Lean Risk Management -
A Lean Treatment

‘Cut to the Chase’ Risk Management

ASQ Software SIG
November 29, 2016

Mike Helton
Senior Risk Manager

Document Purpose:
This document is a description of how to achieve a very condensed form of Risk Management (RSKM) without cutting corners and accommodating all the features of a standard Risk Management program tuned to the needs of an individual project or program. It identifies the main drivers that promotes the desire to do Lean RskM and identifies the pitfalls to watch for so that Lean RskM does not become another risk. Finally, it provides an insight into what “success” really means on a project and how Lean RskM applies to that. (Note that standard Risk Management is denoted by RSKM, and Lean Risk Management is RskM.)

Audience:
• Anyone who is interested in Risk Management and how it is used to advance the quality of a program.

Prerequisites:
• An understanding of how programs and projects are managed.
There are two main drivers that move one to consider doing Lean RskM. After this understanding and a brief review of the RSKM Process, we define Lean RskM and then get into ways of condensing the procedures of this process to tune it to the needs of the particular project or program for risk management application. There is a risk that by cutting down and condensing RSKM some important steps could be lost, so we identify these ‘pitfalls’. Finally, we address an important characteristic of a “successful” project that relates to how we do Lean RskM.
1. It is important to understand that one can adjust the way the RSKM process is done in many ways and use various styles, however the basic process steps in themselves remains the same – it’s just how the steps are done to accommodate the needs of the project. (See later chart on the RSKM Process).

2. It is important to understand that the sole purpose of the RSKM process is to seek out the possible negative impacts to a project in order to mitigate them for best chance to be successful. RSKM eliminates the negative and should be viewed as a positive on the project. Lean RskM facilitates this focus.

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Why Do Lean RskM ?
(2 Drivers)

1. To provide an agile system of RSKM which makes adjustments to accommodate the Project and does not need an overwhelming set of procedures. See chart below on Proportional RSKM. This turns RSKM into RskM.

2. To address a misconception that RSKM concentrates on the negative and thus tends to drag a Project down.

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This paradigm can apply to many processes and procedures in a program. It starts with Identification and proceeds to Control. After six months on a program and many times much less than that especially when a program gets started, many changes may occur. This is due to more definition of what the customer wants, better information on how to build the product or service and program team refinements. So, this paradigm needs to be repetitive. In all cycles Communications with the people, the customer, management and stakeholders is very important – mainly to manage expectations. Communications includes gaining an understanding with management on criteria used to operate the procedure, and appropriate documentation including orientations with people on the program. The following slide addresses this paradigm as it applies to Risk Management.
This is the overall RSKM process map. It consists of three major activities (Planning, Assessment and Resolution) with each activity consisting of two or more tasks (items in white boxes). Each task has actions and procedures and each action or procedure has steps.

The RSKM process is continuous. The same process is followed anytime a new risk is identified. The process is reviewed and re-initiated during each phase in the project life cycle.

Collaboration is key to successfully handling a risk. Good communication between all involved players will ensure best results for any given risk. And good communication with management will allow best decisions to be made, and good communications with all stakeholders including customers will set and adjust expectations.
Lean Risk Management is Risk Management that has been shaped for efficiencies, waste elimination, improvements in the process (procedures), and creation of value for the Stakeholders. By applying these same concepts over and over as a big program moves through cycles or applying to similar smaller programs that have relatively short life cycles, one can ‘hone’ down the RSKM process to achieve a Lean RskM process.

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Agile puts workability over regimented process structure. In so doing, human interactions are promoted over documented processes and tools used to identify next steps. High in importance is customer collaboration and this takes priority over contract negotiation. In Agile, the idea is to adjust according to what the changing desires of the customer might be. Usually, plans are just a point in time that defines what the customer wants and this can change over time. Change takes precedence over documented plans.

**What is Agile RskM**

- **Agile Values**
  - Individuals and interactions over processes and tools
  - Working software over comprehensive documentation
  - Customer collaboration over contract negotiation
  - Responding to change over following a plan
  - *From: CMMI 10th Annual Technology Conference and User Group - - NDIA -
    National Defense and Industrial Association (12/1/2010 updated 1/21/2016)

- Agile values work best on projects that have ill-defined requirements.

- Note: Some Engineering services (Jacobs Engineering) lists Risk Management as an Agile Practice.
To start, use the set of recommended characteristics of RSKM shown on the next slide given the size of the project and the degree of complexity the project has. Then further adjust these characteristics according to customer desires and expectations. A very straightforward, simple skeleton plan is formulated and changed as necessary throughout the project life cycle.
In performing RSKM for a project or program one can scale up or down the comprehensiveness that is required to achieve each activity in RSKM. This is increasing the Risk Management Rigor. This chart shows different degrees that is applied to operate an RSKM process given the project size and level of complexity. As a project or program becomes bigger and as the complexity grows then how RSKM is achieved becomes more rigorous. Details are exposed by examining the two extremes: a very small project in number of people and low complexity and a very large project with high complexity.
In considering levels of complexity the 5th characteristic is the number of internal and external interfaces. Interfaces always require more communication and agreements between working groups so there is higher chance of some breakdown occurring. Interfaces includes team distribution where team members could be in various geographical locations.

In this most condensed application of RSKM there is no dedicated Risk Manager – that position is performed by the Program Manager. Risk Identification is done more informally meaning a risk ID procedure is not necessarily done (active), but risk ID is accomplished by other non-RSKM activities such as meetings on other aspects of the project or meetings with the customer or management, and even ad hoc conversations. Risk Tracking can be done almost with a “back of the envelop” procedure as long as no information is lost. And Risk Meetings can be selective in that there is no regular status on risk, but a meeting may be set up if particular attention is desired on one or a set of risks.
The RskM tasks not done in this example of going “Too” lean is adequate Preparation, thorough Risk ID, Risk Analysis and Risk Strategy Development.
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Collaboration is key to successfully handling a risk. Good communication between all involved players will ensure best results for any given risk. And good communication with management will allow best decisions to be made, and good communications with all stakeholders including customers will set and adjust expectations.
In most of the RSKM operations a judgement is used to scale back comprehensiveness of the tasks using agile values and Lean RskM practices. For example where a risk management team may be used, consider just one dedicated Risk Manager. This can be successful if all other operational tasks are also done with agile considerations.

The Organizational Risk Tiers which house risks from various parts of the program or contain management level risks and working level risks separately can be integrated to one set of risks with adequate references on which part of the program they apply. The Tiers still can be used but on an informal basis.

Rather than using a Process Area (PA) mapping to show how risks are integrated which can become very cumbersome for large numbers of risks and a large organization, use organization interconnections so that risks are linked through staff and worked with people interconnections. If a risk in one organization is considered to affect something in another organization, then the staff are linked.

Sets of Work Aids (like excel spread sheets which track risks or priority procedures which can get intertwined in endless debates) and Change Control procedures can have better efficiencies with some control on rules and guidelines so that endless discussions can be
minimal.

Integrated Measurement Analysis is comparing exposure values and trends in different groups according to organization structure and functional applications. This may be significantly reduced if not eliminated for a lean treatment.
Streamlining a standard Risk Management process to get Lean RskM often times leads to just cutting out needed steps. Each step needs to be examined for agile values and lean practices to streamline it rather than just cutting the step with no consideration.

Risk Identification is the most important single risk management task. The danger in doing too much “streamlining” in this task is that high exposure risks could not be discovered until too late.

A risk of Lean RskM is that team members could easily have misunderstandings about how RskM is done due to the lack of insufficient orientation. This could then lead to unwanted results in how the team functions and their expectations of what is needed and how it’s done.

During a project life cycle the Lean RskM may be done inconsistently due to actions to achieve improvements but this could also lead to misunderstandings and inconsistent results.

These ‘pitfalls’ should be kept in mind when forming a particular Lean application to RskM so that they are less likely to cause problems in the project.
What Defines Project Success?

- The Basic Goal of Risk Management (RskM):
  - To drive the project for the best chance to succeed by using agile values and lean practices.

- What Defines Project Success?
  - Is it to supply a product on schedule?
  - Is it to supply a product within budget?
  - Is it to supply a product that meets expectations?
  - Is it a combination or all 3 of the above?
  - Is it more?
This is a picture of a disgruntled employee.
These are characteristics that indicate a project’s success. They are also characteristics of Lean RskM. If a project has these characteristics then the project has applied an appropriate level of Lean RskM.

See backup slide for background of Steve Tockey.
Summary

- Some basic motivations where given that drive a program to do Lean Risk Management.
- Lean RskM is defined with certain characteristics and by using Agile values.
- Use Risk Proportionalization to scale up or down to achieve ball park RSKM characteristics then adjust to achieve “Lean” RskM.
- Pitfalls of Lean RskM include cutting corners or just eliminating important tasks.
- How to tell a “Successful” Program or Project.
Follow up & Primary References

- Presentations at ASQ Section 509 Website:
  - (This and past presentations including Al Florence’s presentation of Feb. 26, 2013 on Risk Management)

- Contact information:
  - Email: mr.helton@verizon.net

- Primary Reference: Carnegie Mellon Un. Software Engineering Institute Continuous RSKM Guidebook


Additional Questions ??
Backup Slides & Supplementary Material
Definitions

- Risk is the uncertainty that could have a negative impact on a project’s goals and objectives.
- Risk Management - Risk Management is predicting a possible impact, then deciding to do whatever is possible / reasonable to prevent it and / or reduce that impact.
- Lean Risk Management is scrubbing all steps in the RskM process to reduce or eliminate unneeded actions.
Some Previous Talks on RSKM

- Managing the Risks of Risk Management
- Risk Analysis and Management*
- Overview of the NIST Risk Management Framework (SP 800-37)
  - By Lance Kelson of the US DOI, ......................... 5/24/2011
- Risk and Issue Management
  - By Al Florence, MITRE, .................................... 2/26/2013
- Risk Management 102 – Advanced Considerations
  - By Mike Helton, Helton Associates, ..................... 7/23/2013
- Risk Management 103 – Metrics, and Metrics Applications
  - By Mike Helton, Helton Associates, ... 9/23/2014 & 10/22/2014
- Real World Software Risk Management
  - By Mary Lewis, CSQE with LM, ............................. 9/22/2015
- Radical Risk Identification for the 21st Century
  - By Laurie Wiggins, Founder & President, Sysenex ... 9/27/2016

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BU-2
Risk ID Methods

- PRID (Program Risk Identification) tool by Sysenex, Inc. – Contact Laurie Wiggins
  - Note this tool uses TBQ (Taxonomy Based Questionnaire) type questions to do automated assessments.
- Examine goals and objectives of the project for conditions that will prevent these goals and objectives from being met.
  - Have 2 to 4 person meetings to focus on different areas of the project (SMEs / Managers).
- Ten summary questions to be addressed by select personnel:
  1. Do you have a project plan?
  2. Do you have a project schedule?
  3. Do you know what the critical path dependencies are?
  4. Do you know what your funding amount is and is it sufficient?
  5. Do you have enough staff and are they qualified to do the job?
  6. Do you have a set of goals and requirements?
  7. Are your requirements stable?
  8. Do you have a design/architecture and is it traceable to requirements?
  9. Do you understand your operational environment and interfaces?
  10. Do you meet regularly with your full project team and your customer?

Note: All inquires are always on a full disclosure, non-retribution basis.

Mike Helton - Helton Associates

BU-3
Risk Mitigation Strategies

T A C M A

- **Transfer** — Take action to shift the risk to another organization and track to verify satisfactory handling and result.
- **Avoid** — Avoid the risk by changing the source or root cause. A new lower level risk or 2 may be realized but may be much preferred.
- **Control** — Control the risk by taking actions to reduce the uncertainty and/or impact.
- **Monitor** — Monitor and do research on the risk over a specified time to lean more so that a better strategy can be employed.
- **Accept** — Accept the risk as is, but consider documenting a contingency plan to be executed if impacts start to occur.

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This is an example table of values to quantify the three attributes of a risk (Probability of occurrence, Impact, and Timeframe).

The values are in the left most column and the descriptions are in the right side columns. These values can be utilized in various ways to describe and track a risk as well as derive other metrics for trend analysis. For example, the Risk Exposure metric is found by the Probability value x the Impact value. (RE = P x I)

Note the impact can be in schedule, cost or performance or any combination of these. Typically, the impact of a risk is the worst case (highest value) of these three.

The description information shown in this table is only an example and should be replaced by information agreed to by management of a given project and typically documented in the project Risk Management Plan (RMP).
Steve Tockey

Steve Tockey is the Principal Consultant at Construx Software. He has been employed in the software industry since 1977, and has worked as a programmer, analyst, designer, researcher, consultant, and adjunct professor. Steve is the designated corporate representative to the Object Management Group which is the source of the UML (Unified Model Language). During his career which has included stints at the Lawrence Livermore National Laboratory, The Boeing Company, and Rockwell Collins, Inc., Steve has obtained an in-depth knowledge of software engineering practices including software project management, estimation, software quality techniques, object-oriented development and distribution object computing. He is widely published and has extensive experience with software requirements at all levels of application, as well as knowledge of various hardware.

BU-6

Mike Heiton - Helton Associates