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Cultural Aspects of Lessons Learned
by Luca Costa
Featured Paper

Cultural Aspects of Lessons Learned [1]

Luca Costa

Università degli Studi di Bologna
Bologna Business School

Abstract

Projects generate a large amount of knowledge[2]. As knowledge is an important and valuable asset for organizations, its preservation and its sharing are object of many investments ranging from the implementation of complex systems, to consulting initiatives aiming to properly shape the behaviors of people, to the creation of academies to generate a profit out of knowledge transfer. Lessons Learned are a process to capture the knowledge generated by projects and should be collected with a proper process and reused for future activities to improve the quality of deliverables and to enhance the performance of any project's aspect. The implementation of a successful Lessons Learned process implies several changes for organizations and depends on several factors, among those, culture is the driver that facilitates or hinders the adoption. The analysis of the culture provides insights about the readiness for change and facilitates the setting of a solid plan. In the following notes we use the models from Edgar Schein for the analysis of culture and the two forces model from Kurt Lewin. Some examples of process will provide insights about the implementation strategy.

The Role of Lessons Learned in Project Oriented Organizations

A project, as part of a Portfolio or a Program, is a basic component to implement the strategies of companies and to achieve or maintain long term benefits. Projects generate knowledge and as they deliver outcomes and achieve the intended objectives, the people involved cooperate to find original solutions to problems, improve the existing processes and reuse current solutions in new ways. In one single expression, organizations learn from experience and create knowledge out of it.

Knowledge is an important asset of organizations, a significant part of the value of their brand, that we will see is an artifact of the culture of a company. The dispersion of knowledge is a source of economic losses[3] and has several sources, like lack of sharing culture and turnover of resources difficult to replace. Losing knowledge impacts an organization at different depths[4]: Human

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[2] See for example Grant (Grant, 2021) and Nonaka (Nonaka I. , 1994)

[3] See the "Workplace Knowledge and productivity Report" (Panopto, 2023)

[4] See "Measuring the Impact of Knowledge Loss: More Than Ripples on a Pond?" by Peter Massingham (Massingham, 2008).

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Capital, Social Capital, Structural Capital, Relational Capital. The turnover of key resources brings a loss of knowledge in a direct form as lost competences and in an indirect form as relationships and organizational memory. For this reason, preserving knowledge is essential for companies and is a major concern for their top management. Several processes and tools have been sorted out across time to preserve knowledge: PLM Systems, Knowledge Bases, Operating Manuals and User's Tutorials and the list may be largely extended.

Projects' Lessons Learned

A **lesson learned** is a synthesis of past experiences whose outcome has to be executed in future actions. The lessons learned concern not only practices but also behaviors and learning patterns, helping the organization to sort out new solutions against external stimuli of any sort. Lessons learned are part of the social capital of the organizations.

The **process** to collect lessons learned from projects and their use are the first steps to preserve knowledge and to transform it, when possible, from tacit knowledge into explicit knowledge. The process does not create directly value for a phase or for a project which has been just finished, but it creates an enormous one for the organization.

The **purpose** of lessons learned is to capture and freeze the organizational and operational memory of an organization. The collection of lessons learned covers, indeed, all the aspects of the project that went beyond the targets and the control parameters established: value delivered, benefits achieved, scope, performance in time and cost, quality, communications, stakeholders' management and so on. Moreover, the collection of lessons learned inspects the occurrence of expected or unexpected events that impacted the project across its lifecycle and performs the analysis of effectiveness of the risk reactions.

The **outcome** of the lessons' learned process can be data allowing the identification of threats and opportunities, a solution in the form of a new process or the change of an existing one, or suggestions to improve those. Data captured can be considered as a row material to be processed and transformed into information to enable decisions. The outcome will be used by the project team directly, or by quality assurance functions to enhance processes and other aspects of general utility. In any case the lessons are collected, recorded, analyzed and tagged to facilitate their retrieval and the reuse. The usage of Information Systems supports this process, mostly for the data management after the collection is done.

The lessons' learned process should show some specific characteristic:

1) describe
   a. the issue/opportunity occurred and its impact (e.g. delayed delivery, enhanced quality),
   b. the context and
   c. the dynamic of occurrence;

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2) describe
    a. the solution found including activities, time, costs, risks and outcomes for future evaluation;
    b. the effectiveness of the solution
3) provide suggestions for
    a. the reuse of the reactions or solutions adopted,
    b. the improvement of existing processes, procedures, role definitions or document models;
    c. the creation of new processes;
4) classify the lesson learned:
    a. Adding tags and store documents, feed databases or other information repositories;
5) analyze the root causes who generated events or variances;
    a. Introducing new procedures in the organizational policies and directives
    b. Amending or changing existing policies and directives
    c. Prepare directives for future reuse of experience.

The process of collection of the lesson learned may cover the analysis of root causes, but this process is left even to the quality assurance department or to the Project Management Office, to use results improve performance and quality of the organization as a whole.

Collecting Lessons Learned (Examples)

The lessons learned may be collected in different ways, according to the culture, the nature of the product, the business environment and the specific condition of the performing organization. It should be duly stressed that reality is definitely not always negative, and conscious that many organizations work in righteous and constructive ways, nevertheless, we will concentrate on some undesirable aspects of the process related to lessons learned, with the purpose to advise and propose a correct one, using virtuous behaviors as a model.

Criminal trial

the meeting to collect lessons learned is intended as a process in which a culprit must be identified and is therefore approached with an aggressive, hostile mentality. It is in most cases a rite of public punishment, aimed at finding a scapegoat. It may use games of transactional psychology like "Now I've got you, you son of a ...[5]" or "See what you made me do" (Berne, 2016). It emerges often in environments or in circumstances where trust is missing.

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[5] Written in full in the original work.

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Showdown

The meeting to collect lessons learned is intended as a showdown where each of two parties tries to put the blame on the other. If the project was successful, each party tries to claim most of the merit.

Pardon rite

After negative but resolved situations, the lesson learned are intended and performed as a rite of "collective forgiveness". If the project was successful, the ritual becomes a celebration.

Absence of a process

Absence of a process is observable as explicit absence or actual absence. By explicit absence we mean the case where the organization has explicitly not provided any process; with actual absence we mean the presence of a process which is totally ignored. In this case the source of past experience is the memory of recognized experts, like senior colleagues or external advisors. In this situation the knowledge remains allegedly tacit.

Informal approach

An informal approach is not necessarily a sign of a bad culture: since formalism does not imply effectiveness, and since in complex environments a formal approach could be rigid and drive to a bad performance, as long as the process is effective is fairly acceptable.

Moreover, an informal approach could be the first stage of a process, a laboratory to test behaviors and shape processes, bringing to a very effective and satisfactory outcome.

Structured approach

As mentioned before there are many companies and organizations effectively collecting Lessons Learned, with a structured, state-of-the-art approach. About the details of execution, those may change according to the culture of the company and from the contribution of experience of single members.

Culture

In this section we follow the work of Professor Edgar Schein, and we remind its celebrated model of Three Level model (Schein & Schein, 2017). Further insights about the model can be found in the work of Professor Kiril Dimitrov (Dimitrov, 2013). We will use the concepts after the explanation of the model, to express considerations about the Lesson Learned processes.

The Three Level Model

The advantage of the Three Level model is in the easiness of use as it offers a simple and effective framework to understand behaviors and cultural structures. According to the model culture is organized on the three levels described below.

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Artifacts

Artifacts are the surface, visible aspects of culture: processes, policies, tools chosen or adapted, the same tailoring of external processes, the hierarchies, the facilities and the way the room is organized, norms, rites and rituals like the narrative of the history of the organization, are all to be considered as artifacts. Artifacts are always generated by a belief – a part of the espoused values - of some sort, or even by a basic underlying assumption, which we describe in the upcoming sections. Artifacts, as the surface aspects of culture, are subject to changes generated by the evolution of the social environment where the organization acts and the requests of the market, among many other aspects. The adoption of an artifact is always the outcome of a selection or a decisional process of some quality. The decision processes[6] themselves, are to be considered as artifacts.

Espoused Values

Espoused Values are the beliefs generated and the values adopted to "embody the proclaimed culture in the organization" (Dimitrov, 2013), they constitute a source of identity creation for the organization. The word "espoused" has been chosen to signify the intended adoption for the entire lifespan of the organization. In this sense and for this reason, the espoused values are difficult to question and even more difficult to change, not inclined to "alters when it alteration finds". As a source of identity, they may be formally declared in the slogans of the organization, and they appear in formal declarations like "We do the Best Personal Computers in the World" (Steve Jobs, Apple CEO & Founder) or "we are the company who democratized CAD" (Carl Bass former Autodesk Inc. CEO); they may as well be found in the narrative, visual or written, of the history of the organizations: many companies welcome visitors with museums showing pictures and artifacts of the past.

Espoused Values are visible in behaviors of people, in the phrases they use, and in the approaches adopted facing events never or seldom encountered in the past. The surface expression of espoused values are the beliefs of the organization: those may take the form of narrative, of memories of the past or sentences synthesizing the experience of the organization: "We learned to be flexible, using a structured approach like the one you propose will endanger the capability of my team to solve the unexpected". In the example before a belief ("we are flexible") is used as a good reason, an alibi to avert an initiative; other times they are used as an advice to support and guide the behavior of a newcomer to the environment, or external visitor like a consultant. At times they can take the form of games of transactional psychology.

Basic Underlying Assumptions

The Basic Underlying Assumptions are the beliefs and values founding the identity of the organization and they establish the less visible level of its culture. Their roots are the behaviors

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[6] About decision making see as well "The Culture Map" (Meyer, 2014).

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and the deeds of the founders, on the way the founders emerged successfully from critical situations, turning decisively the fate of the organization. The Basic Underlying Assumptions are generally not observable: unwritten rules fall in this category along with forbidden topics which is not appropriate to discuss. Changing or even challenging these values and beliefs usually meets a strong resistance. As we have written about the Espoused Values the Basic Underlying Assumptions are revealed by informal behaviors of the people and in the expressions of beliefs of the organization: for example in front of a naïve question a typical sentence, warning the interlocutor that she or he has entered a forbidden turf, could be "you better don't discuss this topic, which fall beyond your responsibility" or "this is an old habit, you cannot argument about traditions".

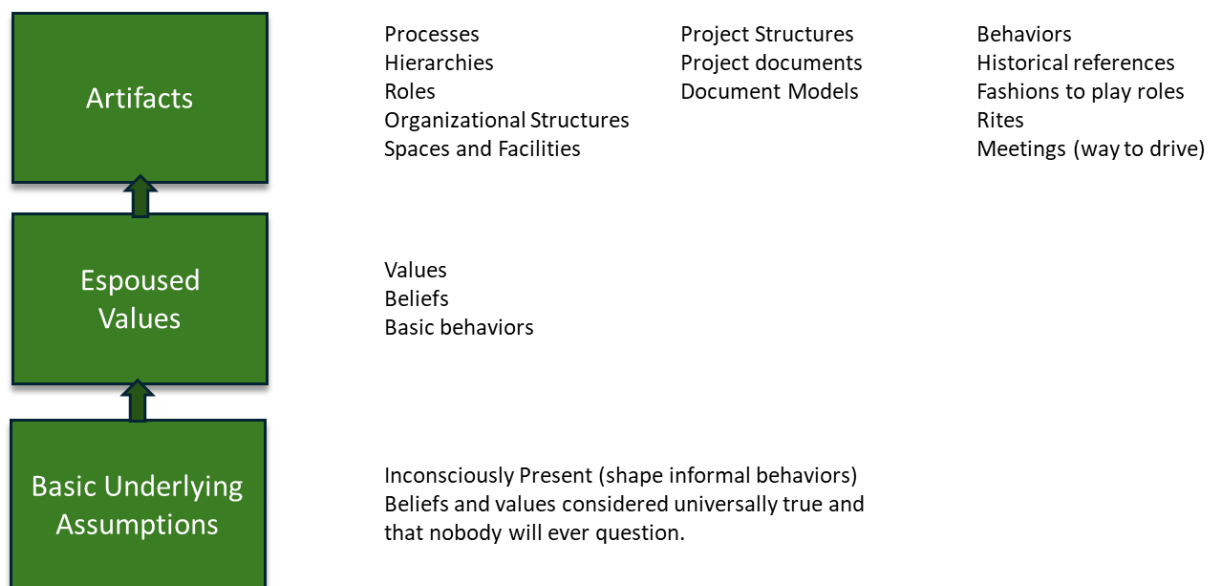A graphical synthesis is explained in the following *Figure 1*

Artifacts	Processes Hierarchies Roles Organizational Structures Spaces and Facilities	Project Structures Project documents Document Models	Behaviors Historical references Fashions to play roles Rites Meetings (way to drive)
Espoused Values	Values Beliefs Basic behaviors		
Basic Underlying Assumptions	Inconsciously Present (shape informal behaviors) Beliefs and values considered universally true and that nobody will ever question.		

Figure 1 – Edgar Schein's three level model of culture

Beliefs and Artifacts

An artifact is the answer of an organization to the stimuli received from the external environment. The artifact is shaped according to beliefs and values or is created to satisfy a belief, the roots of the artifacts fit into the espoused values level. At the root of any artifact there is then a belief of some sort which, depending on the deepness of the belief itself, could be hard or relatively easy to change: as an example, if the underlying belief is "The project communication among team members should be performed in real time, whatever tool we use is good as long as it is effective" denotes a culture focused on the result of the communication, and changing or switching from a messenger type to another could be easy. It the belief is that the process is

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untouchable because "it always worked", whoever will try to change it will have work on the belief to succeed.

We start from beliefs as a base to establish a method: if we identify values and beliefs behind the introduction of an artifact, or the change of an existing one, we are in condition to outline an implementation strategy[7]. We are then interested in the beliefs supporting the Lessons Learned Processes. To do that, in the following *Table 1* we present a collection of beliefs related to knowledge preservation with possible consequences the consequence of their combination:

Belief about knowledge	Belief about processes	Belief about lessons learned	Consequence	Type of lessons learned
Our environment is volatile and uncertain, so, processes are useless.	whatever	Lesson learned are useless	No process is established or if established is not used	None or whatever but not used
If you surrender knowledge, you will lose your position (or even your job).	whatever			
The company wants me to share knowledge to fire me.	whatever	Lessons learned are dangerous		
Knowledge is an asset that we need to protect, share and preserve.	Our environment is volatile requires flexible processes	Lesson learned are useful	Weak process	Informal Process
	Our environment is subject to strong rules and regulation, so we need robust processes.		Strongly ruled process	Structured Approach

Table 1

Beliefs can be classified in two main categories and in the following *Table 2* we describe the possible narrative behind those.

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[7] See about this the following section **Enable Self Organization**

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Lessons Learned are **useless**	the Lessons Learned are just a loss of time, as we have to concentrate on what really matters.
	the Lessons Learned are just a formal tool which is not really useful.
	I don't trust lessons learned since they weaken my position in the company.
	the lessons learned are not really important but are a regulatory due we have to be compliant with.
Lessons learned are **useful**	Knowledge is key for our success and should be captured and shared
	We lose money because we reinvent concepts and knowledge over time
	We lose money because turnover impacts strongly our organization
	Our environment is rapidly changing, and we can't afford the implementation of process too structured, instead we prefer following principles and create information.

Table 2

There are other aspects that could be interesting to insert in the model, like the culture of the environment, but for these notes we prefer to not make the approach too complex.

The two forces model

Lessons learned are a process of broad emotional impact and they work fine when people of a team trust each other. Trust is a key factor as it enables fast and effective communication. If the culture of the environment builds trust, then the creation of any process is facilitated, and the proper time for adoption is allowed.

When we propose a change to an environment, this change challenges the existing artifacts and the organization reacts as a system, recognizing to what extent the new situation fits the existing values and, subsequently, searching patterns to apply existing behaviors or to adapt existing ones.

To describe resistance to change we use the 1947 two forces model of Professor Kurt Lewin in its interpretation, again, from Professor Edgar Schein (Schein & Schein, 2017). The model states that a change in an environment happens according to the balance of two kind of forces: *driving forces*, seeking the change and *restraining forces* seeking the status quo like in *Figure 2*.
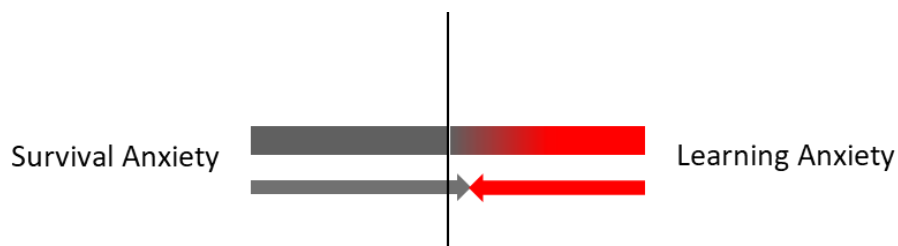

Figure 2 - Learning Anxiety vs Survival Anxiety

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The model is adapted naming the opposing forces as *Learning Anxiety* and *Survival Anxiety:* the last happens when is clear and understood that the status quo is not anymore viable or sustainable to achieve organizational goals, so change becomes a key necessity for the organization's survival; the first, instead, represents the tendency of the organization to keep its status-quo, it happens because learning generates uncertainty that threatens operations.

The planned change occurs when Survival Anxiety prevails over Learning Anxiety and, as Professor Schein has suggested, the shift in balance must be pursued by reducing the last one.

Interpretation of the cases

With the aid of the three-level schema and the two forces model, we can comment on the types of Lesson Learned presented before.

The implementation approach and the execution style of the lessons learned is a consequence of the culture of the performing organization, of the social and physical environment where it is merged, and in case of a business organization of its reference market. These factors depend on the current values and beliefs of the organization and influence aspects like the perceived importance of events, the formalism used in communications and social behaviors, the technology adopted to implement and execute the processes. To follow what already expressed in a former section, the process for Lessons Learned – if existing – is an artifact of the culture and its levels of formalism and flexibility are a direct consequence of the values, of the beliefs and of the past experience they embody. If we identify the beliefs behind the artifacts, we have a key to understanding the environment and to plan a strategy to set them up or to change, if already existing. We consider that any approach is founded on a pivotal belief, one that provides the answer to the question "why this approach exists": in the following sections we will refer to this as the basic belief of the approach.

Criminal Trial, Showdown and Pardon Rite

In the cases of Showdown, Criminal Trial or Pardon Rite the basic belief is that at the endo of a project or of a phase it is important to find somebody to blame or to praise. When the lessons learned take the form of the *Showdown* or *Criminal Trial* or *Pardon Rite* they are, or may be considered, an excuse to pursue a social purpose: in the cases of the **Criminal Trial** and of the **Showdown** a search for the culprit satisfies the human tendency to find someone to blame for adverse situations and can be considered as a cultural trait of the organization. Blaming is an easy solution for the anxiety of the stakeholders involved: "we failed because he failed. So, if we punish the culprit the organization is safe". The blaming could be a short-term solution, a game to hide the real fault which can be, just to provide an example, having placed a person without the proper competences in charge of a task. The **Pardon Rite** is a similar for many respects: it may have the form of a game where we have a judging authority that, in this case, does not punish the culprit or in acknowledgment of different merits, or just to show generosity. In this

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case the games played (maybe the same already quoted for the criminal process) serve the purpose to build trust.

Absence of a process

In the case of the absence of a process the basic belief has a form like "the Lessons Learned are just a loss of time, as we have to concentrate on what really matters" the case will be allegedly the **Absence of a Process** or an approach existing *de facto* but unstructured: the organization feels no need to preserve knowledge and the process will be set in a loose way, with results that will be probably overlooked. Another form of belief driving to the previous situation is "Don't lose your time on that and concentrate on real business". The outcome is that a process is not established at all or if it is, it has no real utility: the process will be poorly developed and will be unstructured, the format will be different for any project, the recording will generate different types of documents, extracting information from whose could be difficult. Absence of a process is hidden behind apparently positive statements of belief like "Our organization is the knowledge that we create: capturing as much is possible of it is an essential trait of our company": in this case the belief is just a manifesto, a formal declaration devoid of any meaning.
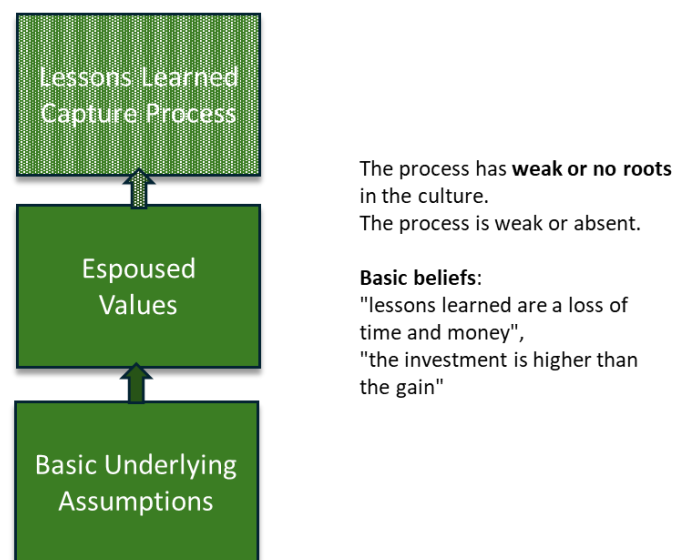

Figure 3 - Absence of the process

Let's concentrate now on organizations where the statement expressed before expresses a sincere need for the preservation of knowledge.

Informal approach

In the case of the *Informal Approach* the basic belief has a form like "Our environment is rapidly changing, and we can't afford a process too structured, instead we prefer following principles and create information." The need of a process for lessons learned is recognized to some extent,

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the learning anxiety prevails, and the process will probably fall into the informal approach case. Informal, in this case, works as a synonym of flexible: the organization feels the need to capture knowledge and to codify it, but a formal process would probably be not viable nor ineffective. The art of the members of the organization is to rapidly adapt the process to the needs of the organization. The informal approach combines the basic belief expressed before, with "our process should be continuously monitored and improved" generate the outcome of an improvisation due to an unexpected and compelling event, and it may or evolve into a structured approach, or remain informal depending on the specific culture and environment of the performing organization.

Structured approach

In the case of the *Structured Approach* the basic belief has a form like "Our processes must always be structured and robust" which is typical of environments compliant with high regulatory standards.

When the process is settled, this creates beliefs like "we don't need to be more formal respect to lessons learned" the approach will remain as such, which – as mentioned before - is not necessarily a bad sign. Again, what really matters is that the process is effective.
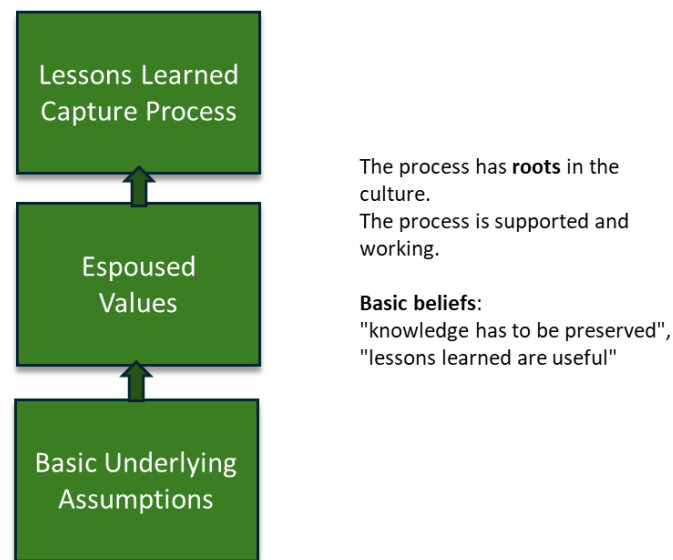

Figure 4 - Informal or structured approach roots

Implementing a Lessons Learned Process

Lessons learned are meant to be created at the end of a phase and used during the startup phase[8] of a project, or during the planning of a specific phase. If we combine the models of the Two

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[8] The startup in case a project is a component of a program or of a portfolio matches the sub-phase of Planning and Authorization of Delivery.

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Forces and the Three Levels of Culture, we can analyze the conditions for a successful implementation of Lessons Learned. Collecting lessons learned is a mindset before to be a process: following Edgar Schein if the process for Lessons Learned is a cultural artifact, the mindset can be considered as part of the espoused values, with beliefs as "we must preserve the knowledge that we created performing our activities".

The questions

The basic question is very simple: as long as we collect lessons learned, are they useful for future project activities? The cost of the lessons learned reduces the cost to amend the errors. How can we generate value out of Lessons Learned? We have seen that a good understanding of culture is a key point to make a proper choice and achieve an effective implementation of the lessons learned process. Other aspects include the leadership style (which is another example of cultural artifact), the resources and competences the organization disposes, the understanding and urgency of a need for the preservation of knowledge and the process itself. These aspects are all more or less consequence of the interaction of the environment and of the culture this has developed to survive and thrive into that. In this section we concentrate on the understanding of the sense of need.

Allow the proper time

Organizations, in general, need time to transform a procedure into a shared practice[9]: this time varies with the structure of the organization, with the urgency to introduce the change – in our case introducing the lessons' learned process - and with the complexity of the procedure itself. This topic is in the scope of change management and concerns, in particular, the readiness to change the environment. For the lessons learned the problem shows two faces: 1) the adoption of the lessons' learned process, 2) the application of the discoveries of Lessons Learned to processes, beliefs and behaviors. Both these aspects may be not compatible with the emotional expectations of the people involved and trigger learning anxiety.

The time that organizations allow for change is a revealing trait of their culture, which stems from several factors: the understanding and acceptance of complexity, the existence of a reliable plan, the understanding of the implications of the plan in terms of investment, the internal dynamics, the effort and the related costs needed, the drivers of resistance, the resources and competences available to perform the change are all aspects that a change readiness assessment should discover, in order to generate an effective approach. For these reasons a process to capture and reuse lessons learned should include a change readiness assessment and a plan (or at least a suggestion).

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[9] About this topic you may consult "How to transfer innovations, solutions, and lessons learned across product teams" (Stephens, Kasher, Welsh, & Plaskoff, 1999)

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Enable Self Organization

When change breaks a status quo, it is felt as a potential danger and thus creates self-protective behaviors and resistance. When this happens, the leaders should prepare the change and follow up the execution, with actions of emotional containment, driving the team through the understanding of the need and in the subsequent discovery of the process. This action is essential since empowers the trust[10] of the team. We used the expression "discovery of the process" to express that any team, especially the ones working in complex and rapidly varying environments, have competence to create effective organizational solutions. At least to some extent. This competence is called self-organization (Zhang, 2013).

An organizational solution devised by a team empowers the sense of ownership of the team and paves the road to a successful implementation. As the organizational solution becomes an artifact, its usage and success create reputations and beliefs which are part of the second level of the culture. If the beliefs are: "this process has been made by me and is mine" the actions of emotional containment should address selfishness, and behaviors centered on the ego of the single members of the team. So, the emotional containment actions could be partially the public recognition of the merits, balanced by the setting of Personal Business Objectives for further improvement and for the sharing of knowledge. Otherwise, any future attempt to change or improve the artifact may result in resistance.

Enable Competences

A crucial competence needed to elaborate lessons learned is to **drive a sharp analysis**, focused on the key data. To support analysis the leader of the session should facilitate with interpersonal skill the dialogue and the exchange of opinions, moderating emotions and keeping the focus on the relevant topics.

A further relevant competence is the capability to **write good and understandable reports**, encompassing all the aspects needed to capture the essence of the lesson learned, focusing on important details. Writing is not easy, for many reasons and, as engineers know the technical jargon, they often lack the capability to write a proper report, which results unclear and blunt. This is one of the reasons the outcome of a lessons learned is, at times, overlooked or poorly regarded. The usage of templates improves the quality of the result and the enhances the speed to achieve the result.

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[10] See "The Speed of Trust" (Covey, 2018) and the section dedicated to the 13 behaviors to build trust and in particular #3 "Create Transparency" e #5 "Show Loyalty".

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Another competence, similar to some extent to the first one, is the capability to **extract a synthesis out of data and reports**[11]. This competence concerns the users of the lessons learned, like project managers, sponsors, members of the Project Management Office or of the quality assurance function.

Building a culture about lessons learned.

As we mentioned, an artifact fits its roots in espoused values, often in the form of beliefs, for the construction of the ground for lessons learned it is important to create beliefs around them, in the form of a narrative of success and benefits achieved. Implementation and execution of the lessons learned process are time consuming and expensive activities. If beliefs that the investment is higher than the gain achieved, the process will face resistance.

To this aim, a qualitative analysis of the culture facilitates the understanding of the approach. The analysis could be performed by collecting the opinion of a set of relevant stakeholders, possibly a combination of internal and external actors with different levels of interest and influence. The technique to collect opinions depends on the environment: brainstorming or Delphi combined with one-to-one interviews are always good choices.

Quantitative data collection presents some complexity and is beyond the scope of this notes[12]. Another relevant aspect of the analysis concerns the evaluation[13] of the competences mentioned, the lack of whose hinders the achievement of the final result. The evaluation should be done in terms of degree of possession, to allow the creation of an effective process for lessons learned, formal or informal that it may be. Enabling those competences requires a cultural background with beliefs supporting the survival anxiety and containing emotionally the learning anxiety.

Execution of the process

Writing about informal and structured cases, we stressed how they are normally generated from by belief that the preservation of knowledge is useful. This condition is not sufficient to guarantee a good outcome. Lessons learned may be processed and written in a hasty, imprecise, casual way (generating for each project from a different model of document), and when they are archived "somewhere", in a hidden meander of the file systems without the virtual marks (tags) necessary

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[11] Except for interpersonal skills, Artificial Intelligence may support greatly the process: as information technology supports capturing and writing, AI allows the identification of ontological patterns facilitating the search and the following synthesis of lessons learned.

[12] About the assessment of risk of Knowledge Loss, it is advisory to consult "Assessing Knowledge Loss Risk" (Jennex, 2009) or "Measuring the Impact of Knowledge Loss: More Than Ripples on a Pond?" (Massingham, 2008).

[13] See for example the approach of Robert Grant in "Contemporary Strategy Analysis" (Grant, 2021)

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for their retrieval. When this happens, Lessons Learned are therefore difficult to recover and to reuse. Some main drawbacks of the lesson learned process:

1) the lesson learned are difficult to write and to be recovered, depending on the level of maturity of the process, the lessons learned may generate a huge amount of data that the project manager has no time to read;
2) the adoption of the process for lessons learned takes (or may take) a long time;
3) the process may identify the problem but not a solution;
4) the investment may be felt like higher than the gain achieved.

In the preceding sections we focused on the collection process, and we want to concentrate now on the usage of the outcome of the process. We identify essentially two users for lessons learned outcome with different purposes: the project manager and the team use the lessons learned during the startup phase of a project (or of a phase) to secure a solid tailoring and learn from past experiences; quality assurance functions use the lessons to improve existing processes or evaluate the creation of a new ones, or to summarize directives that are stored in the corporate directives[14] to enhance value delivered, schedule, evaluate cost and establish budgets, manage risks, communication, stakeholder and whatever other aspect influences the management of the project.
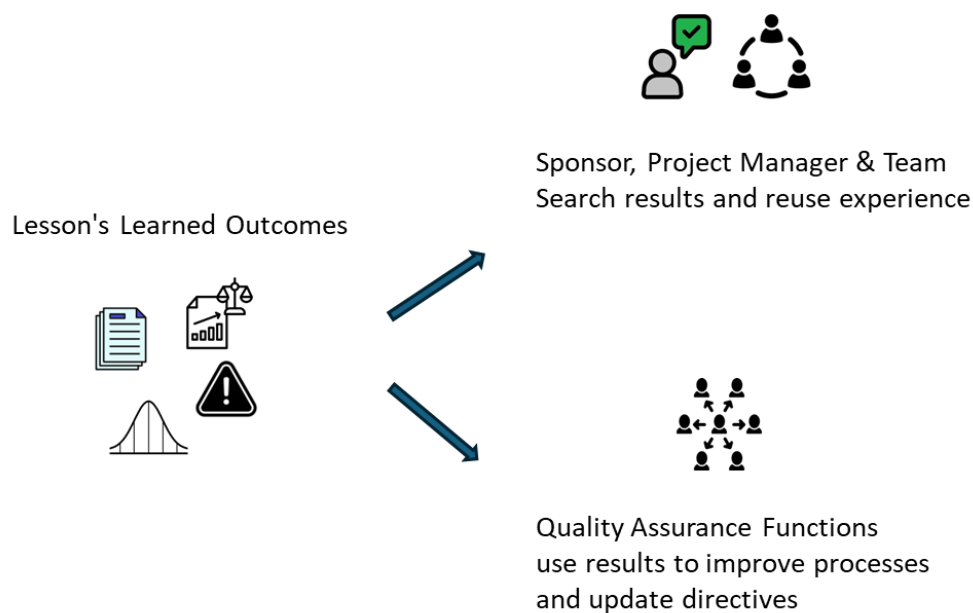

Lesson's Learned Outcomes

Sponsor, Project Manager & Team
Search results and reuse experience

Quality Assurance Functions
use results to improve processes
and update directives

Figure 5 - Use of the results

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[14] See "Process Groups: a Practice Guide" (Project Management Institute, 2023) and in particular the processes like, for example, Planning Risk Management or Planning Cost Management, which establish guidelines and directives to understand how to implement and tailor projects.

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Conclusions

As knowledge is a capital asset of organizations its preservation is a need and a cultural mindset. Lessons Learned are an approach to achieve knowledge preservation. The setup of the process, and as well its execution and reuse of the results, is alleged to find strong resistance, so it is recommended to drive a cultural analysis to investigate the conditions and identify a sustainable implementation strategy. To this aim we proposed the combined approach of the three cultural levels to analyze the culture behind the use of lessons learned and the two forces model supported the identification of a strategy.

Implementation and execution of the lessons learned process are time consuming and expensive activities and face resistance because people involved may consider the investment higher than the gain achieved. The level of espoused value is the natural ground to build a solid process of lessons learned capture and reuse: as processes are artifacts of the organization's culture and as artifacts are created around values and beliefs, to set up and consolidate the lesson learned process it is important to establish a proper cultural background, to reduce learning anxiety with actions of emotional containment and to enhance survival anxiety building positive values and beliefs around the preservation of knowledge.

Being aware and knowledgeable about the cultural grounds facilitates the setup of a solid process: the identification and the understanding of artifacts, beliefs and values is the identification of possible sources of resistance while implementing the process, where the leaders should concentrate their actions to communicate a vision and contain negative emotions. Furthermore, to implement a successful process, factors like allowing a proper time to achieve a robust outcome are the enablement of self-organization, of the competences, as they strongly facilitate the achievement of an affordable process, generating a reusable result, and enabling the planning and execution of future activities.

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Appendix

In the following table we propose a template for the analysis of the perception of the need for lessons learned and its impact on learning and survival anxiety.

Perception of the need	Learning Anxiety	Survival Anxiety	Cause	Action
Useful (Possible existing process)	Low	Low	Absence of relevant external stimuli, or other pressing issues.	No urgency, Status Quo is prevailing.
	Low	High	Trends of data showing a future management of operations or sales not sustainable in terms of costs, waste, turnover of key resources, decreased quality of delivery etc.	The understanding that the status quo is not sustainable on, creates urgency for change. There is room for introduction or for the improvement of existing process
	High	Low	Focus on ongoing urgencies. Lack of shared or understanding of the vision.	Learning anxiety created by focus on urgent operations or other matters; reduce sense of perceived urgency before to act.
	High	High	Vision and needs are aligned toward change. Room to develop or improve the existing process.	Urgent focus on operations or other matters increases learning anxiety; the understanding of a status quo not sustainable increases the survival anxiety and creates room for the need of lessons learned, already perceived as a useful way to proceed. Reduce sense of perceived urgency before to act.
Perception of the need	Learning Anxiety	Survival Anxiety	Cause	Action
Not Useful (process not existing or not used)	Low	Low	Static environment and/or market. Absence of relevant external stimuli, or other pressing issues.	Status quo is prevailing.
	Low	High	Trends of data showing a future management of operations or sales not sustainable in terms of costs, waste, turnover of key resources, etc. Sales focus on products, services overlooked.	The prevailing survival anxiety creates room for the change; act to create sense around lessons learned, which are not yet understood as a key tool to preserve knowledge and value of the brand.
	High	Low	Tendency to use existing processes. Delayed or overlooked execution of issues' analysis (root causes of delays and waste etc.) generating poor outcomes.	Urgent focus on operations or other matters increases the learning anxiety; Reduce sense of perceived urgency, take advantage of events demonstrating the need for change and introduce lessons learned, creating sense around those.
	High	High	Evidence of delays and losses generated by dispersion of knowledge allow room for the creation of a process to collect Lessons Learned.	Urgent focus on operations or other matters increases learning anxiety; the understanding of a status quo not sustainable increases the survival anxiety, the lessons learned may not be the first option until is clear. Emotional

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				containment actions may be needed to facilitate the understanding.

Table 3 - Analysis of lessons learned background (Template)

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About the Author

Luca Costa

Bologna, Italy

Luca Costa, MSc in Physics, Executive MBA at Bologna Business School, certified Project Management Professional (PMP™) acts mainly as a consultant both as a freelancer and for consulting companies based in Italy. An adjunct lecturer at the School of Economics and Management of the University of Bologna, for Bologna Business School he is directing three Open Programs, several Custom Programs about Project Management, Risk Management, PMP Certification and Change Management.

His main areas of interest are, in addition to Project and Program Management, Change Management, and in particular the measurement of Change Readiness of business environments, for which he has developed an original approach. He has also been a speaker at several conferences on these topics, including the PMI global summit in 2022.

In his past he acted first as Project and Program Manager, then as Business Developer for multinational IT companies, developing PLM solutions, managing projects for configurators and advanced graphics for automotive companies, and organizing Academies in multicultural environments. These often multicultural and complex experiences were the main factors that sparked his interest in project management and change management. He is, finally, a volunteer for the Project Management Institute for which he has served as Branch Director and has organized numerous conferences. He has personal interests in traveling, photography, history and he's a passionate fan of the Boston Red Sox. He can be contacted at luca.costa@bbs.unibo.it