hope what they long for, and to use sovereign reason to thrust aside what they do not desire.”*

– Thucydides, 404 BC, the Peloponnesian War

*“Human beings, who are almost unique in having the ability to learn from the experience of others, are also remarkable for their apparent disinclination to do so.”*

– Douglas Adams, author of *The Hitchhiker’s Guide to the Galaxy*

## FOREWORD

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NATO's Joint Doctrine for Operations states that, "*The purpose of a Lessons Learned procedure is to learn efficiently from experience and to provide validated justifications for amending the existing way of doing things...*" (AJP-3(B) Allied Joint Doctrine for the Conduct of Operations).

To ensure the Alliance remains a successful learning organization, a robust and effective Lessons Learned Capability must be in place. Such a capability must include the right structure, the right process, and the right tools in order to capture, analyse, and take remedial action on any issue, as well as to communicate and share results to achieve improvement. We, the Lessons Learned community, must take responsibility for our respective parts of the Lessons Learned Capability whether related to the structure, the process, or the tools. Perhaps equally important, we should also strive to foster the right mindset; among the Lessons Learned community, but also among those at the leadership level who have the responsibility for ensuring that Lessons Identified become Lessons Learned.

I believe that this NATO Lessons Learned Handbook is therefore an important read for all of us. It helps us to understand how we can capture, analyse, and share Lessons Learned information to drive the transformation of the Alliance. It remains a useful source of Lessons Learned related information within NATO, but its scope extends beyond the Organization as well.

It is with pleasure that I present this third edition of the NATO Lessons Learned Handbook to help those who conduct Lessons Learned activities acquire the knowledge they need to facilitate their organization's Lessons Learned capability. This edition has been reviewed to ensure the information captured herein remains in line with current guidance on NATO's Lessons Learned process and includes certain minor changes to incorporate the latest expertise and experience from the Lessons Learned community.



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# CONTENTS

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Foreword.....	9
<b>1</b> Introduction.....	1
What is Lessons Learned? .....	1
Who Needs to Learn Lessons? – Everyone!.....	3
What is the Role of a LL Staff Officer?.....	4
How To Get Started In Lessons Learned!.....	6
Summary.....	8
<b>2</b> NATO LL Capability, Process, and Actors.....	9
NATO Lessons Learned Capability.....	9
NATO Lessons Learned Process .....	11
NATO Actors in the Lesson Learned Process .....	13
Summary.....	17
<b>3</b> Gathering Observations .....	18
Capturing Observations.....	18
Managing Observations.....	20
Tools to Capture and Manage Observations .....	22
Summary.....	24
<b>4</b> Analysis – Observation to Lesson Identified.....	26
Prepare for Analysis .....	26
Visualization .....	29
Analysis Techniques .....	29
Write Up Lessons Identified.....	32
Summary.....	32

<b>5</b>	Staffing Lessons Identified to Lessons Learned .....	33
	Project Management Considerations .....	33
	Endorsement and Tasking .....	35
	Implementation and Monitoring .....	35
	Validation .....	35
	Tools to Support Staffing Lessons from Identified to Learned .....	36
	Summary .....	37
<b>6</b>	Lesson Learned Information Sharing .....	38
	Whom To Share LL Information With? .....	39
	When To Share? .....	40
	How to Share LL Information? .....	41
	Summary .....	44
<b>7</b>	Final Thoughts .....	45
	Useful Lessons Learned Points of Contact .....	45
	Further Lessons Learned Information .....	45
	References .....	46
	Annex A – LL Glossary .....	A-1
	Abbreviations .....	A-3
	Annex B – Lesson Template .....	B-1
	Using the Lesson Template .....	B-2
	Annex C – Some LI Examples .....	C-1
	Joint Example .....	C-1
	Maritime Example .....	C-2
	Land Example .....	C-3
	Air Example .....	C-4
	Annex D – Interview Process .....	D-1

Annex E – LL Capability Checklist.....	E-1
Mindset .....	E-1
Leadership .....	E-1
Structure.....	E-1
Process .....	E-1
Tools .....	E-2

## 1

## INTRODUCTION

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Welcome to the NATO Lessons Learned Handbook. The purpose of this handbook is to guide and assist you in fulfilling your role in supporting your organization and NATO to effectively learn from experience. This handbook uses NATO's approach to Lessons Learned as the underlying model but has been written to be relevant to any organization.

This opening chapter sets the stage for the rest of this handbook by giving an overview of:

- What is Lessons Learned?
- Who Needs to Learn Lessons?
- What is The Role of a Lessons Learned Staff Officer (LLSO)?
- How to Get Started in Lessons Learned!

### WHAT IS LESSONS LEARNED?

The term *Lessons Learned* is broadly used to describe people, things and activities related to the act of learning from experience to achieve improvements. The idea of Lessons Learned in an organization is that through a formal approach to learning, individuals and the organization can reduce the risk of repeating mistakes and increase the chance that successes are repeated. In the military context, this means reduced operational risk, increased cost efficiency, and improved operational effectiveness.

Lessons Learned describes more than just learning from experience. Learning must be used to justify changes that will lead to improved performance. This is made clear in NATO's Joint Doctrine for Operations, which states:

*"The purpose of a Lessons Learned procedure is to learn efficiently from experience and to provide validated justifications for amending the existing way of doing things, in order to improve performance, both during the course of an operation and for subsequent operations. This requires lessons to be meaningful and for them to be brought to the attention of the appropriate authority able and responsible for dealing with them. It also requires the chain of command to have a clear understanding of how to prioritise lessons and how to staff them."* – AJP-3(B) *Allied Joint Doctrine for the Conduct of Operations*<sup>1</sup>

Depending on your nation, HQ or organization, you will encounter the term *Lesson Learned* (and the acronym *LL*) applied both to the end result of a formal learning process or to one of the intermediate results, i.e. a lesson to be learned or a Lesson Identified (LI).

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<sup>1</sup> Allied Joint Doctrine for the Conduct of Operations, AJP-3(B), March 2011, Paragraph 0454.

### Lessons Learned or Lesson Learned?

- *Lessons Learned*, an adjective, describes anything related to a Lessons Learned procedure; e.g. Lessons Learned process, Lessons Learned staff officer, Lessons Learned working group, etc.
- *Lesson Learned*, a noun, the change that resulted from the Lessons Learned procedure, and the written record of that change.

*In this handbook, LL is only used as an abbreviation for Lessons Learned when used as an adjective. Other publications may use LL to abbreviate Lesson Learned the noun. Careful!*

Lessons can be derived from any activity. They are a product of operations, exercises, training, experiments, and day-to-day staff work. During the course of our activities most of us will recognize ways of doing things more easily or efficiently that can be passed on to our colleagues and successors to help them avoid problems and do even better than we did before. The challenge facing any organization is to build a culture within which we all feel comfortable and motivated to share our knowledge in a productive way.

In the course of learning lessons, we exploit both explicit and tacit knowledge.

### Learning from Explicit and Tacit Knowledge

- *Explicit Knowledge* is knowledge that has been or can be documented. This type of knowledge can lead to a Lesson Learned by the use of a LL process, LL information sharing tools such as databases and wikis and training courses.
- *Tacit Knowledge* is knowledge that has not or cannot be documented but is still extremely valuable. This type of knowledge is stored in our heads and can lead to a Lesson Learned when we interact with others by discussion and sharing experience within a community, perhaps facilitated by formal working groups, conferences or other events.

For more information on Knowledge Theory a good resource is:

<http://www.knowledge-nurture.com/downloads/NONAKA.pdf>

In any learning organization, regardless of whether you are learning from explicit or tacit knowledge, you will follow the same three basic stages of learning. These are as described in Nick Milton's *The Lessons Learned Handbook* (Reference B)<sup>2</sup>:

### Three Basic Steps to Learning

1. *Identification*: Collect learning from experiences.
2. *Action*: Take action to change existing ways of doing things based on the learning.
3. *Institutionalization*: Communicate the change so that relevant parts of the organization can benefit from the learning.

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<sup>2</sup> These three stages are generic and apply to any learning organization: NATO, military, civilian (government or private enterprise). They are not yet explicitly embedded in NATO doctrine. *Institutionalization* in NATO would be Lesson sharing and, as applicable, incorporation into NATO doctrine and procedures.

**Example: The Improvised Explosive Device community learning steps**

Consider how the Counter Improvised Explosive Device (IED) community learns:

1. *Identification*: After every IED incident a report is generated that identifies what can be learned from the incident.
2. *Action*: The reports are reviewed by national and multinational groups who take the necessary action to learn from the experience. Usually this is an update to or creation of doctrine, Standing/Standard Operating Procedures (SOP), tactics, techniques and procedures, or technological tools.
3. *Institutionalization*: The new procedures are incorporated into training for new staff and communicated to current staff through newsletters and bulletins.

The activities NATO uses to promote learning from experience vary across organizations.

**Common Ways to Learn from Experience**

- *LL Process*: To gather, staff, action and communicate lessons to ensure learning from experience is converted into actual improvement via a formal process.
- *LL Information Sharing*: To make use of databases, spreadsheets, websites, reports or other media to store and communicate lessons.
- *LL Community*: To bring together Subject Matter Experts (SME) at working groups, training courses, conferences and other events to share experience and learning.

**WHO NEEDS TO LEARN LESSONS? – EVERYONE!**

Everyone within an organization needs to be involved in learning lessons for the LL Capability to be successful. Yet often it seems that many personnel within NATO are under the impression that the presence of a LL Capability frees them of their own responsibility for organizational improvement and learning, an attitude exemplified by statements such as: "I don't have anything to contribute; I don't need to learn anything myself; it's not up to me to change the way we do business—the LLSO is here to do these things for me!" Yet nothing could be further from the truth.

A lesson is not learned until something changes in the way we operate, and the ones who need to change are the ones affected by an issue—the stakeholders. The LL Community are not the stakeholders in LL and a LLSO does not benefit from learning a specific lesson. If, for example, a lesson concerns how we do operations planning or logistics, then there is only benefit from the LL Capability if operations planners or logisticians learn the lesson; that is, change the way they do planning or logistics. We as an organization will not improve at planning or logistics if only the LLSO has learned how to do it better. The stakeholders must be the ones who learn.

Likewise, stakeholders are likely the first, and often only, personnel who will be aware of potential lessons—observations and lessons identified—since it is they who are most closely involved with the issue. Unless these potential lessons are submitted via a LL Process, it is unlikely that

LLSOs will be able to discover their existence in order to even begin the learning process. The stakeholders must share their potential lessons.

Furthermore, no LL practitioner has the authority to implement major changes within an organization; that is, to require other branches or individuals to learn a given lesson and change the way they do business. Even NATO's Joint Analysis and Lessons Learned Centre (JALLC) can do no more than make recommendations to NATO Command Structure leadership as represented by the Strategic Commanders. JALLC cannot make them act on those recommendations. Leaders are free to ignore them.

Therefore, true organizational learning only takes place when driven by leaders. Commanders and Chiefs of Staff must prioritize lessons, assign and track remedial actions, follow up to ensure their organization has actually learned and, just as important, be the driving force for sharing lessons. Leaders' LL guidance and engagement must be evidenced not only by words, but also through prioritizing issues, endorsing, resourcing and tasking solutions as well as by driving the sharing of lessons. Leaders must hold stakeholders and LL practitioners accountable.

What then is the role of LL practitioners, since they do not benefit from learning specific lessons and rarely can compel learning on the part of those who do need to learn?

## WHAT IS THE ROLE OF A LL STAFF OFFICER?

The role of LL practitioners is to support leaders in ensuring the organization is a Learning Organization, in ensuring the quality of lessons and recommendations, and in ensuring all stakeholders are aware of their responsibilities in the process. Finally, it is up to the LLSO to ensure lessons are shared early and widely. Only then will a LL Capability thrive.

Everyone in an organization has a responsibility for learning lessons, but the LLSO is central to the organization's efforts to engage everybody in seeing the value of learning lessons. If people are not engaged, they see no value and do not actively participate. It then becomes impossible for learning to take place, nullifying the LL process.

The simplest way to get everyone involved in learning lessons is to ensure that the LL capability is constantly demonstrating value. To do this, the LLSO has an important role to play in conducting staff work to support the organization's LL process, LL information sharing and participation in the LL community. The LLSO may also need to set up or improve the organization's LL capability.

All organizations will have LL procedures and tools that are tailored to their needs. The LLSO role will be defined within this context. Typically a LLSO will be expected to do the following:

### Support the Lessons Learned Process (See Chapters 2-5)

- Gather the organization's observations, LIs and lessons learned on a continuous basis and immediately after every activity the organization undertakes such as missions, training events or exercises.
- Assess the status of LL information collected.

- Analyse observations to turn them into LI by establishing whether action needs to be taken to learn and, if so, what action is needed.
- Present LI to the command group so they can make a decision about what action to take.
- Keep track of the progress of action relating to LIs and keep the command group up-to-date on which LI have become lessons learned.
- Organize meetings for the staffing of LIs.

#### **Support Lessons Learned Information Sharing (See Chapter 6)**

- Maintain a store of the organization's LL information.
- Prepare and release the organization's LL information to other organizations as appropriate.
- Enter the organization's observations, LIs and lessons learned into the LL staffing area of the NATO LL Portal (NLLP) as appropriate.
- Provide LL information in response to requests from inside the organization (e.g. from the planning cell or trainers) or from outside the organization.
- Compile regular newsletters/summaries of LL information to keep people up-to-date.
- Post relevant LL information and reports—such as after action reviews, final exercise reports, etc.—to the NLLP.
- Regularly reviews LL information received (including Periodic Mission Review, Final Exercise Report, After Action Reports, etc.) from other organizations and disseminates pertinent information via command leadership to the relevant staff in the organization.
- Regularly reviews entries to the LL staffing area of the NLLP and disseminates pertinent information via command leadership to the relevant staff in the organization.

#### **Support the Lessons Learned Community (See Chapter 6)**

- Attend the NATO (or other relevant) LL Conference.
- Organize working groups/training events for knowledge sharing.
- Represent the organization in relevant LL sharing events.
- Maintain a Point of Contact (POC) list of Subject Matter Experts (SME) in the organization.
- Keep LLSO contact details up-to-date in the LL communities POC list.

#### **Support the LL Capability**

The LL capability within the organization may still need to be established or improved upon. This job will fall to the LLSO. Everything in this handbook will help a LLSO to set up a LL capability that is relevant and effective for the organization and is compliant with NATO's overall LL approach. A checklist of suggested LL capability features (Annex E) may help you assess your current LL capability.

## HOW TO GET STARTED IN LESSONS LEARNED!

You are already on the right track having read this far through this NATO LL Handbook. However, this handbook is not the only resource available to help you get started. The following NATO resources are available:

### Fundamental NATO Lessons Learned References

#### Fundamental NATO Lessons Learned References

- *NATO Lessons Learned Policy (Reference A).*
- *The two Strategic Commanders' (Bi-SC) Directive 080-006 Lessons Learned (Reference C).*
- *Allied Command Operations (ACO) Directive 080-001 Lessons Learned (Reference D).*

You should read and familiarize yourself with these fundamental NATO LL references:

NATO LL Policy is applicable to all NATO bodies, agencies and staffs, and acts as a guide to Allies and non-NATO nations contributing to NATO-led operations. It establishes the basic principles of an Alliance-wide approach to learning lessons in order to ensure transparency and a common understanding of its intent. It provides guidance on the exchange of LL information with other international organizations and establishes LL roles and responsibilities within NATO HQ (the International Staff (IS) and the International Military Staff (IMS)) and on the interaction between NATO HQ, Allied and the Strategic Commands.

The two Strategic Commands' (Bi-SC) Directive 080-006 Lessons Learned is applicable to all HQs and organizations within Allied Command Operations (ACO) and Allied Command Transformation (ACT). It defines a LL capability, identifies four critical success factors that influence the effectiveness of a LL capability, establishes a standardized and coordinated approach to the NATO LL process, and details roles and responsibilities at the strategic level.

ACO Directive 080-001 Lessons Learned is applicable to all levels of ACO HQs and to SHAPE divisions. It provides additional guidance and direction for the implementation of the LL process within ACO and is a supplement to the Bi-SC Directive 080-006.

HQ SACT Directive 080-002 Internal Lessons Learned which establishes the HQ SACT internal LL capability (structure, process, and tools) in order to help improve the HQ's products, procedures, and organization.

### Lessons Learned Staff Officer Training

LLSOs should attend the week-long NATO LLSO Course. Courses are offered three times a year. More information can be found via the [SWEDINT website](#)<sup>3</sup>. Individual nations may also offer LL training as part of their national training programmes. If you have any questions regarding the LLSO Course, please contact the JALLC POC at [natollsoc@jallc.nato.int](mailto:natollsoc@jallc.nato.int).

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<sup>3</sup> [http://www.forsvarsmakten.se/en/swedint/information-to-admitted-students/nato\\_ll\\_soc/](http://www.forsvarsmakten.se/en/swedint/information-to-admitted-students/nato_ll_soc/)

## Lessons Learned Officer of Primary Responsibility Online Course

The Lessons Learned Officer of Primary Responsibility (LLOPR) Course is an online course, tailored to NATO LLOPR's needs. It was developed by the JALLC, supported by and in close coordination with Allied Command Transformation's Joint Force Trainer and with the contribution of Lessons Learned specialists. The aim of the course is to provide LLOPRs with the basic LL knowledge necessary to fulfil their duties and it is a prerequisite to attend the NATO LLSO Course. The course is available on the Joint Advanced Distribution Learning (JADL) platform (<https://jadl.act.nato.int>) at Courses - NATO Courses - Allied Command Transformation - JALLC, ID: ADL 138.

## Using This NATO Lessons Learned Handbook

This handbook is divided into seven chapters advising on various aspects of being a competent LLSO and contains annexes with helpful examples and templates.

- Chapter 2 provides an overview of a LL process based on the NATO LL Policy, gives definitions, and outlines some of the actors involved in the NATO LL process.
- Chapter 3 gives guidance on gathering observations and introduces a template for gathering and documenting lessons.
- Chapter 4 guides on the process of analysis that facilitates development of observations into useful lessons.
- Chapter 5 offers practical advice on management of the remedial action process to ensure lessons are truly learned.
- Chapter 6 describes LL Information Sharing and the LL Community.
- Chapter 7 gives a summary of this handbook and where to go for more information.

Annexes provide additional guidance and examples to help you develop your competence as a LLSO:

- Annex A: Lessons Learned Glossary
- Annex B: Observation, Discussion, Conclusion, Recommendation Template
- Annex C: Example lessons learned in the observation, discussion, conclusion and recommendation lesson template that is advocated by this handbook
- Annex D: Interview Process
- Annex E: LL Capability Checklist

We advise you to read all chapters quickly and then go back through and make notes regarding how the concepts presented relate to your role and your organization specifically. We've even included a handy big margin for you to add your notes. The annexes can be used to increase your understanding and support your daily work as appropriate. Each chapter has some introductory remarks and concludes with a summary of the chapter contents in bullet form. Boxes are used to highlight additional information about particular subjects and make tips stand out.

### **JALLC Advisory and Training Team**

The JALLC Advisory and Training Team (JATT) is tasked with LL outreach. The JATT can provide advice, assistance and training to NATO commands, HQs, and Alliance and partner nations upon request to aid development of LL capabilities. JATT can be reached via e-mail at [jattpoc@jallc.nato.int](mailto:jattpoc@jallc.nato.int).

## **SUMMARY**

### **Lessons Learned**

- Lessons Learned describes activities relating to learning from experience to achieve improvements. In a military context, this means reduced operational risk, increased efficiency, and improved operational effectiveness.
- Lessons can be derived from any activity—daily events, exercises, training, etc.
- Learning, in any organization, involves three generic stages: identification, action, and institutionalization.

### **Role of a Lessons Learned Staff Officer**

- Support the LL Process – gather, analyse, staff, action and communicate lessons to ensure learning from the experience is converted into actual improvement.
- Support LL Information Sharing – share lessons both within and outside of the organization via databases, websites, reports, newsletters, etc.
- Review and disseminate inside the organization pertinent LL information shared by others.
- Support the LL Community – attend and organize relevant LL sharing events (LL conference, forums, working groups, etc.).
- Support LL Capability – Set up or improve the organization's LL capability.

### **Getting Started**

- Review NATO LL references and study this handbook.
- Request JATT Outreach support.
- Attend a LLSO Course.

## 2

## NATO LL CAPABILITY, PROCESS, AND ACTORS

The most formal approach to learning lessons is the use of a LL process. A LL process is a procedure for deliberately staffing observations arising from an activity until a Lesson Learned is reached.

This chapter provides an overview of:

- NATO Lessons Learned Capability
- NATO Lessons Learned Process
- NATO Actors in the Lesson Learned Process

### NATO LESSONS LEARNED CAPABILITY

The Bi-SC Directive 080-006 Lessons Learned (Reference B) defines a LL capability as:

*“A Lessons Learned capability provides a commander with the structure, process and tools necessary to capture, analyse and take remedial action on any issue and to communicate and share results to achieve improvement.”*

The key elements of a LL capability are shown in Figure 1, taken from the Bi-SC Directive. These elements are represented as *structure*, *process* and *tools* pillars, all of which are needed to support information sharing. The foundations of *Mindset* and *Leadership* are the fundamental social and cultural climate the organization needs for an effective LL capability. *Information sharing* provides the capstone that ensures the capability works.

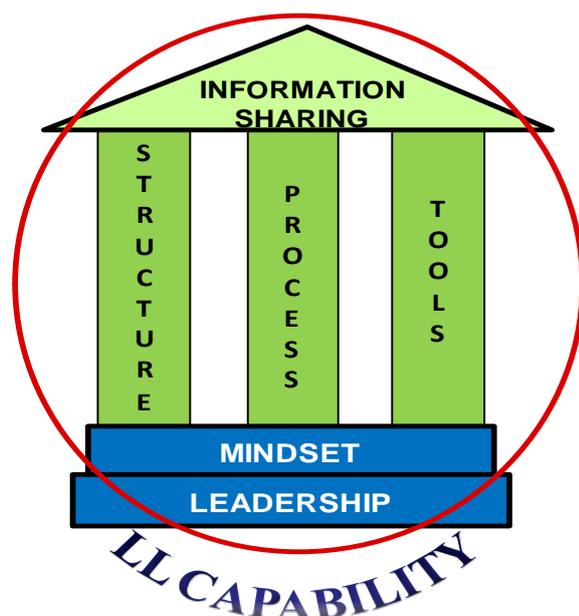


Figure 1: LL Capability

### Key Elements of a LL Capability

The key elements of the LL capability are:

- **Structure:** Skilled and dedicated LL personnel allocated to adequate posts within the organization.
- **Process:** A common LL process to develop a lesson, to include sharing and utilizing it appropriately.
- **Tools:** Technology to support collection, storage, staffing and sharing of LL information.

### Foundations of a LL Capability

The foundations of the LL capability are:

- **Mindset:** A desire to incorporate learning from others into all aspects of work as well as the confidence and trust to share own learning with others.
- **Leadership:** Timely and effective decision making throughout the LL process, an emphasis on the value of the LL capability to the organization and the creation of a safe environment where learning can flourish.

Through examination of the effectiveness of many LL capabilities within and beyond NATO, a number of critical success factors have been identified. Where these factors are in place, LL capabilities were observed to be more successful than LL capabilities operating without one or more of the factors. These four factors are themes throughout this handbook.

### Critical Success Factors for a LL Capability

- **Leadership:** Leaders need to actively engage in their LL capability and prioritize resources to ensure that changes happen and lessons get learned.
- **Mindset:** A desire to improve and willingness to share information and take into account the information received from others.
- **Information Sharing:** A key issue with information sharing is information assurance: the LL information that we submit and receive from the LL capability needs to be trustworthy.
- **Stakeholder Involvement:** All of us need the opportunity to influence how our organization will change in response to lessons identified.

## NATO LESSONS LEARNED PROCESS

Figure 2 illustrates the LL process used by NATO as given in the Bi-SC Directive 080-006 (Reference A). The text that follows describes the process; specific NATO terminology is defined and also included in a LL Glossary at Annex A.

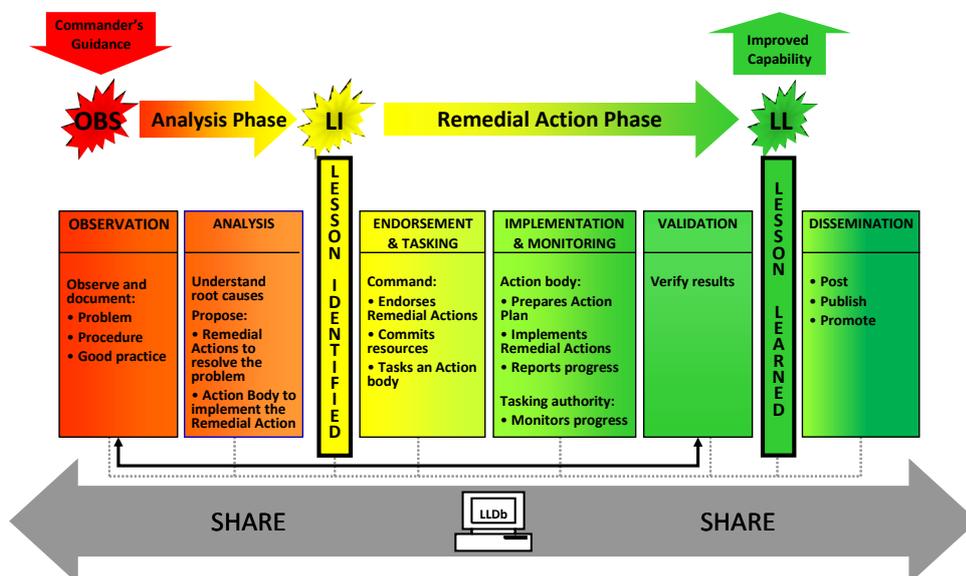


Figure 2: The NATO LL Process

Note that this process follows the three basic generic stages of learning described in Chapter 1. "Identification" occurs during the Analysis Phase of the process; "Action" and "Institutionalization" occur during the Remedial Action Phase of the process. In NATO, "Institutionalization" is seen as an integral part of the action necessary to reach a Lesson Learned. Information generated during the LL process can be shared at any time, earlier is preferable to later. More information on LL Information Sharing is provided in Chapter 6 of this handbook.

### Analysis Phase

The first phase of the NATO LL process is the Analysis Phase and starts with **Gathering Observations**.

An **Observation** is "a comment based on something someone has heard, seen or noticed that has been identified and documented as an issue for improvement or a potential best practice." (Reference C).

For a given activity, an expected outcome exists. If expectations are either not met or exceeded, there is something to learn. Any difference from expected outcome should be documented as an observation that describes: the sequence of events, conditions under which the events occurred, and other quantifying details. Observations are further discussed in Chapter 3.

The observer should conduct some analysis to elaborate on the factor(s) contributing to why the outcome of activity differed from expectation and identify a proposed solution. For more complex observations, further **analysis** may be required.

**Analysis** is “the study of a whole by thoroughly examining its parts and their interactions”<sup>4</sup>.

**Analysis** allows discovery of the root cause(s) of the observed problem or success. Once the root cause is understood, an appropriate Remedial Action that will address the root cause can be identified to correct the problem or sustain success.

A **Remedial Action** is “an activity or set of activities that corrects an issue identified for improvement or facilitates the implementation of a best practice.” (Reference C).

Additionally, the person or organization which should execute the Remedial Action will be identified during the Analysis step. The output of the analysis is an LI.

A **Lesson Identified (LI)** is “a mature observation with a determined root cause of the observed issue and a recommended remedial action and action body, which has been developed and proposed to the appropriate authority.” (Reference C).

Analysis is further described in Chapter 4.

#### Analysis Tip

*Do not get too worried about the use of the term “analysis”. Analysis may convey the impression that some mysterious, formal intellectual activity must take place to be able to develop an LI. In many cases, a healthy dose of common sense and subject matter expert (SME) input is sufficient to determine root causes and identify appropriate actions.*

A special type of LI is a Best Practice.

A **Best Practice** is “a technique, process or methodology that contributes to the improved performance of an organization and has been identified as a ‘best way of operating’ in a particular area as compared to other good practice(s). Ideally, a Best Practice should be adaptive, replicable and immediately useable” (Reference C).

When an LI is a Best Practice, the Remedial Action will be to document the conditions under which the positive experience occurred and introduce measures to ensure these conditions are repeated. Best Practices may be specific to an environment, theatre, or situation, and may become obsolete. A Best Practice may require validation, and should be regularly reviewed to ensure that the practice is still “best”.

Once an LI is developed, the Remedial Action Phase begins.

#### Remedial Action Phase

The first step in the Remedial Action Phase of the NATO LL process is **Endorsement and Tasking**. During this step, developed LIs will be presented to the organization’s leadership for them to determine how to progress the LI through the LL process. First, the LI will be endorsed whereby it is approved for further action and the proposed Remedial Action is accepted or modified to be acceptable, and then an Action Body will be formally tasked to plan and implement the Remedial Action. The leadership also commits to providing the resources needed to implement the Remedial Action.

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<sup>4</sup> AAP-6 NATO Glossary of Terms and Definitions, NATO Standardization Agency, 2010.

An **Action Body** is “the organization or staff tasked with the implementation of assigned remedial action in association with a lesson identified. The action body develops an action plan to guide the remedial action activities” (Reference C).

During the **Implementation and Monitoring** step, the Action Body will prepare and implement their Remedial Action through the use of an Action Plan and the LLSO will support leadership in monitoring its implementation.

An **Action Plan** is “the written plan of action and milestones developed by an action body to implement assigned remedial action for a lesson identified” (Reference C).

After the Remedial Action has been implemented, some form of validation is needed.

**Validation:** “When necessary, lesson learned validation ensures that the originally observed issue has been successfully corrected by the implemented remedial action. Validation requirements should be described in the action plan and may include additional analysis to determine if the remedial action has generated the desired effects (issue correction or best practice application) and, therefore, has resulted in measurable improvement”<sup>5</sup> (Reference C).

Validation may involve further work and analysis, possibly using exercises or experiments.

Following the completion of the Remedial Action and successful validation, the LI will be deemed a Lesson Learned and the formal LL process concludes. However, it is important that further dissemination and publication of the information occurs.

A NATO **Lesson Learned** is “An improved capability or increased performance confirmed by validation when necessary resulting from the implementation of one or more remedial actions for a lesson identified.” (Reference C).

The last three steps of the LL process are described in Chapter 5.

Although Figure 2 shows dissemination as being the final stage of the LL process, **Sharing** is an activity that needs to occur throughout the LL process. More about LL information sharing is in Chapter 6.

## NATO ACTORS IN THE LESSON LEARNED PROCESS

### Commanders

Commanders, especially at strategic and operational level, have a vital role to play in ensuring that lessons are learned in support of both transformation of the Alliance and in the improvement of operations. This role includes establishing the LL mindset across their commands; setting expectations for subordinates in the gathering and analysis of observations; tasking remedial action bodies; and following up on that tasking to ensure lessons have been learned by those under their command who need to learn them.

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<sup>5</sup> Note that within the NATO LL process, the term validation is applied to the confirmation that a remedial action is successful at fixing the observed problem. Other LL processes may use the term differently; some use the term to describe the process of determining whether an observation is suitable for inclusion in the LL process.

The NATO LL Policy (Reference A) requires that all NATO commands and bodies execute their part in the NATO LL process and have their own internal LL procedures. The Bi-SC Directive 080-006 LL (Reference C) directs that all commanders in the NATO Command Structure establish a LL capability in their organizations. It states that executing a LL process is a command responsibility and each command and body under the two Strategic Commands will operate its own LL process.

### **NATO HQ**

Initiating an LL process is a senior management responsibility. Within NATO HQ, the Deputy Secretary general and the Director General, International Military Staff retain authority to task the execution of a LL process to subordinate NATO HQ senior management.<sup>6</sup>

### **Military Committee Standardization Boards**

The Military Committee (MC) delegates tasking authorities for operational standardization, including development of NATO doctrine, to Standardization Boards. MC Joint, Maritime, Land, Air, and Medical Standardization Boards, together with their respective Working Groups, are responsible for the development of agreed operational and procedural standardization. They produce the Allied Publications and NATO Standardization Agreements. The Standardization Boards are supported by the NATO Standardization Office. Additionally, the Standardization Boards and their respective Working Groups can provide subject matter expertise to review lessons related to NATO doctrine and procedures as promulgated in the Allied Publications.

### **Conference of National Armaments Directors Groups**

The Conference of National Armaments Directors (CNAD) and its subordinate structures are focused on the cost-effective acquisition by Alliance nations of military capabilities, by enhancing and encouraging interoperability and promoting technological cooperation. The CNAD groups include:

- NATO Naval Armaments Group
- NATO Air Force Armaments Group
- NATO Army Armaments Group

The NATO Defence Investment Division supports the work of the CNAD and its groups. The groups are good POCs within NATO for lessons regarding capabilities and interoperability of equipment.

### **Centres of Excellence**

Centres of Excellence provide subject matter expertise to assist in the analysis of issues. They also represent potential communities of interest (see Chapter 6) to share lessons on particular subjects.

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<sup>6</sup> Deputy Secretary General; NATO HQ Lessons Learned Implementing Directive; 09 August 2012; NATO Unclassified.

## Within the NATO Command Structure

### Allied Command Transformation and Allied Command Operations

The NATO LL Policy (Reference A) assigns ACT the lead for the NATO LL process at the strategic command level and below. ACO has the lead for the output of the NATO LL process from the planning and execution of operations and military exercises. The Strategic Commanders (SC) are also responsible for bringing appropriate lessons to the attention of the MC and ensuring they are reflected in their submissions to the NATO Defence Planning Process.

The Bi-SC Directive 080-006 LL (Reference C) establishes that ACT and ACO coordinate the endorsement and tasking of remedial actions at the strategic level. If the tasking authority resides within ACT or ACO, the appropriate SC tasks the action body and monitors progress. If the action body is outside the SCs, a request for action on the issue is submitted to NATO HQ either by the responsible SC or as a Bi-SC request.

### HQ SACT

The focal point at HQ Supreme Allied Commander Transformation (SACT) for all matters relating to the LL process is the Innovation Doctrine and Lessons Learned (IDLL) Branch under Assistant Chief of Staff Capability Engineering & Innovation (CEI). The IDLL Branch represents ACT at the Bi-SC LL Steering Group. HQ SACT tasks its analysis resources to support transformation of the Alliance. Of these, JALLC is the principal analysis resource in ACT—and in the NATO Command Structure as a whole—for conducting analysis that supports learning from operations, exercises and training events.

### SHAPE

The focal point at SHAPE for all matters relating to the LL process is the Policy and Lessons Learned Branch under Assistant Chief of Staff J7 Force Preparation and Evaluation with the SHAPE Plans Directorate. This branch coordinates the internal staffing of LL reports and proposes Action Body tasking to SHAPE Chief of Staff. Remedial Actions that exceed SHAPE's capacity or scope are forwarded to NATO HQ or HQ SACT. SHAPE Force Standards and LL Branch represents ACO in the Bi-SC LL Steering Group. SHAPE also receives and reviews lessons forwarded by the Joint Force Commands (JFC).

### Joint Force Commands and Component Commands

The Joint Force Commands (JFC) and Single Service Commands (SSC) create and maintain their own LL directives and Standard Operating Procedures (SOP). When an LI Remedial Action falls under their remit, the JFC/SSC endorses the LI and develops an internal action plan to remedy deficiencies. The JFC/SSC implements Remedial Actions as tasked by SHAPE. Biannually, JFCs/SSCs report LI to SHAPE in the lesson template format described in Chapter 3 and Annex B. Lessons reported to SHAPE include those with potential applicability to other commands or organizations, and those where the Remedial Action is beyond the capacity or scope of the JFC/SSC. If an LI is determined to need urgent attention, the JFC/SSC immediately reports the LI to SHAPE for action. (Reference D).

### JALLC

The JALLC is NATO's centre for performing joint analysis of operations, training, exercises and experimentation. It supports the exchange of Lessons Learned and facilitates the development of Lessons Learned Capabilities, thus reinforcing the continuous transformation and modernization of NATO's force and capabilities.<sup>7</sup> The JALLC has established and maintains the NATO LL Portal (NLLP) and is the focal point for LL analysis. SACT tasks JALLC with analysis projects on a biannual programme of work and with emergent joint analysis requirements for immediate execution as necessary. JALLC facilitates the sharing of lessons among Allies as well as with non-NATO nations and international organizations as appropriate. On request, JALLC can provide LL Outreach to nations and NATO commands and agencies to assist in the establishment of their LL capability and provide advice on its implementation (Reference A).

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<sup>7</sup> MC 0500/2; NATO International Peacetime Establishments; 29 January 2013; MC 0500/2 (Final); NATO Restricted.

## SUMMARY

### **NATO Lessons Learned Capability**

- LL capability is built upon a foundation of mindset and leadership engagement. The key elements of process, tools and structures must support information sharing.

### **NATO Lessons Learned Process**

- Initially, differences between expectations and actual performance are identified. These observations are the starting block for the process.
- Analysis of observations identifies root causes, remedial actions, and the appropriate action body to execute the action. These items together form an LI.
- Leadership will review LIs to determine how to proceed with the LL process. Endorsement and tasking as well as implementation and monitoring are a leadership responsibility.
- The action body prepares an action plan to implement remedial actions and reports progress to the tasking authority. The action plan should address the validation needed to ensure that the desired effect has been created.
- A NATO Lesson Learned results from the implementation and validation of a remedial action that produced an improved performance or increased capability.
- Information sharing should start early in the LL process and be sustained during the entire process.

### **NATO Actors in the LL Process**

- Executing a LL process is a command responsibility and each command and body under the Bi-SC structures will operate its own LL process.
- The many different actors within the process will take on different roles depending on the scope of the lesson. The chain of command must be set up to ensure lessons are worked through the LL process.
- At times, different actors may provide subject matter expertise to a process or simply be a member of the community of interest.

# 3

## GATHERING OBSERVATIONS

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An observation is the basic building block of a LL process. The observation must convey the basic details of the observed issue, with detail sufficient for further analysis. At a minimum, the observation must address the questions “what happened?” and “how did that differ from what was expected?” One of a LLSO’s most important tasks is gathering observations from the organization as they occur, especially following planned events or activities. Once gathered, observations should be reviewed to filter out unsuitable observations (such as certain obvious complaints), either by an officer higher in the immediate chain of command or by a dedicated LL manager (such as the LLSO). Observations that survive this initial review process are deemed suitable for inclusion in the LL process and will need to be managed. This chapter provides general guidance on the different aspects of gathering observations including:

- Capturing Observations
- Managing Observations
- Tools to Capture and Manage Observations

### CAPTURING OBSERVATIONS

All personnel, regardless of rank, must understand that they have a responsibility to document observed problems, shortfalls and successes. There must be provisions for all to make observations. Ideally, observation reporting will complement routine reports and returns, not replace them. These observations from within the organization are likely to be the main focus for observation capture. However, observations from outside the organization should also be captured and reviewed.

#### Observation Attribution

To encourage the reporting of negative experience, some organizations allow observers to remain anonymous. Although this does encourage reporting, it is not a good practice in the context of a LL process. Where observations are drafted with insufficient detail by anonymous submitters you may not be able to obtain further information. A compromise should be reached whereby observations can be submitted with a degree of anonymity for the observer while allowing you to find out further information if necessary. This could be achieved by attributing the observation to the branch or unit.

#### Observation Template

There are long-term benefits to conforming to the NATO-wide lesson template described below for capturing observations. Use of a common template allows information to be shared more easily. Where the template for observations differs, the automatic transfer of data can be difficult.

The template for a lesson suggested in ACO Directive 080-001 Lessons Learned (Reference D) contains five fields: *Title*, *Observation*,

*Discussion, Conclusion, and Recommendation* (ODCR). This is the format that entries into the LL staffing area of the NLLP must take in accordance with Bi-SC Lessons Learned Directive 080-006 (Reference C) and therefore it is recommended that your organization collect observations in this template from the start.

Annex B explains the template in full and Annex C provides Joint, Maritime, Air, and Land examples using the template.

### Post Event Reporting

Post event reports are an ideal means to capture observations. The Bi-SC Exercise Directive 075-003 (Reference E), supplemented by individual sub-command directives and SOPs, gives specific direction on the format and timeline for production of post-event reports, including interim reports. This reporting should already contain much of the information you need to capture observations.

#### Focus of Post Event Reporting

The key to worthwhile post-event reporting is ensuring that the final product is focused on giving guidance to the next event's planners, not the previous event's participants for review. This focus will help to ensure that mistakes are not repeated and best practice is institutionalized. Without this focus, post-event products tend to be shelved and do not become part of the knowledge base of the next rotation of actors in the exercise or operation.

#### Post Event Reporting Good Practice

- *Capture adequate data in a timely manner throughout the exercise process stages.*
- *Capture data in a common format.*
- *Apply quality analysis to the data.*
- *Prioritize issues.*
- *Produce information that can be shared with the appropriate community of interest.*

### Post-Operational and Post-Exercise Interviews

One way to convert tacit knowledge gained during operations and exercises into explicit knowledge for inclusion in the observation is by interviewing SMEs. Post-operation or post-exercise interviews are a valuable way of capturing lessons before troops and key leaders disperse, and while the memories of the events are still clear. Interviews have the added advantage of allowing the interviewer to focus on interest areas that the interviewee may otherwise not consider important.

One example of this technique in practice comes from the US Center for Army Lessons Learned (CALL), which coordinates what is known as an "Umbrella Week" with forces returning to home units, prior to post-deployment leave. During this week, CALL interviews many of the troops to capture observations. This is the only opportunity that CALL has to extract potential lessons from returning troops before they disperse.

Annex D outlines a basic interview process that allows the interviewer to methodically obtain a broad outline of events, while focusing on key events and their causal factors.

## MANAGING OBSERVATIONS

Observations will arrive in many different formats and levels of maturity from many different sources. You will need to review observations for maturity and suitability, and ensure observations are stored with appropriate metadata to comply with information management best practices.

### Reviewing Observations

Observations should be reviewed on the basis of suitability for inclusion in a LL process as soon as possible after capture. This initial review process can be carried out either by a member of the submitter's chain of command or organizational element or by a dedicated LL manager (such as the LLSO). This initial review process acts as a filter to remove unsuitable observations. When carried out immediately after the observation has been captured, the reviewing officer will be able to get back to the submitter to clarify any points or issues while they are still fresh in the submitter's mind.

#### Checklist for Inclusion of Observations

*The answer to **all** of these questions should be **yes** for an observation to be suitable for inclusion in the LL process.*

1. *Is this an objective observation and not just an obvious complaint about something or somebody?*
2. *Is this a problem with the system and not just a simple mistake by somebody?*
3. *Does this adequately and correctly describe the observed situation?*
4. *Would you spend your own money to fix this issue?*
5. *Would you spend your own time fixing this issue?*

Inclusion of an observation means somebody will expend resources of some sort to address the issue contained in the observation. Included observations pass into the next stage of the LL process where the first task is to review their maturity and judge whether they are already LIs or need further analysis to become LIs (see Chapter 4).

If the LLSO decides an observation is unsuitable for inclusion in the LL process, it can either be deleted or placed into an archive. The LLSO should inform the submitter of the decision that has been made regarding their observation so that they know their observation has been considered and not just forgotten.

### Observation Metadata

**Metadata**, noun, a set of data that describes and gives information about other data.

The LLSO should attach metadata to observations as soon as possible. This will aid future management of information and facilitate information retrieval and sharing.

Consider carefully what metadata to attach to observations; it will save a lot of time in the long term if it is done right the first time. The metadata attached should be NATO UNCLASSIFIED or non-classified, even if the observation it is describing is of a higher classification. Keeping the metadata unclassified will help later on with LL information sharing.

### Required Metadata

The NATO Primary Directive on Information Management (Reference F) states that metadata is a key enabler for effective and efficient sharing of information and requires NATO bodies to define metadata elements that will be used to describe information. For the purposes of the LL process, all observations and lessons should be stored with the following minimum set of metadata:

- **Submitter:** The person or organization that initially identified the observation. Ideally this will be an individual but at the least the originating branch or unit is needed. The submitter's command (the originator per Reference F) will also need to be included for lessons shared externally.
- **POC:** The person or branch that will manage the information after it has been submitted. This will usually be the LLSO.
- **Classification:** An appropriate classification for the observation. Give some thought to the classification of the observation. Ensure compliance with security guidelines but resist the temptation to over-classify: it may prevent you from sharing. If the submitter has already added a classification, review it. If it seems that the classification is inappropriate, go back to the submitter to get it changed.
- **Releasability:** An appropriate releasability to allow for the widest reasonable distribution. Again, think carefully, in particular about future opportunities to share the information contained in the observation. As with classification, the submitter will need to approve any changes to the releasability.
- **Date:** The date the observation was made. This will allow people to know how old the information is and to judge whether it is still current.
- **Title:** A statement that encapsulates the essence of the subject of the observation or lesson in such a way to give a reasonable indication as to the content. If the lesson template (Annex B) is used, this will be the same as the title for the observation.

### Other Useful Metadata

- |   |  |
|---|--|
| • Time  | • Impact: Mission critical, mission desirable, mission useful  |
| • Place, position or location   | • (Expected) Frequency of occurrence: Frequent, Occasional, Rare   |
| • Name of operation, exercise or experiment                           | • Levels: Political, Strategic, Operational, Tactical  |
| • Source: Direct observation, interview, instrumentation data, survey | • NATO lines of capability development: Doctrine, Organization, Training, Materiel, Leadership, Personnel, Facilities – Interoperability (DOTMLPF-I) |
| • NATO Main Capability Areas  |  |
| • Relevant NATO Task List item  |  |
| • Priority  |  |

## TOOLS TO CAPTURE AND MANAGE OBSERVATIONS

A tool should be used to support the collection of observations to ensure that observations can be collated, processed, prioritized, and shared. The tool used should be as simple as possible and should complement the organization's procedures for processing and sharing information. Some units favour a notebook for recording observations. This approach is simple and inexpensive, but software solutions offer alternatives that can make tracking, processing and sharing observations easier.

### Choosing Software Tools for Gathering Observations

*When considering software tools to support observation collection, the following questions should be addressed, in addition to the usual cost and maintenance considerations:*

- Is the software easy to use and familiar to users?*
- How will the observation collection capability be deployed: stand-alone PCs; over a local area network; over a wide-area network; over the Internet?*
- Will files need to be centrally accessed or circulated?*
- What are the bandwidth requirements and file sizes?*
- Will the information remain current? How will versions be controlled?*
- What contributing and editing rights and limitations are required?*
- What browsing, filtering and sorting capabilities are needed?*
- Can searches be performed readily?*
- Can the information be updated easily?*
- Can supporting information such as images be attached?*
- What report generation capability is needed?*
- What staffing processes will need to be supported by the software?*

The following list suggests some potential options and highlights their advantages and disadvantages.

### Web-Based Systems

*Microsoft SharePoint Server* and similar systems are web-based content manager systems. The use of *SharePoint*, when and where available, is probably the best way to collect observations because it has *webparts* which make it easy to create a simple form for collecting observations that can be used over an internal network or the Internet. Observers can simply click on a link, enter the data, and submit the form. Observation records will be automatically time stamped and tagged with the submitter's log-in name. *SharePoint* can automatically export the submitted observation to *Microsoft Excel* or *Microsoft Access* for further processing. The NATO LL Portal, accessible via the JALLC website, is based on *SharePoint* technology.

### Observation Collection Program

NATO's Observation Collection Program (OCP) is a *Microsoft Windows* application that allows observations to be entered in a systematic and easily-recoverable manner by individuals or teams. The software is freely available on the Internet via <http://www.jallc.nato.int/newsmedia/ocp.asp> or

on the NATO Secret network. OCP allows observers to input free text observations and associated discussions, conclusions and recommendations, categorize these observations with respect to lists, and exchange information with other observers.

Additional guidance may be found in the *OCP Quick Start Guide*, the *OCP Administration Manual* and the *OCP User's Manual*, and directly from IT support at the JALLC at [nllp@jallc.nato.int](mailto:nllp@jallc.nato.int).

#### Installing OCP

*On installing OCP, there is a default ADMIN account (username: admin) no password required.*

#### Microsoft Office Software

*Microsoft Word, Excel and Access* are simple and widely available tools that can be used to store and manage observations. Many users will be familiar with these tools and will have the software installed on their computer, encouraging easy sharing. Ease of use and familiarity are important considerations in encouraging people to submit observations. A short overview of the advantages and disadvantages Word, Excel and Access have for supporting observation capture follows:

##### Microsoft Word

**Advantages:** Familiarity; ease of use; ease of setting up; ability to store metadata in file properties; ease of sharing.

**Disadvantages:** Difficult to manage many observations; no filtering of observations; limited sorting of observations; limited search capabilities; poor data integrity protection.

##### Microsoft Excel

The JALLC has produced a Microsoft Excel workbook that uses a collection of macros to facilitate the entering, editing and management of observations. It is available for use by the NATO LL community by contacting the JALLC<sup>8</sup>.

**Advantages:** Familiarity; ease of use; ease of setting up; easy metadata tagging; powerful filtering, sorting tools; good search capabilities; easy to share.

**Disadvantages:** Merging independent data files is difficult; only 1024 characters display in a cell (in versions of Excel prior to Excel 2007); relatively poor data integrity protection (easy to delete and edit entries by accident).

#### Using Excel to Gather Observations

- Use columns for ODCR fields, rows for individual observations.
- Check out AutoFilter for filtering and searching (select the "contains" keyword in the custom AutoFilter).

<sup>8</sup> <http://www.jallc.nato.int>

### Microsoft Access

**Advantages:** A relational database can store lots of data very efficiently; excellent browsing, filtering, sorting and custom reporting capabilities; good data integrity protection.

**Disadvantages:** A relational database can be very complex to set up and maintain; majority of users will be less familiar with *Microsoft Access* than with other *Microsoft Office* applications; *Microsoft Access* is not a component of some *Microsoft Office* installations; potential problems with publishing *Access* database files to document handling systems (check with the system administrators if it is possible).

### The NATO Lessons Learned Portal (NLLP)

Many HQs use LL Databases to collect and store observations. The LL staffing area of the NLLP is a tailor-made piece of software that can be used to collect observations and facilitate their browsing, searching, filtering, sorting, reporting and archiving. However, it was primarily designed as a tool to support the staffing of lessons through the NATO Bi-SC LL process. Therefore, it may not be the most appropriate tool for simply collecting and storing observations.

## SUMMARY

### Capturing Observations

- Provisions should be in place for all personnel regardless of rank or branch to document observed problems, shortfalls and successes.
- Ideally, the person reporting an observation will attach their name to the observation. However, if a degree of anonymity is desired, provisions must be in place to identify the observation with the appropriate branch or unit to allow a clear basis for further staffing if required.
- Using the ODCR template to record observations enhances interoperability by allowing information to be shared.
- Post-event reports are an ideal source for observations and should become a part of the knowledge base for the next event's planners to use.
- Post-event interviews are a valuable way to capture lessons.

### Managing Observations

- Observations should be reviewed as soon as possible after capture to filter out unsuitable observations and allow for the capture of additional information.
- From the start of the process, attach metadata to the observations. Metadata will make finding and subsequently sharing information easier. Careful consideration should be given to the metadata used and metadata should be NATO UNCLASSIFIED or non-classified.

## Tools to Capture and Manage Observations

- Methods for collecting observations should be as simple as possible and should complement procedures for processing and sharing lessons.
- Software solutions can make tracking, processing and sharing observations easier. Whichever tool is used should be one that all users can and will use.

# 4

## ANALYSIS – OBSERVATION TO LESSON IDENTIFIED

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Once it is decided that an observation is suitable for inclusion in the LL process, the next stage is its transition from an observation to an LI. Analysis is generally completed in two stages: first to find root cause(s) and second to determine Remedial Action(s). This chapter will explore methods of analysis and walk you through the transition of an observation to an LI by discussing:

- How to Prepare for Analysis – is further analysis required? Which approach will you use? Do you need assistance? What additional information might you need?
- Visualization – What techniques can you use that will help you to see the patterns in your data?
- Analysis Techniques – What methods of categorization will help you to make sense of your data? What do the statistics tell you? How can you compare different potential solutions?
- How to Write Up the Lesson Identified – How will you document the results of your analysis such that you have an LI ready to take the next step in the LL process?

### PREPARE FOR ANALYSIS

#### How Mature are the Observations?

The first step in the analysis step is to examine the maturity of the observation based on the following check list.

#### **Checklist for Maturity of Observations**

*Examine all the explicit information written down in the observation. Try to answer all the following questions:*

1. Does the observation contain any causes of the observed issue (i.e. explanations of why the issue occurred)?
2. Do the explanations of the causes (i.e. why it happened) seem to be correct?
3. Are there no other immediately obvious explanations of why the issue occurred?
4. Does the observation contain a recommendation (solution) that would address the suggested cause of the observed issue?
5. Are there no other immediately obvious possible solutions to address the cause?
6. Does the recommendation suggest an action body?

If the answer to **all** the questions in the checklist is **yes**, then the observation can be considered mature and no further analysis of the issue may be needed. Once the recommendation is written up as a Remedial Action and a suitable Action Body is identified, the observation can be considered an LI. The Remedial Action and Action Body should be clearly documented in the Recommendation field of the ODCR template.

However, if the answer to **any** of these questions is **no**, then the observation is considered to be raw and further analysis of the observed issue is required.

### Do You Need Help with the Analysis?

The analysis does not necessarily need to be carried out by professional analysts, but does require staff officers to look dispassionately and analytically at the issue to identify the root cause(s) of the problem. In some cases, observations may relate to issues which are outside the operational control of the originating organization. In others, the originating organization may not have the necessary resources or subject matter expertise to address the issue. It is important to recognize when such observations occur, and request analysis through the chain of command.

Within NATO, the JALLC performs joint analysis of operations, exercises, training events and experimentation. To obtain assistance from the JALLC with the analysis of a specific issue, propose a joint analysis requirement to either SHAPE or HQ SACT. JALLC can help you to develop a joint analysis requirement relevant to your specific issue. If the work is determined to be a priority, JALLC will be tasked with the analysis, through either the biannual JALLC programme of work or an emergent joint analysis requirement. Additionally, JALLC analysts are available to provide advice and assistance regarding analysis tools and techniques. This assistance can be coordinated through the JALLC Lessons Learned and Analysis Support (LLAS) Branch, by email at [tlcgp0010@jallc.nato.int](mailto:tlcgp0010@jallc.nato.int).

JALLC holds a week-long analyst training course twice a year, usually in April and September. These courses are designed to train military analysts assigned to the JALLC on the LL analysis process. However, the course content is relevant to LLSOs and there are a limited number of seats available to external participants. The POC is JALLC Plans & Programming Division, by email at [tlcgkx0030@jallc.nato.int](mailto:tlcgkx0030@jallc.nato.int).

### General Approach to Analysis: Deductive or Inductive Reasoning?

There are two broad methods of reasoning that can guide your analysis approach; deductive and inductive reasoning. For each approach, the ultimate goal is to determine the root cause(s) for the issues described in observations.

Deductive reasoning or the “top-down” approach (Figure 3) begins with a theory based only on facts shown in observations. From this theory one or more hypotheses are deduced that can be tested by further observation. If the hypotheses are supported by the results of the test, it suggests the original theory is correct. In this way, the deductive approach leads from a general theory to more specific conclusions.

Conversely, inductive reasoning (Figure 4) is a “bottom-up” approach where many specific observations are analysed to find patterns or trends. Patterns are then analysed to form a hypothesis, and the hypothesis eventually facilitates development of a theory. Through this approach, more encompassing theories may be formed from a number of observations that would otherwise appear unrelated.

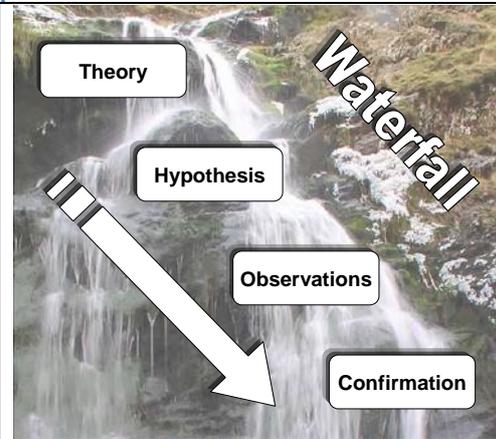


Figure 3: Deductive reasoning

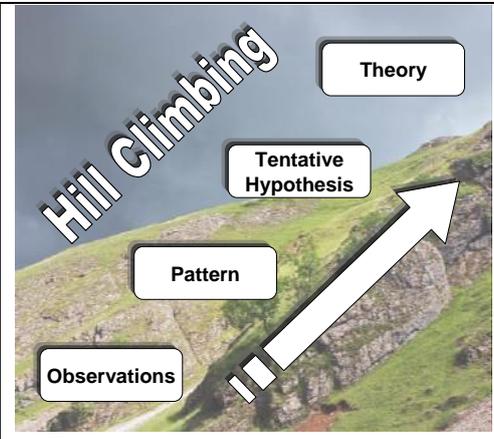


Figure 4: Inductive reasoning

Analysis in the LL process often follows an inductive approach, where patterns that suggest a hypothesis emerge from observations. The hypothesis is then tested to arrive at a theory regarding root causes for issues described in the original observation.

#### Do You Need More Information?

The inductive approach may require more observations or more information about the observations before patterns can be found. For this reason, you may be required to collect additional data to facilitate your analysis.

One way of collecting additional information is the use of interviews. The Joint Analysis Handbook (Reference G) provides guidance on interview techniques. There are three general types of interviews described: structured, semi-structured and unstructured. The use of structured interviews is recommended when gathering information for LL analysis. Structured interviews use standardized questions that are identical for each interview. In this way they are similar to questionnaires or surveys, except the interviewer guides the interviewee through each of the questions and records the responses.

#### Interview Good Practice

*When conducting an interview, start by trying to establish a good relationship with the interviewee. Explain how the interview contributes to the bigger picture. Close the interview by asking “is there anything else you had hoped I would ask?” or similar.*

Questionnaires are another way of collecting additional data that are usually used when you wish to collect the same information from a large number of respondents. When additional data is needed about an observation provided by an individual, questionnaire-style data collection is usually not as effective as a structured interview – use a structured interview instead.

### Questionnaires

*When considering deploying a questionnaire to obtain the same information from a number of respondents, remember that a return rate (i.e. the ratio of questionnaires completed to questionnaires sent) of more than 20% is good!*

Preparation is critical for success: A data collection plan should be prepared prior to the interview or questionnaire and questions must be carefully designed to obtain the desired data. An interview process is further described in Annex D. The Joint Analysis Handbook (Reference G) and Research Methods for Business Students (Reference H) are good resources for developing interviews and questionnaires.

## VISUALIZATION

Diagrams provide an easy way to visualize information and explore relationships that would otherwise not be apparent. The Joint Analysis Handbook describes various data visualization models that can be used to facilitate further analysis. Most commonly used in LL analysis are:

### Cause and Effect

The cause and effect diagram (*Fishbone* chart or *Ishikawa* chart) is used to:

- Focus attention on one specific issue.
- Organize and display graphically the various theories about what the root causes of an issue may be.
- Show the relationship of various factors influencing an issue.
- Reveal important relationships between possible causes.
- Provide additional insight into process behaviours.
- Focus the analysis on the causes, not the effects or symptoms.

### Flowcharts

Flowcharts are used to represent a process broken down into less complicated sub-processes. By describing only a limited number of steps or activities at any one stage, the overall process becomes more manageable and understandable. Cross-functional flowcharts (“swim lanes”) are used to illustrate which part of an organization performs particular activities or functions, and are useful in understanding organizational relationships.

### Influence Diagrams

Influence diagrams, or systems diagrams, are particularly useful in identification of logical relationships that may exist within the observation data and for mapping the logical thought process.

## ANALYSIS TECHNIQUES

The Joint Analysis Handbook and the Bi-SC Alternative Analysis Handbook provide instruction on conducting analysis using various techniques. The following section highlights some techniques that are easily applied to analysis in support of a LL process. Some techniques are better for finding root causes, some are better for developing Remedial Actions, and some can be used for both purposes. The techniques used can be adapted to meet your specific needs.

### Six Ws

Simply answer What, Where, When, Why, Who, How? This technique is easily understood and facilitates information gathering and investigation.

### Five Reasons Why / Five Times Why

This technique is a form of deductive reasoning that is often used to support root cause analysis. The technique can be used on an individual or group basis. It consists of the following steps:

**Step 1:** Clearly state the issue identified in the observation.

**Step 2:** Brainstorm five reasons why the issue occurred.

**Step 3:** For each of the five reasons, answer the question “Why has this happened?”

**Step 4:** Write down the answer to these question.

**Step 5:** For the answers given you should again ask why, repeating this step five times.

### Categorization

Categorization is an analysis technique which applies to *qualitative*<sup>9</sup> data such as observations. Very simply, it means grouping data so that structures and patterns start to emerge. The identification of the categories will be guided by the data that is available and the overall purpose of the LI investigation you are carrying out. Initially, it is likely that an inductive approach to the analysis will yield the initial categories. Further analysis may reveal relationships between categories and if they form a hierarchical structure, assisting your interpretation of the data.

Two categorization schemes proven to be particularly useful in support of the LL process are given in the following sections.

### Organization, Process, Technology Categorization

Organization, Process, Technology is a technique in which issues are categorized as a process issue, organizational issue, technology issue; or some combination of these. The act of categorizing an issue along these lines will often clarify ideas and help identify root causes.

### DOTMLPF-I Capability Categorization

Doctrine, Organization, Training, Materiel, Leadership, Personnel, Facilities – Interoperability (DOTMLPF-I) categories are used by NATO to guide capability development. Using DOTMLPF-I categorization is particularly useful when developing the Remedial Action, as it comprehensively covers considerations for developing or refining capabilities.

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<sup>9</sup> Qualitative: adjective, related to or measured by quality. Often contrasted with quantitative. Concise Oxford English Dictionary 11th Edition

## Statistical Analysis

### Where to Find Statistical Analysis Help

*The Joint Analysis Handbook (Reference E) gives information about statistical analysis. Additionally, Excel provides information in its Help file (press F1 or select the help menu and search for “statistical analysis”). Also, do not hesitate to ask for help—for example, most professional operational analysts love to show off their prowess at statistics!*

Statistical analysis is a field of mathematics related to drawing conclusions about a large population based on limited sample data. All LLSOs should have some familiarity with statistical methods and be able to summarize data with descriptive statistics.

### Basic Statistics for a LLSO

A LLSO should have some understanding of:

- *The distinction between qualitative variables (either categorical, e.g. military services, or ordinal, e.g. military rank) and quantitative variables (numbers).*
- *Descriptive statistics including: range, mean, mode, median, standard deviation, quartiles, etc., and how to find them using a calculator or a spreadsheet application.*
- *Proportions, ratios, and percentages.*
- *Data representation using pie charts, bar charts, histograms and x-y scatter plots and determining which is most appropriate for your data.*

## Six Thinking Hats

The six thinking hats method is used to explore an issue using the six main modes of thinking, ultimately giving you different points of view. A technique for a group, it supposes the existence of six hats in different colours, each one representing a different way of thinking. When you figuratively put on one of the hats, it is mandatory to think only in that particular way. Each person selects a hat and ideas are discussed. Hats are then changed until everyone in the group has worn all six hats. At the end of the session, the participants record their ideas and apply them to solving the problem.

## Plus/Minus/Interesting

Plus/Minus/Interesting is a variation on the more common advantages and disadvantages technique, by introducing a third category: interesting. The interesting category is used to record all possible outcomes and implications of adopting a strategy, whether positive (advantage), negative (disadvantage), or uncertain.

## Pairwise Comparison Analysis

Pairwise comparison is used to support course-of-action analysis and compares each possible pair of possible solutions (courses of action) against a number of factors. It is a good way of weighing the relative importance of the different courses of action against one or more factors and is useful when priorities are not clear.

### Where to Find Analysis Help

*Formal analysis is a huge subject area and the methods described above represent just a small selection of techniques that are useful to support a LL process. There are many, many others that you may want to think about. Helpful resources include: the Joint Analysis Handbook (Reference G) which you can download from the JALLC website at [www.jallc.nato.int](http://www.jallc.nato.int); Research Methods for Business Students (Reference H); the Mind Tools website at [www.mindtools.com](http://www.mindtools.com); the Bi-SC Alternative Analysis Handbook (Reference I) or Wikipedia at [www.wikipedia.com](http://www.wikipedia.com). Always remember that a bit of thinking and common sense will always go a long way to solving issues.*

## WRITE UP LESSONS IDENTIFIED

The aim of the analysis step is to provide an explanation of why the issue described by the observation occurred—i.e. the root cause—and provide a solution to fix the issue. After the analysis, the ODCR template can be completed to record the resultant LIs. Additional guidance on using the ODCR template can be found in Annex B.

### How to Complete the O-D-C-R Template

**Observation:** *What actually happened? Stick to the FACTS!*

**Discussion:** *What was supposed to happen? What happened before or during the observation that you think caused the difference between what was supposed to happen and what actually happened? Provide as much evidence as possible to support your view that these are the true root causes.*

**Conclusion:** *What have you learned? You have learned that when what you described in the discussion happens, you end up with what you described in the observation.*

**Recommendation:** *What do you recommend should be done to ensure that others throughout the organization can benefit from what you've learned? Describe the remedial action and specify the action body.*

## SUMMARY

- In order to transition an observation into an LI, analysis must be conducted to determine the root cause(s) and to seek a solution (a Remedial Action that an Action Body will carry out).
- Preparing for analysis involves identifying which observations need analysis, whether you need help with the analysis, what analysis method you will use and what additional information you might need.
- Diagrams provide an easy way to visualize information and explore relationships that may otherwise not be apparent.
- The techniques used for analysis will vary and depend on each individual LL process. Several resources are provided for further information and/or assistance.
- The results of your analysis are documented LIs that are ready to be taken into the next step in the LL process.

## 5

## STAFFING LESSONS IDENTIFIED TO LESSONS LEARNED

Once an LI has been generated with a suitable proposed Remedial Action and associated Action Body, effort will focus on making it into a Lesson Learned rather than leaving it to be merely a lesson admired. Staffing LIs to Lessons Learned relies on everyone involved—leaders, stakeholders, and LL practitioners—following the basic principles of cooperation, coordination and communication.

### Cooperation, Coordination, Communication

**Cooperation** is critical in ensuring that those bodies involved in learning a lesson play a full part and assist in achieving progress;

**Coordination** demands from each body to plan and deconflict their efforts effectively to ensure a timely and effective management of their work;

**Communication** will facilitate this and ensure that all bodies are informed on progress. It will allow others visibility of nascent lessons to begin to appraise them before formal change takes place.

The task of turning an LI into a Lesson Learned can be thought of as a project and, as with any project, successful completion will require good project management. This chapter introduces project management considerations for staffing an LI to a Lesson Learned and looks at the steps involved. Specific consideration is given to the following:

- Project Management Considerations
- Endorsement and Tasking
- Implementation and Monitoring
- Tools to Support Staffing an LI to a Lesson Learned

### PROJECT MANAGEMENT CONSIDERATIONS

Project management best practices can be applied to improve the effectiveness of staffing an LI to a Lesson Learned. NATO has adopted the PRINCE2 approach as its project management standard. You can tailor the PRINCE2 approach to meet the project management needs of your organization when it comes to staffing LIs to LLs.

#### Where to Find PRINCE2 Help

Although the formal PRINCE2 approach is only applicable to the learning of individual lessons, i.e. implementing Remedial Actions, and not to management of an overall LL process, knowledge of the basic principles is valuable to LLSO. [www.prince2.com](http://www.prince2.com)

The following PRINCE2 *themes* warrant some consideration in the context of a LL process:

- **Business Case:** *Answers the question why?* The business case is the *reason* for carrying out the Remedial Action. It reflects what

the leadership desires as the outcome of the Remedial Action phase and therefore is worthwhile spending valuable time, effort, and money to achieve. Therefore, the business case should be clear from the information given in the LI discussion and conclusion. However, it may be necessary to monitor the business case continually over the progress of the Remedial Action to ensure that it remains valid; for example, the release of an updated NATO policy document may mean the issue is overtaken by events.

- Organization: *Answers the question who?* Who will oversee the Remedial Action? How will the Remedial Action be managed? What resources are required to carry out the work that is needed to complete the Remedial Action? Where will the resources come from?
- Quality: *Answers the question what?* How will you ensure the project achieves the necessary level of quality? How many checks and balances are needed? What requirements should the Action Body meet to prove the quality of the solution?
- Plans: *Answers the questions how, how much and when?* What level of detail is realistically needed? What are the significant milestones that can be monitored?
- Risk: *Answers the question what if?* What risks may prevent the Remedial Action from being achieved successfully? What is the probability and severity of those risks?
- Change: *Answers the question what's the impact?* What controls need to be in place to be able to observe and respond to any issues that arise during the Remedial Action process e.g. the final completed Remedial Action is of a lower quality than originally anticipated?
- Progress: *Answers the questions where are we now, where are we going, and should we carry on?* What mechanisms are needed to monitor and compare actual achievements against those planned? What tolerances (if any) need to be set for time, cost, scope, risk, quality and benefits of the Remedial Action? What reports are needed?

Other considerations that have proved important in the military environment are:

- Leadership support: Leadership support is critical in the endorsement of the Remedial Action and tasking of the Action Body. Without command direction on the Remedial Action and Action Body, the lesson will likely stall in the LL process as the organization will fail to complete the action necessary to 'institutionalize' the learning. The leadership should take ownership of the 'business case'.
- Clarity of roles and responsibilities: Participants must understand their roles and appreciate how they fit into the LL process. Care should be taken to ensure the process is easily understood and adequately explained.
- Prioritization of resources: A process of prioritization of LIs will help to ensure leaders are able to make informed decisions

regarding how many resources to allocate to turning an LI into a Lesson Learned.

- Method of communication: Communication of information must be simple, accessible, and timely. Part of the communication process may involve setup of an archive for LL information that will be accessible to all who need it.

## ENDORSEMENT AND TASKING

The endorsement and tasking of an Action Body to complete the Remedial Action is the first step in turning an LI into a Lesson Learned. Specifically:

- Endorsement of a lesson means it has been approved by the authorized decision-making body. This implies a process of review that includes checks for completeness and accuracy with respect to root cause(s) and consideration of recommended Remedial Action(s).
- Tasking of an Action Body means an Action Body is selected and will be responsible for implementing the Remedial Action. It is important to consider at this point who has the authority to task an Action Body. The level of authority required will vary depending on the authority needed to execute the Remedial Action. It is important that the LI is elevated to the appropriate level to ensure that the Action Body will have adequate authority, jurisdiction, etc.

The LLSO's role in supporting endorsement and tasking will usually be to prepare LIs for presentation to the decision makers and to coordinate and administer meetings where endorsement and tasking takes place.

## IMPLEMENTATION AND MONITORING

Once endorsement and tasking is complete, it is time for implementation and monitoring of the Remedial Action. The Action Body tasked with the Remedial Action should develop a Remedial Action plan for implementation. To assist in the monitoring of the Remedial Action plan, a small number of significant milestones should be defined. The leadership should monitor these key milestones to measure success of the Remedial Action plan implementation.

The LLSO's role in supporting the implementation and monitoring will usually focus on monitoring. You will usually be responsible for knowing the status of all Remedial Actions being implemented and keeping leadership informed of any cost, schedule, or management risks to implementation (the PRINCE2 *Change* and *Progress* themes).

## VALIDATION

Validation in the context of the NATO Bi-SC LL process is the act of ensuring the completed Remedial Action has correctly addressed the original issue observed. The process and level of effort required to validate will be determined on a case-by-case basis. Factors to consider include:

- Impact of the Remedial Action: Remedial Actions affecting mission-critical items may require more in depth validation before being deployed.

- **Extent of Remedial Action:** Remedial Actions with potential wide-ranging effects may require more in depth validation.

#### **Remedial Action Pitfalls**

*The Remedial Action process is susceptible to many risks that can delay or halt completion of the Remedial Action. Common pitfalls include inappropriate or circuitous business processes, lack of quality staffing, lack of adequate resources, and lack of adequate training for staff involved in the process. Leadership engagement greatly mitigates these risks. Where leadership engagement is good, LLSOs will have a direct line of communication into the command group and ideally work directly for their organization's Chief of Staff.*

In most cases, a third party SME (i.e. independent of the Action Body) should be consulted to evaluate whether the Remedial Action has had the desired effect. Expert validation is often sufficient to accept the Remedial Action and in this case an in-depth validation by further analysis or experimentation is not required. If in-depth validation is needed, a request should be made to external agencies to support analysis or experimentation to assess whether the lesson has been learned.

The maritime LI example presented in Annex C is a good real-life example of the value of a planned validation process; interestingly, the initial validation for this example demonstrated that the Remedial Action taken had not actually fixed the observed original issue so a second iteration of implementing a Remedial Action was necessary.

### **TOOLS TO SUPPORT STAFFING LESSONS FROM IDENTIFIED TO LEARNED**

Throughout the LL process, a structured means to track and document progress of lessons is needed. When a Lesson Learned is achieved, it should be recorded as such in all supporting information and documentation; otherwise it can seem as if the organization is not learning anything.

Organizations create or adapt various tools for this purpose, including locally-developed spreadsheets and databases, formal command correspondence, and other task tracking systems. The LL staffing area of the NLLP is designed specifically to support this function across NATO organizations and nations.

#### **Locally Developed Spreadsheets and Databases**

The advantage of using a spreadsheet is that you can see all of the data in one go. This means that even if people are not very computer literate, they will be able to use the spreadsheet properly without too much difficulty. Spreadsheets can also filter data very simply using drop down menus so you can view only LIs with a certain status at any time. One of the disadvantages of using a spreadsheet with lessons entered as individual rows is that as the information to support the Remedial Action process is added to the basic ODCR template—e.g. Action Bodies, milestones, etc.—more and more columns get used and the sheet becomes increasingly unmanageable.

The advantage of using databases is that they generally have excellent form generation and reporting capabilities, and are relatively easy to customize and program. A common pitfall to using a database is that as soon as the person that developed it leaves the organization, it falls into disuse because there is inadequate supporting documentation and the overall design (e.g. the way the tables are set up) is not intuitive to an outside person.

### **Letters, Memos and Tasker-Tracker Systems**

The advantage of using letters, memos or tasker-tracker systems is that they are pre-existing means of communication within an organization. This means the LL process is leveraging existing infrastructure rather than requiring development of additional tools. Using these tools helps to integrate the learning of lessons into everyday business rather than as a special tasking. The disadvantage of using these tools is that they may not provide needed functionalities—such as the ability to attach lesson metadata. You should ensure that if you use these tools, it is mandatory for the letter, memo or tasker-tracker entry to specifically reference the LI to which it is related.

## **SUMMARY**

- Leadership engagement is key to the process of staffing an LI to a Lesson Learned. The appropriate level of leadership needs to be involved to endorse the lesson, task the Action Body and finally validate the lesson. Additionally, leadership's prioritization will initially determine whether the lesson will be staffed. Only adequate resourcing of the LL process will ensure success.
- The Remedial Action is a project which needs to be planned, managed, and resourced in order to be successful.
- It is important to have a tool that is easily understood and familiar to all users. Spreadsheets, databases and existing tasker-tracker tools provide possible means to manage the LL process.

## LESSON LEARNED INFORMATION SHARING



Requiem for a Lesson<sup>10</sup>

The value of a LL process is only realized when the information generated by the process is available to the people who need it, when they need it. LL information sharing generates organizational knowledge and leads to an enduring improvement in organizational performance. But not everyone is motivated to share.

### Barriers to Sharing

*Commonly-expressed reasons for not sharing include:*

- *Sharing negative experiences creates embarrassment and/or blame.*
- *It is not worth sharing until we have a solution.*
- *Sharing information is a risk: information obtained by the enemy could be used to exploit our weaknesses.*
- *Lessons can only be learned by doing: documenting experiences is a waste of time.*
- *The lessons are classified and we cannot change that to share them.*
- *Technical barriers hinder the free transfer of electronically stored information*

However, there are great benefits in overcoming these concerns and sharing. Sharing knowledge yields better results in both business and military environments. In military terms, this means both saving lives and succeeding in the mission. With proper information management, all of the above concerns are mitigated and become far outweighed by the benefits of sharing the information.

The LLSO is responsible for the organization's LL information sharing and will need to understand:

- Whom to share LL information with?

<sup>10</sup> Shamelessly lifted from Reference B

- When to share information and at what stage in the process do you share? What LL information to share?
- How to share LL information? Communities of interest, forums (working groups, conferences, etc.), training, tools (databases, wikis, etc.), publications (newsletters, reports, etc.)

This chapter answers these questions and can guide you in making your organization's LL information sharing as effective as possible.

#### **The Power of Sharing Knowledge**

*If you want to be convinced about the power of sharing knowledge, visit [www.knoco.com](http://www.knoco.com) and read about the Bird Island exercise!*

## WHOM TO SHARE LL INFORMATION WITH?

In sharing a Lesson Learned, it is not enough to simply publicize it. Some consideration must be given to who will benefit from the lesson, and this group is referred to as your target audience. Care should be taken when sharing lessons to ensure relevance to the target audience and therefore promote effective learning. The way you present LL information to a general who needs the information to make a command decision that will affect the entire organization will need to be different to the way you present LL information to a corporal who needs the information to improve his own daily working practices.

#### **Audience is everything**

*The target audience is your primary consideration for information sharing. For example, a lesson about an internal administrative practice unique to a small command may be of little consequence to an audience of NATO troops engaged in pre-deployment training. By the same token, a tactical observation likely to recur across NATO that could prevent combat deaths would be of limited use to an audience of administrators.*

Lessons are a valuable input to operations and exercise planning processes and training; the use of lessons in these areas should be routine.

#### **Application of Lessons**

*In a military organization, lessons must not be perceived solely as outputs from operations, training, exercises and experiments—the last bit of tedious administration work before rest and recreation. The greatest importance of lessons lies in their subsequent exploitation as input to improve the preparation of future activities. The emphasis should be on the application of LLs rather than the collection of lessons.*

Different audiences will have specific requirements:

- Exercise Planners: Exercise planners should review previous lessons during the exercise planning process. They form the groundwork for the exercise planning process described in the Bi-SC Exercise Directive (Reference E). Lessons most relevant to this audience are likely to come from Lessons Identified Action Plans, the Lessons Identified List, and the Remedial Action Report from previous exercises. Operational lessons should be incorporated if possible.

- **Operations Planners:** Operations planners should review and apply lessons in the preparation, planning and conduct of operations. Lessons most relevant to the audience are likely to come from previous operations.
- **Training:** Trainers will need access to lessons from both exercises and operations to incorporate immediately into pre-deployment training. It is particularly important that lessons are communicated in a timely fashion to follow-on forces during their pre-deployment training.

**General James N. Mattis USMC, former SACT**

*“...There is no reason to send troops into the fight and get them killed when a Lesson Learned the month before could be sent to a commander who could have used it for training...” 16 January 2009, All Hands Call*

## WHEN TO SHARE?

In accordance with Bi-SC Directive 080-006 (Reference C), sharing is not a single event in the LL process but something to be commenced as early as possible and to be repeated frequently throughout the whole process.

LL information sharing can occur at any time during the LL process, not just as the last step or as part of Remedial Action implementation. Additionally, it may involve sharing information that is not formally part of a LL process such as after action reviews, periodic mission reports, first impression reports, final exercise reports, trip reports, hot wash up output, meeting minutes, etc.

### **Security: Need to Know versus Responsibility to Share**

According to NATO Information Management Policy<sup>11</sup>, information should be managed with an emphasis on sharing, balanced by the considerations for security.

LL information is no different. Although sharing lessons relating to capabilities (or supposed vulnerabilities) may, when not managed properly, result in inadvertent disclosure of classified information to someone who does not have a “need-to-know”, the risk of unauthorized disclosure must be balanced against the benefit that could be achieved through well-managed sharing. In multinational units or where nations work together with adjacent areas of responsibility (e.g. as was the situation during International Security Assistance Force (ISAF) operations), “responsibility-to-share” is particularly important. Knowledge represented by lessons must be shared as effectively as possible among nations to improve the effectiveness and safety of all units involved.

### **Good and Bad Practice**

When a good practice is noted, there is a natural desire to tell everybody about it immediately. This is understandable, but should be done with caution until the practice has been analysed properly to determine the conditions and circumstances where it is valid, and how it can be

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<sup>11</sup> North Atlantic Council, NATO Information Management Policy, 11 December 2007, C-M(2007)0118, NATO Unclassified.

'institutionalized' smoothly. The danger with sharing good practices too early is that people may assume this is enough to reach a Lesson Learned and then take no further action to 'institutionalize' them. Simply sharing a good practice will not ensure the lesson is learned.

Conversely, there may be a natural desire to hide or minimize ineffective or detrimental practices, or to blame negative outcomes on human error rather than ineffective tactics, techniques, or procedures. A significant part of your role as LLSO will be to encourage the reporting of mistakes, while making the distinction between simple human error and more systemic problems. When an ineffective or detrimental practice is concealed or minimized, it denies others the opportunity to learn from it, and it restricts the opportunity to use knowledge or insights gained through experience to improve.

### Quality of LL Information

Different types of LL Information have different levels of quality. Quality is dependent on the maturity of the information with respect to the LL process, in other words the amount of analysis and scrutiny it has undergone. The level of quality will affect your inclination to share the information as well as its utility to your target audience. Examples of information at differing levels of quality include:

- Low quality LL information: Raw observations, good practices, hot wash up output.
- Medium quality LL information: Newsletters, mature observations, LIs, first impression reports.
- High quality LL information: Lessons Learned, LL analysis reports, handbooks, Final Exercise Reports, Lessons Identified Lists, Lessons Identified Action Plans, After Action Reviews.

You will probably be less inclined to share low quality LL information, because you may not be as confident in the veracity of the information. Low quality LL information may be incomplete or factually incorrect, but that does not necessarily mean it has no value. The important thing to remember is to disclose the reliability and maturity of the information to others to ensure they can use it appropriately. Low quality LL information may be useful to others as a starting point for further planning, experimentation, testing, etc. However, it should not be acted on without appropriate scrutiny or due diligence, as doing so might be at best wasteful and at worst dangerous. Provided the people you are sharing with are aware of the quality of your information, they will be able to make informed decisions about how to best use that information.

### HOW TO SHARE LL INFORMATION?

Consideration needs to be given to the *pushing* and *pulling* of information. Pushing information means that new information is actively sent out to consumers or subscribers as it becomes available, while pulling information implies that consumers have to regularly check to see if new information has become available. An example of pushing information is the distribution of newsletters and the sending of e-mails to subscribers when something happens like the posting of new information on a portal. An example of pulling information is publishing it to a database where people are expected to go to find the information

without being alerted that new or updated information has been published.

Most organizations will choose to use a combined push and pull approach whereby there are procedures to ensure that high-impact, high-priority, urgent information is pushed to the appropriate people quickly and lower-priority issues are automatically stored somewhere until the user chooses to check for updates. An example of the use of combined push/pull would be a change to force protection alert level that is sent via radio to all force protection personnel in the area (push) but at the same time is updated on a website that people visit to check for updates (pull).

### **Communities of Interest**

Communities of interest engage in socialized learning and are groups of people who have common goals interacting with each other. In the military context, opportunities to interact include conferences, working level meetings, working groups and, of course, direct communication.

There are a number of benefits to participating in a community of interest, including:

- Solving problems.
- Developing new capabilities.
- Leveraging best practices.
- Standardizing practices.
- 'Institutionalizing' best practices.
- Time saving.
- Increasing skill sets.
- Avoiding mistakes.
- Creating new knowledge.

There are, however, a number of obstacles to participating in a community of interest, including the releasability and classification of information, technological problems such as connectivity, and 'institutional mindset' against information sharing. Making personal connections (i.e. networking) significantly enhances your ability to share information. Personally knowing and trusting the individual from whom you are asking for information, or to whom you are sending information, helps information sharing. Much sharing of lessons, particularly across national boundaries, is via informal social networks (the community of interest) rather than through chain of command and established liaison channels.

Many communities of interest are supported by forums that allow them to share their experiences. Participating in forums allows for reinforcing personal contacts to encourage the sharing of information. Examples of forums include training events, conferences, working groups, etc., or virtual forums online, including discussion groups and blogs.

- Formal and informal conferences not only provide information but also offer the opportunity to network with fellow members of the community.

- Working groups are generally focussed on specific areas, subjects or stakeholder groups, for instance the NATO Bi-SC Medical LL Working Group.

### Request for Information Service

Some organizations offer a request for information service, where individuals requiring information on a particular topic can make a request and the LL branch will search the LL information they have in order to respond to the request. The ability to respond to the request will often depend on finding the right POC within the organization. For this reason you should maintain a database of SME POCs within your organization. The JALLC maintains a central database of LL POCs across the NATO Command and Force Structures who may also be able to assist you in responding to a request for LL information<sup>12</sup>. JALLC also holds LL POC details for some NATO, Partner and Troop Contributing Nations.

### Training

Training events at the beginning of rotations into theatre, at the beginning of exercises, or as part of in-processing into a new billet are good opportunities to engage staff on the benefits, opportunities and requirements of a LL process as well as to inform staff about the latest lessons from the field. In Kosovo Force (KFOR), incoming personnel attend several days of briefings and orientation activities which introduce them to their tour of duty. This is an ideal opportunity to share with staff the lessons from previous rotations.

### Information Technology

There are several information technology tools that support the sharing of lessons and information, including:

- Portals.
- Databases, for example the database in the NLLP.
- Knowledge repositories such as wikis.
- Blogs.

A technology solution can provide easy access to many different types of LL information. However, it will only be as good as the information it contains. It is critical that procedures exist to ensure that it is populated with up-to-date, relevant information that is useful to staff in their work. Furthermore, a software tool can never alleviate the need for staff officers to expend effort and thought in the intellectual pursuit of learning lessons.

### Publications

In addition to routine reports (e.g. After Action Reviews, Periodic Mission Reports, Final Exercise Reports, etc.), there are several ways to ensure LL information reaches those within and external to your organization. You may compile information into regular:

- Newsletters.

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<sup>12</sup> The Bi-SC LL Directive 080-006 requires all NATO Command Structure bodies to inform JALLC of nomination of their LL POCs.

- Reports.
- Booklets/Handbooks/Leaflets/Posters.
- Email Blasts.
- Blogs/Bulletin boards.

## SUMMARY

### Whom to Share With

- Carefully select the target audience to ensure relevance and thereby promote effective learning.
- Lessons are a valuable input to operations and exercise planning processes and therefore operations and exercise planners are one target audience for an organization's lessons.
- Lessons are a valuable input to training and so trainers are another target audience for an organization's lessons.

### When and What to Share

- Sharing knowledge improves organizational and individual performance and proper information management should help to overcome concerns regarding sharing.
- LL Information can be shared at any time, as long as it is clear what level of quality it has.
- An emphasis on "responsibility-to-share" should be balanced with the security principle of "need-to-know".

### How to Share

- Consideration needs to be given to the *pushing* and *pulling* of information. Pushing actively sends out new information to individuals as it becomes available. Pulling requires individuals to regularly check to see if new information is available.
- Communities of interest engage in socialized learning and are groups of people who have common goals interacting with each other. Information may be shared within the community via forums, working groups and direct communications.
- A key factor in sharing information is making the effort to contribute and reinforcing personal contacts. Informal sharing via social networks can complement sharing through formal military channels.
- Training events are good opportunities to share recent lessons.
- Tools that support the sharing of lessons and information include databases, for example the NLLP, and knowledge repositories such as wikis and blogs.

# 7

## FINAL THOUGHTS

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Congratulations for taking the time to read this handbook which describes the essential elements of a successful LL process and highlights the importance of sharing LL information. We hope that you have found this handbook to be a useful and practical introduction to LL that has improved your ability to effectively and efficiently support LL in your organisation.

We wish to keep this handbook up-to-date with the latest policy, procedures, best practice, and innovation in the LL area, so that it remains a genuinely useful resource for everyone wishing greater competence in the learning of lessons. If you notice any problems with the handbook, or have any best practices or suggestions about how to improve it, please email them to [tlcpx0010@jallc.nato.int](mailto:tlcpx0010@jallc.nato.int).

### USEFUL LESSONS LEARNED POINTS OF CONTACT

- To contact JALLC for LL support, email [jattpoc@jallc.nato.int](mailto:jattpoc@jallc.nato.int)

### FURTHER LESSONS LEARNED INFORMATION

For further information on learning lessons in NATO, visit the NATO LL Portal at:

- Via [www.jallc.nato.int](http://www.jallc.nato.int) on the Internet
- Via the NATO Secret WAN

To learn more about LL processes and learning organizations in general refer to:

- The LL Handbook (Reference B)
- The Fifth Discipline<sup>13</sup>

To brush up on your analysis techniques in support of learning lessons see:

- The Joint Analysis Handbook (Reference G)
- The Bi-SC Alternative Analysis Handbook (Reference I)

For more information on project management best practice for staffing LI to Lessons Learned:

- <http://www.prince2.com>

To learn more about information management and document classification and releasability in NATO:

- NATO Security Policy documents<sup>14</sup>

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<sup>13</sup> Senge, P., The Fifth Discipline: The Art and Practice of the Learning Organization, 1<sup>st</sup> Edition, Doubleday Business, 1994, ISBN:9780385260954.

<sup>14</sup> [www.hq.nato.int/NOS/en/library/index.asp](http://www.hq.nato.int/NOS/en/library/index.asp) on NS WAN.

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## ANNEX A

### LL GLOSSARY

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The following definitions are derived from the fundamental NATO LL documents (References A, C and D) or as used for the purpose of this handbook:

Action Body	The organization or staff tasked with the implementation of assigned remedial action in association with a lesson identified. The action body develops an action plan to guide the remedial action activities.
Action Plan	The written plan of action and milestones developed by an action body to implement assigned remedial action for a lesson identified.
Analysis	The study of a whole by thoroughly examining its parts and their interactions. In the LL process, analysis should allow discovery of the root cause of a problem or success and identification of the appropriate remedial action to correct the problem and the appropriate action body to achieve the correction, or to sustain the success.
Best Practice	A “Best Practice” is a technique, process or methodology that contributes to the improved performance of an organization and has been identified as a ‘best way of operating’ in a particular area as compared to other good practice(s). Ideally, a Best Practice should be adaptive, replicable and immediately useable.
Endorsement	The decision of an appropriate NATO authority to approve and to commit resources to implement one or more of the recommended remedial actions from a lesson identified. Part of the Endorsement and Tasking step in the Remedial Action Phase of the NATO LL Process.
Gathering Observations	The step in a LL process of gathering issues identified for improvement that will be managed through the LL process. (proposed definition)
Implementation	For the LL process, implementation is the work of the action body to complete the tasked remedial action in accordance with the action plan. Implementation may include one or more action bodies completing a wide variety of actions across the DOTMLPF-I spectrum. Part of the Implementation and Monitoring step in the Remedial Action Phase of the NATO LL Process.
Lesson Identified (LI)	This is a mature observation with a determined root cause of the observed issue and a recommended remedial action and action body, which has been developed and proposed to the

	appropriate authority.
Lesson Learned	(n.) An improved capability or increased performance confirmed by validation when necessary resulting from the implementation of one or more remedial actions for a lesson identified.
Lessons Learned (LL)	(adj.) Of or relating to the processes, products and people that ultimately produce a Lesson Learned. (proposed definition)
LL Information	Any information that is generated as part of a LL process as well as information generated after activities that is not formally part of a LL process such as after action reviews, periodic mission reports, first impression reports, final exercise reports, trip reports, hot wash up output, meeting minutes, etc. (proposed definition)
Mature Observation	An observation for which there is already sufficient data and/or understanding to identify the root causes and thus requires no further analysis.
Metadata	A set of data that describes and gives information about other data. (Concise Oxford English Dictionary, 11 <sup>th</sup> Edition)
Monitoring	Performed by the tasking authority, the monitoring process tracks the accomplishment of the action body's action plan and the lesson identified remedial action implementation. Proper monitoring provides support to the action body, as needed, and ensures progress of the action plan and remedial actions are updated in the tools used to support the LL process, for example the LL staffing area of the NLLP. Part of the Implementation and Monitoring step in the Remedial Action Phase of the NATO LL Process.
Observation	A comment based on something someone has heard, seen or noticed that has been identified and documented as an issue for improvement or a potential best practice.
Raw Observation	An observation which requires further study or analysis to fully understand the root causes.
Remedial Action	An activity or set of activities that corrects an issue identified for improvement or facilitates the implementation of a best practice.
Tasking	The act of formally directing an action body to execute the remedial action from a lesson identified to correct an issue or to implement a best practice. Tasking is directed by an appropriate, authoritative NATO organization and usually includes a request for an action plan. To task multiple remedial actions, a lesson identified

	may require tasking from multiple levels in the NATO hierarchy. Part of the Endorsement and Tasking step in the Remedial Action Phase of the NATO LL Process.
Validation	When necessary, Lesson Learned validation ensures that the originally observed issue has been successfully corrected by the implemented remedial action. Validation requirements should be described in the action plan and may include additional analysis to determine if the remedial action has generated the desired effects (issue correction or best practice application) and, therefore, has resulted in measurable improvement.
Wiki	A website that allows the easy creation and editing of any number of interlinked web pages via a web browser. Wikis are typically powered by wiki software and are often used to create collaborative wiki websites, to power community websites, for personal note taking, in corporate intranets, and in knowledge management systems. (Wikipedia)

## ABBREVIATIONS

The following abbreviations are used in this handbook:

ACO	Allied Command Operations
ACT	Allied Command Transformation
AJP	Allied Joint Publication
Bi-SC	of the two Strategic Commands
CALL	US Center for Army Lessons Learned
CAOC	Combined Air Operations Centre
CEI	Capability Engineering and Innovation
CNAD	Conference of National Armaments Directors
DOTMLPF-I	Doctrine, Organization, Training, Materiel, Leadership, Personnel, Facilities – Interoperability
IMS	International Military Staff
IDLL	Innovation Doctrine and Lessons Learned
IS	International Staff
ISAF	International Assistance Force
JADL	Joint Advanced Distribution Learning
JALLC	Joint Analysis and Lessons Learned Centre
JATT	JALLC Advisory Training Team
JFC	Joint Force Command
KFOR	Kosovo Force
LI	Lesson Identified

## Notes

LL	Lessons Learned (adj.)
LLAS	Lessons Learned and Analysis Support (Branch)
LLOPR	Lessons Learned Officer of Primary Responsibility
LLSO	Lessons Learned Staff Officer
MC	Military Committee
MCM	Mine Countermeasures
NLLP	NATO Lessons Learned Portal
OCP	Observation Collection Program
ODCR	Observation, Discussion, Conclusion, Recommendation
POC	Point of Contact
PPE	Personal Protective Equipment
PRINCE2	Projects In Controlled Environments 2
SACT	Supreme Allied Commander Transformation
SC	Strategic Commander
SME	Subject Matter Expert
SOP	Standing/Standard Operating Procedure
SSC	Single Service Command
SWEDINT	Swedish Armed Forces International Centre

# ANNEX B

## LESSON TEMPLATE

---

### Title

The title should be brief but specific. It should give a reasonable indication as to content of the observation.

### Observation

#### Tip

*When capturing observations, only the observation field of the template is mandatory*

A short factual statement to describe what happened and how that differed from expectations. This statement can be positive (i.e. something that was observed to work better than expected or a work around) or negative (i.e. something happened that should not have or something did not happen that should have). Details should be presented in the discussion paragraph. Observations should be restricted to single issues. Multiple issues should be divided into separate observations and cross-referenced to each other in the discussion section.

**WATCH OUT!** Common errors include listing details better suited for the discussion, conclusion, or recommendation sections of the template, e.g. “Staff officers should work harder”, or including too little information, e.g. “Lesson 345 was not learned at all”.

### Discussion

The discussion explains how and why the observed issue differed from expectations. Reasons for success or failure and the circumstances surrounding the issue are discussed. The discussion amplifies the observation statement and answers the, “who, what, where, when, why and how,” questions about the observation. It should explore all the apparent contributory factors, i.e. the analysis of the observed issue. It can include the history of the event, the context and the environment, and any actions taken to work around a problem should be explained in detail. If a problem could not be solved explain why.

**WATCH OUT!** Resist the temptation to repeat the observation. Be as concise as possible, but be sure to include all data/information you expect to be necessary for further analysis.

### Conclusion

The conclusion is a summary statement of the lesson that has been learned from the experience and the investigation into the root cause(s) of the issues described in the observation and discussion. It is derived in a logical manner from the information contained in the observation and discussion.

**WATCH OUT!** Avoid too much detail, and make sure that the conclusion contains no new information. A common error is to make recommendations instead of sticking purely to conclusions about root cause(s). Ensure that the conclusion follows logically from the observation and the discussion: a good idea is to get someone else to read it and make sure they agree with your logic. Try starting off the conclusion with the phrase, “Therefore, we have learned that...”

### Recommendation

The recommendation should outline the suggested Remedial Action by providing explicit advice on what must be done to repeat the success or to avoid and/or solve the problem. Identify exactly what needs to be changed—new or modified publications, procedures, procurement of new equipment, change of the force structure, revision of command relationships, improved training, etc.—and how this should be done. The recommendation should also propose a suitable Action Body. The recommendation should follow logically from the conclusion so that if someone were to follow the recommendation, they would reap the benefit of the learning for themselves and their organization.

**WATCH OUT!** Common mistakes include rephrasing or repeating the observation or conclusion or any other paragraph. Also ensure that the recommendation follows directly from the conclusion.

### USING THE LESSON TEMPLATE

You may have noticed that the template described above, when completely filled in, contains all information required for an LI.

When capturing observations, all the five fields of the ODCR template need not be used. Only the observation field is mandatory. However, observation submitters should be actively encouraged to enter additional

#### Tip

*If writing down an LI, i.e. you already have a Remedial Action, try 'reverse engineering' the use of the ODCR template by writing down first the observation; second the recommendation; third the conclusion to support the recommendation; and fourth the discussion needed to go logically from the observation to the conclusion and recommendation.*

information and supporting evidence in the discussion field. This may increase the efficiency of a LL process as the LLSO may not have to go back to the submitter for more detail to generate the LI.

As an observation moves through a LL process, additional information is added to the ODCR template fields so that, when complete, an LI is the result. Some examples of LIs in the ODCR template format are provided

and discussed in Annex C of this handbook.

## ANNEX C

### SOME LI EXAMPLES

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This chapter gives some examples of LIs in the recommended ODCR template. Text boxes are used to discuss the way that they have been written.

#### JOINT EXAMPLE

##### Title

###### Title

*Title is kept short and concise.*

Lack of training for staff in Info Ops.

##### Observation

###### Observation

*Note that the observation describes exactly what happened.*

Info Ops cells at the operational and tactical levels lacked adequately trained staff.

##### Discussion

Info Ops within NATO is a military function to provide advice and coordination of military Information activities. The importance of appropriately trained Info Ops personnel has been raised to SHAPE by JFC Naples. This issue was raised by JFC Naples because current

###### Discussion

*The discussion starts with a bit of background and puts the observation into context—who raised the issue—and then mentions the appropriate covering policy. It then describes the analysis that lead to the identification of a possible cause of the issue.*

Military Committee policy is that NATO Info Ops training is needed prior to taking post and that on-the-job training is considered to be an unsatisfactory solution.

When Info Ops Course records were examined, it showed that most attendees only undertook NATO Info Ops training after arriving in post. The training sometimes took place many months after arrival in post. Further

investigation into why this situation occurred revealed that there was no stated requirement for Info Ops staff to have completed NATO Info Ops training in the relevant job descriptions.

##### Conclusion

###### Conclusion

*Does not simply repeat the observation. It describes the overall finding, the cause of the issue.*

One reason for a lack of adequately trained Info Ops staff is that training requirements for JFC Naples Info Ops staff are inadequately specified in relevant job descriptions.

**Recommendation**

*From the observation, the obvious recommendation is that Alliance nations should send adequately trained staff. However, in this instance, the job descriptions did not specify the training requirements properly.*

**Recommendation**

Job descriptions of Info Ops staff on the JFC Naples peace establishment should be reviewed to include in the essential requirements for the post completion of the NATO Info Ops training course. Action Body: JFC Naples Human Resources.

**MARITIME EXAMPLE**

**Title**

*Title is short and concise.*

**Title**

Minehunting planning and evaluation, fraction of mines buried.

**Observation**

**Observation**

*Note that the observation again describes exactly what happened.*

During minehunting clearance operation trials with different ships from different nations, the reported percentage clearances varied significantly.

**Discussion**

Several minehunters from the NATO Standing Group took part in a trial to investigate how well the parameter percentage clearance could be evaluated. Accurate percentage clearance values are essential to be able to determine the risk remaining from naval mines to follow-on shipping.

The trials were held over a period of days in the same area. A number of exercise mines were laid to provide targets for the minehunters. All the participating units used NATO doctrine and procedures to plan and evaluate their minehunting operations, supported by the standard NATO mine countermeasures (MCM) tactical decision aid MCM EXPERT.

The participating units used MCM EXPERT to plan the ordered clearance operation requiring a percentage clearance of 96% of the maximum achievable. The units were told to carry out their own assessment of the minehunting environment in the trials' area, On completion of the minehunting operation, the units used MCM EXPERT to evaluate the percentage clearance achieved and report the value.

**Discussion**

*The discussion provides a bit of a story and indicates how the conclusion was obtained. It is logical to follow.*

One of the factors contributing significantly to the widely varying reported percentage clearance (from 48.0% to 96%) was the different estimates of the parameter "fraction of undetectable mines due to mine burial". For example, one unit estimated this parameter as 50% while another unit estimated it was 0%. De-briefs of the operations officers from the units after the trials demonstrated that this parameter was frequently being misinterpreted as the fraction of mine case that was buried, rather than the fraction of mines that were totally buried. The relevant paragraphs of the supporting NATO doctrine were open to different interpretations as the wording was not sufficiently clear.

## Conclusion

### Conclusion

*The conclusion describes the overall finding, the cause of the issue.*

For the particular minehunting trials that were examined, the wide differences in the evaluated percentage clearance achieved was mainly caused by different interpretations of the parameter “fraction of undetectable mines due to mine burial”; because of the different ways that it is possible to interpret the explanation of this parameter in the supporting doctrine.

## Recommendation

### Recommendation

*Indicates what should be done to solve the problem.*

Re-write paragraph xx through to xx of ATP-XX to ensure that it is clear that the parameter “fraction of undetectable mines due to mine burial” refers to the proportion of mines totally buried and not to the proportion of the mine case that is buried. Action Body: Naval Minewarfare Working Group.

### Further information

*This was an actual Lesson Learned by the NATO MCM community. The relevant paragraphs of the supporting doctrine were re-written and another trial carried out in order to validate the re-wording. This second trial showed that even the new wording was open to misinterpretation. As a consequence, another rewrite of the offending paragraphs was done and a third trial used to confirm that this third draft had indeed solved the issue. This third draft appears in the Allied Tactical Publication today. The inclusion of this lesson in this Handbook is to demonstrate with a real example how the process of Validation works in a LL process.*

## LAND EXAMPLE

### Title

#### Title

*Title is kept short and concise.*

Personal Protective Equipment (PPE) effectiveness.

### Observation

#### Observation

*Observation succinctly describes exactly what the issue is.*

Some soldiers lost confidence in their PPE and so were not wearing it.

### Discussion

#### Discussion

*Explains the context, why the observed issue arose, and logically explains the root cause as a shortage of information rather than an equipment capability shortfall, which at first sight may be a more plausible explanation of the observation.*

When interviewed, many soldiers told anecdotes about having conducted their own informal testing of their PPE by firing at such items as chest plates and helmets. The resulting damage to the chest plates seemed to show that the equipment would not be effective. The rumours of PPE ineffectiveness quickly spread and some soldiers were not wearing their PPE as a consequence.

However, it was found that some soldiers did not understand that chest plates must operate as a system with the fragmentation vest in order to

function as designed: a chest plate by itself is not designed to stop any specific threat. In general, there appeared to be a significant shortage of information available to soldiers about the protective levels of the equipment and how it is designed to operate together as a system.

### Conclusion

Shortage of information about the way that PPE works as a system led to soldiers conducting their own misguided experiments on chest plates and drawing incorrect conclusions about the effectiveness of the kit.

### Conclusion

*Does not repeat the observation. It describes the overall finding, the cause of the issue.*

### Recommendation

Develop briefings to better educate soldiers about their PPE protection and how it should be used. Action Body: PPE Procurement Project Manager.

Deploy briefings to soldiers in-theatre immediately through Regimental Sergeant Majors. Action Body: Army Doctrine & Training.

### Recommendation

*There are four separate recommendations for two action bodies. After the development of the necessary training material, different actions are needed to cover the immediate and long-term requirements.*

Incorporate briefings into basic training. Action Body: Army Doctrine & Training.

Ensure that Regimental Sergeant Majors are aware of their responsibilities to reinforce PPE protection policy. Action Body: Army Doctrine & Training.

## AIR EXAMPLE

### Title

Submission deadlines for maritime air mission inputs to the Combined Air Operations Centre (CAOC) did not support Battle Rhythm.

### Observation

Sea-borne aviation units routinely send inputs for their maritime air missions to combat planners at the CAOC later than the deadline to support the 72-hour Air Tasking Order cycle.

### Observation

*Note that the observation again describes exactly what happened without presupposing any explanation.*

### Discussion

Air missions that originate from air-capable ships, whether or not they terminate on land or back at their origin, must be listed on the Air Tasking Order to permit deconfliction and prevent fratricide. Sea-borne units must send their mission inputs to planners at the CAOC no later than 72 hours in advance to ensure proper IFF (Identification, Friend-or-Foe) coding as allocated.

However, their inputs routinely arrive to the planners past the 72-hour deadline.

One of the main reasons for the delay was found to be caused by difficulties inherent to the maritime environment with classified internet connectivity. Satellite communications connectivity is required for units to deliver these inputs to the CAOC. Outages or the environment can hamper these communications and cause delays. There are no liaison officers from the larger maritime air units at the CAOC to collaborate on mission planning in the event of a communications blackout.

Another main reason for delays is training. Special Instructions for aviation units in the Operation Order explain the formatting and deadlines for mission inputs. However, the composition of these maritime air units is varied and can range from a full, 50-aircraft carrier air wing to two-plane helicopter detachments. Many of the smaller units were found to not understand the formatting and deadline requirements, leading to several last minute changes and past-due delivery of their inputs.

**Discussion**

*The discussion describes what is expected, then explains why what was observed may be different.*

**Conclusion**

Mission input delays from maritime aviation units are caused by communications problems and a lack of training. There is currently no contingency plan should a communications interruption occur.

**Recommendations**

Larger maritime aviation units should send liaison officers to the CAOC with pre-planned responses on how to plan the maritime air missions based on a longer-term schedule. These liaison officers must also understand and be able to plan for the smaller shipboard units under their purview.

Action Body: Maritime Air Wing Commanders

Training is needed for aviation personnel on air planning procedures, including formatting and deadlines, prior to deploying to theatre.

Action Body: Pre-deployment training units

## ANNEX D

# INTERVIEW PROCESS

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(Shamelessly taken from Nick Milton's *The Lessons Learned Handbook* (Reference B), pp 41-43.)

A common task for the LLSO is likely to be gathering further information about observations in order to be able to develop them into LI. If there is time, this is best achieved through interviews with the person or people who submitted the original observation. Using the following process will give you the best chance of leaving the interview with all of the information you need.

### Process Overview

Think of the parts of the interview as parts of a tree that you are trying to explore during the interview. The trunk is the basic purpose of the interview, based on the original observation. The branches are all of the issues surrounding the observation that you would like to explore more. Each branch then needs to be explored to find its root causes. Finally, you can pick the fruit at the end of the branch—that is, get the interviewee's expert opinion about how the organization can learn from the experience.

### Step 1: Introduce the trunk

You will first need to introduce yourself to the interviewee and explain what it is you are trying to achieve from the interview. Remind them of the observation that the interview will be based on and give them an opportunity to say a little about their background with respect to the observation.

### Step 2: Identify the branches

Then ask a number of questions to identify what learning came out of the observation. These should be "what" questions in the past tense such as:

- What were some of the key issues?
- What were the success factors?
- What worked well/didn't work well?
- What were the challenges and pitfalls?
- What would you approach differently next time?

### Step 3: Explore root causes

Then for each of the branches from step 2 that seem interesting, explore the root causes using "how" and "why" questions or using the "5 Times Why" technique described in Chapter 4. Use open questions such as:

- Why do you think you were so successful?
- What did you put in place to ensure success?
- What was missing that caused that to happen?
- What makes you say that?

- Can you explain how you achieved that?
- Can you tell me about that?

**Step 4: Pick the fruit**

When you think you understand what the learning is, get the interviewee to help you to identify some useful ways ahead. Ask questions like:

- What would be your advice for someone else doing this in the future?
- If you were doing this again, what would you do differently next time?
- If you could go back in time and give yourself a message, what would it be?

**Step 5: Review your notes**

When you finish the interview, ask the interviewee if they mind checking your notes in a day or two. Put aside some time immediately after the interview to rewrite your notes in a summary form that picks out the most important information the interviewee gave you. If you use the ODCR format for this, then you will have a draft LI ready for review by decision makers in your organization. Send your tidied notes to the interviewee so that they can check you have captured their LI correctly.

## ANNEX E

# LL CAPABILITY CHECKLIST

---

The following items, presented as a checklist, are important for a LL capability to deliver sustainable improvement to the efficiency and effectiveness of an organization. This checklist can be used to assess the current status of a LL capability or to plan for building a LL capability.

### MINDSET

- Individuals actively seek out LL information when they start a new task.
- Individuals take full advantage of opportunities to share their lessons with others.
- Individuals feel safe and empowered to share and use lessons.

### LEADERSHIP

- Leaders regularly remind staff of the importance they place on LL.
- Leaders reward staff for the sharing and use of lessons in their work.
- Leaders are accessible to make timely decisions to move the LL process forward.
- Leaders pay attention to the status of Remedial Actions and prioritize resources to ensure it gets completed.
- Leaders provide LLSOs with the necessary support to develop and monitor progress of LIs.

### STRUCTURE

- LL SOP in place, including roles and responsibilities, reporting requirements and staffing process.
- LLSOs are able to access key leaders required to prioritise lessons, endorse Remedial Actions and task Action Bodies.
- LLSOs are trained in information sharing tools and techniques, LL and change management processes, and security classification procedures.
- LLSOs are protected from double-hatting and other diversions from core tasks.
- LLSOs from unit branches are internally trained and aware of their responsibilities and reporting requirements.

### PROCESS

- A process exists to facilitate the gathering of observations.
- The internal LL process encourages self-appraisal and frank exchange of ideas.
- A process exists for sourcing, reviewing and learning lessons derived from external sources.

- A process exists for submitting requests for assistance, including analysis support, to higher headquarters.
- Staffing LI to Lesson Learned is carried out according to project management best practice, ensuring leadership engagement at appropriate stages, particularly at the endorsement, tasking and monitoring stages.
- Lessons are routinely and actively included in planning operations and exercises and in induction training.
- Lesson observers and submitters are provided with feedback and updates on their contributions.

## TOOLS

- The LL process, and LL sharing, is supported by a staffing tool and an archive tool with search functionality.
- Tools enable and encourage management of LL information in accordance with the organization's information management and security policies.



## *NATO's Lead Agent for Joint Analysis*

*[www.jallc.nato.int](http://www.jallc.nato.int)*

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