



**PROJECT EVALUATION:
LESSON LEARNED VS. DELPHI METHOD.**

Auður Kristín S. Welding
Master of Project Management (MPM)

May 2013



PROJECT EVALUATION: LESSONS LEARNED VS. DELPHI METHOD.

Auður Kristín S. Welding

Thesis of 6 ECTS credits submitted to the School of Science and
Engineering at Reykjavík University in partial fulfilment
of the requirements for the degree of
Master of Project Management in MPM

May 2013

Supervisor:

Steinunn Guðbjörg Þorsteinsdóttir
Quality Manager, MSc. in Quality Technology and Management.

PROJECT EVALUATION: LESSONS LEARNED VS DELPHI METHOD.

Auður Kristín S. Welding¹

Paper presented as part of requirements for the degree of Master of Project Management (MPM) at the School of Science and Engineering, Reykjavik University - May 2013

ABSTRACT

Projects play a crucial part in the growth and sustainability of an organization and some even argue that the only way an organization can change, implement a strategy or gain competitive advantage is through projects. In order for an organization to learn from projects, different methods must be applied at different stages in the project life cycle. In the hope of improving current learning practice at financial service organization, a flexible practical approach is suggested. The recommendations take the form of following: **Implement a Premortem, Develop a Project Learning Roadmap and Implement a Project Gate Process.** Project learning is paramount to project maturity in the organizational development.

Keywords: *Delphi method, Lessons learned, Project audit, Project evaluation, (Post-) Project review, Project lifecycle, Postmortem.*

1. INTRODUCTION

Today's organizations must thrive in ever increasing international competition and growing demand for performance, adaptability, and speed of innovation (Briner, Hastings & Geddes, 1990; Sense, 2004). Projects play a crucial part in the growth and sustainability of an organization and some even argue that the only way an organization can change, implement a strategy or gain competitive advantage is through projects (Shenhar & Dvir, 2007).

Professional project management aims for continuous improvement with every project in order to attain long-term organizational goals and maintain permanent success. This can only be achieved through continuous learning which is a complex process that needs to be managed (Ayas, 1996). The ability to sustain success and significant improvement in projects over long periods of time depends mainly on the capability to learn from experience (Ayas, 1996; Sense, 2004).

In order for an organization to learn from projects, different methods must be applied at different stages in the project life cycle. Thus the purpose of this paper is to

¹ Auður Kristín S. Welding (1974). MPM student, B.A in Social Education. E –mail: audurwelding@gmail.com

discuss and distinguish between two project evaluation methods, Lessons learned (LL) and Delphi.

This will be done firstly with a literature review and secondly by analysing the findings of a case study where both of the above methods were used at different stages in the project lifecycle.

The research question this paper will therefore try to answer is:

"Lessons learned vs. Delphi method" - which evaluation method should an organization select when learning from a project on a red status?

2. LITERATURE REVIEW

In this chapter the attention is first and foremost on reviewing the two analytical methods; LL and Delphi method.

But first, the project lifecycle and the methodology of using the traffic light system for status reporting in project management will be shortly described and defined.

2.1 Project lifecycle

The Project Management Institute (2008) defines a project as a series of events of a temporary endeavour with a defined beginning and an end. The task is to meet unique goals and objectives, typically to bring about beneficial change or added value. Projects vary in size and complexity but no matter how large or small, simple or complex, all projects can be applied to the following life cycle structure as seen in figure 2. The time of the project is identified on the x-axis and the y-axis represents the workload and the cost in that context.

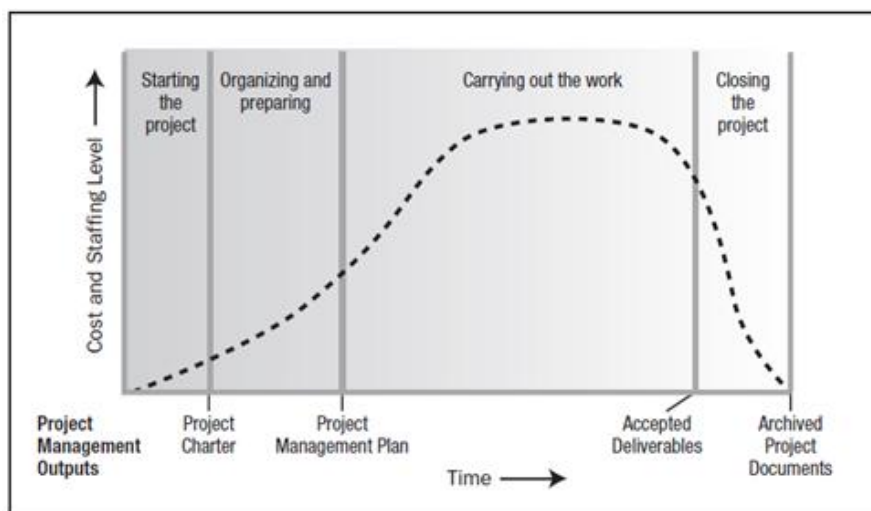


FIGURE 1: EXAMPLE OF A PROJECT LIFE CYCLE (PROJECT MANAGEMENT INSTITUTE, 2008, P 16).

This is a generic life cycle structure which is broken down into the following four phases; starting the project, organizing and preparing, carrying out the work and closing the project. Each phase is a collection of logically related project activities, usually

culminating in the completion of a major deliverable, identified as *project management outputs* in figure 2 (Project Management Institute [PMI], 2008; Helgi Þór Ingason & Jónasson, 2012). Conclusion of a phase is often, but not always, marked by a review of key deliverables and project performance to determine if the project should continue into its next phase, detect and correct errors as soon as possible, and/or minimizing expensive rework cost. Of course, different project types will have different set of phases and large projects can be divided into multiple phases and sub-phases. Regular assessment of a project track record throughout the life of the project is referred to as LL (PMI, 2008; Kerzner, 2009).

2.2 Project status reporting - the traffic light system

A traffic light rating system indicates the status of a variable using the red, amber or green colors of traffic lights. When reporting on how a project is performing, project managers often use a RAG rating (Red,Amber,Green) to indicate how on track or at risk the project, its deliverables or tasks are. Kerzner suggests the following criteria; Green light: Work is progressing as planned. Sponsor involvement is not necessary. Yellow light: A potential problem may exist. The sponsor is informed but no action by sponsor is necessary at this time. Red light: A problem exists that may affect time, cost, scope or quality. Sponsor involvement is necessary (Kerzner, 2009, p 391).

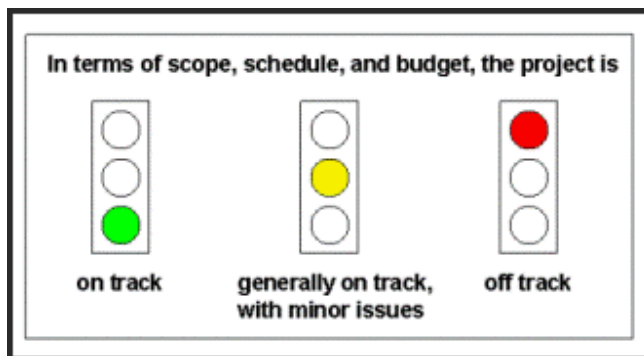


FIGURE 2: EXAMPLE OF A TRAFFIC LIGHT SYSTEM IN PROJECT MANAGEMENT

2.3 Lessons learned

The US Army first introduced Lessons learned (LL) in the mid-1970s as the outcome of after-action review and they defined LL as a "validated knowledge and experience derived from observations and historical study of military training, exercises, and combat operations". It is, therefore, a discussion of a project or an activity that enables the individuals involved to learn for themselves what happened, why it happened, what needs improvement and what lessons can be learned from the experience (Garvin, 2003; Meredith & Mantel, 2006).

The term LL and the related terms of post-project audits, retrospectives, post-mortems or reviews, evaluations and best practices are all well-known concepts in project management literature and practice. The terms refer to the procedures carried out during, or after, projects to identify, retain and disseminate learning experiences, positive and negative, from projects in order to improve future project management procedures (Kerzner, 2009; Larson & Gray, 2011; Meredith & Mantel, 2006). In The Project Management Body of Knowledge (PMI, 2008, p 437) LL are defined as: "The learning gained from the process of performing the project." LL are therefore elements of

both organizational learning and knowledge management. Senge (1994, p 49) defines learning in an organization "as the continuous testing of experience, and the transformation of that experience into knowledge, accessible to the whole organization, and relevant to its core purpose."

Transferring knowledge from past projects to present projects, as the LL method aims to do, is thought to have beneficial effects on future projects with continuous knowledge management and improvement activities (Sense, 2004; Carillo, 2005). Other benefits attributed to LL include better communication between project team members as they share and understand one another's perspectives. It integrates individual and team learning, illuminates hidden misunderstanding or conflicts as well as encourages documentation of good practices (Carillo, 2005; Helgi Þór Ingason & Haukur Ingi Jónasson, 2012). Sholtes, Joiner and Streibel (2010) state in their "Team handbook" that these review sessions "can be one of the most important and difficult activities a team can undertake". They go further to say that these sessions with "self -critique can help a team identify problems early, before they become crises" and recommend that teams review their work at the end of each major step in their work plans and that the structure should be around following two points:

- **Effectiveness.** Is the team *doing the right things*? Asking the right questions? Tackling the right problems? Working on issues related to the project?
- **Efficiency.** Is the team *doing things right*? Is the team taking unnecessary steps? Repeating itself? (Sholtes et al, 2010).

Fangel uses the term project evaluation for a period in the project process where an overall status, assessment and optimization of the project outcome, cost, schedule and co-operation is made. This evaluation should be used to pause and establish distance from the project to get a fresh view whereas "the evaluation is 20% status and 80% progressive optimizing and planning" (Fangel, 2011). According to Briner et al (2011), project evaluation usually reveals weaknesses in the following three areas: poor project definition, weak project sponsorship or bad project organization. They stress that when running a project review, it is important to establish common understanding from all participants that this a participative problem-solving process and recommend setting a few ground rules where the focus is on the specific issues, not the personalities, and criticizing or disapproving is only welcome if a better solution is offered at the same time.

Research has shown that project reviews are most influential when a non-related individual is appointed to facilitate LL sessions in a project. The non-related party can be an employee of the organization but not connected to the project at hand, or an external facilitator. Participants tend to regard the external facilitator as more neutral and objective which is an advantage in performing the session but the external facilitator might not know the organization as well as an internal facilitator, therefore a preparation for the external one is always important (Larson & Gray, 2011). The role of the non-related party is to direct the discussions and guide the project team. That involves, among other things, analysis of the work break-down and focusing on what was done well and what could have been done better. She then assists the team to evolve a plan that will be put to practice with milestones and named responsible (Carillo, 2005).

Kerzner (2009) refers to LL on several occasions in the context of project failures, project closure, risk issues, training and as best practices. He notes the increasing importance organization place on LL and describes LL as a documentation process that is more often undertaken at the end of projects as a post project review, even though it is a process which project participants can be reluctant to conduct as it might reflect badly on themselves. Busby (1999) touches upon the potential drawbacks with post project reviews which are reflected in how often the outcome is poorly disseminated and

sometimes not even used for any purpose. Reasons for this neglect within organizations include:

- **They are time consuming and costly.** Project managers and project sponsors want to minimize cost, particularly towards the end of the project.
- **Reviews can be discomforting** as they involve looking back over events that project participants are likely to have mixed or embarrassing feelings about.
- **Reluctance among the project participants** to engage in activity that might lead to blame or criticism which could be potentially damaging to social and professional relationships.
- **Experience is a necessary and sufficient teacher in its own right.** Many believe this to be the case, which makes collective learning through project post reviews unnecessary.

Carillo (2005) adds another drawback to the list, which is commonly used when referring to post project reviews in particular which is that “the beneficiaries are future projects, not the current one.” Busby (1999) describes two structures for post project reviews: 1) chronological reviews, in which the LL are compiled for each phase of the project life cycle, 2) categorical reviews, in which all LL are compiled by all project team members on the basis of whether they were positive and negative experiences. Larson and Gary (2011) emphasize that LL should be organized and executed periodically through the project lifecycle, and at least three times, both to ensure that the experience gained is not lost with participants that leave the project at a certain time point in the project and to consolidate the procedure of LL within the culture of the organization. Project review or LL that is done regularly increases the possibility of more discipline and accuracy in practices, much more so than by doing only a postmortem at the closing of a project (Carillo, 2005).

To conclude and summarize this review on LL, the benefits of this method when done periodically and systematically will assist an organization in meaningful utilization of the gathered learning experiences from projects in order to improve project management procedures in the future and with that possibly enhance the organizational competitiveness. However, it is vital to not disregard the drawbacks, such as possible reluctance of the participants to engage in an activity that might lead to blame or criticism or the risk that LL will not be disseminated thoroughly enough within the organization. This is especially important when applying LL after the project close as the information will not be attainable for future projects to learn from.

2.4 The Delphi Method

The Delphi Method is a survey method of research which aims to structure group opinion and discussion with the anonymity of the participants as a special characteristic for this method. In the 1950's, the Rand Corporation in California developed the Delphi method as an attempt to eliminate interpersonal interactions as the controlling variables in decision making. The purpose is to produce discussions and enable a judgment on a specified topic to be made so that decisions can be taken which can claim to represent a given group's wants and views (Goodman, 1987). The technique takes its name from the Greek god Apollo Pythios who, as master of Delphi, was renowned for his ability to predict the future. According to Dalkey, one of the first applications of the Delphi method was technological forecasting, that is forecasting the time period in which some specific technological capability would be available (as cited in Meredith & Mantel, 2010).

The four features which characterize the Delphi technique and distinguish it from other group decision making processes are as mentioned anonymity and expert input, but also iteration with controlled feedback and statistical group response (Goldman, 1987). The technique involves the presentation of a questionnaire to a panel of informed individuals in a specific field of application in order to seek their opinion or judgment on a particular issue (McKenna, 1994; Kerzner, 2009). After the questionnaires are returned, the data is summarized and a new questionnaire is designed based on the responses from the first round. This second round questionnaire is then returned to each participant showing the overall group response and the participants' own response from round one. Participants are asked to reconsider their initial response in the light of the first round's overall results. Repeat rounds of this process are carried out until consensus has been reached (Beretta, 1996).

Robert Loo (2002) outlines the four key planning and execution activities for Delphi as follows:

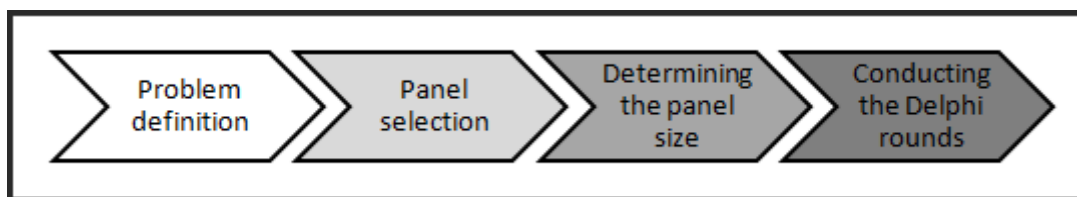


FIGURE 3: LOO'S KEY PLANNING & EXECUTION ACTIVITIES – A GRAPHICAL REPRESENTATION

Problem definition: Defining the problem is an important initial step to ensure that the nature and scope of the problem or issue is clarified and that the expected outcomes of the study and appropriateness of the Delphi method to address the specific problem are all taken into account. Mead and Mosely (2001) name an extra stage, which would fall under this activity which is "formulate the question(s)" and go on to say that the formulation of the question or questions is crucial. They must be unambiguous and if there is more than one question then each one should tap a separate area of concern, otherwise there will be a great deal of repetition from the respondents.

Panel selection: The key to a successful Delphi study lies in the selection of participants. As a group approach to forecasting and decision making, the Delphi method requires a panel of subject matter experts (Loo, 2002). The experts may be defined in a number of ways so for each study there must be a set criteria that the chosen experts must meet e.g. to have been participating project team member of project x for 6 months or longer. In some cases a exclusion criteria can be important (Mead & Moseley, 2001).

Determining the panel size: Even though there is no specific number of participants advocated for Delphi studies, rules of thumb suggest that 15 -30 can be used for heterogeneous population and as few as 5-10 for homogeneous population, but there are records of Delphi studies that have used larger panels numbering over 100 members. The complexity of the problem should be a controlling factor when deciding the panel size, as well as the range of the expertise required addressing the problem and the purposes of the study.

Conducting the Delphi rounds: The development of the questionnaire for Round 1 should be based upon the clear identification of the study's goals. Open ended questions can also be used to offer the panelist opportunity to speak their minds and capture information and data not explicitly asked in the questionnaire. Mead and Mosely (2001) say that the formulation of the question or questions is crucial. They must be

unambiguous and if there is more than one question then each one should tap a separate area of concern, otherwise there will be a great deal of repetition from the respondents. The media that are practical for transmitting the questionnaires and responses are postal, mail, fax and e-mail. Loo (2002) goes on to stress the importance of pretesting and refining the questionnaire. Kahneman and Tversky (1981) point out that the framing of a question often contains seeds of the answers it will provide. Presented with the choice between two therapies for a fatal disease, simply stating the cure rate in terms of survival rather than mortality biases answers in that direction. To avoid framing bias one might test the same question asked in different ways and compare results.

A Delphi study usually involves three or four rounds of iterations, it is not just a one shot effort: the moderation is therefore able to set up Round 1 according to some strategy knowing that another two or three Rounds could be conducted to achieve consensus or other goals. Generally the first Round collects qualitative data and quantitative data in subsequent Rounds. A process of analysis of the received data and preparation for the next Round takes place in between each of these rating Rounds. Little guidance is offered in the literature with regards to the Delphi method on which type of qualitative analysis to employ and how to present the results in the second Round.

It is acknowledged that questionnaire research is notorious for its low response rate. Researchers often have to send out two or three reminder letters to non-responders. The Delphi technique asks much more of respondents than a simple survey, with anything up to four Rounds of questionnaires, so the potential for low responses increases exponentially. It is therefore vital that participants realise and feel that they are partners in the study and that they are interested in the topic (McKenna, 1994).

Powell (2002) comes to the conclusion that the Delphi technique benefits from being a democratic and structured approach that harnesses the collective wisdom of participants and recognizes it as a useful method for shaping communication and seeking agreement within diverse groups. But methodological weaknesses are suggested in the lack of clarity as to the means by which consensus may be defined and the resultant differing interpretations. There is therefore a need for careful and explicit decision making in its application. The findings of a Delphi represent expert opinion, rather than indisputable fact so further inquiry to validate the findings may be important.

To conclude, the Delphi method offers the possibility to explore objectively issues that require judgment or an opinion of a diverse group through other means than attendance, which in a large organization can be timesaving for the participant. The weakness of this method is on the methodological side in regards to the ease with which questions can be asked, and that there is no formal, universally agreed instructions, which again offers different formats of the method and little administrative guidelines.

3. RESEARCH PROJECT

A case study was conducted within a financial services organization, where the Delphi method had been applied to a specific program as a request from the management board. The aim was to gain knowledge and experience from this 2 year ongoing program, which had been on and off on a red status through the whole period. In December 2012, an external consultant was appointed by a managing director to do a project evaluation on the program who advised using the Delphi Method for that purpose. The Delphi technique had not been conducted before within the organization. However, LL, in the form of Project retrospective and Postmortem, was the analysis method used to learn and establish improvements in projects within the organization. At an earlier stage in this program life cycle, when it had been running for over a year, a LL, in the form of a Project (status) review, was conducted by an internal facilitator. The documentation from both of these evaluations, LL and Delphi, are the basis for this case study. It should also

be mentioned that the author participated in the program and observed the project evaluation.

3.1 Research description and objectives

In order to address further the research question regarding which method an organization should select when learning from a project on a red status, additional questions were developed. The following three questions were sent to key individuals within management, all members of this program's steering committee;

1. **Reason:** What were the main reasons for appointing an external consultant to facilitate and execute Delphi analysis with the team participants of the program?
2. **Learning:** What kind of learning and or experience did you hope to retrieve with the Delphi analysis?
3. **Method and process:** In your opinion, which method (Delphi and/or LL) is applicable at what time in the Project Management process?

3.2 Research methodology

A qualitative research approach or a case study of an exploratory kind was chosen as it was considered the best fit for comparing the process of the Delphi Method vs. Lessons learned. This research approach has the benefit of being very adjustable to the topic at hand. Such flexibility would not be available when using a quantitative research approach.

3.3 The project case context

The program, around which this case revolves, involved an implementation of new systems for a business unit within a financial services organization. The purpose of the new system was, first and foremost, to gain market advantage by offering better service to customers through a system which was more capable to handle the units' product range than its predecessor. The program was launched in the beginning of the year 2010 following an approval of the program's idea, presented with a Business Case (BC), and signing of contracts with external suppliers of the new system in the late fall of 2009.

The complexity of this implementation program was high which made it risk inducing, as was touched upon in the defining phase of the program. They were threefold;

1. **An implementation of a new business software** system programmed and designed in USA, with all the complexities which that process entails, i.e. relevant language, cultural and legal barriers.
2. **Outsource the current system**, filling the gap of the requirements which the current system was fulfilling with what the new system is able to provide.
3. Configuring new system to meet the **Icelandic tax legislation** and the unique way that Iceland puts the duty of collecting the capital gain tax on financial services organizations.

The program lifecycle phases in the executing stage were categorized by splitting up the main product groups down to 4 phases; P1, P2, P3 and P4. See figure 4 representing the project management process of the organization where the lifecycle

phases of the program have been added to the process. After the second quarter in the executing phase of the Program the team realized that the estimates of the milestones and finishing dates for the implementation were completely unrealistic. The aforementioned complexities had been highly underestimated in the planning of the timeline and milestones in regards to their time-consuming factor, spite of everyone's awareness of them as risk factor in the defining phase of the project. A program status review was therefore scheduled for the closing of phase 1, which is also according to the project management process of the organization, with extra attention from the management board as the program status was already on red light or "off track" in regards to timeline and actual cost.

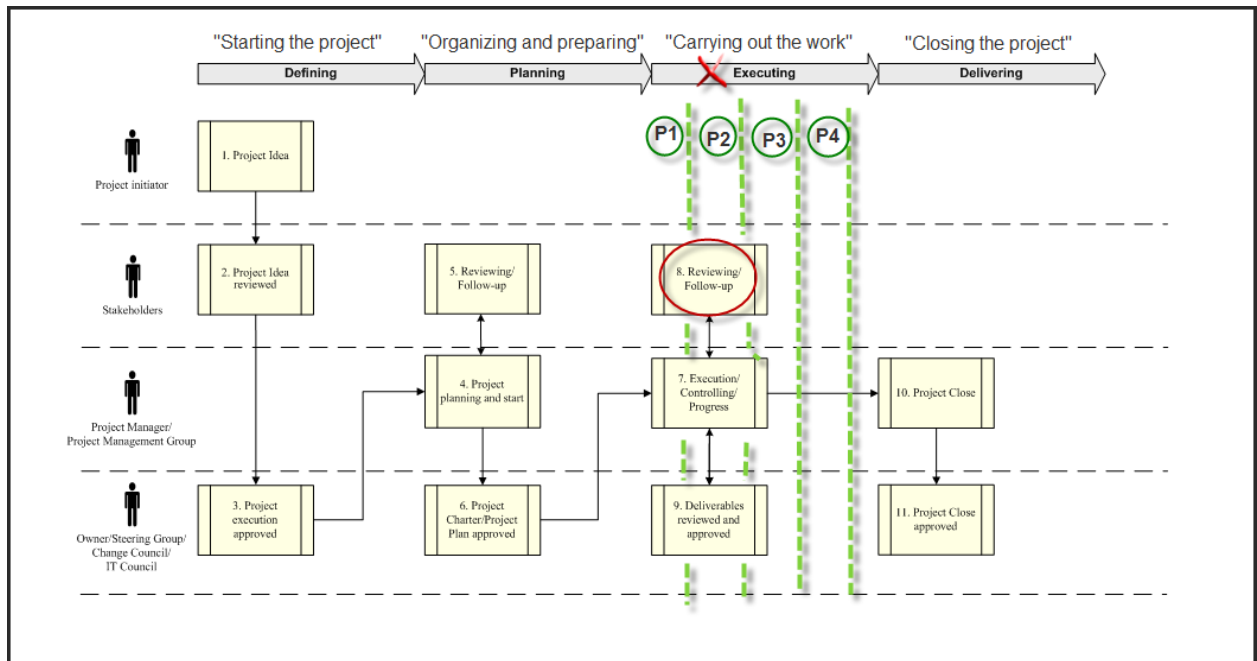


FIGURE 4. THE PROJECT MANAGEMENT PROCESS OF THE ORGANIZATION WITH LIFE CYCLE PHASE OF THE PROGRAM ADDED UNDER THE EXECUTING STAGE.

A LL session was conducted in June 2011 by an internal non-related facilitator on two separate occasions, one for the internal program team of the organization and another review session for the external team of the system supplier. The structure was, as Busby (1999) explains it, "a categorical review" where all the participants were asked to give their positive experience (what we did well) and their negative experience (what we could have done better) for each defined category in the program. The categories were; Program goals & performance, preparation & beginning, planning (time and resources), work processes & project management and, finally, communication & progress. This was a 3 hour session with the internal team, counting 14 participants, and a 2 hour session with the external team, counting 5 participants. The program manager was present in both sessions. The program manager and the facilitator compiled the lessons into a report, after the sessions. However, as the time ran out in the actual sessions, a suggestion of action list was put down after the sessions ended and then reviewed by the participants and accepted. Program manager then added to the report a reviewed time plan, worked on and approved by the program team, and a financial status, prepared by the financial manager of the program. The LL action list, reviewed timeline and financial status were included in the report which was then presented to the steering group of the program.

A year and half later, Phase 2 in execution was finalized, still fluctuating between yellow light status "generally on track with minor issues" and red light status "off track". The reason for the red light status were both delays in milestone delivery, which was first and foremost because of the afore-mentioned complexities of the Icelandic tax legislation and the difficulties in configuring the new system to meet the legislation. The Program was now a year and a half behind planned timeline dates and its budget requirements were therefore considerably larger than originally planned. The program status was presented to the management board and the board concluded that an evaluation of the program was needed to establish the reasons for the enduring red status of the program as well as hoping to gain experience and learning for future projects. Following the board's conclusion in late 2012 an external consultant was appointed by a managing director to conduct the program evaluation. The consultant proposed utilizing the Delphi technique for the evaluation.

The external consultant and the managing director launched the evaluation process with a preliminary letter to the program participants, counting 18, to introduce the Delphi method and the reason for doing a program evaluation. It explained the evaluation as a part of the organization's aim to continually improve by reviewing the program and learning from it and expressed the importance of everyone participating in the evaluation. This evaluation was specifically focused on improving the process of approving projects or programs and project management. The consultant then formally started Round 1 of the Delphi method by sending out an email to the participants explaining in an audio file as well as with a text file the procedure with this first Round.

The outcome of this evaluation was supposed to assist the organization in defining opportunities of improvement in the current project management arrangement and address those issues that were most urgent according the panel of expert, the participants.

The first Round addressed the following three subjects;

- 1. Processes:** Which opportunities do you see, based on your experience in the implementation of this program to improve processes within the financial organization towards more efficiency, clearer responsibility and discipline in practices?
- 2. Methods:** Which opportunities do you see, based on your experience in the implementation of this program, to improve methods in decision making, preparation, setting goals (missions), planning, progress management and project close?
- 3. Collaboration:** Which opportunities do you see, based on your experience in the implementation of this program, to improve the collaboration among the team participants and other stakeholders of this program?

Participants were asked to write down their thoughts on the subjects and what they considered to be of importance in that connection. A short description on the meaning of the subject was also provided for obligatory review before answering the questions.

Second Round was conducted in a similar way with an email from the consultant giving out instructions alongside an audio file. But with the exception that now, participants were asked to rank 98 statements from 0 to 7 their importance, from "non important" to the highest "most important". These statements sentences were taken out of Round 1 open answers from the participants.

After receiving the replies from the participants, which needed two follow up encouragement to answer emails, the consultant collected the conclusions of this evaluation into a report for the managing director. The key elements that needed to be

improved according to the Delphi method were project integrity, project scope and project human resource.

4. RESULTS

In this section, the research results are presented.

4.1 Results from the case study

A LL session was conducted with the internal non related facilitator which offered neutrality in how the topics were approached and possibly had good influence on the attendance at the session. Participation was 100%, of 20 stakeholders invited to the session 3 declined. Those 3 that did not attend the session had the opportunity to send in their comments before hand, which they did. The flaw of the method can be visualized in lack of follow up of the action items that were one of the products of the LL session. They were categorized in the following way:

1. What the internal team sets out to do to keep the process of the project at faster pace,
2. What the internal team sets out to do to enforce more efficient collaboration with the external team,
3. What the external team sets out to improve in their work practice.

Out of 25 items listed, 4 items were aimed for future project process improvement; only 11 items were owned and executed by the teams for the improvement of the ongoing program. These items were concerning among other things meetings discipline, work brake down structure, milestones, utilizing Scrum/Kanban more, fewer points of contact and end users training for the new system.

The Delphi session started out well, in terms of launching the evaluation with an informative email about the method and the goals for using this technique as well as stressing the importance of the participation from the *experts*, in this case, the team member's. Participation needed to be pressed with iteration emails, but that can be expected with this method as was detailed in the literature review. The implementation of the method became flawed in Round 2, with a simplistic practice of drawing 100 statements out of their open answer context and lining them up for ranking in regards to their importance for future project management processes in the organization. Participants expressed their concern to the consultant, having difficulties in understanding how to rank a statement on its importance for future project processes and management within the organization when e.g. the statement went like this: *"Processes are not efficient enough because employees have too much to do."* Because there were only two Rounds, participants were not given the opportunity to reevaluate their responses or, for that matter, come to an agreed conclusion.

Key individuals within management were asked to respond to the following questions in order to address further the research question of this paper:

1. **Reason:** What were the main reasons for appointing an external consultant to facilitate and execute Delphi analysis with the team participants of the program?
2. **Learning:** What kind of learning and or experience did you hope to retrieve with the Delphi analysis?
3. **Method and process:** In your opinion, which method (Delphi and/or LL) is applicable at what time in the Project Management process?

Three individuals responded, two of them gave answers to all three questions and one gave only an answer for the third question. The reason is that this individual was not involved in the beginning of the process where the decision was made to appoint a consultant and execute a Delphi method for evaluation purposes.

According to the key individuals, **the main reasons** for taking this route with the program evaluation has been mentioned earlier in this paper, the request came from the management board to gain experience from this program to improve organizations project processes. Furthermore, they wanted to try a new method with an external facilitator to ensure that the evaluation would be conducted by a neutral party without any connection to the program or its stakeholders.

The management hoped to increase comprehensive understanding and **learning** of technical implementations projects with the aim of making overall improvements. There is always room for improvements, "however good we are". There was also the need for a concrete explanation on why the programs cost estimation did not hold.

Regarding which **method** to select and where in the **project management process** it would best fit, management agreed that LL as a method had its benefits, being known within the organization and fairly easy to conduct. Though the LL outcome reports were too few to judge from as they rarely got distributed wider than to the key stakeholders. The drawbacks as one pointed out would be the risk of participants holding back on a LL session and not applying full honesty. Also, one authoritative participant could have too strong an influence on the opinions of others, states another individual. There were different opinions on the Delphi method, but one individual answered that the Delphi method, when structurally and professionally conducted would be a good additional evolution method to use within the organizations. Other individual said that the experience of the Delphi method when applied in connection to the program had established that in such circumstances where the program had been ongoing for over 2 years and with regular improvements on the project management process on the way, this method was not the right fit. Those who commented on where in the project management process a LL or Delphi should be conducted, believed that the process within the organizations would benefit of having LL method applied at all opportunities in projects, with every gate, phase or project close, whether as a formal session or a lighter version. *The conclusion from these individuals was that both methods had benefits and drawbacks, it was merely a question of when each method suited the circumstances better.*

5. CONCLUSION

The conclusion of this research is brought down in three parts; Discussion, Recommendations and Answer to the research question.

5.1 Discussion

There is a window for improvements in project evaluation within this financial services organization. Leveraging the case study and the literature review, a comprehensive way for organization to exploit the results would be to implement a strategy to bring about change in internal LL overall practices. For it is for sure, worthwhile investing time and energy at project gates or at the end of a project on an audit or a project review which would enhance the effectiveness and therefore the success of the next project. The management individuals within the organizations that were approached with three key questions arrived more or less to the same conclusions as Larson and Gary (2011) who emphasized that LL should be organized and executed periodically through the project lifecycle, and at least three times, both to ensure that the experience gained is not lost

with participants that leave the project at a certain time point in the project and to consolidate the procedure of LL within the culture of the organization.

It is therefore recommended that the organization follows Carrillo et al proposal in their article 2013 named appropriately” *When will we learn? (Improving lessons learned practice in construction.)*” and develop a **Project Learning Roadmap**. With the Roadmap the organization would be addressing the elements of Needs Identification, Process and Tools, Content and Format, Repository, Communication and Dissemination and Review. See Figure 5 showing Carrilo et al Roadmap that is aimed at construction companies but may well be adapted to the Financial Service Organization and tailored to take into account differing stakeholder’s needs.

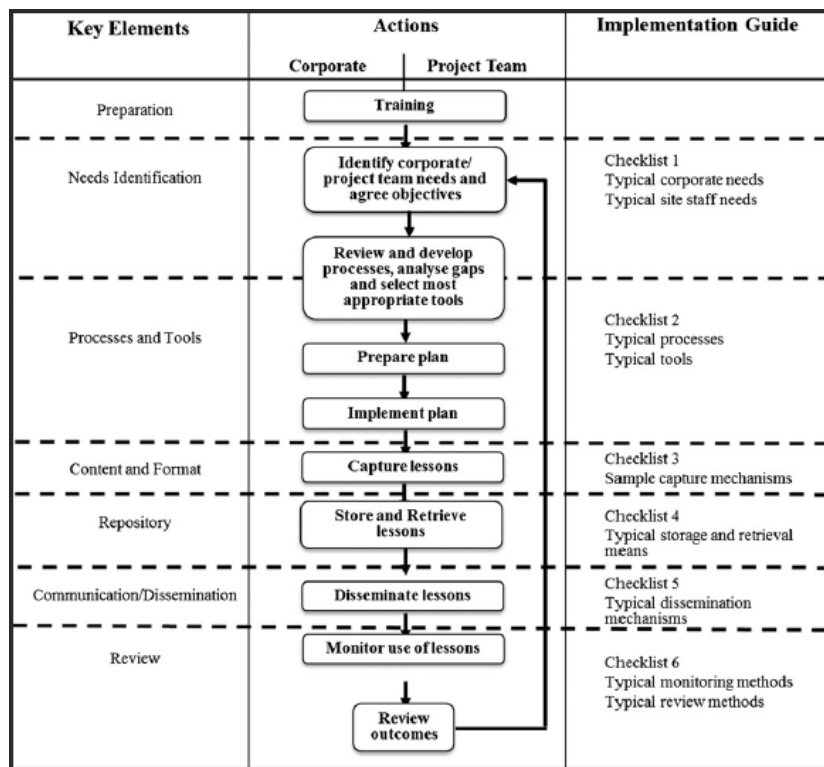


FIGURE 5. CARILLO ET AL PROPOSAL FOR A PROJECT LEARNING ROADMAP (2013, P 574)

A vital lesson that the author of this paper learned going thru this research is the willingness of projects or programs participants, stakeholders and owners alike “to exaggerate their ability to forecast the future, which fosters optimistic overconfidence” (Kahneman, 2012, p 255). That affects everyones ability to risk assess a new project e.g. This is an important variable that project managers and more need to be aware of when writing out the BC for a project as well as in the defining and planning phase altogether. Kahneman goes on to suggest Gary Kleins proposal of the “premortem”, instead of postmortem, to “tame the optimism” as he describes it. He goes on to say that the procedure is simple, when the organization has almost come to an important decision but has not formally committed itself Klein proposes gathering for a brief session a group of individuals who are knowledgeable about the decision. The premise of the session is a short speech: “Imagine that we are year into the future. We implemented the plan as it now exists. The outcome was a disaster. Please take 5 to 10 minutes to write a brief history of that disaster”. “The premortem has two main advantages: it overcomes the groupthink that affects many teams once a decision appears to have been made, and it unleashes the imagination of knowledgeable individuals in a much-needed

direction...Suppression of doubt contributes to overconfidence in a group where only supporters of the decision have a voice." ... "The main virtue of the premortem is that it legitimizes doubts. Furthermore, it encourages even supporters of the decision to search for possible threats that they had not considered earlier. The premortem is not a panacea and does not provide complete protection against nasty surprises, but it goes some way toward reducing the damage of plans that are subject to the biases and uncritical optimism (p264-265)."

Premortem alongside project review, LL and postmortem is an excellent step into continuous knowledge management and improvement activities. It makes project team members share and understand one another's perspectives, integrates individual and team learning, and illuminates hidden conflicts. It documents good practice and problems and finally, it increases job satisfaction by giving people feedback about their work.

5.2 Recommendations

In the hope of improving current learning practice at the financial service organization, a flexible practical approach is suggested.

The recommendations take the form of following:

- **Implement "Premortem"** as a tool to gain better perspective on possible risk ahead in projects.
- **Develop a Project Learning Roadmap**, to provide firstly guidelines on how to bring about change in LL practices with focus on the key elements required, secondly an action list on what needs to be done and by whom and thirdly a implementation guide that offers advice and information in the form of checklists (Carillo et al, 20013)
- **Implementation of a Project Gate Review** on to the Project Management Process, with a form of LL conducted on each gate to seek permission to move to the next phase of the projects lifecycle and Delphi method as an alternative way to evaluate learning in projects when they meet a pre described criteria.

5.3 Answers to the research question

So to answer the research question directly: **"Lessons learned vs. Delphi method" - which evaluation method should organization select when drawing learning from a project on a red status?** It is suggested to use both these methods within the Project Management Process of the organization. Delphi and LL, both, positive and negative, do have a role to play in continuous improvement. The success of the Delphi technique relies heavily on the administrative and analytical skill of the facilitator or researcher as has been pointed out in the literature review, it is therefore not an easily appointed task within an organization and then more often likely that the organization will turn to a external individual to conduct the technique. And the challenge with LL is to make that method more systematic so that it becomes part of the business process and imposes a structure to what is currently done on an ad hoc basis within the organization.

With these ways named above in place it is the hope of the author that the organization can consolidate learning from experience within its culture as well as build a database of useful knowledge to ensure that future projects benefits from these lessons and reviews always. Project learning is paramount to project maturity in the organizational development.

6. ACKNOWLEDGEMENT

The author gratefully acknowledges the trust and support of the financial services organization in allowing the usage of data needed for the case study. Warm thanks go to Helgi Þór Ingason for his assistance and to Steinunn Guðbjörg Þorsteinsdóttir for her good guidance and patience. To colleagues, friends and family specifically, much gratitude is in order for their comments, encouragement and endless support in various ways through this process.

7. REFERENCES

- Anbari, F.T., (1985). A systems approach to project evaluation. *Project Management Journal*, 16(3), 21-26.
- Anbari, F.T., Carayannis, E.G., & Voetsch, (2008). Post-project reviews as a key project management competence. *Tehnovation*, 28, 633-643.
- Ayas, K., (1996). Professional project management: a shift towards learning and a knowledge creating structure. *International Journal of Project Management*, 14 (3), 131-136.
- Beretta, R., (1996). A critical review of the Delphi technique. *Nurse Researcher*, 3(4), 79-89.
- Briner, W., Hastings, C., & Geddes, M., (1996)., *Project Leadership*. Surrey: Gower.
- Busby, J.S., (1999) *An assessment of post- project reviews*. *Project Management Journal* 30(3), 23-29.
- Carillo, P., (2005). Lessons learned practices in the engineering, procurement and construction sector. *Emerald, Engineering, Construction and Architectural Management*, 12(3), 236-250.
- Carillo, P., (2013). When will we learn? Improving lessons learned practice in construction. *International Journal of Project Management*, 31(4), 567-578.
- Fangel, M., (2011). *Proactive Project Management: How to make common sense common practice*. Hilleroed, Denmark: Fangel.
- Garvin, D. A., (2003). *Learning in Action: A Guide to Putting the Learning Organization to Work*. Cambridge, MA: Harvard Business School.
- Goodman, C. M., (1987). The Delphi technique: a critique. *Journal of Advanced Nursing*, 12, 729-734.
- Hadaya, P., Cassivi, L., & Chalabi, C., (2012). IT project management resources and capabilities: a Delphi study. *International Journal of Managing Projects in Business*, 5(2), 216-229.

- Haukur Ingi Jónasson & Helgi Þór Ingason (2012). *Skipulagsfærni: verkefni, vegvísar og viðmið*. Reykjavík: JPV.
- Kahneman, D., (2012). *Thinking, Fast and Slow*. London: Penguin.
- Kerzner, H., (2009). *Project Management: A Systems Approach to Planning, Scheduling and Controlling* (10 ed.). Hoboken, NJ: John Wiley & Sons.
- Larson, E.W. & Gray, C.F., (2011). *Project management: The Managerial Process*. (5 ed.) New York, NY: McGraw-Hill.
- Loo, R., (2002). The Delphi method: a powerful tool for strategic management. *An International Journal of Police, Strategies & Management*, 25(4), 762-769.
- McKenna, H.P., (1994). The Delphi technique: a worthwhile research approach for nursing? *Journal of Advanced Nursing*, 19(6), 1221-1225.
- Mead, D. & Moseley, L., (2001). The use of the Delphi as a research approach. *Nurse Researcher*, 8(4), 4-23.
- Meredith, J.R., & Mantel, S. J., (2006). *Project Management: A Managerial Approach* (7 ed.). Hoboken, NJ: John Wiley & Sons.
- Project Management Institute., (2008). *A guide to the Project Management Body of Knowledge* (4 ed.). Newtown Square, PA: Project Management Institute.
- Scholtes, P.R., Joiner, B.L., & Streibel B.J., (2010). *The team handbook*. (3 ed.). Edison, NJ: Oriel.
- Senge, P. M., (1994). *The Fifth Discipline: The Art and Practice of the Learning Organization*. New York, NY: Doubleday/Currency.
- Sense, A.J., (2004). An architecture for learning in projects? *Journal of Workplace Learning*, 16(3/4), 123-145.
- Shenhar, A. J., & Dvir, D., (2007). *Reinventing Project Management: The Diamond approach to successful growth and innovation*. Boston, MA: Harvard Business School.
- Tversky, A. and D. Kahneman., (1981). The Framing of Decisions and the Psychology of Choice. *Science*, 211(4481), 453-458.