

# IVV 23: Lessons Learned and Organizational Learning

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## Purpose

The purpose of this system level procedure (SLP) is to promote organizational learning and to establish a consistent and documented method of capturing Lessons Learned within the NASA IV&V Program. As a learning organization, we want IV&V Program employees to actively acquire knowledge, share what they know, apply what they've learned, and store their knowledge in a way that enables easy acquisition.

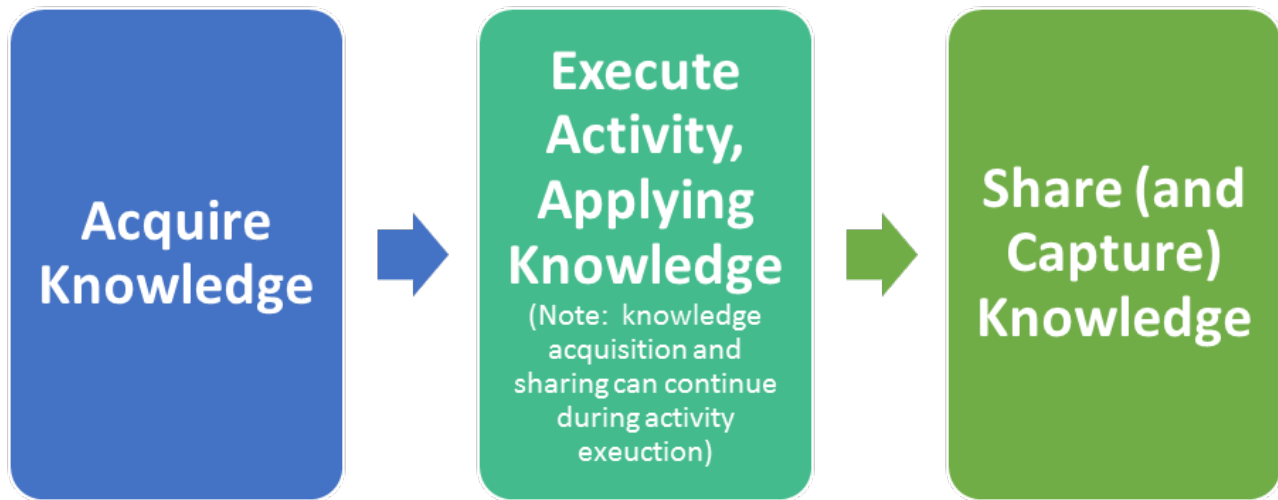
## Scope

This SLP applies to all civil service and contract employees performing work within the NASA IV&V Program.

## Process

### Organizational Learning

NASA's IV&V Program strives to operate as a learning organization and to provide the resources and tools necessary to support organizational learning. To support organizational learning, we ask Program staff to start every activity with a knowledge acquisition exercise, leverage the acquired knowledge during the activity, and end with a knowledge capture and sharing exercise. This process can apply to activities at all levels and of all sizes and scopes.



#### IVV 23 Organizational Learning -- 03-23-2017.docx

Knowledge acquisition can be accomplished in many ways, including but not limited to:

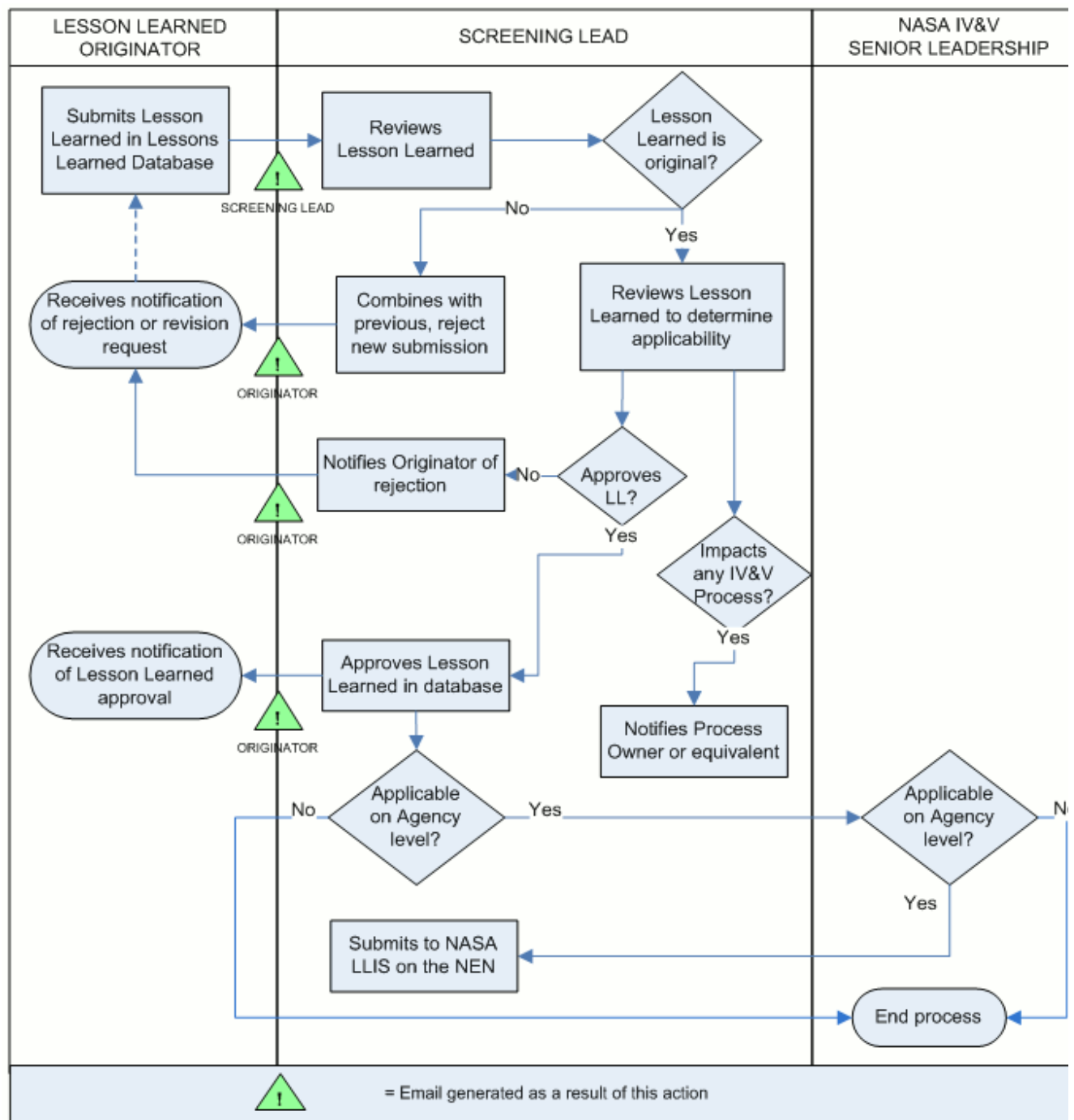
- Review of formal and informal Lessons Learned.
  - Informal lessons may be captured in wiki's, shared folders, etc.
  - Formal IV&V Lessons Learned can be found here: <https://lessons.ivv.nasa.gov>
  - Formal NASA (Agency Level) Lessons Learned can be found here: <https://nen.nasa.gov/web/ll/>
- Facilitated discussions.
  - Note: SCO is available to facilitate. More information about SCO knowledge services can be found here: <https://confluence.ivv.nasa.gov:8445/display/SCO/Knowledge+Services>
- Conversation (physical or virtual) with someone who has past experience.
- Review of processes.
- Review of literature (books, articles).
- Self-reflection.
- Formal or informal training.
- On-the-job training or shadowing.
- Formal or informal mentoring.

Knowledge capture and sharing can be accomplished in many ways, including but not limited to:

- Conducting a pause and learn session (similar terms and concepts include after action review, de-brief, hotwash, retrospective, checkpoint review)
  - Note: these types of sessions are often a means of acquiring (or recognizing) knowledge, too.
  - Note: SCO is available to facilitate. More information about SCO knowledge services can be found here: <https://confluence.ivv.nasa.gov:8445/display/SCO/Knowledge+Services>
- Authoring formal or informal Lessons Learned.
  - Informal lessons may be captured in wiki's, shared folders, etc.
  - More information regarding submission of formal Lessons Learned can be found below.
- Holding a brown bag session.
- Conversing (physical or virtual) with an individual or individuals who are likely to need the knowledge.
- Updating a process.
  - IMS documents can be updated by following [IVV 05: Document Control](#)
- Authoring literature (books, articles).
- Participating in formal or informal mentoring.
- Writing or contributing to a case study.

## Lesson Learned Submission and Review

The following diagram depicts the process for submission, review, and approval of formal lessons learned. Any information supplemental to the depicted process will appear after the diagram.



#### IVV 23 Lesson Learned Sub and Review -- 03-23-2017.vsd

At any time, a Lesson Learned Originator can submit a Lesson Learned. The Lesson Learned Originator can submit the lesson via the Lessons Learned Database ([lessons.ivv.nasa.gov](https://lessons.ivv.nasa.gov)) or by contacting any member of IV&V's Strategic Communications Office (SCO).

The contents of sensitive lessons learned shall not be included in the Lessons Learned Database. Sensitive Lessons Learned shall be stored by an appropriate civil service employee in a manner that properly restricts access on ECM. Procurement, Supervisory, or Legislative lessons are examples of possibly sensitive Lesson Learned.

The following information should be captured for any drafted Lesson Learned (if unsure, fill out as much as you can and submit):

- **Title** – Short statement that captures the essence of the lesson (e.g. "When operating a vehicle, always wear your seat belt"). Ideally, the Title should provide the reader with something that's helpful or actionable even if the reader never sees the details of the lesson.
- **Author** – The name of the Lesson Learned Originator.
- **Category(ies)** – If you see a fit, select one or more from the available options. If you think a term should be added to the list, contact any member of IV&V's SCO.
- **Bottom Line** – This should capture the essence of the lesson in a single statement or two. If this ends up being the same as the Title, that's fine.
- **Driving Event** – The Driving Event provides the situation around which or context for how the lesson was learned.
- **Description** – What happened.
- **Recommendations** – What you recommend.

Note: Additional guidance to consider when authoring/reviewing a lesson can be found here: <https://ecm.msw.faircon.net/OTCS/llisapi.dll/open/23508017>.

Once the Lesson Learned is drafted and submitted in the Lessons Learned Database, the Screening Lead is notified that the Lesson Learned needs to be assessed. The Screening Lead shall:

- Ensure that all data is clear and concise.
- Ensure that a similar Lesson Learned does not already exist in the database.

The Screening Lead shall ensure any duplicate Lesson Learned submission is appropriately incorporated into the previously captured lesson (this includes coordination with the Lesson Learned Originator). The Screening Lead shall then reject the redundant submission.

If the draft Lesson Learned is original, the Screening Lead shall review and discuss any questions, comments, or concerns with the Lesson Learned Originator. The Screening Lead shall then review the Lesson Learned, and approve or reject it in the Lessons Learned Database. If the Lesson Learned is rejected (which should be extremely rare), the Screening Lead shall notify the Lesson Learned Originator with the reason for the rejection and any suggestions for improvement. The Screening Lead shall also consider if, and how, the Lesson Learned may impact IV&V Program processes or practices. The Screening Lead shall communicate any potential for impact to the appropriate process owner(s) or equivalent.

The Screening Lead shall assess all approved Lessons Learned for applicability outside the NASA IV&V Program and if applicable, forward to NASA IV&V Senior Leadership for possible selection. For the selected Lessons Learned, the Screening Lead shall submit the Lesson Learned to NASA's Lessons Learned Information System on the NASA Engineering Network.

The Screening Lead shall move a lesson to the "inactive" state if that lesson should no longer be applied (e.g. the recommendations are no longer good practice, the concepts are no longer relevant).

## Metrics

Any metrics associated with this SLP are established and tracked within the NASA IV&V Metrics Program.

## Records

The following records will be generated or updated and filed in accordance with this SLP and IVV 16, *Control of Records*, and in reference to NPR 1441.1, *NASA Records Management Program Requirements*.

Record Name	Original	Essential	Responsible Person	Retention Requirement	Location
Lesson Learned	Y	N	Screening Lead	Retain indefinitely in agency space until no longer needed, or destroy when 75 years old, whichever is longer. (1/8B)	Lessons Learned Database or ECM

## Definitions and Acronyms

Official NASA IV&V roles and terms are defined in the [IV&V Quality Manual](#). Specialized definitions identified in this SLP are defined below.

- Driving Event
  - The Driving Event is the situation around which or context for how the lesson was learned.
- Lesson Learned

- A Lesson Learned is knowledge or understanding gained by experience. The experience may be positive, as in a successful test or mission, or negative, as in a mishap or failure. A Lesson Learned provides recommendations for avoiding a repetition of failure (or obtaining a repeat of success).
- Lessons Learned Database
  - The Lessons Learned Database is a repository that manages Lessons Learned for the NASA IV&V Program. It is located at <http://lessons.ivv.nasa.gov/>.
- NASA Engineering Network
  - The NASA Engineering Network (NEN) is an initiative sponsored and funded by the NASA Office of the Chief Engineer, intended to connect engineers to other engineers and to NASA resources. It is NASA's portal to promote learning, collaboration and knowledge sharing around NASA engineers.
- Screening Lead
  - The Screening Lead is the Strategic Communications Office Lead or a designee who assesses the originality of a submission to the Lesson Learned Database.

## Acronyms

ECM	Enterprise Content Management
HQ	NASA Headquarters
IMS	NASA IV&V Management System
KMS	Knowledge Management System
LL	Lesson Learned
NODIS	NASA Online Directives Information System
NPR	NASA Procedural Requirements
QM	Quality Manual
SCO	Strategic Communications Office
SLP	System Level Procedure
WBS	Work Breakdown Structure

## References

REFERENCES	
Document ID/Link	Title
<a href="#">IVV QM</a>	<a href="#">NASA IV&amp;V Quality Manual</a>
<a href="#">IVV 16</a>	<a href="#">Control of Records</a>
NPR 1441.1	NASA Records Management Program Requirements

If any procedure, method, or step in this document conflicts with any document in the NASA Online Directives Information System (NODIS), this document shall be superseded by the NODIS document. Any external reference shall be monitored by the Document Owner for current versioning.

## Version History

VERSION HISTORY				
Version	Description of Change	Rationale for Change	Author	Effective Date
Basic	Initial Release		Stephanie Ferguson	06/23 /2010

A	Updated Section 6.0, <i>Records</i>		Stephanie White	09/28 /2010
B	Added definition 3.3, <i>Lesson Learned Recommendation</i> .		Stephanie White	10/25 /2010
C	Removed Quarterly Report, clarified roles		Richard Grigg	10/14 /2011
D	1) Add responsibility of the Screening Team to consider if and how a Lesson Learned may potentially impact IV&V Program processes or practices.  2) Add handling of sensitive LL.	1) Add proactive encouragement to avoid losing any continuous improvement possibilities.  2) Some LL are not being submitted due to the sensitive nature of some of the LL content. Sensitive LL can be stored on ECM in folders located in their subject area with restrictive permissions to match their sensitivity.	Justin Smith,  Jeff Northey, Richard Grigg	09/09 /2013
E	1) Adding language to address organizational learning. 2) Syncing Lessons Learned process with the lessons learned tool (and simplifying where possible)	1) Organizational learning is being added for two reasons: 1) It represents the broader intent we want to emphasize (of which lessons learned is only a piece), and 2) It creates a stronger connection with the organizational knowledge requirements of ISO 9001:2015 (Section 7.1.6) 2) New lesson learned tool since last revision, so get in sync, simplify and focus the process.	Jeff Northey	03/23 /2017
F	Updated Records Table with a new Retention Requirement and removed distinction between Project and Non Project-Related records.	Lessons Learned should be kept indefinitely, the retention change will allow us to keep the records up to 75 years at this time. By changing the retention for all of the Lessons Learned, no distinction between Project and Non Project-related records is needed now. (PAR # 2018-P-500)	Michael Asbury	08/30 /2018