ABSTRACT
One of the toughest leadership challenges is to be an effective stabilizing force when we face a project crisis. The best-laid plans can go awry by unforeseen events causing effects such as timeline compression, resource deficit, and cost overruns. The team working on the statistical analysis knows that, if the crisis is left unchecked, the project can suffer some degree of failure on its promise and the personnel involved can suffer a significant loss in morale and confidence. Sometimes these situations can cause a great deal of internal team stress and sometimes this can become a factor in blinding the team to viable options to reduce the risk to failure. Furthermore, leaders often have a hard time articulating to Senior Management the magnitude of the crisis and potential impact outcome, let alone suggesting solutions that might reduce the risk. When a project team faces such a crisis, this paper offers one possible tool a leader can use. The approach to risk analysis presented here can be used wherever risk analysis rigor is necessary to ensure the highest chance for a successful implementation or decision.

INTRODUCTION TO AN APPROACH TO RISK ANALYSIS
The goal of this process is to facilitate group brainstorming sessions designed to develop a comprehensive “Risk Abatement Plan” that clarifies the risks, their priority, a set of contingencies designed to mitigate the risk(s), and the contingencies priorities. The final Risk Abatement Plan that results would have these main sections:

**RISK ABATEMENT PLAN TEMPLATE**

Section 1. **PURPOSE** - In general why a risk abatement plan is needed
Section 2. **UNDERSTANDING THE SITUATION** - The vital areas of the initiative, project, or plan that may be subject to risk and are applicable to do risk analysis; these are named “Critical Success Factors” for the project
Section 3. **RISK EVALUATION** - Analysis of each Critical Success Factor, defining the rough probability of risk and the priority of possible abatements
Section 4. **CONTINGENCY ACTION PLANS** - A set of “contingency plans” as appropriate with respect to the cost of implementing each possible abatement/contingency

At the heart of this process is the brainstorming, development, and refinement of “Contingency Action Plans” (CAP). Each Critical Success Factor can be addressed by multiple, sometimes very different or unrelated, CAPs. Each CAP may be composed of several individual contingencies within its plan that all work together in a related area and could be (but do not have to be) a sequence where contingency A is developed and tested; if contingency A does not mitigate the risk sufficiently, contingency B is attempted, etc.

With the finalization of the Risk Abatement Plan, leaders and management can draw from that plan to decrease the risks and hopefully take the project out of crisis.

DEVELOPMENT STEPS
The next several sections describe the development steps and how to progress through them. Each step addresses these aspects:
Objective – general purpose or function of the step
Preparation – what the facilitator needs to do ahead of time to prepare the group to have the most successful, productive time possible. Following this process means that we are applying healthy rigor to our risk analysis. With proper, thorough preparations, this rigor can be accomplished at reasonable cost.
Expectations – what the group is expected to accomplish during the particular process step.

Note: the risk analysis development passes through four (4) main steps. For some simpler problems and risk analysis knowledgeable groups, these steps can actually be completed in a single session in 2-3 hours. For other large, more complex problems and first-time groups, it may take multiple sessions.

RISK ANALYSIS STEP 1: ESTABLISH PURPOSE, SET-UP THE PROBLEM

Objective:
- See the Risk Abatement Plan document template. Prepare material that will be applied to sections 1 and 2 to establish the problem or process background and the overall purpose of the Risk Abatement Plan, namely, identifying those certain elements of the problem or process that potentially need risk analysis

Preparation:
- Ensure a healthy working group structure is in place
- Have a problem- or process-knowledgeable person take on the role of facilitator. They must be prepared to remain neutral and encourage ideas and input to come from the working group. The facilitator should not be a prominent leader within the working group if it can be helped since they may have too much bias or feel too much responsibility for the actual outcome. They instead need to be focused on keeping the working group on track and that the group operates efficiently and effectively
- The facilitator announces the upcoming risk analysis session to the working group
- The facilitator must be completely familiar with the risk analysis methodology and worksheet tool and, with knowledge of the problem and group in mind, formulate the optimal application of the methodology
- The facilitator plans the approach with the team for step 1, building in risk analysis training time if required.

Expectations:
- The working group understands the risk analysis process as a whole, so they can begin with the end in mind; this includes being familiar with the Risk Abatement Plan template above and the various worksheets below that will be used to brainstorm critical success factors (CSF) and contingency action plans (CAPs)
- The need for the risk analysis is understood and agreed to by all
- The problem is understood by all
- The facilitator has all material to complete sections 1 and 2 of the Risk Abatement Plan and can fill those parts of the document in later (or nominate someone to perform this task)

RISK ANALYSIS STEP 2: EVALUATE PROBLEM FOR RISK AREAS (CSF)

Objective:
- See the Risk Abatement document template. Prepare material that will be applied to section 3 (Risk Evaluation) in order to define the segments or areas of the problem or process that are at significant risk (referred to as Critical Success Factors [CSFs] for the overall project or process)
- Prepare an evaluation that determines the priority of these CSFs in terms of which are more important for the working group to focus on for abatements

Preparation:
- The facilitator plans the approach with the team for step 2; it is highly recommended that the risk analysis CSF Worksheet (see below) be used and filled in by the group using a computer, whiteboard, flip-chart, or other type of scratch pad

Expectations:
- The working group brainstorms all CSFs by filling in the rows of the risk analysis CSF Worksheet below.
- A Critical Success Factor can be any part of the project or process that is critical to success. Examples:
  - It may be an event. For example, if the “problem” is a project scheduling problem, a CSF could be a critical milestone in that project timeline.
It may be piece of information that feeds a process. For example, a set of adequate requirements being delivered from a customer to a firm developing a product for them.

- As each CSF is explored, determine the level of risk (High, Med, Low) posed by each of the three (3) attributes:
  - Technology: how does the current process or tools affect the outcome of the CSF and the risk of its failure?
  - Resource: how does the current people-resources affect the outcome of the CSF and the risk of its failure?
  - Schedule: how does the sequence of events affect the outcome of the CSF and the risk of its failure? If the CSF itself is an event, what if the timing of the events before it changes unexpectedly? After it? Note: if the problem that is being abated is itself a timeline or schedule, take caution not to identify “schedule” as high-risk unless it pertains to other schedules affecting this schedule.

Note: The group might need to discuss what the High-Med-Low risks actually mean to the project team. As examples, “High” might mean “significant enough to require abatements”; “Med” might mean “optional to abate”; “Low” might be ignored.

### CSF WORKSHEET

<table>
<thead>
<tr>
<th>CSF #</th>
<th>Description</th>
<th>Risk of Technology/Methods Failure</th>
<th>Risk of Resource Failure</th>
<th>Risk of Schedule Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSF 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CSF 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CSF 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CSF 4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CSF 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Example:**

- Let's assume this problem: we are a division of programmers and engineers who produce a tracking database product. Due to numerous quality slips, we have determined that our informal methods of specification version control is insufficient. Senior management has demanded that in two months we must implement a spec version control process and tool, given the current product workload. We are looking at multiple solutions, but there is one we are seriously considering. The team has just been handed this two-month goal, and has been told it is not negotiable – but that the deadline will not be moved in any earlier and that senior management will push it out to be later if any more new projects come in to the business.

- The team assigned to implement this new process in 2 months is busy on producing our product and they cannot see how this could possibly be done. Very high risks! But are there any abatements?

- Here is the CSF table brainstormed by the working group:
The group identified four main CSFs above. The highest risk ones were marked. The group ended up agreeing that while designing a sound Implementation Plan is key, they knew how to do it (had done them before), felt they had the resource (one of them was already assigned that task and was halfway done), and that no schedule change would introduce risk for finishing it.

**RISK ANALYSIS STEP 3: BRAINSTORMING POSSIBLE CONTINGENCY PLANS**

**Objective:**
- Brainstorm contingency options around the highest priority CSFs developed in step 2

**Preparation:**
- Step 2 is completed and the CSF worksheet posted for all of the group to use during the session
- It is highly recommended that the a computer, whiteboard, flip-chart, or other type of scratch pad be available to start a list of contingencies
- Note the facilitator way want to draw focus to the higher priority areas as shown using the example from step 2. The shaded areas can now be ignored:

**Expectations:**
- The working group brainstorms all possible contingencies for each high priority CSF risk area
- Group the various contingency actions together if they relate to each other
- Use the CAP options worksheet below as a grouping/brainstorming tool:

**CAP OPTIONS WORKSHEET**
Example: (see step 2 example above)

<table>
<thead>
<tr>
<th>CAP#</th>
<th>CAP Title</th>
<th>Contingency Option</th>
<th>Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAP-1a</td>
<td>Supplement project resources</td>
<td>Hire consultant expert in the system being implemented to prepare training material and plan</td>
<td>Must be hired in two weeks</td>
</tr>
<tr>
<td>CAP-1b</td>
<td></td>
<td>Bring in staff from other divisions to perform system testing</td>
<td>Must be secured in two weeks and must start in one month</td>
</tr>
<tr>
<td>CAP-1c</td>
<td></td>
<td>Prepare overview training material only and issue self-study CDs to all staff</td>
<td>Secondary contingency to CAP-1a. Evaluate if necessary in two weeks</td>
</tr>
<tr>
<td>CAP-2</td>
<td>Procure PCs</td>
<td>Order immediately a small number of high performance workstations that will be used by the staff with the most workload</td>
<td>None. Recommend immediate action.</td>
</tr>
<tr>
<td>CAP-3</td>
<td>Test Case development</td>
<td>Get one of the company’s IT senior project manager’s to mentor the team on writing test procedures</td>
<td>None. Recommend immediate action.</td>
</tr>
</tbody>
</table>

Focusing on the resourcing risks posed by CSF #1, 3, and 4, the group brainstormed CAP-1 with three different options (1a, 1b, 1c) where one of them is a back-up to another (1c backs up 1a). Also, for CSF #4, CAP-2 was brainstormed and for CSF #1, CAP-3 was brainstormed.

RISK ANALYSIS STEP 4: FINAL CONTINGENCY PLANS TO ABATE THE RISKS

Objective:
- See the Risk Abatement document template. Prepare material that will be applied to section 4 that ties contingency options back to the CSFs.
- Compile the detail for each contingency, finalize the grouping, and assign leads to pursue refinement into the CAP documents and execution of those plans.

Preparation:
- Post the CSF Worksheets and the CAP option worksheets for all to see

Expectations:
- Review the CAP option worksheets and agree on the final grouping(s) of CAPs (Contingency Action Plans)
- Produce a summary of how the various CAPs will mitigate the risk in each CSF area using the CAP/CSF Table from the Risk Abatement Document template. Using the example from step 3 above:

<table>
<thead>
<tr>
<th>CSF #</th>
<th>Critical Success Factor Description</th>
<th>Risk of Technology/Methods Failure</th>
<th>Risk of Resource Failure</th>
<th>Risk of Schedule Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Thorough testing, case usage</td>
<td>CAP-3</td>
<td>CAP-1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Designing an Implementation Plan</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Preparing Training Material and Plan</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Evaluating current computer hardware is sufficient to run new Version Control system</td>
<td>CAP-2</td>
<td>CAP-1</td>
<td></td>
</tr>
</tbody>
</table>

- Review each set of contingency options, assign leads to complete the detail using the risk analysis CAP Sheet template as follows:
CONCLUSION
The risk analysis approach to risk analysis presented here can be used wherever risk analysis rigor is necessary to ensure the highest chance for a successful implementation or decision, but it should be used wisely and certainly not for every crisis. It should be treated as just one tool in the leader’s toolkit of problem solving methodologies.

CONTACT INFORMATION
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