

A System of Experience and knowledge Gathering for the Argentine Transportation Sector

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Keywords: *Transportation -
Safety - Accident Monitoring
- Lessons Learned - Occurrence
Investigation*

Received: 14/02/23

Approved: 19/03/23

Abstract

This article provides a brief overview of the history of the proposed methodology, and describes the adjustments made by the JST National Directorate of Accident Evaluation and Monitoring to take advantage of its potential to gather knowledge as well as to consolidate lessons learned in the Argentine transportation system.

1. Origins, Definition, and Attributes

The Lessons Learned Model (hereinafter referred to as LLM) originated in the 1960s within the fields of Knowledge Management and Project Management of the Project Management Institute, a U.S.-based non-profit organization that brings together professionals related to program and project management. It was later implemented in various military, governmental, civilian, and commercial organizations (Weber, Aha, & Becerra-Fernández, 2001).

Currently, a lesson learned (hereinafter LL) refers to knowledge or understanding gained through experience. The experiences can be positive (successful) or negative (i.e., inefficient or ineffective), and their knowledge is acquired through reflection and analysis of the critical factors, conditions, or outcomes that may have influenced the success or hindered the process under consideration (Inter-American Development Bank, 2011; Weber, Aha, & Becerra-Fernández, 2001). LLs allow:

- Identifying success factors (effectiveness, efficiency, sustainability).
- Recognizing shortcomings in policies, strategies, programs, projects, processes, methods, and techniques.
- Recording and solving problems through new courses of action
- Improving future decision-making and serving as a model for other interventions (Inter-American Development Bank, 2011).

LLs generally focus on the hypothesis that causally links the desired outcomes to what has worked, or not, to achieve them. They enable the identification of cause-effect relationship trends within a specific context and also suggest practical and useful recommendations for replicating the new knowledge in other contexts or in the design and implementation of projects or initiatives aimed at achieving similar results.

Some relevant definitions of what LLs are help to understand their use and implementation. The Canadian Army Lessons Learned Centre conceives them as guidelines, tips, or checklists on what went well or bad in a particular event (Stewart, 1997, cited in Weber, Aha, & Becerra-Fernández, 2001). On the other hand, Davenport and Prusak indicate that LL systems have been deployed to disseminate lessons validated by experience (1998, cited in Weber, Aha, & Becerra-Fernández, 2001). The authors explain that various organizations adopt LL processes

and implement a knowledge management-based approach to collect, archive, disseminate, and reuse practical knowledge that, when applied, can significantly benefit specific processes. For the Project Management Institute, LLs represent the knowledge acquired during a project, which shows how events were handled or how they should be addressed in the future to improve performance (Comino López, 2017).

Secchi (1999, cited in Weber, Aha, & Becerra-Fernández, 2001) indicates that a lesson learned should be significant due to its real or potential impact on a valid operation, its objectivity and technical rigor, and its applicability, as it identifies a specific design, process, or decision that reduces or eliminates factors related to negative experiences or reinforces positive outcomes.

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The main value of LLs lies in their collaborative nature. The key stakeholders in each organizational process participate in their documentation, recording their experiences in the first person so that their recommendations can be used in future similar situations. Therefore, the process of reconstructing and critically analyzing an experience is a crucial moment in the development of LLs (Tapella & Rodríguez-Billela, 2014).

Another contribution of LLs relates to the fact that they gather knowledge derived from the experience of implementing measures or carrying out projects—knowledge that is often not documented (since much of what happens in organizations goes unrecorded). Therefore, the approach of LLs is relevant for future programs, projects, and processes, as they highlight and systematize tacit knowledge about measures, standards, projects, or previous processes (Inter-American Development Bank, 2011).

2. Lessons Learned in the Argentine Transportation System

The National Directorate of Accident Evaluation and Monitoring (DNEyMA) utilizes this tool for application in investigations and studies of the national

transportation system; however, unlike previous proposals, it constructs its lessons learned based on a systemic investigation model. It is worth noting that the National Directorate of Marine and Inland Waters Investigations has also worked on building lessons learned in accordance with the style guide and model of the International Maritime Organization (IMO). Nonetheless, this article only addresses the experience undertaken by DNEyMA.

The lessons learned in the Argentine transportation system (defined and implemented by DNEyMA) represent the knowledge and experiences acquired during a project, process, or management. They serve as a way to understand and share organizational experience, documented by its members in a collaborative network, to promote effective management in future similar events. It is possible to consolidate lessons learned from both experiences that achieved their proposed objectives and those that did not meet them or fully fulfill the expectations that gave rise to them.

DNEyMA began using this model in 2021 as part of its research on crisis management and the risks associated with the coronavirus pandemic.

The usefulness of documenting lessons learned is linked to their collaborative nature. They are recorded, incorporating the specific experiences of the involved stakeholders. The final report resulting from this process is public, so that it can be considered by both regulatory bodies and oversight agencies, as well as other key actors in the public and private sectors related to transportation. This enables the Argentine transportation system to leverage previous experiences regarding which actions to take and which to reformulate or avoid.

It has been explained that LLs, in general, focus on the hypothesis that causally links the desired outcomes to what has worked, or not, to achieve them. In turn, DNEyMA proposes to construct LLs in the Argentine transportation system based on a systemic model. These aim to identify critical factors, conditions, or outcomes that may have influenced the success or hindrance of the studied process, as well as elements that may have the potential to trigger these effects under different circumstances, without being limited to cause-effect relationships.

The identification of LLs does not guarantee the implementation of the acquired knowledge. However, the conversion of tacit knowledge into documented explicit knowledge (through discussion, recording, and sharing in collaborative sessions) lays the groundwork for learning processes to take place, both within organizations and across the fields of the entire system, where articulation and cooperation processes among various related institutions (government

agencies, regulatory bodies, international authorities, other service providers, etc.) are developed.

In this sense, the dissemination of LLs not only extends the scope to transportation organizations that have not participated in the collaborative network, but also enables them to serve as a source of organizational learning for the entire Argentine transportation system. The challenge is to create and sustain effective learning networks capable of breaking down knowledge and barriers to action.

3. DNEyMA Lessons Learned Information System

Based on the systematization of LLs within the framework of the study on crisis management and the risks associated with the coronavirus pandemic, DNEyMA aims to establish its own public LL database in the future, drawing on contributions from various actors in the Argentine transportation system. The actors could propose lessons to be included in the system, as well as participate in the process of documenting LLs.

The construction of lessons learned at DNEyMA consists of four steps, as shown in Figure 1. Each of these steps is designed to capture, document, and make the LLs public for their utilization:

Step 1 is the identification of a critical factor, either by a DNEyMA member or any actor in the transportation system. External actors can make contributions using a form available on the agency's website. Specifically, this step involves recognizing and highlighting the potential existence of a critical factor that has had an impact on the system.

Step 2 involves inviting the stakeholders to form a collaborative network and subsequently participate in the identification and documentation of the LLs. This step serves as preparation for the working sessions.

Step 3 is the identification and documentation of the LLs in one or several working meetings facilitated by DNEyMA, where the stakeholders involved with the identified critical factor participate. This is the most important step in the process. The work in the sessions is guided by a matrix that allows both the identification and analysis of the LLs and includes various fields to be completed (date, critical factor, mode of transportation, description of the situation, consequences and/or practical implications, lessons learned, participants, recipients, dissemination channel). Finally, a final report or document is prepared.

Step 4 involves the dissemination of the final report or document, which is sent to the recipients identified during the session, according to the defined method (email, intranet, website, memo, meeting, phone call, etc.).

CONCLUSIONS

The lessons learned system presented here was defined and implemented by DNEyMA with the aim of systematizing the knowledge developed by transportation organizations throughout management processes. It is a four-step information systematization strategy that enables the gathering and sharing of organizational experience to promote effective management in the event of future similar occurrences.

The usefulness of documenting LLs is linked to their open and collaborative nature. They are constructed through the consolidation of a transportation network, involving the participation of key stakeholders from the collected experiences, as well as the interaction between members of various organizations. The final document is public so that it can be considered by regulatory and oversight bodies, as well as other key transportation organizations in the public and private sectors. This allows the Argentine transportation system to draw on previous experiences that can guide future actions to be taken, as well as procedures to be reformulated or avoided.

Developed within the framework of DNEyMA, LLs are constructed based on the systemic model. With a comprehensive perspective, they identify critical factors, conditions, or outcomes that may have contributed to the success or hindrance of the analyzed processes, though without establishing cause-effect relationships.

“The challenge is to generate and sustain effective learning networks, capable of decompartmentalizing knowledge and barriers to action. to action.



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