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# Integrating Lessons Learned Processes for Improved Clinical Outcomes

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## Learning from Organizational Experiences

Almost all Health Information Technology (IT) and clinical project owners will attest that their projects rigorously incorporate a project review in which they have carried out some form of after-action learning or lessons learned. The evidence, however, shows that very few projects *actually* do, and that organizations typically repeat mistakes that previous project teams have made. Project teams, often unwillingly, fail to capitalize on effective methods or innovations developed in previous projects. WBB has seen the negative effects manifested in project delays, cost overruns, and functional gaps that drag on clinical outcomes measures.

Effectively implemented lessons learned processes support organizational learning, and lead to more efficient and effective clinical execution by reducing the repetition of Health IT and project mistakes, increasing organizational diffusion of effective practices and innovations, and increasing standardization.

Effective lessons learned processes are:

- Built into the project templates as a required and continuous activity
- Supported by leadership and the organizational culture
- Based on an evidence-based, blameless, and systematic process

## Benefits

Healthcare organizations that use effective lessons learned methodology can expect benefits in several areas:

- *Increased project team effectiveness.* Healthcare project teams, specifically those teams at the regional, network, or facility level, are often not adequately trained or have the experience to plan and execute projects. Employing lessons learned:
  - Reduces project errors and assists the project team in avoiding pitfalls
  - Prevents rework that can be costly and can cause schedule delays
  - Creates a learning environment where project teams actively learn from each other's mistakes and successes
  - Increases team communication and effectiveness
  - Mitigates risk by employing lessons and best practices
- *Increased program and portfolio effectiveness.*
  - Illuminates lessons and best practices across similar projects in programs and portfolios, contributes to communities of practice to address common issues, and creates subject matter experts
  - Decreases project implementation learning curves among project teams, facilities, networks, and regions
- *Increased enterprise or healthcare community effectiveness.*

- Identifies to leadership the common enterprise problems and issues, and contributes to enterprise-level solutions by addressing root causes of problems
- Provides centralized knowledge base availability to the enterprise to mitigate risk and make projects more effective

| Best Practices                                                                                                                                                                                                                                                                                                               | Organizational Impact                                                                                                                                                                                                                                                                                          |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>❖ Incorporate lessons learned and best practices at the project level</li> <li>❖ Implement lessons learned at the project and program level</li> <li>❖ Increase enterprise effectiveness by identifying common problems and issues, and developing lessons to address them</li> </ul> | <ul style="list-style-type: none"> <li>❖ Enhanced project effectiveness including mitigating schedule delays and cost overruns</li> <li>❖ Decreased learning curve among project teams and facilities as they reduce mistakes</li> <li>❖ Reversal of systemic negative trends of Health IT projects</li> </ul> |

### The Lessons Learned Method

Contrary to only using the “post-mortem” approach to learning from past mistakes, effective lessons learned programs cycle through the entire lifespan of a project. An effective model that was developed at British Petroleum (BP) [1] and used in healthcare settings such as the National Health Services (NHS) [2] [3] and Veterans Health Administration (VHA) [4], involves learning before the initiation of a project, learning during the project, and learning after the project concludes. The learning before, during, and after (LBDA) framework has been shown to enable organizations to optimize operational performance, reduce errors by identifying and eliminating them at an early stage, and avoid costs that may have been incurred through rework or schedule delays. [5]

*Learning Before* is similar to the literature review portion of a research project. Participants scan the accumulated learning and materials of previous projects to glean best practices, generate checklists, identify due diligence elements, and develop an optimized structure for their project. Learning before also leverages the knowledge of others through peer assistance by people with relevant and/or recent experience of similar projects.

*Learning During* involves both peer assistance and rapid communication of issues, resolutions, and innovations to spread best practices and new knowledge throughout the project team and stakeholders. An adaptation of the Agile Scrum method applied to knowledge transfer is an example. [6]

*Learning After* collects the experiences of team members and stakeholders in a systematic way, and produces reports and materials that exhaustively represent the lessons learned, both positive and negative, that can be used to inform current and future projects to replicate effective methods, and avoid pitfalls.

*Learning After* employs and integrates qualitative and quantitative research techniques that have a foundation in ethnographic methods, in order to reduce interviewer bias and to obtain lessons from the experience of the clinicians and other project stakeholders. The process uses qualitative methods to formulate and develop lessons in a similar way to how qualitative research leads quantitative. [7]

The qualitative lessons learned process used by WBB typically involves facilitated stakeholder interview sessions, close analysis of workflow, and examination of existing documentation and project/subject artifacts. Coding from collected material is best done using computer-assisted qualitative data analysis software (CAQDAS<sup>1</sup>), and then synthesized into lessons based on criteria of reliability, validity, and plausibility using stakeholder input.

In this approach, sampling is carried out by analysis of the roles involved in the administrative and clinical workflows, and interviewees are selected to obtain full representation of the roles. Further interviewees may be obtained by means of key-informant and subject-driven sampling [8] [9], a special case of snowball sampling, from the role-based interviewee frame. [10] The use of combined sampling methodologies reduces the likelihood that any specific role will be under-sampled, and minimizes the potential of bias due to unexplored “hidden populations” of stakeholders.

Once lesson constructs have been exhausted and the repetition rate of lesson constructs is seen to have climbed, the lessons learned process switches to a quantitative method to analyze the exhausted constructs.

Triangulation is the process of using multiple research avenues, sources, and methods in order to achieve optimal levels of reliability, validity, and plausibility. Typically, triangulation is done across several dimensions, including:

- Multiple raters of the same qualitative data
- Multiple sources of information that collectively exhaust the construct
- Multiple collection and analysis methods e.g. Historiographical, Ethnographic, Grounded, Phenomenological

Quantitative methods are used to determine trending and proportion of lessons representing each specific mode of failure or improvement identified during the qualitative process. This allows control parameters and targets to be established in order to determine if potential solutions and remedial activities such as lessons dissemination to new projects are having the

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<sup>1</sup> Examples of commercial CAQDAS systems include MaxQDA, Nvivo, QDAMiner, and ATLAS. The author is using MaxQDA.

desired effects. In this sense, the lesson content of advice and recommendations can be seen as the exposure of interest compared to performance goals that are the outcomes of interest.

## Repeatable Process

As was described in the introduction, most Health IT projects fail to use effective lessons learned methods, and, as a result, experience sub-optimal outcomes. This is often due to a reliance on once-off efforts based on participant's attempts at remediation, instead of developing and adhering to a repeatable, and optimally continuous, lessons learned process. In addition to documented and authorized processes, effective and repeatable lessons learned processes require:

- An Internal owner/champion to accept responsibility and accountability for success
- External assistance for facilitation, quantitative analysis, and expertise
- Assessments of effectiveness and value

Organizations that have seen operational benefits from lessons learned processes typically trigger execution in a number of ways related to their specific work environment and demands:

- *Initiation of any new project*—Building lessons learned into the project initiation, scheduling, and wrap-up ensures that opportunities to improve active projects are not missed.
- *Breach of control parameters*—Operational metrics that have strayed beyond set control parameters can be a trigger for performing root cause analysis and lessons learned in an effort to discover causes and create lessons for remediation and prevention.
- *Critical events*—Situations that result in breaches of patient safety, accidents, or other significant events can be the triggers for embarking on a lessons learned exercise to identify and capture lessons to mitigate or prevent future critical events.
- *New product introduction*—When new products such as processes, Health IT applications, or roles are introduced, lessons learned efforts could be put to use in discovering what other teams, facilities, domains, or organizations have done previously. This can reduce the learning curve, mitigate risk, and avoid project delays by vicariously learning from the experiences of others.

## Summary

Incorporating lessons learned as part of project execution and planning enhances the probability of project success at reduced costs. Employing

lessons throughout the project life cycle improves outcomes by reducing project errors, decreasing project rework, increasing team awareness and collaboration, and increasing the likelihood of end-user adoption. From its experience as a leading service organization in the healthcare industry, WBB has observed that failure to incorporate lessons learned into Health IT and clinical projects has negatively affected the successful implementation of healthcare projects, as evidenced by repeated errors and mistakes across the industry resulting in increased costs and lowered effectiveness. Applying rigorous Lessons Learned programs through a combination of qualitative ethnographic and quantitative methods, healthcare organizations can achieve rapid organizational learning and outcomes improvements in Health IT and clinical projects.

## References

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### About the Author

#### **Matthew H. Loxton**

Mr. Loxton is a certified knowledge management practitioner with extensive international experience in putting knowledge to work in achieving organizational goals. He has served in senior, global KM roles in the US and Australia, and holds a master's degree in knowledge management from the University of Canberra. Matthew is a peer reviewer for the international journal of Knowledge Management Research & Practice, and has written numerous KM articles for various publications on customer service, analytics, and knowledge management.



Mr. Loxton's pro bono roles have included KM and IT governance support for the Queensland Emergency Medicine Research Foundation (QEMRF) and the St. Andrew's Medical Research Institute (SAMI).

Mr. Loxton currently works at Whitney, Bradley, & Brown as a senior analyst for knowledge management in healthcare, contracting to the Veterans Health Administration (VHA), and he regularly blogs on knowledge management and organizational learning – see <http://mloxton.wordpress.com>.

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### About WBB

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