THE NATO LESSONS LEARNED HANDBOOK

Fourth edition

June 2022

JOINT ANALYSIS & LESSONS LEARNED CENTRE

NATO's lead agent for **Lessons Learned**

The NATO Lessons Learned Handbook

Fourth Edition, dated June 2022

"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…"

– General James N. Mattis US Marine Corps, former Supreme Allied Commander Transformation

FOREWORD

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, in order to improve performance…"*.[1]

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, process, tools, and training in order to capture, analyse, and take remedial action on any issues, as well as to share results to achieve improvement. Equally important, we should also strive to foster the right mindset across the Alliance to ensure issues are captured and addressed via a formal Lessons Learned process. True organizational learning only takes place when driven by leadership, who must prioritize Lessons Learned activities and follow up with their staff to ensure their organization has actually learned.

I believe that this NATO Lessons Learned Handbook is an important read for all of us. It helps us to understand how we can implement the NATO Lessons Learned Capability effectively in order to learn from experience and drive the transformation of the Alliance. It refers to the NATO Command Structure's (NCS) approach to Lessons Learned, as described in the Two Strategic Command's Directive on Lessons Learned,[2] but its content is relevant to the broader Alliance audience as well as to NATO Partners and other organizations potentially interested in how NATO does Lessons Learned.

It is with pleasure that I present this fourth edition of the NATO Lessons Learned Handbook, to help those who conduct Lessons Learned activities acquire the knowledge they need to fulfil their role implementing the NATO Lessons Learned Capability. This edition has been updated to reflect the current NCS guidance on the NATO Lessons Learned Capability and incorporates the latest expertise and experience from the NATO Lessons Learned community.

Bogdan Cernat
Brigadier General, Romanian Army
Commander JALLC

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[1] Allied Joint Publication (AJP)-3(C) Allied Joint Doctrine for the Conduct of Operations, February 2019.

[2] Two Strategic Command's (Bi-SC) Directive 080-006 Lessons Learned23 February 2018, NATO Unclassified.

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1
INTRODUCTION

Welcome to the world of NATO Lessons Learned. The purpose of this Handbook is to assist NATO Lessons Learned practitioners, including staff officers, leaders and analysts, in their Lessons Learned duties and implementation of the NATO Lessons Learned Capability, in support of effective learning from experience. This Handbook uses the NATO Command Structure's (NCS) approach to Lessons Learned, as described in the two Strategic Command's (Bi-SC) Directive 080-006 Lessons Learned (Reference A), as the underlying model, but its content is relevant to the broader Alliance audience as well as to NATO Partners and other organizations potentially interested in how NATO does Lessons Learned.

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

- What do we mean by Lessons Learned?
- Who needs to learn lessons?
- How to get started in Lessons Learned.
- The structure of this Handbook.

WHAT DO WE MEAN BY 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 (i.e. a Lessons Learned procedure), individuals and the organization can reduce the risk of encountering the same problems and increase the chance that successes are repeated. Within NATO, Lessons Learned is an essential part of being credible, capable, and adaptive in warfighting and warfare development through reducing operational risk, increasing cost efficiency, and improving operational effectiveness. Lessons Learned is achieved through the set-up and sustainment of a Lessons Learned Capability.

Common elements of a formal approach to learning (Lessons Learned procedure)

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

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 prioritize lessons and how to staff them."* – Allied Joint Publication (AJP)-3(C) Allied Joint Doctrine for the Conduct of Operations, Annex E, Page E-1 (Reference B).

Depending on your nation, HQ, or organization, the term *Lesson(s) Learned* (and the acronym *LL*) can be applied both to the end result of a formal learning process or to describe anything related to LL.

> **What is a Lesson?**
> - *A Lesson can be defined as knowledge gained from experience (positive and negative) that has future value to others.*
>
> **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 (LLSO), Lessons Learned Working Group, etc.*
> - *Lesson_ Learned, a noun, is a written record of a change in personnel, organization, or system behaviour as a result of learning from experience.*

LL 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 any learning organization, the same three basic stages of learning are followed, as described in Nick Milton's *The Lessons Learned Handbook* (Reference C): *"identification, action, and institutionalization".*

> **Three Basic Stages of Organizational 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. Within NATO, this could be, for example, incorporating the change into doctrine and procedures.*

The identification of lessons involves reviewing and analysing the experience, to determine the root causes behind what happened. At the end of this activity, we will have *Lessons Identified* (abbreviated to *LI*), which require further action and institutionalization to turn them into LL.

> **Lessons Identified (conceptual definition)**
> *A Lesson Identified can be defined as "a recommendation, based on analysed experience (positive or negative), from which others can learn in order to improve their performance on a specific task or objective" (Nick Milton; The Lessons Learned Handbook; page 17 (Reference C).*

The activities NATO does to promote learning from experience vary across the different entities, but the main principles of the NATO LL Capability should always be complied with (covered in chapter 2 of this Handbook).

WHO NEEDS TO LEARN LESSONS? – EVERYONE!

Everyone within an organization needs to be involved in learning lessons for a formal approach to learning to be successful. Yet, often it seems that many personnel within NATO are under the impression that the presence of dedicated LL staff frees them of their own responsibility for organizational improvement and learning.

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. If, for example, a lesson concerns how we do operations planning or logistics, then there is only benefit to the organization if operations planners or logisticians learn the lesson; that is, change the way they do planning or logistics.

Stakeholders are likely the first—and often only—personnel who will be aware of potential lessons within their area of work. The right organizational mindset is required to encourage these stakeholders to share potential lessons via a LL Process in order to learn lessons and enable others to exploit them. Table 1 below lists the main NATO LL stakeholder groups and their typical roles in organizational learning.

Table 1: NATO LL stakeholders and their roles in organizational learning

Stakeholder	Three basic stages of organizational learning		
	Identify	Act	Institutionalize
Leadership	Direct focus	Approve and task	Endorse
Dedicated LL staff	Collect and analyse	Track	Share
All staff	Provide expert input	Implement	Reuse

True organizational learning only takes place when driven by leaders, who must also hold stakeholders accountable. Commanders and Chiefs of Staff (COS) should actively prioritize LL activities and follow up with their staff to ensure their organization has actually learned. However, time and resource constraints in addition to competing priorities often make learning lessons in their organizations a challenge for most leaders. Nevertheless, leaders' LL guidance and engagement must be evidenced not only by words, but also through prioritizing issues and endorsing, resourcing, and tasking solutions.

HOW TO GET STARTED IN NATO LESSONS LEARNED

Through consulting this Handbook you are already on the right track; however, this Handbook is not the only resource available to help you get started - some of the main resources within NATO are described below.

The NATO Lessons Learned Policy (Reference D) is the keystone document for LL in NATO. Within the NCS, the NATO Lessons Learned Policy is implemented through Bi-SC Directive 080-006 on Lessons Learned (Reference A). Individual NATO entities may develop their own LL documentation, such as Standard Operating Procedures (SOP), derived from these two main LL documents.

NATO Lessons Learned Policy (Reference D)

The 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.

This directive is applicable to all HQs and organizations within the NCS: Allied Command Operations (ACO) and Allied Command Transformation (ACT). It describes the elements of the NATO LL Capability, provides direction for implementing the NATO LL Policy, and provides LL guidance for all NATO bodies, Centres of Excellence, Allies, Non-NATO Organizations, and Partners.

HANDBOOK STRUCTURE

This Handbook is divided into six chapters and six annexes, advising on various aspects of being a competent LL practitioner:

- Chapter 2 describes the NATO LL Capability, including an overview of the NATO LL Process.
- Chapters 3 and 4 provide detailed guidance on conducting the phases of the NATO LL Process.
- Chapter 5 provides advice on LL information sharing, retrieval, and re-use.
- Chapter 6 provides useful resources and contacts.
- Annex A: LL glossary and abbreviations.
- Annex B: Abbreviated NATO LL Process.
- Annex C: An example of NATO LL Process implementation: Joint Warfare Centre
- Annex D: Observation template (Observation, Discussion, Conclusion, and Recommendation).
- Annex E: Observation template example.
- Annex F: Project Management principles.

There is a summary box at the end of each chapter containing the key points from the chapter. Key definitions, concepts, and tips are highlighted in blue boxes throughout the Handbook.

This Handbook provides working definitions of certain terms relevant to Lessons Learned in NATO. These definitions are largely based on those in Bi-SC Directive 080-006 Lessons Learned (Reference A) but have been adapted where necessary to ensure this Handbook is practical and useful for the LL practitioner.

SUMMARY

- Lessons Learned (often abbreviated as LL) describes activities relating to learning from experience to achieve improvements. In a NATO military context, LL is an essential part of being credible, capable, and adaptive in warfighting and warfare development.
- Lessons can be derived from any activity: operations, exercises, training, and daily events.
- Learning, in any organization, involves three generic stages: identification, action, and institutionalization.
- Everyone within an organization needs to be involved in learning lessons for organizational learning to be effective.

2
NATO LESSONS LEARNED CAPABILITY

The most formal approach to learning lessons is to implement a structured LL Capability, which is the foundation of a successful learning organization. The NATO LL Capability comprises several important elements, which are described in this chapter.

This chapter provides an overview of:

- the NATO LL Capability;
- the NATO LL Structure;
- NATO LL Training;
- the NATO LL Process; and
- the Tools to support the NATO LL Process.

OVERVIEW OF THE NATO LESSONS LEARNED CAPABILITY

The Bi-SC Directive 080-006 Lessons Learned (Reference A) describes a LL Capability as follows:

> "*The purpose of the NATO LL Capability "is to provide a commander the ability to execute the NATO LL process effectively. The LL Capability consists of leadership, mindset, structure, process, tools, training and information sharing.*"

As such, the purpose of the NATO LL Capability is to learn efficiently from experience and to provide validated justifications for amending the existing way of doing things in order to improve performance for subsequent events.

The key elements of the NATO LL Capability are shown in Figure 1. The foundation elements of *Mindset* and *Leadership* are fundamental to the social and cultural climate the organization needs for an effective LL capability. The supporting elements of *structure*, *process*, *tools*, and *training* are needed to facilitate *information sharing*. *Information sharing* provides the capstone that ensures the capability works. Each of these elements are explored in more depth throughout this Handbook.
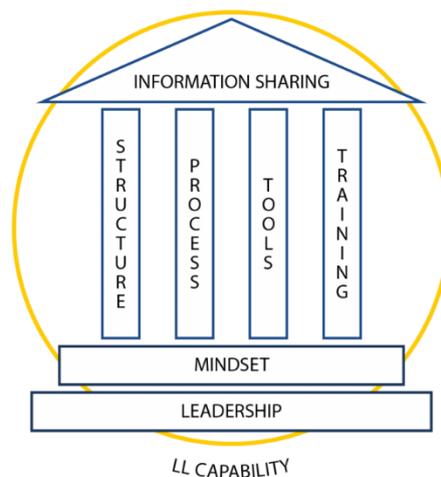

Figure 1: NATO LL Capability

> **Key elements of the NATO LL Capability**
>
> **Mindset**: An organizational culture where learning from others is incorporated into all aspects of work and staff are given the confidence to share their own learning with others.
>
> **Leadership**: An ability to undertake timely and effective decision-making throughout the NATO LL Process, an emphasis on the value of the NATO LL Capability for the organization and the creation of a safe environment where learning can flourish.
>
> **Structure**: Skilled and dedicated LL personnel allocated to adequate posts within the organization. Key actors involved in the NATO LL Capability are described in the following section.
>
> **Process**: A common LL process to develop a lesson, to include sharing and utilizing it appropriately. An overview of the NATO LL Process is provided later in this chapter, and described in detail in the subsequent chapters.
>
> **Tools**: Technology to support collection, storage, staffing, and sharing of LL information. More information on the tools that support the NATO LL Process is included later in this chapter.
>
> **Training**: Providing staff with the skills and knowledge to fulfil their LL roles effectively. Information on LL training opportunities in NATO is provided later in this chapter.
>
> **Information Sharing**: The will to submit, receive, and re-use information from the NATO LL Capability. In order for information sharing to be successful, it must be credible and come from a reliable source. This is referred to as information assurance. More information on information sharing is provided in chapter 5 of this Handbook.

NATO LESSONS LEARNED STRUCTURE

The NATO LL Capability requires a robust NATO LL Structure that enables the NATO LL Process to be conducted effectively. Although there are many actors that make up the NATO LL Structure (see below), the main actor supporting an entity's Commander in implementing the NATO LL Capability is the NATO LLSO, who, in turn, is supported by a network of LL Points of Contact (POC). The sections below provide an overview of the different actors that make up the NATO LL Structure involved in the NATO LL Capability; the respective procedures, policies, and directives should be consulted for detailed information on their responsibilities.

NATO HQ

Initiating a 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 (Reference E).

The Strategic Commands – ACT and ACO

ACT, through HQ Supreme Allied Commander Transformation (SACT), leads the warfare development of military structures, forces, capabilities, and doctrines to enable NATO to meet its level of ambition and core missions.

ACO, through SHAPE, is responsible for all Alliance military operations. It aims to contribute to preserving the peace, security, and territorial integrity of NATO member nations in its area of responsibility.

The Strategic Commands lead the implementation of the NATO LL Capability and LL activities throughout their subordinate commands and areas of responsibility. They require their commands to implement the NATO LL Capability and execute the NATO LL Process through Bi-SC Directive 080-006 Lessons Learned (Reference A).

The Joint Analysis and Lessons Learned Centre (JALLC)

The JALLC is NATO's lead agent for LL. It supports the exchange of LL information and facilitates the development and implementation of the NATO LL Capability across NATO. The JALLC established and manages the NATO LL Portal (NLLP), NATO's single tool for collecting, managing, tracking, monitoring, and sharing of lessons, and it is a key provider of LL-related analysis within NATO. The JALLC also facilitates the sharing of lessons among Allies as well as with non-NATO nations and international organizations, as appropriate, through its NLLP Active Content Management (ACM) activities. On request, the JALLC can provide LL outreach to NATO entities and nations to provide LL training (see the following section) as well as advice and assistance in implementing the NATO LL Capability.

Commanders

The NATO LL Policy (Reference D) requires that all NATO commands and bodies execute the NATO LL Process and have their own tailored internal LL procedures, usually set out in an SOP(s). Bi-SC Directive 080-006 Lessons Learned (Reference A) reiterates this and also directs NCS Commanders to implement and sustain the NATO LL Capability within their command, as well as report on the status of its implementation to the Strategic Commanders.[3]

Commanders, especially at the strategic and operational levels, have a vital role to play in ensuring that lessons are learned in support of both warfare development and in the improvement of operations and exercises. Their first responsibility in this respect, is to implement and maintain the NATO LL Capability within the command. This role includes establishing the LL mindset across their command; setting expectations for subordinates in the gathering and analysis of observed issues via the NATO LL Process, using the NLLP; tasking of Action Bodies; and following up on that tasking to ensure lessons have been learned by those under their command who need to learn them.

The Lessons Learned Staff Officer

The role of the LLSO is to support the Commander in the development, implementation, and reporting of the NATO LL Capability within the organization. The LLSO is responsible for championing and supporting the execution of the NATO LL Process throughout his/her organization, as well as making stakeholders aware of their responsibilities in the NATO LL Process. It is up to the LLSO to promote the sharing of lessons early and widely, while emphasizing the characteristics and quality expectations of lessons suitable for inclusion in the NATO LL Process. Finally, the LLSO supports staff in finding and using relevant LL information.

Everyone in an organization is responsible for learning lessons for searching for LL information by their own means. However, the LLSO is central to the organization's efforts to engage everybody in seeing the value of learning lessons; creating a LL *mindset*.

The LLSO is also required to participate in the wider NATO LL community to facilitate broad LL information and knowledge sharing and re-use.

The Local NLLP Managers

The role of the Local NLLP Manager (LNM) is usually fulfilled by the LLSO. They are given specific rights within the NLLP that allows them to:

- Approve or reject observations submitted by users within their HQ.

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[3] Annex F to Bi-SC Directive 080-006 Lessons Learned (Reference A) contains objectives and measures to support the Commander in implementing the NATO LL Capability. This also provides a framework for the command's annual LL report. The JALLC provides training (see the following section) and tools to support the Commander in developing the annual LL report.

- Update the HQ's observations with the results from the Analysis Phase of the NATO LL Process.

- Modify the details of their HQ's observations.

- Support the staffing of observations through the NATO LL Process when their HQ is a Tasking Authority or an Action Body.

The Lessons Learned Points of Contact

Within each organizational division of a command, there needs to be an LL POC that supports the LLSO in implementing the NATO LL Capability and executing the NATO LL Process within their respective division. LL POCs may therefore take on some of the LLSO responsibilities within their division, such as capturing observations from their division and submitting them to the NLLP. LL POCs can also support the Analysis Phase of the NATO LL Process by providing subject matter expertise relating to their functional area.

The Bi-SC LL Steering Group

The Bi-SC LL Steering Group is a collective body that oversees and guides the implementation and sustainment of the NATO LL Policy and the NATO LL Capability in the NCS and coordinates, agrees, supervises, tasks, and reports on LL-related issues.

The NATO LL Working Group

The NATO LL Working Group is the Bi-SC collective body that coordinates and facilitates, at the staff level, all LL-related issues in NATO, including innovation, sharing, educating/training, and improving the NATO-wide implementation of the NATO LL Policy.

An HQ LL Working Group

An HQ LL Working Group is a common feature of LL SOPs implemented by NATO HQs. The HQ LL Working Group is typically responsible for endorsing LIs at the end of the Analysis Phase of the NATO LL Process and approving/noting LIs at the start of the Implementation Phase. It should be chaired by the COS of the relevant HQ to ensure there is a direct line between the LLSO and the COS, which is an essential link in the NATO LL Capability.

Centres of Excellence

Centres of Excellence train and educate leaders and specialists from NATO member and partner countries, assist in doctrine development, support LL activities, improve interoperability and capabilities, and test and validate concepts through experimentation. In terms of LL activities, they provide subject matter expertise to assist in the analysis of observed issues, as part of the NATO LL Process. They may also participate in NATO LL Communities of Interest (COI) to share lessons on particular subjects. See chapter 5 of this Handbook for more information on COIs.

NATO LESSONS LEARNED TRAINING

The JALLC provides LL training for different types of LL practitioners: LLSOs, LL POCs, and LNMs. Brief information on these training opportunities is provided below; more information can be found on the JALLC's website (https://www.jallc.nato.int/activities/training).

The Lessons Learned Online Course

This online course is tailored to LL POCs in any NATO or national entity. The aim of the course is to provide LL POCs with the basic LL knowledge necessary to fulfil their duties and it is a prerequisite to attend the NATO LL Staff Officers Course (LLSOC). 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.

The Lessons Learned Staff Officer Course

The JALLC delivers the LLSOC, a week-long training course on the NATO LL Capability, typically held at the Swedish Armed Forces Training Centre (SWEDINT). The course aims to prepare LLSOs to manage and execute the NATO LL Process and associated training, tools, and information sharing, as part of the NATO LL Capability. This course also educates on observation collection, basic analysis techniques, the NLLP, and the handling of the NATO LL Process in exercises and operations. If you have any questions regarding the LLSOC, please contact natollsoc@jallc.nato.int.

The NATO Lessons Learned Management Course

The JALLC also offers a week-long NATO LL Management course at NATO School Oberammergau. This course aims to prepare participants for their duties in the planning, administration, and execution of LL functions and services within NATO. Participants are exposed to NATO LL documentation, the NLLP, the NATO LL Training Concept, Lesson Collection and Action Plans, NATO LL Capability self-assessment and reporting requirements, and LL in exercises and operations.

The Local NLLP Manager Course

This three-day course, which is held at the NATO Communications and Information Academy facilities in Oeiras, Portugal, is tailored for LNMs and provides in-depth knowledge on using the NLLP to conduct the NATO LL Process. The course aims to develop participants' proficiency in NLLP administration and involves hands-on training using the unclassified version of the NLLP.

Tailored Lessons Learned Training

The JALLC Advisory and Training Team (JATT) delivers training, in addition to other assessment, advisory, and training activities, in order to improve the implementation of the NATO LL Capability across NATO, allies and partners. Depending on availability, the JATT may be able to deliver tailored on-site or virtual LL training, based on the customer's requirements. For more information on LL training offered by the JATT, visit the JALLC website or contact the JATT at jattpoc@jallc.nato.int.

THE NATO LESSONS LEARNED PROCESS

A LL process is part of a formal approach to organizational learning that deliberately processes observed issues arising from an activity until either a LL is reached, or the lesson is rejected/noted for various reasons. Figure 2 illustrates the NATO LL Process used by the NCS, as described in the Bi-SC Directive 080-006 Lessons Learned (Reference A). It comprises two phases (Analysis and Implementation) and respective component steps (Plan, Observe, Analyse, Decide, Implement & Validate, and Share).

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 Implementation Phase of the process. In NATO, *Institutionalization* is seen as an integral part of the action necessary to reach an LL. Information generated during the NATO LL Process must be shared regularly with the relevant stakeholders. More information on LL Information Sharing is provided in chapter 5 of this Handbook.

NATO LESSONS LEARNED PROCESS
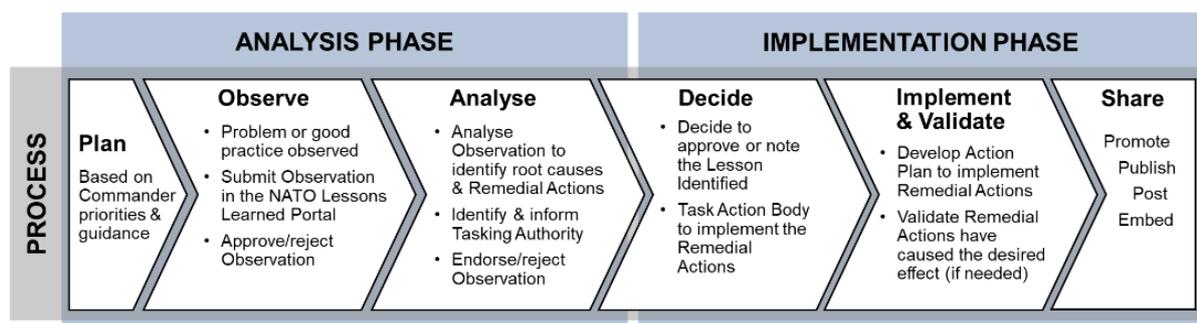
Figure 2: The NATO LL Process

This Handbook primarily focuses on the NATO LL Process, as described in Bi-SC Directive 080-006 Lessons Learned (Reference A), but it is recognized that in some situations this process may not allow lessons to be learned in an agile manner (e.g. during operations and exercises). To assist in such situations, guidance on applying an **abbreviated NATO LL Process** is provided in Annex B. Furthermore, Annex C describes how the Joint Warfare Centre (JWC) applies the NATO LL Process to capture and process lessons from NATO exercises.

The interactions between the NATO LL Process and the NLLP, including the specific NLLP statuses associated with each step of the process, are described throughout this Handbook to assist NATO LL practitioners in using the NLLP to effectively manage and implement the NATO LL Process. More information on the NLLP itself is presented later in this chapter. Specific guidance on how to operate the NLLP can be found in the NLLP Manual (Reference F).

Below the phases and steps of the NATO LL Process are further described. Detailed guidance on the execution of these phases and steps is provided in chapters 3 and 4 of this Handbook. Specific NATO terminology associated with the NATO LL Process is defined and included in the LL Glossary at Annex A to this Handbook.

NATO LL Process initiation – Commander's priorities and guidance

The NATO LL Process often starts with the Commander's priorities and guidance regarding the types of lessons expected from a specific activity or topic. This guidance should include clear timescales for progressing lessons through the different steps of the NATO LL Process.

Analysis Phase

Plan

The first phase of the NATO LL Process is the Analysis Phase, which may start with a **plan** based on the Commander's priorities and guidance. A Lessons Collection Plan may be developed by the authority responsible for leading an activity to actively collect lessons from various sources (e.g. as an integrated part of an exercise or operation plan), rather than waiting for lessons to occur. A Lessons Collection Plan can be a simple list of priorities covering which types of lessons should be collected, but it can also be a detailed plan defining who, when, where, and how lessons are collected for a given priority. However, just because such priorities have been set, that should not preclude lessons being captured on other subjects when identified. At this stage, it is good practice to seek out existing lessons relating to the Commander's priorities and other relevant subjects to avoid duplicating previous LL activities and to produce a more effective Lessons Collection Plan. See chapter 5 of this Handbook for more information on retrieving and reusing LL information.

> **Observation**
>
> *An Observation is a short description of an issue which may be improved or a potential Best Practice.*

For a given activity, an expected outcome exists, which can be implicit or explicit. 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. This observation should be submitted to the NLLP, at which point it receives the status "Observation Submitted." Observations submitted to the NLLP follow a specific template: Observation, Discussion, Conclusion, and Recommendation (ODCR). More information on capturing observations and the use of this template is provided in chapter 3 of this Handbook.

The originator of the observation assigns an HQ/entity responsible for progressing the observation along the Analysis Phase of the NATO LL Process. This is usually the originator's HQ, who will likely also take on the role of Originating Authority. The assigned HQ/entity will decide to approve or reject the observation based on certain criteria. Approved observations receive the "Observation" status in the NLLP and move into the next step of the NATO LL Process. Rejected observations receive the "Observation Rejected" status in the NLLP and end the NATO LL Process, at which point they are archived. It is not possible to retrieve rejected observations from the NLLP archive without requesting support from the JALLC's NLLP Managers.

Analyse

The next step is to **analyse** the observation to elaborate on the factor(s) contributing to why the outcome of the activity differed from expectation and identify a proposed solution. For more complex observations, additional analysis may be required. This analysis is typically done by the LLSO and/or LL POCs within the assigned HQ/entity, with input from a Subject Matter Expert (SME) as appropriate and where required.

> **Analysis**
>
> *Analysis is the study of a whole by thoroughly examining its parts and their interactions* (Allied Administrative Publication (AAP)-6 NATO Glossary of Terms and Definitions, NATO Standardization Office, 2021, Reference G)*.*

Analysis allows discovery of the root cause(s) of the observed issue 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.

> **Remedial Action**
>
> *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.*

Additionally, the person or organization that should task the implementation of the Remedial Action (the Tasking Authority) will be identified during the Analysis step. The output of the analysis is an LI or a Potential Best Practice (PoBP).

> **Lesson Identified (NATO definition)**
>
> *A Lesson Identified is an observation with analysis, where the root cause has been established and a recommended Remedial Action and a Tasking Authority have been identified.*

> **Potential Best Practice**
>
> *A Potential Best Practice is an observation with analysis that describes a good practice that has produced a better outcome than expected, where the root cause has been established, and a recommended Remedial Action (to repeat the success) and a Tasking Authority have been identified (JALLC working definition).*

Analysis is further described in chapter 3 of this Handbook and covered in more detail in the Joint Analysis Handbook (Reference H).

The analysis of the observation should have identified the root causes, Remedial Actions and a suitable Tasking Authority, all of which should be documented in the NLLP. The next step is to request endorsement of the prospective LI/PoBP from leadership in the Originating Authority.

Following endorsement, the observation becomes a LI/PoBP and it will progress to the next phase of the NATO LL Process (the Implementation Phase). If the Originating Authority and Tasking Authority are different entities, the LI/PoBP will be transferred to the Tasking Authority through the chain of command. If they are the same entities, this transfer is not required and there may be scope to combine the endorsing and approving/noting steps (part of the Decide step described below) into a single decision point for efficiency. Such a decision could be made by the HQ's LL Working Group.

If the LI/PoBP is not endorsed, it will be rejected and archived (as an "Observation Rejected", as it never reached final LI/PoBP status) and the NATO LL Process will end.

> **Originating Authority**
>
> *The Originating Authority is the entity that is responsible for endorsing an LI/PoBP and ensuring it is uploaded in the NLLP. This includes uploading supporting documentation of the observation, analysis, conclusion, and recommended Remedial Actions and requires identification of the Tasking Authority. The Originating Authority is to forward the LI/PoBP to the Tasking Authority through the chain of command.*

> **Tasking Authority**
>
> *The Tasking Authority is the entity that is responsible for the Implementation Phase of the NATO LL Process. This includes the responsibility to decide on recommendations and Remedial Actions, (note or approve), commit resources and appoint/task one or more Action Bodies. The Tasking Authority informs the Originating Authority of its decision (feedback). The Tasking Authority is responsible for the coordination, implementation and the tracking from a LI/PoBP to a LL/BP, ensuring the approved LI/PoBP is uploaded in the NLLP, and updating the LI/PoBP to a LL/BP when implemented.*

Implementation Phase

Decide

The first step of the Implementation Phase requires the Tasking Authority to **decide** whether to **approve or note** (see below) the LI/PoBP, through assessing whether the issue and root cause have been correctly identified and if the recommended Remedial Action(s) set out in the LI/PoBP can be carried out. The Tasking Authority should then record the decision in the NLLP and provide feedback to the Originating Authority.

- If the LI/PoBP is **approved**, the Tasking Authority tasks one or more Action Bodies to implement the Remedial Action(s), and records the tasking in the NLLP, at which point it becomes an: "LI Approved," or: "PoBP Approved." Leadership must commit to providing the resources needed to implement the Remedial Action at this stage.

- If the LI/PoBP is **not approved but noted**, it is shared and archived (as an: "LI Noted," or: "PoBP Noted") before ending the NATO LL Process. Once noted, it is not

possible to retrieve the LI/PoBP from the NLLP archive without support from the JALLC's NLLP Managers.

> **Action Body**
>
> *An Action Body is the organization or staff tasked by the Tasking Authority with the implementation of an assigned recommendation/Remedial Action from a Lesson Identified. The Action Body develops an Action Plan to guide the Remedial Action activities.*

Implement & Validate

Next is the **Implement & Validate** step, during which the Action Body will prepare and implement their Remedial Action through the use of an Action Plan. The Action Plan should be shared with the Tasking Authority to gain approval and uploaded to the NLLP.

> **Action Plan**
>
> *An Action Plan is the written plan of action and milestones developed by an Action Body to implement an assigned Remedial Action.*

After the Remedial Action has been implemented, some form of validation[4] is needed.

> **Validation**
>
> *When necessary, Lesson Learned or Best Practice validation ensures that the originally observed issue has been successfully addressed 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.*

Additionally, Best Practice (BP) validation should prove that the good practice described in the PoBP is the best option when compared to other good practices. Validation may involve further work and analysis, possibly using exercises or experiments.

Following the completion of the Remedial Action and successful validation, the LI or PoBP will be deemed a LL or BP and the NLLP entry is updated with the new status and implementation details.

> **Lesson Learned**
>
> *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.*

> **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 useablef.*

---

[4] Note that within the NATO LL Process, the term validation is applied to the confirmation that a Remedial Action is successful in achieving an improvement. 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.

Share

It is important that the LL/BP is then **shared** more broadly with the relevant stakeholders through the NLLP and other media to allow further exploitation.

At this point, although the formal NATO LL Process concludes, BPs may be specific to an environment, theatre, or situation and therefore may become obsolete. BPs should be regularly reviewed to ensure that the practice is still "best."

Although Figure 2 shows sharing as the final step of the NATO LL Process, sharing is an activity that needs to occur throughout the process. More about LL information sharing can be found in chapter 5 of this Handbook.

Figure 3 below brings together the NATO LL Process and the NLLP statuses associated with each step, as described in the preceding paragraphs.
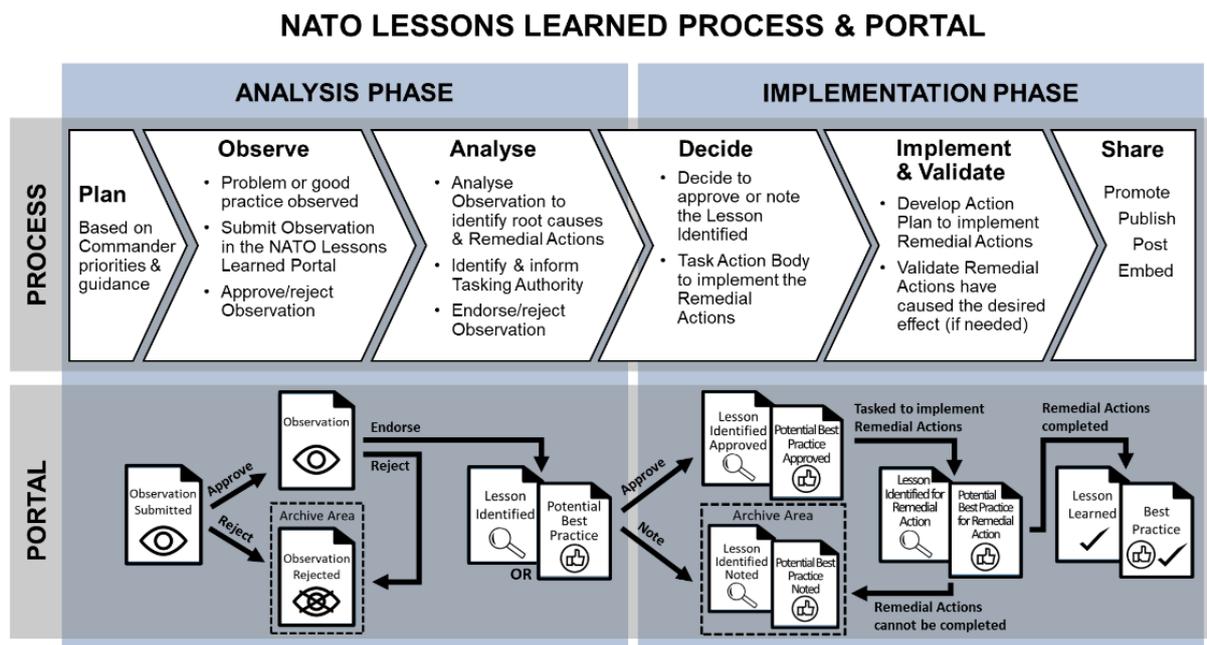
Figure 3: The NATO LL Process alongside NLLP statuses

Revisiting previous steps of the NATO LL Process

The NATO LL Process is usually depicted as a linear process, as seen in Figure 3; however, LL practitioners may be required to **revisit previous steps** of the NATO LL Process if, for example:

- more information about the observed issue becomes known, requiring further analysis of the root causes and Remedial Actions;

- the observation was not captured in sufficient detail, necessitating further definition and analysis;

- the analysis did not identify appropriate root causes or Remedial Actions, requiring further observation of the issue or an alternative analysis approach;

- the Tasking Authority does not agree with the recommended Remedial Actions, requiring modifications and possibly further analysis;

- the Action Body needs additional information to develop the Action Plan and subsequently implement the Remedial Actions; and/or

- the validation shows that the Remedial Actions did not have the desired effect, potentially necessitating further analysis, planning, and implementation activities.

At the date of publication of this Handbook, the NLLP does not allow LNMs to push lessons back to earlier steps of the NATO LL Process without assistance from the JALLC's NLLP Managers.

TOOLS TO SUPPORT THE NATO LESSONS LEARNED PROCESS

As described earlier in this chapter, the NATO LL Capability requires a standardized tool to capture lessons and provide a structured means of tracking and documenting the progress of lessons throughout the NATO LL Process, from Observation Submitted to LL or BP. The tool should also be a repository for other LL information, such as reports, presentations, etc.

The NLLP has been specifically designed for this purpose. The following sections provide more detail on the NLLP and other NATO LL tools that may be needed when the NLLP is not accessible, such as during operations and exercises when access to NATO networks may be limited.

NATO Lessons Learned Portal

Bi-SC Directive 080-006 Lessons Learned (Reference A) states that the NLLP is the single NATO tool for collecting, managing, tracking, monitoring, and sharing of lessons. Multiple NATO repositories for lessons are to be avoided, as this could hinder sharing and result in the duplication of LL information. The NLLP is managed by the JALLC, who also delivers training on its use (see the training section earlier in this chapter). General information on the NLLP is provided below; more specific guidance can be found in the NLLP Manual (Reference F) and on the JALLC's website.

The NLLP is available on both the NATO unclassified and classified networks, although the staffing and tracking of lessons through the NATO LL Process occurs on the classified network only. The NLLP contains three main areas:

- The **NLLP staffing area** is where observations are initially submitted and staffed along the NATO LL Process. When a lesson concludes the NATO LL Process (i.e. as an Observation Rejected, LI Noted, PoBP Noted, LL, or BP), it will be moved from the staffing area to the archive area. These lessons will also be copied to the NLLP document library (see below) to enable further sharing and exploitation, with the exception of Observations Rejected which remain in the archive area only.

- The **NLLP document library** contains lessons that have concluded the NATO LL Process and are no longer being staffed, excluding Observations Rejected (i.e. LI Noted, PoBP Noted, LL, and BP). It is also a repository for other NATO LL information, which can be uploaded directly by NLLP users, such as reports, factsheets, presentations, etc.

- The **NLLP archive area** contains all lessons that have concluded the NATO LL Process, including Observations Rejected. NLLP users can search the archive area using the NLLP's search functionality, but may not submit or modify lessons in the archive area without support from the JALLC's NLLP Managers.

The NLLP also contains dedicated areas for NATO LL COIs, which are set up for specific communities to allow them to capture, manage, and share their topic-specific NATO LL information (see chapter 5 of this Handbook). Any organization that is interested in having an LL COI can become a *Sponsor* (i.e. manager) thereof and request the JALLC to set up an LL COI. It should be noted that, although the JALLC sets the LL COI up in the NLLP, the Sponsor manages and populates the LL COI and is responsible for informing the JALLC when the LL COI is no longer active/needed. Examples of LL COIs hosted in the NLLP include Geospatial, Counter-Improvised Explosive Devices, Cyber Defence, and many more.

The JALLC has developed an Off-Line Observation Form (OLOF) to assist with the collection and transfer of observations to the NLLP from external networks. These forms have previously successfully been used in exercises to facilitate the transfer of observations from

the local observation collection tool (e.g. on the Mission Secret network) to the NLLP. Additionally, observations can be uploaded to the NLLP in bulk by using a Java Script Object Notation (JSON) form. For more information on using OLOF and JSON forms, see the NLLP Manual (Reference F).

Other tools

In some circumstances, such as during operations or exercises, it may not be possible to access the NATO classified network to submit or staff observations in the NLLP. In such cases, a local observation collection tool may be required to temporarily store observations, until they can be transferred to the NLLP at a later date (e.g. using the OLOF or JSON forms). See Annex C for an example of JWC's use of a local observation collection tool. The box below lists factors that should be considered when selecting an appropriate tool to support observation collection, in addition to the usual cost and maintenance considerations.

> **Choosing software tools for gathering observations when the NLLP is not available**
> - *Is the software easy to use and familiar to users?*
> - *How will the lesson collection capability be deployed: stand-alone PCs; over a local area network; over a wide-area network; over the Internet?*
> - *Does the software function well using the hardware available?*
> - *What reading, contributing, and editing permissions are required?*
> - *What searching, filtering, and sorting capabilities are needed?*
> - *Can the information be updated easily? How will versions be controlled?*
> - *Can supporting information such as images be attached?*
> - *What report generation capability is needed?*

SUMMARY

NATO Lessons Learned Capability

- The NATO LL Capability is built upon a foundation of mindset and leadership engagement. The key pillars of structure, process, tools and training support LL information sharing.

NATO Lessons Learned Structure

- Key actors involved in the NATO LL Capability include: NATO HQ, ACO, ACT, the JALLC, Commanders, LLSOs, LNMs, LL POCs, the LL Steering and Working Groups, and Centres of Excellence.

- The main figure supporting an entity's Commander in implementing the NATO LL Capability is the LLSO, who is supported by a network of LL POCs.

NATO Lessons Learned Training

- The JALLC offers a range of NATO LL training courses for different types of LL practitioners, including for the LLSO, LL POC, and LNMs.

NATO Lessons Learned Process

- Lessons Collection **Plans** may be developed to actively collect lessons based on the Commander's priorities and guidance.

- When differences between expectations and actual performance are identified, an **observation** is made.

- **Analysis** of observations identifies root causes, Remedial Actions, and the appropriate Tasking Authority to task an Action Body with the implementation of the Remedial Actions.

- The Originating Authority will review the observation and, if endorsed, it will become a LI/PoBP and transition from the Analysis Phase to the Implementation Phase of the NATO LL Process, at which point the Tasking Authority becomes responsible for progressing the NATO LL Process.

- The Tasking Authority will **decide** to approve or note the LI/PoBP. If approved, the Tasking Authority tasks the Action Body to implement the Remedial Actions.

- 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.

- An LL or BP results from the implementation and validation of Remedial Actions, which must demonstrate improved performance/capability.

- Information **sharing** should start early in the NATO LL Process and should be sustained throughout the process.

- The **NLLP** is NATO's single tool for collecting, managing, tracking, monitoring, and sharing of lessons. It is managed by the JALLC.

3

NATO LESSONS LEARNED PROCESS: ANALYSIS PHASE

As described in the previous chapter, the NATO LL Process often starts with the Commander's priorities and guidance regarding the types of lessons expected from a specific activity or topic. In this case, the first step in the Analysis Phase of the NATO LL Process is to **plan** how to actively collect lessons relating to the Commander's priorities and guidance by developing a Lessons Collection Plan. However, lessons can also be identified spontaneously and without the presence of a specific Lessons Collection Plan. When this is the case, the NATO LL Process starts with the **Observe** step. In both situations, it is good practice to seek out existing lessons relating to the topic(s) of interest to avoid duplicating previous LL activities - see chapter 5 of this Handbook for more information on retrieving and reusing LL information.

This chapter provides guidance on progressing observations through the **Observe** and **Analyse** steps of the Analysis Phase (Figure 4) of the NATO LL Process to the LI or PoBP status, building on the overview provided in the previous chapter.
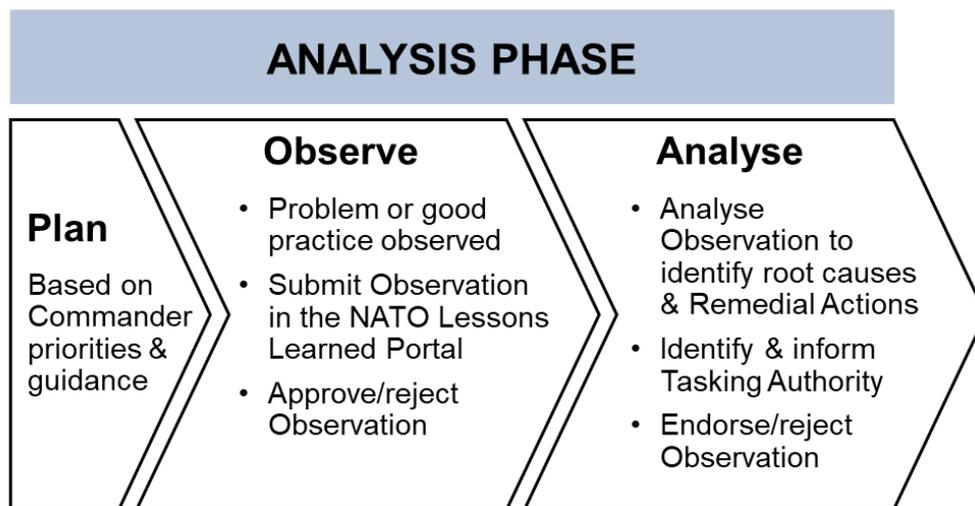

Figure 4: Analysis Phase of the NATO LL Process

This chapter covers four key activities within the Observe and Analyse steps of the NATO LL Process:

- Capturing Observations;
- Managing Observations;
- Analysing Observations; and
- Endorsing and documenting LI and PoBP.

CAPTURING OBSERVATIONS

All staff members within an organization, regardless of rank and function, have a responsibility to document observed problems, shortfalls, and successes.

This section provides guidance on the template used to capture observations in NATO and describes how post-event reporting and interviews can support capturing observations from operations and exercises. This relates to the first two bullets in the **Observe** step, as shown in Figure 4.

Observation Template

The use of a common observation template allows information to be captured in a standardized manner and thereby shared more easily. The observation template provided in Bi-SC Directive 080-006 Lessons Learned (Reference A) contains five fields: *Title*, *Observation*, *Discussion*, *Conclusion*, and *Recommendation* (ODCR). This is the format that entries into the NLLP must take, so it is recommended that your organization collects observations using this template from the start. The content of the observation template should be revisited regularly during the NATO LL Process, especially during the Analysis Phase, to ensure the information relating to the observation is current, accurate, coherent, and that the recommended Remedial Actions are feasible.

Brief guidance on using the observation template is provided below and additional guidance can be found in Annex D. Annex E presents an example observation template.

In order to ensure that the information captured in the observation template is really useful, it is important that it is completed correctly. In particular, the Conclusion and Recommendation elements of the observation template require careful consideration and it is important that the guidance at Annex D is followed closely to ensure the observation is captured accurately and objectively. This will enable your organization to conduct the NATO LL Process more effectively and efficiently, as well as support other organizations in exploiting lessons generated from your observations. As mentioned in chapter 2 of this Handbook, NATO has a number of training courses that provide further guidance on how to complete the observation template.

How to complete the Observation Template

Title: This should be a short, informative title that covers the issue and the situation.

Observation: What happened? This should be a brief description of the issue to be avoided/improved or the success (good practice) to be repeated. Be sure to stick to the facts!

Discussion: What was supposed to happen and what actually happened? Include the context (where/when/who) and discuss why the issue/success occurred. What was the impact of the issue/success? What can be done to avoid/improve the issue or repeat the success? Provide as much objective evidence as possible.

Conclusion: What was the main reason, the root cause for why this issue/success happened? What can be learned from this?

Recommendation: What Remedial Actions do you recommend should be implemented to avoid/improve the issue or repeat the success in future? What do you recommend should be done to ensure that others can benefit from what you've learned? Remember to specify a suitable Tasking Authority who has the authority to task the appropriate Action Body to implement the Remedial Actions.

Post-Event Reporting

Post-event reports are an ideal means to capture observations. In NATO exercises, this is usually done through first impression reports, after action reviews or final exercise reporting; in NATO operations this is done through periodic mission reviews. Specifically with regard to exercises, the Bi-SC Exercise Directive 075-003 (Reference I), 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 for exercises. These reports should already contain much of the information needed to capture observations in the observation template.

Post-event reporting should be 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 BPs are 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 each stage.*
- *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.*
- *Share LL information in the NLLP.*

Post-Event Interviews

Post-operation or post-exercise interviews can help LL staff to capture observations from SMEs 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 areas of interest that the interviewee may otherwise not consider important. Interviews can help to produce richer observations and may enable the root causes and remedial actions to be identified more efficiently. Following the interviews, any observations should be captured using the observation template and shared in the NLLP. More information on conducting interviews can be found in the Analysing Observations section of this chapter.

MANAGING OBSERVATIONS

The LLSO or LL POC is likely to receive observations in different states of maturity and from many different sources. The LLSO/LL POC will need to work with the originator of the observation to ensure the observation is sufficiently mature to progress along the NATO LL Process and is stored with appropriate metadata in the NLLP, to comply with information management procedures.

This section provides guidance on managing observations by reviewing their content and applying appropriate metadata in the NLLP.

Reviewing Observations

Observations should be reviewed to ensure they are suitable to progress along the NATO LL Process as soon as possible after capture. This initial review process can be carried out either by a member of the originator's chain of command or organizational element, such as the LLSO, LL POC, or LNM. This process should highlight immature observations that require further clarification and filter out unsuitable observations. If this review is carried out soon after the observation is captured, the reviewing officer will be able to contact the originator to clarify any points while they are still fresh in the originator's mind.

> **Checklist for reviewing observations**
>
> *The answer to **all** of these questions should be **yes** for an observation to be suitable for progression in the NATO LL Process.*
>
>   1. *Is this an objective observation based on facts and not an opinion about something or somebody?*
>   2. *Is this an issue with the system and not just a simple error made by somebody?*
>   3. *Does this adequately and correctly describe the observed situation?*
>   4. *Has the NLLP been checked for existing lessons that may offer a solution to the observed issue?*

Observations that are deemed mature enough to progress along the NATO LL Process, transition from the **Observe** step to the **Analyse** step, where the first task is to assess whether they contain sufficient detail to be considered an LI/PoBP or need further analysis to reach this status (covered later in this chapter).

If an observation is not suitable to progress along the NATO LL Process, it can be rejected and subsequently archived in the NLLP (as an "Observation Rejected"). The LLSO should inform the originator of the decision so that they know their observation has been considered.

Observation Metadata

Metadata can be described as a set of data that describes and gives information about other data. Bi-SC Directive 025-001 Information and Knowledge Management (Reference J) states that metadata is a key enabler for effective and efficient sharing of information and requires NCS entities to define metadata elements that will be used to describe information.

Originators should attach metadata to observations within the NLLP as soon as possible, as 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.

Required NLLP Metadata

For the purposes of the NATO LL Process, all observations and lessons should be assigned the following required metadata in the NLLP:

- **Originator**: The person or organization that initially captured the observation. Ideally this will be an individual but at least the originating branch or unit is needed. The Originator's HQ is also needed.

- **Assigned LNM's HQ**: The HQ of the LNM that will manage the information after it has been submitted. By default, it will be the Originator's HQ.

- **Recommended Tasking Authority:** The entity responsible for the Implementation Phase of the NATO LL Process. This is the entity responsible for deciding on recommendations and Remedial Actions and tasking the Action Body to implement them.

- **Recommended Action Body:** The entity responsible for implementing the Remedial Actions.

- **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 sharing. If the originator has already added a classification, review it. If it seems that the classification is inappropriate, go back to the originator to discuss and get it changed if required.

- **Releasability**: An appropriate releasability classification 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 the classification, the originator will need to approve any changes to the releasability.

- **Observation 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 ODCR lesson template (Annex D) is used, this will be the same as the title for the observation.

- **Activity:** The primary activity the observation relates to. This could be the name of the exercise or operation. If an appropriate activity is not available in the NLLP, the JALLC's NLLP Managers can create a new activity on request.

- **Visibility:** There are two options: internal and external. This affects who can see the lessons. Internal lessons can be seen by personnel within the originating HQ only. External lessons can be seen by other NLLP users. It is recommended that lessons are shared externally as much as possible, to allow HQs to learn from each other. Lessons should only be limited to internal users if the observed issue is specific to that HQ only, or if the issue is deemed too sensitive to share more broadly.

Optional NLLP Metadata

It is recommended that the originator enters as much metadata as possible, as this facilitates efficient identification and analysis of the NLLP content. The following are optional metadata fields in the NLLP that, if populated, could increase the effectiveness of the observation/lesson:

- **Exercise stage**.

- **Reference**: any reference code, document or activity that could be useful for identification.

- **Levels**: Strategic, Operational, Tactical.

- **NATO lines of capability development**: Doctrine, Organization, Training, Materiel, Leadership, Personnel, Facilities – Interoperability (DOTMLPF-I).

- **Domain disciplines**: air operations, land operations, etc.

- **Other disciplines**: functional disciplines, capability development disciplines, etc.

- **Keywords**: in addition to adding topic-related keywords, HQs can use 'hashtags' to categorize NLLP items for internal purposes. For example, the hashtag "#LCKeyLesson" could be used to mark important lessons in Allied Land Command (LANDCOM). NLLP users can then use the NLLP's "Save Search" function based on that hashtag to quickly locate these items (see the NLLP Manual (Reference F) for guidance on how to use the Save Search function).

ANALYSING OBSERVATIONS

Once an observation has been approved, it moves from the **Observe** step to the **Analyse** step (see Figure 4 above). The purpose of analysing an observation is to provide an explanation as to why the observed issue occurred (the root cause) and identify a solution (Remedial Action) to fix the issue, along with a suitable Tasking Authority. The Tasking Authority must have the authority to task an appropriate Action Body with implementing the Remedial Action in the Implementation Phase of the NATO LL Process. This information is required to present the observation to the Originating Authority for endorsement as a LI/PoBP.

Analysis of an observation is generally completed in two stages: first to find the root cause and second to determine the Remedial Action. Following analysis, the observation should be updated in the NLLP with any new insights, including the root cause, recommended Remedial Action and Tasking Authority. At this stage, it is recommended that there is some

coordination with the Tasking Authority to ensure there will be sufficient resources to progress the resultant LI/PoBP (if endorsed) through the Implementation Phase of the NATO LL Process.

This remainder of this section aims to provide guidance on the analysis of observations by discussing:

- How to Prepare for Analysis – How mature are the observations? Do you need help with the analysis? Do you need more information?

- Visualization – What techniques can you use that will help you to see the patterns in your data and understand interactions between different aspects of your issue?

- Analysis Techniques – What techniques are available to you? Where can you find more information on these techniques?

- Merging Observations – Can similar/related observations be merged into a single and more impactful LI/PoBP for endorsement?

How to prepare for analysis

How mature are the observations?

As described earlier, the observation should have been reviewed soon after submission to ensure it is sufficiently mature to progress along the NATO LL Process (from "Observation Submitted" to "Observation"). The first activity in the Analyse step of the NATO LL Process is to assess the maturity of the observation again to determine what additional information is needed for it to qualify as a LI/PoBP and the level of analysis that is required to elicit this information. The following checklist aims to support you in making this assessment.

Checklist for maturity of observations

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

1. *Is the root cause of the observed issue clearly described (i.e. explanations of why the issue occurred)?*

2. *Do the explanations of the root cause (i.e. why it happened) seem to be correct?*

3. *Are there no other immediately obvious explanations of why the issue occurred?*

4. *Are recommendations (Remedial Action) that would address the suggested root cause of the observed issue clearly articulated?*

5. *Are there no other immediately obvious possible Remedial Actions to address the root cause?*

6. *Is a suitable Tasking Authority recommended?*

If the answer to **all** the questions in the checklist is **yes**, then the observation is *mature*. The Remedial Action and Tasking Authority should be clearly documented in the Recommendation field of the observation template (ODCR). The observation is now ready to be forwarded to the Originating Authority for endorsement as a LI/PoBP (covered in the following section).

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

Do you need help with the analysis?

Although the analysis does not necessarily need to be carried out by professional analysts, it does require LLSOs to look objectively, dispassionately, and analytically at the issue to identify/confirm the root cause(s) of the observed issue. In some cases, these issues may relate to subjects outside the operational control of the Originating Authority. In others, the

Originating Authority may not have the necessary resources or subject matter expertise to address the issue. It is important to recognize when this may be the case and request professional analysis through the chain of command.

The JALLC is tasked to fulfil analysis requirements for a variety of NATO activities via its annual programme of work. These include joint analysis of NATO operations, exercises, training events, and experimentation, as well as other types of analyses. For more information on how the JALLC can be tasked with an analysis requirement, visit the JALLC website or contact analysis@jallc.nato.int.

If you are interested in gaining more knowledge and experience in analysis techniques, the JALLC provides training to its analysts periodically through the JALLC Analyst Training Course, the content of which may be of interest to LLSOs. A limited number of seats are available to external participants. For more information, visit the JALLC website or contact the JATT at jattpoc@jallc.nato.int. Furthermore, the NATO School Oberammergau offers the NATO Alternative Analysis Course, covering the application of Alternative Analysis tools and techniques in support of decision-making and problem solving. More information can be found on the website (www.natoschool.nato.int).

Do you need more information?

More information may be needed to complete the analysis of the observation, potentially requiring the collection of additional data. Preparation is critical for success: a data collection plan should be prepared to define what additional data is needed and how this will be collected. Below we have set out some common ways of collecting this additional data that you may want to consider in your data collection plan: interviews and questionnaires.

Interview/questionnaire questions should be carefully designed to extract the desired data. The Joint Analysis Handbook (Reference H) and the JALLC interviewing guide (Reference K) are good resources for developing interviews and questionnaires.

> **Common ways of collecting additional data**
> - ***Interviews***: *there are three general types of interviews: 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.*
> - ***Questionnaires***: *these are useful for collecting data when the same information is required 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. It is important to consider the expected return rate (i.e. the ratio of questionnaires completed to questionnaires sent) when planning the number of respondents – a return rate of more than 20% is often considered good!*

Data Visualization

When you have gathered a mass of data relating to the observation, diagramming it is often the easiest and fastest way to start exploring it. Visualizing information allows you to explore relationships that would otherwise not be apparent and supports discussions with SMEs. This can help to identify potential root causes and Remedial Actions more accurately and efficiently. The Joint Analysis Handbook (Reference H) describes various data visualization models that can be used to facilitate further analysis. The most commonly used in LL analysis are presented over the next pages together with an example of what each model might look like.

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.

- Focus the analysis on the causes, not the effects or symptoms.
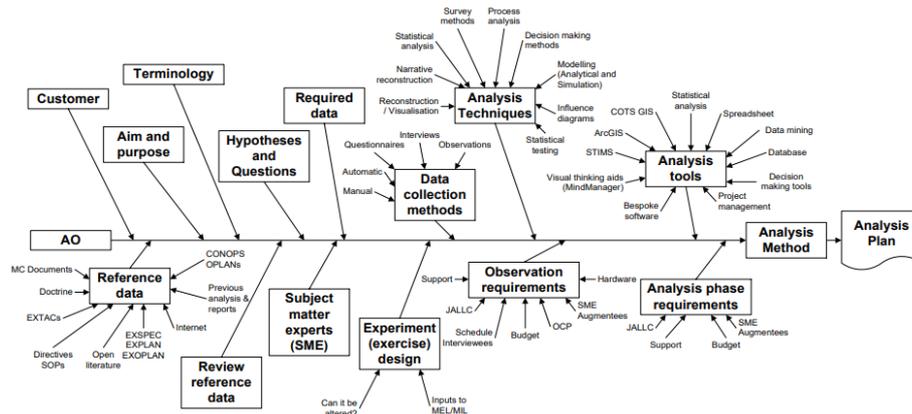
Figure 5: Example cause and effect diagram – developing an Analysis Plan (Reference G)

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.
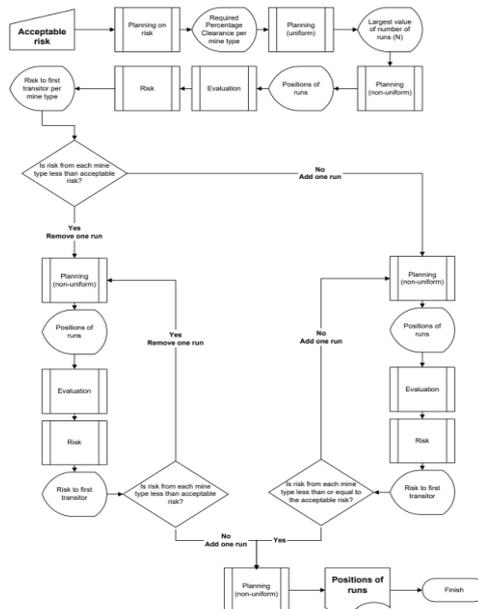
Figure 6: Example flowchart (Reference G)

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.
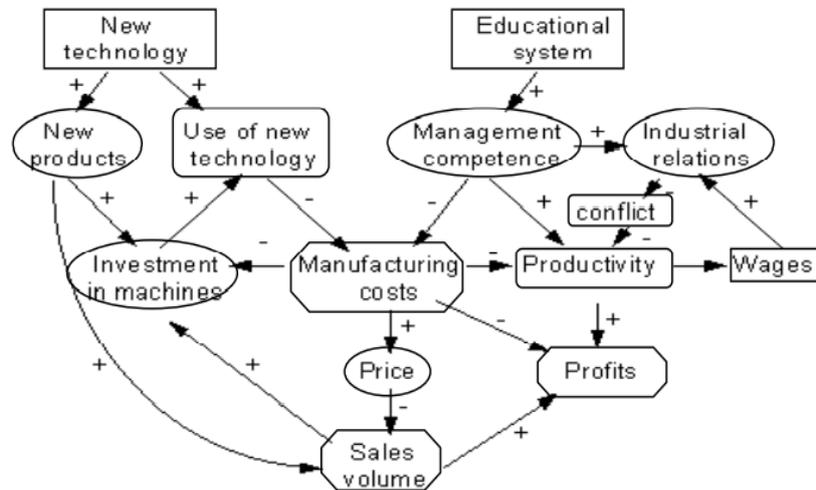
Figure 7: Example influence diagram (Reference G)

Analysis techniques

A bit of thinking and common sense will go a long way towards solving an issue, but sometimes structured analysis techniques are required to fully understand the issue. The Joint Analysis Handbook (Reference H), and the NATO Alternative Analysis Handbook (Reference L) provide instruction on conducting analysis using various techniques. The following techniques are a small selection of techniques that can be used to support analysis in a LL process:

- Six Ws
- Five Reasons Why / Five Times Why.
- Organization, Process, Technology Categorization.
- DOTMLPF-I Capability Categorization.
- Six Thinking Hats.
- Plus/Minus/Interesting.
- Pairwise Comparison Analysis.
- Statistical Analysis.

For more information on how the above techniques work and can be used, please refer to the abovementioned Joint Analysis and NATO Alternative Analysis Handbooks. 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 can be adapted to meet your specific needs.

Merging Observations

If many observations have been captured for a specific activity, similar/related observations can be merged to form a single prospective LI/PoBP for endorsement. Merging observations can produce a richer and potentially more impactful LI/PoBP, as it combines the insights from multiple observations in a concise and considered manner. Furthermore, subsequent steps of the NATO LL Process can be conducted more efficiently due to the reduced staffing burden of only staffing one observation through the NATO LL Process rather than staffing

multiple observations. The resultant lesson can be exploited more easily by others, as a single lesson can be located, shared, and actioned more easily than multiple related lessons.

Merging observations will likely require the LLSO to analyse groups of observations to draft a single new prospective LI/PoBP, which can then be presented to leadership in the Originating Authority for endorsement before being uploaded to the NLLP (see the following section for more information on endorsing and documenting LI/PoBP).

ENDORSING AND DOCUMENTING LESSONS IDENTIFIED AND POTENTIAL BEST PRACTICES

The final activity in the **Analyse** step is to request endorsement of the prospective LI/PoBP from decision-makers in the Originating Authority. This implies there is a process of review, including checks for completeness and accuracy with respect to the root cause and consideration of the recommended Remedial Action.

If the **LI/PoBP is endorsed**, its NLLP status should be updated to LI/PoBP[5] and it will be forwarded to the identified Tasking Authority by the Originating Authority through the chain of command, as it progresses to the next phase of the NATO LL Process. If the Originating Authority and the Tasking Authority are the same entity, there is scope to combine the endorsing and approving/noting of the LI/PoBP (part of the Decide step in the Implementation Phase of the NATO LL Process) into a single decision point for efficiency. This decision may be made at the HQ's LL Working Group, as described in chapter 2 of this Handbook.

If the **LI/PoBP is not endorsed** by the Originating Authority, it may advise that further analysis is conducted to improve the definition of the root cause and/or Remedial Action. Otherwise, the LI/PoBP will be rejected and archived in the NLLP (as an "Observation Rejected," as it never reached the LI/PoBP status) and the NATO LL Process will end.

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[5] If the observation was not previously shared in the NLLP, a new LI/PoBP should be created in the NLLP using the ODCR format (see Annexes D and E for more information on the Observation template). LNMs have elevated permissions allowing them to upload LI/PoBP directly, bypassing the Observation Submitted and Observation statuses.

SUMMARY

Capturing Observations

- Provisions should be in place for all staff members within an organization to document observed issues and successes.

- Using the observation template (ODCR) to record observations enhances interoperability by allowing information to be shared more easily. This is the format of lessons in the NLLP.

- Post-event reports are a good source of observations and should become a part of the knowledge base for the next event's planners. These reports should be shared in the NLLP.

- Post-event interviews are a valuable way to capture more information on lessons, before SMEs, leaders, and troops disperse.

Managing Observations

- Observations should be reviewed as soon as possible after capture to filter out unsuitable observations and to enable further refinement and clarification through liaising with the originators.

- From the start of the NATO LL Process, metadata should be assigned to observations in the NLLP. Metadata makes searching, analysing, and sharing NATO LL information easier. Careful consideration should be given to the metadata used.

Analysing Observations

- In order to transition an observation into a LI/PoBP, analysis must be conducted to determine the root cause(s), Remedial Action(s), and a Tasking Authority.

- Preparing for analysis involves identifying the level of analysis needed, whether help is needed, what analysis method will be used, and what additional information is needed.

- Diagrams provide an easy way to visualize information and explore relationships that may otherwise not be apparent.

- Similar/related observations from a specific activity can be merged to form a single prospective LI/PoBP for endorsement. This can produce a richer and potentially more impactful LI/PoBP.

Endorsing and documenting LI and PoBP

- The final activity in the Analyse step is to request endorsement of the prospective LI/PoBP by the Originating Authority.

- If endorsed, the status should be updated in the NLLP and the LI/PoBP will be forwarded to the Tasking Authority by the Originating Authority through the chain of command, progressing to the Implementation Phase of the NATO LL Process.

- If not endorsed, further analysis may be advised to improve the definition of the root cause(s) and/or Remedial Action(s); otherwise, it will be archived in the NLLP and the NATO LL Process will end.

4

NATO LESSONS LEARNED PROCESS: IMPLEMENTATION PHASE

Once an LI or PoBP is endorsed by the Originating Authority, the Implementation Phase begins and the Tasking Authority assumes responsibility for progressing the LI/PoBP through the remainder of the NATO LL Process. Staffing LIs to LLs, or PoBPs to BPs, relies on everyone involved: leaders, stakeholders, and LL practitioners.

The task of turning an LI/PoBP into an LL/BP can be thought of as a project and, as with any project, successful completion will require good project management. In this respect, you can find some project management principles that have proved important in the military environment are provided in Annex F.

This chapter provides guidance on how to conduct the different steps of the Implementation Phase of the NATO LL Process (Figure 8).
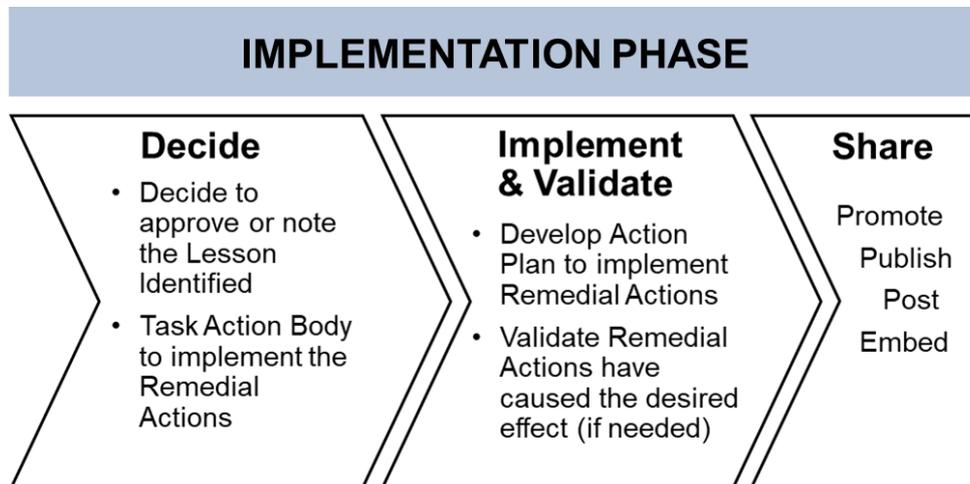
Figure 8: Implementation Phase of the NATO LL Process

The Decide, Implement & Validate, and Share steps can be split into four key activities, which provide the structure for this chapter:

- Decision on the endorsed LI/PoBP and tasking.
- Development of the Action Plan and implementation.
- Validation of Remedial Actions.
- Sharing LL and BPs.

DECISION ON THE ENDORSED LI/POBP AND TASKING

The first responsibility of the Tasking Authority in the **Decide** step is to make a decision on whether to approve or note the previously endorsed LI/PoBP. This decision is likely to be based on the feasibility of the recommended Remedial Actions, amongst other things.

If the LI/PoBP is approved, the Tasking Authority tasks one or more identified Action Bodies to implement the Remedial Actions. The decision to approve, tasking details, and feedback to the Originating Authority are recorded in the NLLP, at which point the LI/PoBP transitions to the *LI Approved or PoBP Approved* NLLP status. Such tasking will likely be

issued to the Action Bodies alongside guidance for the development of appropriate Action Plans and, if required, guidance on how to coordinate efforts to execute the Action Plan.

If the LI/PoBP is noted (i.e. not approved), the Tasking Authority acknowledges receipt of the LI/PoBP from the Originating Authority and provides feedback as to why the decision to note was made. This feedback, along with the decision to note, is recorded in the NLLP by the LNM within the Tasking Authority. At this point, the LI/PoBP becomes an *LI Noted* or a *PoBP Noted* in the NLLP and it is archived, ending the NATO LL Process. However, this does not mean that the observed issue is never spoken about again. Depending on the reason for the notation, the Tasking Authority may advise the Originating Authority to submit a new observation in the NLLP to trigger the NATO LL Process again. For example, the original root cause and Remedial Actions may no longer be appropriate due to a change in context, requiring further observation capture and analysis (conducted in the Observe and Analyse steps of the NATO LL Process). Alternatively, the Tasking Authority could leave the LI/PoBP in its current status (i.e. avoid noting or approving the LI/PoBP) and advise the Originating Authority to conduct additional analysis. The LI/PoBP can then be updated with any new insights before it is put to the Tasking Authority again for their decision on whether to note or approve the LI/PoBP.

DEVELOPMENT OF THE ACTION PLAN AND ITS IMPLEMENTATION

Once the LI/PoBP is approved and Action Bodies have been tasked, the first activity in the **Implement & Validate** step is to develop an Action Plan(s) to implement the Remedial Actions and to set out the validation requirements (if required). Action Bodies are responsible for developing their respective Action Plans, sharing this with the Tasking Authority to gain approval, and reporting to the Tasking Authority on the implementation progress throughout. Action Plans should be uploaded to the NLLP by the LNM within the Tasking Authority to enable stakeholders to understand how Remedial Actions are being implemented.

The Tasking Authority is ultimately responsible for the coordination, implementation, tracking, and validation (if required) of an LI/PoBP to an LL/BP; therefore, the Action Body should define and report against a number of significant milestones, to assist leadership in monitoring the progress of the Action Plan implementation.

The implementation of the Remedial Actions can be viewed as a project and, as such, the Tasking Authority will likely require the use of other tools/systems outside of the NLLP to manage the project effectively, such as the Tasker Tracker Plus tool used within NATO. It is important that any Remedial Action implementation details from these tools/systems are extracted and entered into the NLLP by the LNM within the Tasking Authority to ensure the information is not lost once the project closes. This will enable others to understand how the Remedial Actions are being implemented and further support the institutionalization of the lesson.

> **Remedial Action Pitfalls**
>
> *The implementation of Remedial Actions is susceptible to many risks that can delay or even halt completion. Common pitfalls include inappropriate or circuitous business processes, poor quality ODCRs, lack of staffing, lack of adequate resources (especially over long and complex Action Plans), 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 COS.*

VALIDATION OF REMEDIAL ACTIONS

The last activity in the **Implement & Validate** step is to validate the Remedial Actions. Validation in the context of the NATO LL Process is the act of ensuring the completed Remedial Actions have correctly addressed the original issue observed. In the case of an LI, this would be validating that the Remedial Actions have successfully improved or avoided the observed issue. For a PoBP, validation should prove that the Remedial Actions caused the observed success to be repeated and that the good practice described in the PoBP is the best option when compared to other good practices.

Validation requirements should be described in the Action Plan (see above) and may require additional analysis to determine if the Remedial Actions generated the desired effects and, therefore, has resulted in measurable improvement or confirmed the PoBP is the best option.

The process and level of effort required to conduct the validation will be determined on a **case-by-case basis** by the Tasking Authority with some types of validation requiring more in-depth analysis than others to complete the validation process. Factors to consider include:

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

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

When time allows, a third party SME (i.e. independent of the Action Body) could be consulted to evaluate whether the Remedial Actions had the desired effect. Expert validation is often sufficient to accept the Remedial Actions, however, if in-depth analysis for validation is required, a request should be made to external agencies to support analysis or experimentation.

Following successful validation, an LI becomes an LL and a PoBP becomes a BP. At this point, the Tasking Authority should update the NLLP entry to reflect the outcome of the validation and the new NLLP status.

SHARING LESSONS LEARNED AND BEST PRACTICES

When an LL or BP is achieved, the final step of the Implementation Phase is to **share** it within the NLLP and more broadly via other channels, to ensure it is institutionalized. Sharing provides the opportunity to allow others to learn from our experiences, avoid making the same mistakes, and ultimately improve performance. Sharing should be based on the *need to share* principle, where possible, rather than the *need to know*. However, many factors have to be taken into account, such as the target audience, timing, security, etc. See the following chapter for more information on sharing and re-using NATO LL information.

SUMMARY

The Tasking Authority is ultimately responsible for the Implementation Phase – the coordination, implementation, tracking, and validation (if required) of an LI/PoBP to an LL/BP.

Decision on the endorsed LI/PoBP and tasking

- The Tasking Authority makes a decision on whether to approve or note the previously endorsed LI/PoBP.

- If the LI/PoBP is approved, the Tasking Authority tasks one or more Action Bodies to implement the Remedial Action(s).

- If the LI/PoBP is noted, the Tasking Authority acknowledges the LI/PoBP and provides feedback to the Originating Authority.

- In both cases, the decision and relevant details are recorded in the NLLP.

Development of the Action Plan and its implementation

- Action Bodies are responsible for developing Action Plans, sharing them with the Tasking Authority to gain approval, and reporting to the Tasking Authority on progress.

- Action Plans should be uploaded to the NLLP.

- The implementation of a Remedial Action is a project that needs to be planned, managed, and resourced in order to be successful.

Validation of Remedial Actions

- Validation in the context of the NATO LL Process is the act of ensuring the completed Remedial Action(s) have correctly addressed the original issue observed.

- The process and level of effort required to validate will be determined on a case-by-case basis by the Tasking Authority.

Sharing Lessons Learned and Best Practices

- It is important that LL and BP are recorded in the NLLP and shared more broadly to ensure they are institutionalized within NATO.

5

NATO LESSONS LEARNED INFORMATION SHARING, RETRIEVAL, AND RE-USE

The value of the NATO LL Process is only realized when the information generated by the process is available to the people who need it, when they need it, and is used or re-used, as often as needed.

Making NATO LL information available is the first step in preventing previously identified issues from reoccurring. The second is giving potential users the knowledge, tools, and support to effectively and continuously retrieve and re-use NATO LL information, as part of their routine work.

NATO LL information sharing, retrieval, and re-use leads to an enduring improvement in organizational performance through further exploitation. But not everyone is motivated to share or look for NATO LL information routinely.

Barriers to Sharing NATO LL information

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.*

Barriers to Retrieving and Re-using NATO LL information

Commonly expressed reasons for not looking for or re-using LL information include:

- *Relevant LL information is hard to find and hard to access.*
- *There are not enough resources (time, staff, knowledge, etc.) to routinely look through old lessons or best practices.*
- *If lessons are key, others will flag them, and/ or incorporate them.*
- *Submitting lessons to the NLLP and making them available to others is enough to ensure learning happens.*

However, there are great benefits in overcoming these concerns about sharing, retrieving and re-using LL information. Effective information management and sharing yields better results in both industry and military environments. In military terms, this can mean saving lives, undermining adversaries, and succeeding in the mission.

The LLSO, supported by the LL POCs, plays a key role in LL information sharing within the organization and will need to understand:

- Whom to share LL information with?
- When to share LL information and when to re-use?
- How to share and retrieve LL information?

This chapter answers these questions and provides guidance on making your organization's LL information sharing as effective as possible.

WHOM TO SHARE NATO LESSONS LEARNED INFORMATION WITH?

In sharing LL information, 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 LL information is presented to a general, who needs the information to make a command decision that will affect the entire organization, should be different to the way LL information is presented to a corporal, who needs the information to improve his own daily working practices.

Lessons are a valuable input to operations and exercise planning processes and training; the re-use of lessons in these areas should be routine. 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 to improve future activities. The emphasis should be on the application of LLs, rather than the collection of lessons.

Different audiences will have specific requirements and applications for LL information:

- 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 Directive 075-003 on Collective Training and Exercise (Reference I). Lessons most relevant to this audience are likely to come from LI Action Plans, the LI List, the Remedial Action Report from previous exercises, as well as the NLLP. Lessons from operations 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.

WHEN TO SHARE NATO LL INFORMATION AND WHEN TO RE-USE?

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

NATO LL information sharing can occur at any time during the NATO 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 Periodic Mission Reports, Final Exercise Reports, meeting minutes, etc.

Similarly, re-using LL information should be embedded in the organization's culture and daily business. It should be a key consideration during any planning activity.

Security: Need to Know versus Responsibility to Share

According to NATO Information Management Policy (Reference M), information should be managed with an emphasis on sharing, balanced by the considerations for security.

NATO 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 different national contingents work together with adjacent areas of responsibility, *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 identified, 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 in which it is valid, and how it can be *institutionalized* smoothly. The danger with sharing good practices too early is that people may assume this is enough to reach a BP (end of the NATO LL Process) and then take no further action to *institutionalize* it.

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 a LLSO's role will be to encourage the reporting of issues, 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.

Maturity of Lessons Learned Information

Different types of LL Information have different levels of maturity, which is closely linked to quality. The maturity of the LL information typically increases as the LL process progresses, in other words, the maturity increases with the amount of analysis and scrutiny it has undergone. Examples of information at differing levels of maturity include:

- Low maturity LL information: Raw observations, good practices, Hot Wash Up output.
- Medium maturity LL information: Newsletters, mature observations, LI/PoBP, First Impression Reports.
- High maturity LL information: LL/BP, LL analysis reports, handbooks, Final Exercise Reports, LI Lists, LI Action Plans, After Action Reviews.

Staff are often less inclined to share low maturity LL information, because they may not be as confident in the veracity of the information. Low maturity 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 maturity 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 recipients of the information are aware of the maturity, they will be able to make informed decisions about how to best use that information.

HOW TO SHARE AND RETRIEVE NATO LESSONS LEARNED INFORMATION?

Consideration needs to be given to the *pushing* and *pulling* of information. Pushing information means that new information is actively sent out to stakeholders or subscribers as it becomes available, while pulling information implies that stakeholders have to regularly check to see if new information has become available. Examples of pushing information includes the distribution of newsletters and sending emails to subscribers when something happens, like posting new information on a portal. An example of pulling information is uploading a LL report to the NLLP, where people are expected to retrieve the LL information as and when they need it.

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.

Lessons Learned Communities of Interest

LL COIs are groups of people who have common goals and engage in socialized learning. Within NATO, opportunities to interact include online forums, such as the LL COI areas within the NLLP, conferences, working level meetings, working groups and, of course, direct communication.

There are a number of benefits to participating in a COI in an LL context, including:

- Supports the sharing and re-use of NATO LL information.
- Supports problem solving by enabling better solutions to be generated in shorter time through discussions with SMEs within the community.
- Supports the *institutionalization* of LL and BP through publicizing them across the relevant communities. This will help to avoid previous issues from reoccurring.

There are, however, a number of obstacles to participating in an LL COI, including the releasability and classification of information, and an *institutional mindset* against information sharing. Making personal connections and developing trust (i.e. networking) significantly enhances your ability to share information.

Requests for Information

To be able to retrieve and re-use NATO LL information effectively, staff must understand where to search, how to search, and how to extract NATO LL information. The NLLP is likely to be the primary source of NATO LL information; staff may seek guidance on using it from their local LLSO, LL POC, or LNM. Alternatively, staff can consult the guidance contained within the NLLP under the "help" section, or request training through the JALLC. However, if the LL information being sought is not in the NLLP, or the NLLP is not accessible from the staff member's location, it is important to know who can provide support.

Some NATO entities 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 entity. For this reason, a database of SME POCs within your entity should be maintained and shared. The JALLC maintains a central database of LL POCs across the NCS and NFS, which may be able to assist in responding to a request for LL information.[6] The JALLC also holds LL POC details for some NATO, Partner and Troop Contributing Nations.

The JALLC's mission includes NLLP ACM, which facilitates the sharing and re-use of NATO LL information contained within the NLLP. NLLP ACM includes, amongst other activities, analysing and summarizing NLLP data, monitoring lessons uploaded to the NLLP, and reaching out to or pushing NATO LL information to relevant authorities. NLLP ACM products include analysis reports and interactive graphics based on NLLP data. If searches of the NLLP have remained unfruitful, NATO staff may submit a request to the JALLC for an NLLP ACM product summarizing NLLP content relating to a specified topic of interest. To find out more about requesting NLLP ACM products, contact the JALLC at analysis@jallc.nato.int. More information on NLLP ACM can be found on the JALLC's website and on the NLLP ACM page within the NLLP, which includes links to previous NLLP ACM products.

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[6] The Bi-SC Directive 080-006 Lessons Learned (Reference A) requires all NCS bodies to inform the JALLC of their current LL POCs.

Training

NATO 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 the NATO LL Process, as well as to inform staff on the relevant LL information from previous experiences.

Publications

In addition to routine reports (e.g. After Action Reviews, Periodic Mission Reports, Final Exercise Reports, etc.), there are several ways to ensure NATO LL information reaches those within and external to your HQ, such as compiling information into regular newsletters, leaflets, emails, bulletin boards, or other media.

SUMMARY

Whom to Share NATO LL Information With

- Carefully select the target audience to ensure relevance and thereby promote effective learning.

- LL information is a valuable input to operation and exercise planning processes and therefore operation and exercise planners are one target audience within NATO.

- LL information is a valuable input to NATO's training activities and so trainers are another target audience.

When to Share NATO LL Information and When to Re-use

- Sharing and re-using LL information leads to improved organizational and individual performance.

- Proper information management should help to overcome concerns regarding sharing.

- LL information can be shared or re-used at any time, as long as it is clear what level of maturity it has.

- An emphasis on *responsibility-to-share* should be balanced with the security principle of *need-to-know*.

How to Share and Retrieve NATO LL Information

- 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.

- LL COIs are groups of people who engage in socialized learning and have common goals. LL information may be shared within LL COIs via the NLLP LL COI sites, working groups, etc.

- A key factor in sharing information is making the effort to develop and maintain personal relationships. Informal sharing via online networks can complement sharing through formal military channels.

- NATO training events are good opportunities to share recent lessons.

- The NLLP is the main tool within NATO for sharing LL information. Request for information services are available if you cannot find the LL information you are looking for in the NLLP.

6
USEFUL RESOURCES AND CONTACTS

We hope that you have found this Handbook to be a useful and practical introduction to NATO LL, and that it supports you in conducting LL activities within your organization effectively and efficiently.

We wish to keep this Handbook up-to-date with the latest policies, procedures, BPs, and innovation in LL, so that it remains a useful resource for NATO LL stakeholders. If you would like to provide feedback or suggestions on how to improve this Handbook, please email them to jallc@jallc.nato.int.

USEFUL LESSONS LEARNED CONTACT INFORMATION

- For JALLC LL support and LL training, email jattpoc@jallc.nato.int.

- For advice on applying analysis techniques and requesting analysis support from the JALLC, email analysis@jallc.nato.int.

- For NLLP queries, contact the JALLC's NLLP Managers at nllp@jallc.nato.int.

FURTHER LESSONS LEARNED INFORMATION

For further information on learning lessons in NATO, visit the JALLC's website: www.jallc.nato.int.

To access NATO LL information contained within the NLLP:

- Unclassified network – a link to the NLLP is provided on the JALLC's website (link above).

- NATO classified network – nllp.jallc.nato.int.

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

- The Lessons Learned Handbook by Nick Milton (Reference C).

- The Fifth Discipline (Reference N) .

To brush up on your analysis techniques in support of NATO LL, see:

- The Joint Analysis Handbook (Reference H), available to download on the JALLC website: https://www.jallc.nato.int/organization/products/books-guides.

- The NATO Alternative Analysis Handbook (Reference L), available to download on the ACT website: https://www.act.nato.int/alta.

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ANNEX A
LESSONS LEARNED GLOSSARY

The following are some useful definitions taken verbatim from Bi-SC Directive 080-006 Lessons Learned (Reference A).

Action Body	The Action Body is the organisation or staff tasked by the Tasking Authority with the implementation of assigned recommendation/Remedial Action from a Lesson Identified. The Action Body develops an Action Plan to guide the Remedial Action activities. The Action Body reports to the Tasking Authority.
Action Plan	An Action Plan is the written plan of action and milestones developed by an Action Body to implement an assigned Remedial Action.
Analysis	NATO defines analysis as, "the study of a whole by thoroughly examining its parts and their interactions". In the LL Process, analysis (also named discussion in the Observation, Discussion, Conclusion, Recommendation (ODCR) template) should allow discovery of the root cause of a problem, recommend Remedial Action(s) to improve or adapt and identify the Tasking Authority to decide on the recommendation. Analysis is normally conducted by the originator and may be supported by a Subject Matter Expert.
Approval	Constitutes final and formal agreement on matters, which are within the authority's remit without reference to other authority. Such agreement will normally result in approval for follow-on action or activity.
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	Represents a formal agreement, but where the matter requires subsequent consideration and approval by another authority and/or at a higher level. The Originating Authority endorses and forwards the Lesson Identified to the Tasking Authority using the normal chain of command as appropriate.
Lesson	A Lesson is the generic word for a Lesson identified and/or a Lesson Learned.
Lesson Collection Plan	A Lesson Collection Plan can be a simple list of priorities or focus areas wherein lessons wants to be collected. The Lesson Collection Plan can also be a comprehensive and detailed plan for who, when, where, and how lessons are collected for priority or focus areas. A Lesson Collection Plan can be made ahead of an activity in order to enable active and focused collection of lessons (e.g. as an integrated part of an exercise specification/plan or an operation plan).

Lesson Identified	A Lesson Identified is the output of the Analysis phase and includes an Observation, an identification of the root cause of the issue, recommended Remedial Action(s) for improvement, and a single proposed Tasking Authority to decide and initiate implementation of Remedial Action(s)
Lesson Learned	A Lesson Identified with remedial action(s) has been approved and implemented
Lessons Learned Point of Contact	A Staff Officer/Non-Commissioned Officer appointed by a Division/Branch/Section head whose secondary/collateral function is to perform Lessons Learned tasks and act as a Subject Matter Expert for their functional area. The task includes support to the originator in the creation of an observation (in the Observation, Discussion, Conclusion, Recommendation (ODCR) format) and the use of the NATO Lessons Learned Portal. The Lessons Learned Point of Contact may support the development of a Joint Analysis Requirement. The Lessons Learned Point of Contact may participate in internal LL groups within the HQ/entity.
Local NLLP Manager	Lessons Learned Staff Officers assigned to Lessons Learned posts within Bi-SC Lessons Learned Structure with granted specific rights for the Lessons Learned Staffing area. In addition to submitting Lesson Identified/Best Practices, the Local NATO Lessons Learned Portal Managers are authorised to Validate the observation submitted by an user from his HQ and introduce the results of the Analysis Phase into the Lessons Learned Staffing area. Also, they can contribute to the staffing process in case their entity is a Tasking Authority or it is appointed as Action Body.
NATO Lessons Learned Portal	The NATO Lessons Learned Portal is the single storing, tracking and sharing tool for NATO Lessons Learned information
Notation	Reflects the receipt of information on an issue. Notation requires no further action nor does it imply agreement. Implicit in this definition is that it is not possible to refuse Notation.
Originating Authority	The Originating Authority is the entity that is responsible for endorsing the Lessons Identified via the NATO Lessons Learned Portal. This includes documentation of the observation, analysis, conclusion, recommended Remedial Actions, and identifying the Tasking Authority. The Originating Authority is to forward the Lesson Identified to the Tasking Authority through the chain of command.
Observation	An Observation is a short description of an issue which may be improved or a potential Best Practice.
Remedial Action	The corrective action needed to transform a Lesson Identified into a Lesson Learned
Tasking Authority	The Tasking Authority is the entity that is responsible for the Implementation Phase of the NATO Lessons Learned Process. This

	includes responsibility to take decisions regarding recommendations and Remedial Actions, (note or approve), commit resources, and appoint/task one or more Action Body. The Tasking Authority informs the Originating Authority of its decision (feedback). The Tasking Authority is responsible for the coordination, implementation, and the tracking from a Lesson Identified to a Lesson Learned. The Tasking Authority is responsible for controlling that the approved Lesson Identified is uploaded in the NATO Lessons Learned Portal, and to update the Lesson Identified to a Lesson Learned when implemented..
Validation	When necessary, validation is done to ensure that the originally observed issue has been successfully addressed by the implemented Remedial Action. The Tasking Authority is responsible for validation.

ABBREVIATIONS

AAP	Allied Administrative Publication
ACM	Active Content Management
ACO	Allied Command Operations
ACT	Allied Command Transformation
AJP	Allied Joint Publication
Bi-SC	Of the Two Strategic Commands
BP	Best Practice
COI	Community of Interest
COS	Chief of Staff
CSA	Cyber Situational Awareness
CT&ED	Collective Training and Exercise Directive
DOG	Director's Observation Guidance
DOTMLPF-I	Doctrine, Organization, Training, Materiel, Leadership, Personnel, Facilities – Interoperability
ENDEX	End of Exercise
EXCON	Exercise Control
JADL	Joint Advanced Distribution Learning
JALLC	Joint Analysis and Lessons Learned Centre
JATT	JALLC Advisory Training Team
JORT	Joint Warfare Centre Observations Reporting Tool
JSON	Java Script Object Notation
JWC	Joint Warfare Centre
LANDCOM	Allied Land Command
LI	Lessons Identified
LL	Lessons Learned or Lesson Learned
LL POC	Lessons Learned Point of Contact
LLSO	Lessons Learned Staff Officer
LLSOC	NATO Lessons Learned Staff Officers Course
LNM	Local NATO Lessons Learned Portal Manager
NCS	NATO Command Structure
NLLP	NATO Lessons Learned Portal
ODCR	Observation, Discussion, Conclusion, Recommendation
ODE	Officer Directing the Exercise
OLOF	Off-line Observation Form
PoBP	Potential Best Practice
POC	Point of Contact
SACT	Supreme Allied Commander Transformation
SME	Subject Matter Expert
SOP	Standing/Standard Operating Procedure
SWEDINT	Swedish Armed Forces International Centre

ANNEX B
ABBREVIATED NATO LESSONS LEARNED PROCESS

The NATO LL Policy (Reference D) indicates there could be a need for an abbreviated NATO LL Process in situations where an unexpected issue needs to be addressed in the shortest time possible to avoid a significant undesirable outcome that could jeopardize the achievement of priority objectives, or to hinder an adversary's progress. In a fast-evolving environment, such as during military operations and exercises, following the NATO LL Process described in this Handbook may not properly allow the root cause and Remedial Action of an issue to be identified and/or actioned in a timely manner. Thus, flexibility in conducting the steps of the NATO LL Process is required.

Where necessary, an abbreviated NATO LL Process could be performed, tailored to each specific scenario, where quick wins or avoiding or mitigating significant losses are of the utmost importance. As a minimum, such a process would need to achieve the following in order to implement an effective solution:

- A clear understanding and description of the observed issue.

- Rapid analysis to identify the most likely root cause and potential Remedial Actions to rectify the issue. If a number of Remedial Actions are identified, the action that is likely to produce the best outcome within the required timescales should be selected, which might not be the optimal solution. In some situations, a trial and error approach may be applied to determine which of the potential Remedial Actions is best. This might involve tasking more than one Action Body to implement the potential Remedial Actions simultaneously and report on the outcome. Appropriate criteria should be applied to assess which is the best Remedial Action.

- Streamlined decision-making and communication between the Originating Authority, Tasking Authority, and Action Body to enable the selected Remedial Action to be implemented quickly.

- Confirmation that the Remedial Action has rectified the observed issue, though full validation may not be possible within the timescales.

- Regular information sharing with those who may be affected by the issue throughout the process, to ensure they are updated on the latest status and can adapt their plans or activities accordingly.

- Rapid and accurate dissemination of the successful Remedial Action to those affected by the issue, so that they can resume activities as soon as possible.

When the time-sensitive period ends, it is important that the observed issue is documented as an observation in the NLLP and resumes the standard NATO LL Process, to ensure all aspects of the issue have been fully explored, understood, addressed, validated, and shared to institutionalize the learning.

ANNEX C
AN EXAMPLE OF NATO LESSONS LEARNED PROCESS IMPLEMENTATION: JOINT WARFARE CENTRE

The Joint Warfare Centre's (JWC) application of the NATO Lessons Learned (LL) Process is a useful example of how the process can be applied to capture and process lessons from NATO exercises. This example was written by a member of the JWC and any queries regarding this implementation of the NATO LL Process should be directed to the JWC.

The JWC acts as the Officer Directing the Exercise (ODE) for joint operational-level exercises, including the JACKAL, JUPITER, and DEFENDER series. Managing the NATO LL Process in alignment with the Bi-SC Directive 075-003 on Collective Training and Exercise (Reference I) means that inputs, outputs, and outcomes of the process are frequent and relatively comparable.

The NATO LL Process in the JWC is managed as follows. Prior to Stage 3 Operational Conduct activity (specifically Phase II and Phase III), the JWC issues the Director's Observation Guidance (DOG), which includes the data collection plan for exercise and training objectives, lesson priority areas, and may include Experimentation Activities and JALLC Joint Analysis project information, if these are available and relevant to the exercise. The DOG is promulgated prior to Phase II and updated for Phase III to reflect Training Objective achievement in Phase II.

The JWC currently has one military LLSO and one civilian analyst, who are usually double-hatted during execution to cover Training Event Development analyst roles during Phase IIIB, such as the After Action Review Analyst. The minimum staffing is one LLSO to monitor Phase II, and one LLSO in the Situation Centre in Exercise Control (EXCON) in the JWC for Phase IIIB. The LLSOs will also observe all exercise planning activities, including all Exercise Planning Team meetings, most planning conferences, and product development events such as Main Events List/Main Incidents List Strategy Workshops, Incident Development Workshops, and the Scripting Workshop.

Prior to Phase IIIB execution, the LLSOs provide three distinct sets of training and briefing: firstly, to the LL Points of Contact (POC); secondly, to Advisory and Analysis Team members staffing 'EXCON Forward' in Training Audience locations; and finally, EXCON Training to all EXCON members including augmentees. This training is in addition to routine newcomer training and LL POC refresher training.

During execution, observers (which can be any EXCON staff member, both Forward and Rear) can submit observations into the JWC Observations Reporting Tool (JORT), which operates on the MISSION SECRET network and NATO SECRET network. The use of the JORT allows the JWC to merge repeated issues, to filter out observations, and to add the information drawn from discussion and comments to provide a richer observation. This, the JWC believes, increases the quality of observations and reduces the incidence of large numbers of low-quality observations being submitted into the NATO Lessons Learned Portal (NLLP). Up to 200 observations will be distilled into 30-40 lessons.

Prior to the end of the exercise (ENDEX) (usually within 24 hour) a Hot Wash Up is conducted in the JWC's facilities, chaired by the Chief EXCON and comprising

representatives from each EXCON functional area. EXCON Forward are either linked by video conference or their submissions are presented on their behalf by a proxy in EXCON Rear. At ENDEX the After Action Review is conducted, chaired by the Officer Conducting the Exercise. Insights from both the Hot Wash Up and After Action Review help to build a better understanding of the issues raised in the JORT.

After the exercise Phase IIIB, JWC LLSOs prioritize issues to be listed in the Lesson Identified (LI) List for the First Impression Report, within 15 days of ENDEX. These lessons are those which require an external Tasking Authority. The contributing observations are reviewed on submission and marked as candidate First Impression Report LIs. The comments and discussion during the exercise via JORT contribute to the analysis and drafting of the LI. These are uploaded as internal JWC observations in the NLLP prior to final submission into the First Impression Report, to generate an NLLP reference number that will be cited in the First Impression Report. When the First Impression Report is signed, the observation is reassigned as an external LI, and the Tasking Authority proposed. Shortly afterwards, the letter to the Tasking Authority is drafted, signed by the ODE Deputy Commander or ODE Commander, and sent to the Tasking Authority.

Internal lessons are categorized, analysed, and incorporated into LIs which are then presented to the Chief EXCON (post-exercise, reverting to the Deputy COS of Exercise, Training, and Innovation) for approval and action, or alternatively for discussion at an LL Working Group. For LIs that require cross-directorate approval, the COS will chair an LL Board.

LIs for action across directorates are prepared as individual taskers in NATO's Tasker Tracker Plus tool, sponsored by the Director of Management, and staffed accordingly. These are cited as internal LIs in the NLLP and usually made external at an appropriate time.

In terms of sharing lessons, the JWC uploads relevant and high quality LL information to the NLLP: all external lessons, most internal lessons (which change to external when appropriate), plus ad-hoc LL reports. In addition, the JWC actively highlights LLs and Best Practices (BP) at most exercise planning conferences and exercise production and execution events. The JWC also runs training for Training Audiences in various venues, all informed by recent LLs and BPs.

ANNEX D
OBSERVATION TEMPLATE

This annex contains the standardized NATO observation template described in Bi-SC Directive 080-006 Lessons Learned (Reference A). It contains five fields: Title, Observation, Discussion, Conclusion, and Recommendation and is often referred to as the *ODCR* format.

Title

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

Observation

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: stating opinions rather than facts, listing details better suited to the discussion, conclusion, or recommendation parts of the template, or including too little information.

Discussion

The discussion explains how and why the observed issue differed from expectations. 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. 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 observed issue, why it happened, the impact it had, and the outcome of any actions taken to rectify the issue. It should be based on 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 Tasking Authority and 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 OBSERVATION TEMPLATE

As an Observation moves through the NATO LL Process, additional information is added to the observation template fields so that, when complete, an LI is the result. This is why the development of the ODCR should be seen as an iterative process, rather than a linear one.

Tip

If writing down an LI, i.e. you already have a Remedial Action, try 'reverse engineering' the use of the observation 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.

When capturing observations, carefully considering what is entered into the observation template fields and asking a colleague to review the draft, can increase the efficiency of the NATO LL Process, as fewer iterations are required to produce an ODCR that is suitable to become an LI.

An example of a completed observation template is provided in Annex E of this Handbook.

ANNEX E
OBSERVATION TEMPLATE EXAMPLE

This annex presents an example of an Observation captured in the observation template (ODCR format). The example was inspired by a real unclassified Observation Submitted to the NLLP, but some details have been changed so that it is fictitious.

Title *The title identifies the issue in a short and concise manner.*	Poorly shared Cyber Situational Awareness in Air Component Command due to lack of tools/processes.
Observation *The observation describes what happened and identifies the issue.*	At the Air Component Command (ACC) Cyber Defence Working Group, the team leader briefed on the current cyber situation in the Area of Responsibility and the situation regarding nominated cyber targets. It was observed that there are no tools or processes for the ACC to maintain shared Cyber Situational Awareness (CSA) in terms of cyber threats, effects, and responses.
Discussion *Provides context, identifies the immediate effect of the issue and anticipates further impacts if the issue persists.*	There is currently no tool or process for sharing information on cyber threats, effects, and responses between and amongst the Joint Task Force, components, and nations; in effect, there is no common Cyber Operational Picture. Without a shared picture, there will be cyber threats that may be known to some but not to others, vulnerabilities that are not mitigated, effects that are not understood, and uncoordinated responses. Cyber must have a shared situational awareness; without it, the risks are not efficiently or effectively managed and mitigated.
Conclusion *States the root cause of the issue without repeating the observation.*	CSA in ACC, although fundamental to managing and mitigating cyber risks, seems to be very rudimentary due to a lack of an associated tool and process, limiting a shared understanding of cyber threats, vulnerabilities, effects, responses, and overall risk.
Recommendation *Identifies what needs to be done to address the issue.*	Develop and implement a common CSA process and tool(s) to facilitate sharing information on threats, vulnerabilities, effects, and responses amongst NATO and nations.

ANNEX F
PROJECT MANAGEMENT PRINCIPLES

Project management principles can be applied to various aspects of managing the NATO LL Process, in particular, it can improve the effectiveness of staffing an LI/PoBP to an LL/BP (Implementation Phase).

Project management principles that have proved important in the military environment are:

- Leadership support: Leadership support is critical in the selection of the Tasking Authority, endorsement of the Remedial Action and tasking of the Action Body. Without command direction on the Remedial Action and Action Body, the LIs/PoBPs will likely stall in the NATO LL Process as the organization will fail to complete the action necessary to *institutionalize* the learning.

- Clarity of roles and responsibilities: Participants must understand their roles and appreciate how they fit into the NATO 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/PoBPs will help to ensure leaders are able to make informed decisions regarding how many resources to allocate to turning an LI/PoBP into an LL/BP.

- Method of communication: Communication of information must be simple, accessible, and timely. The NLLP should form part of the communication process for NATO LL information.

THE NATO LESSONS LEARNED HANDBOOK

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