Risking it All:
Assessing Risk in System Implementation Projects

By Kevin W. Harper, CPA

"Risk" can be defined as the threat that an event or action will adversely affect an organization's ability to achieve its business objectives and execute its strategies successfully.

Organizations find that replacing their human resources, financial and other administrative systems is usually a huge undertaking. Significant staff and financial resources are required to be dedicated. Top management is fearful of an unsuccessful implementation project. They fear the risk of cost overruns, delays in the implementation time, the need for additional staff resources and lost employee morale. They also fear the unknown risks not yet identified.

A Project Implementation Case Study

A large percentage of system implementation projects are not ultimately considered successful by the organization's management. By the time the City of Oakland, California identified their Year 2000 risk, they needed to rush to implement a new financial and payroll system. Lance Bateman, the City's Controller who moved over to lead the financial system implementation, says, "Because of the short deadline we had, we not only had insufficient time to do a risk analysis, we didn't even have time to do thorough user needs assessments."

The City sent out its request for proposals without a thorough requirements definition. They selected Oracle software and selected Oracle consultants to lead the implementation. A large percentage of the Oracle contract was required to be subcontracted to minority firms. (This was a great risk-mitigating strategy—it would keep the implementation consultants from blaming the software or the subconsultants for any problems and vice versa.) Unfortunately, during the highly political contract negotiations, the City asked for and received a $2 million price reduction in return for Oracle not being responsible for supervising the work of the minority subconsultants; instead City personnel were appointed to manage the work of City and subconsulting staff. Oracle advised that approximately 20 functional and technical experts from the City be dedicated to the project team, however the City could only find the resources to dedicate the project manager for the financial system and the project manager for the payroll system; all other personnel were called-on "as needed".

Without a good requirements definition and faced with a short timeframe, the City's top staff frequently repeated the mantra: "Just make the new system work like the old one

did". For example, the City maintained their previous paycode structure with its 1500 pay code elements. This lead to the need for a significant number of modifications of the software that would not have been necessary had the City's mantra been "Let's adopt to Oracle's best practices". The large number of modifications, the lack of dedicated City resources, and the lack of Oracle's overall accountability for the implementation led, not surprisingly, to time and cost overruns. The implementation's nine-month schedule was not met (6 months late for the financial system and one month for the payroll system) and was $2 million overbudget.

Even when the City went live with the systems they were not really ready. There had not been enough time to thoroughly test the software or enough training to prepare staff to effectively operate the new system. As a result the police department payroll checks issued in January were incorrect and the local newspapers had a field day reporting the problems to the public. All the W-2s distributed at the end of that year were wrong and had to be reissued.

The City of Oakland did not identify the major risks that could go wrong during the implementation and put plans in place to address those risks that occurred. According to Bateman, "If the City had a way to early-identify the risks it would face during implementation, we would have been able to avoid many of the problems we ran into."

Oakland's situation was not unusual. Projects that don't meet management's expectations are almost always the result of the lack of appropriate risk identification, assessment and management.

Project Failures are Caused by Not Understanding Risks

The primary objective related to a system implementation project is frequently "to get the system implemented on time and within budget." Examples of risks that could occur during a system implementation project that could keep the project team from meeting its objective are:

- Lack of strong, visible executive sponsorship
- Lack of thorough involvement of users
- Lack of appropriate skills of the project team
- Lack of thorough definition and rigorous management of scope
- Lack of reasonable expectations of the cost and time required for the project
- Lack of a proven implementation methodology
- Loss of key project team member(s)

These and many, many more risks could adversely affect the success of the implementation project. These risks can be managed if they are identified. But far too many risks remain unidentified or are ignored by the steering committee, executive sponsor, project manager, and project team.

Later in this article is a method that can be used to effectively identify and assess the risks in your implementation project. But first we need to understand a few key concepts about risk.

Risk Theory

Risk vs. Exposure - It is important to understand that we are not specifically concerned with the *amount* of risk during an implementation project. Rather we are concerned with the amount of our exposure to risk. In other words, if there is a risk that is being adequately managed or controlled, then our exposure is low and that risk is not one that "keeps us awake at night". Consider that relationship between risk and exposure as follows:

$$\textbf{Risk} \;-\; \textbf{Control} = \textbf{Exposure}$$

For example, if our objective is to drive to work safely and on time, one risk would be of running out of gas. If we had made sure the gas gauge registered full before leaving home, this risk would be well controlled and we would have very little exposure to the risk of running out of gas. On the other hand, if we had not checked the gas gauge, running out of gas could represent a huge exposure to meeting our objective.

Risk is Related to Objectives - It is also important to understand that we are not concerned with risks that are not related to our objectives. For example, there could be a large risk that the stock market will decline, but that risk is not related to our objective of driving to work safely and on time.

Components of Risk - Another important point in understanding the concept of risk is that it is composed of the severity of a risk if it occurred and the likelihood of it occurring. Therefore:

$$\textbf{Risk} = \textbf{impact x likelihood}$$

For example, with our driving to work objective, an identified risk could be a traffic jam. If a severe traffic jam occurred one day out of every twenty, the risk would be considered high impact (I will be very late) and low likelihood (5 percent chance). On the other hand, an identified risk could be that the line at the coffee shop is longer than normal. If this long line occurs four days out of every five, but it only adds 10 minutes to my commute, then the risk would be considered low impact (I would not be very late) and high likelihood (80 percent chance).
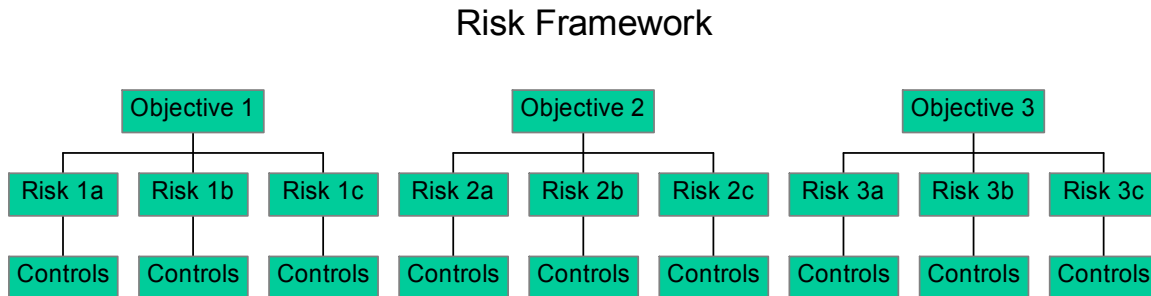
Quality of Risk Assessment - Any risk identification method is only as good at identifying risks as the people who are doing the identifying. In other words, if the

project team is asked to identify risks that could keep the implementation project from being successful, they will do a better job of identifying risks if they have been through other implementation projects. For example, a person who had never been in a car would not be able to accurately identify and assess all the potential risks to driving to work safely and on time.
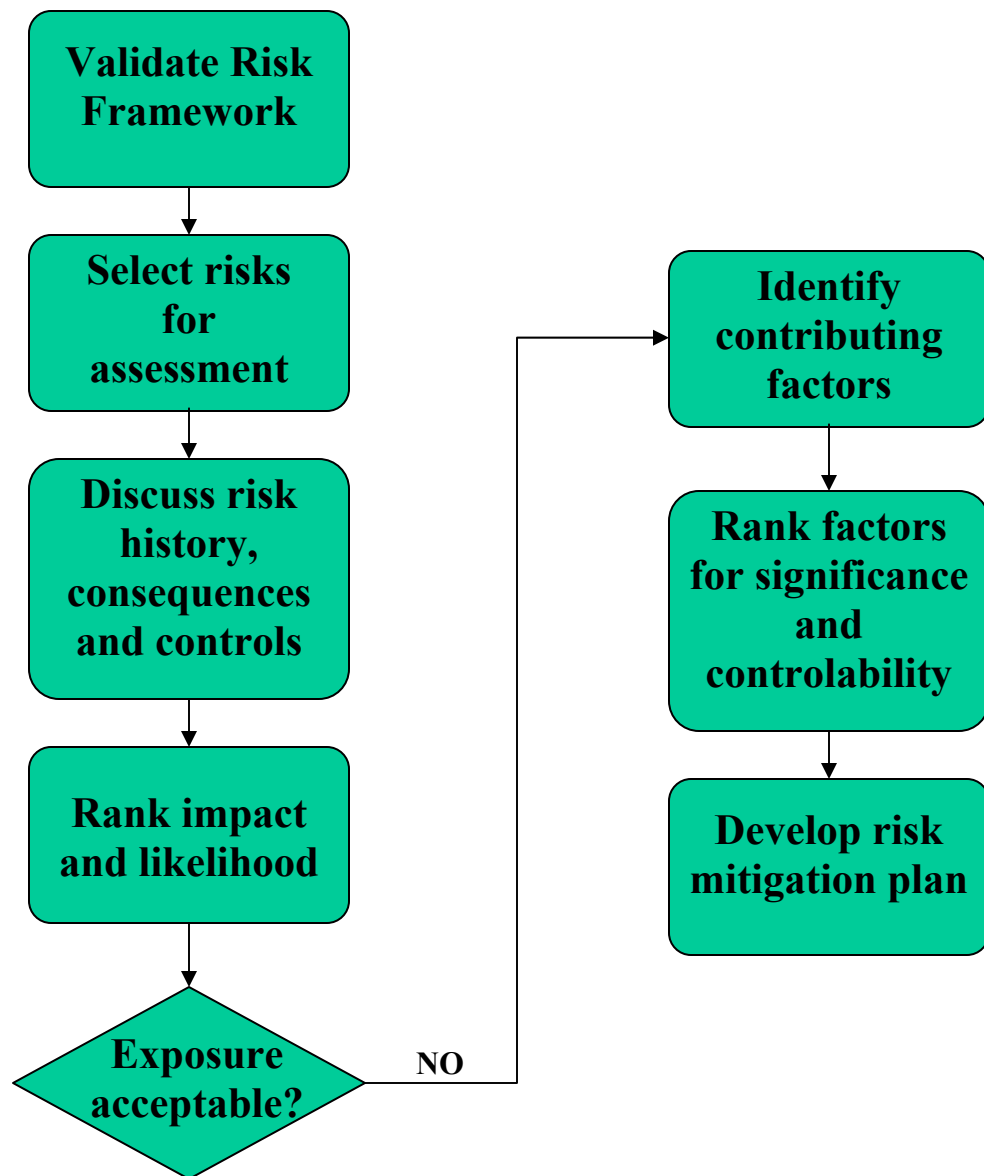
A Method to Identify Risks

The executive sponsor or project manager takes on the role of Risk Facilitator. The Risk Facilitator begins the risk assessment by interviewing the key project decision makers to identify the primary project objective(s), the related risks and the controls that are already in place to manage those risks. Objectives might be to get the system implemented within the planned timeframe, within the budget and to implement all the functionality identified in the project plan. Risks for getting the system implemented within budget might be the lack of experience of the project team, the demand by users to increase functionality, and the lack of strong executive sponsorship. Controls related to the lack of experience of the project team might be scheduling them for formal training, supplementing them with professional consultant expertise and closely monitoring how each inexperienced team member is progressing compared to the original project plan.

The Risk Facilitator then documents these objectives, risks and controls into a Risk Framework as follows:

Risk Framework

Objective 1			Objective 2			Objective 3		
Risk 1a	Risk 1b	Risk 1c	Risk 2a	Risk 2b	Risk 2c	Risk 3a	Risk 3b	Risk 3c
Controls	Controls	Controls	Controls	Controls	Controls	Controls	Controls	Controls

The Risk Facilitator then organizes a 4 to 8 hour risk workshop for all the key project decision makers (including project team members and consultants). This workshop should be held in a location that facilitates uninterrupted participation by all workshop attendees.

The workshop should cover the following areas:

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│  Validate Risk  │
│    Framework    │
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         │
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┌─────────────────┐                    ┌─────────────────┐
│   Select risks  │                    │     Identify    │
│       for       │          ┌────────▶│   contributing  │
│    assessment   │          │         │     factors     │
└────────┬────────┘          │         └────────┬────────┘
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┌─────────────────┐          │         ┌─────────────────┐
│   Discuss risk  │          │         │   Rank factors  │
│     history,    │          │         │ for significance│
│   consequences  │          │         │       and       │
│   and controls  │          │         │  controlability │
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┌─────────────────┐          │         ┌─────────────────┐
│   Rank impact   │          │         │   Develop risk  │
│  and likelihood │          │         │ mitigation plan │
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     ╱  Exposure  ╲   NO     │
    ◇  acceptable? ◇─────────┘
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Validate Risk Framework – The workshop participants should review the objectives, risks and controls that were prepared by the Risk Facilitator. The Risk Framework should be adjusted as necessary so that there is consensus that these adequately cover the main project objectives, risks and controls.
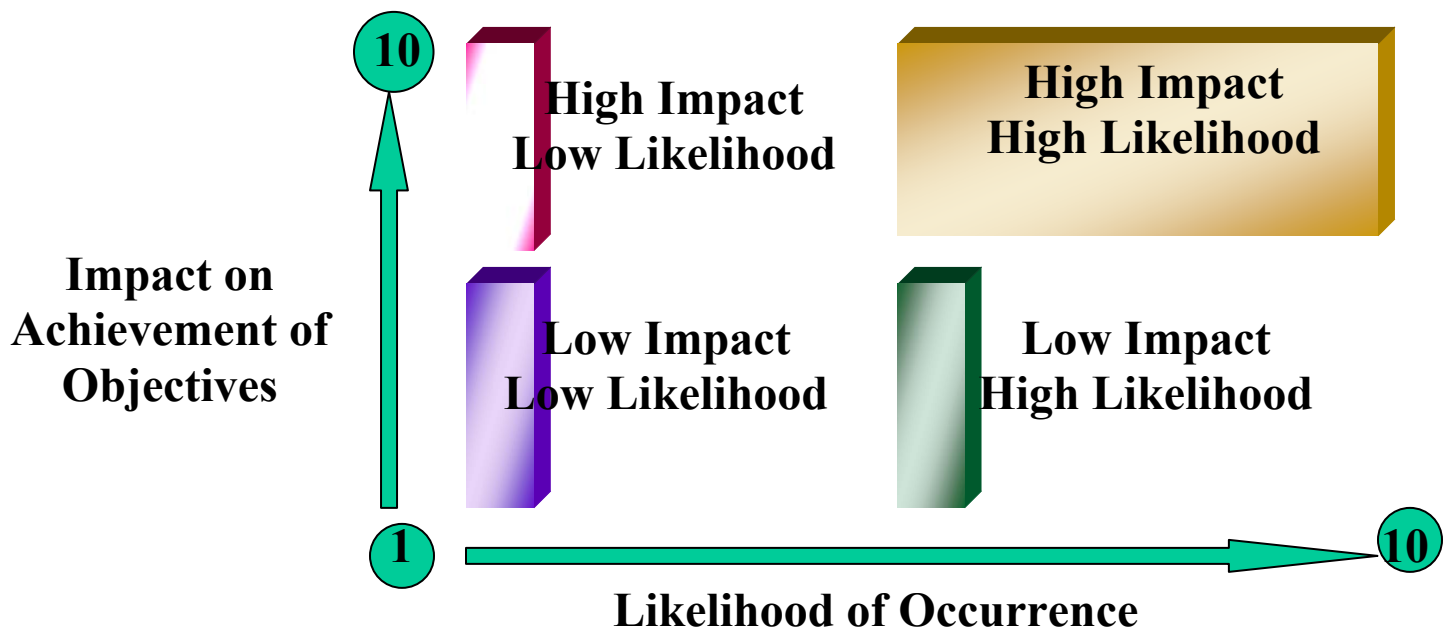
Select risks for assessment – Since there will probably not be adequate time in the workshop to discuss all the objectives and related risks, the group should determine the most important 8 to 10 risks, depending on workshop length, to be further considered.

Discuss risk history, consequences and controls – For each of the risks selected for assessment, the participants should discuss the history of that risk (has it occurred before, when, what caused it?), its consequences (what bad things happened when the risk

occurred or what bad things could happen if the risk does occur?), and the controls that are already in place to minimize the likelihood that risk will occur, or will minimize the impact of it does occur. The goal is to discuss these risks thoroughly enough for the participants to gain a consensus understanding of the risks.

Rank impact and likelihood – For each of the risks discussed, the participants should vote on the likelihood that the risk will occur and the impact expected if the risk occurs. Participants should consider the discussion of consequences to determine the impact and the discussion of controls to determine the likelihood. Use a 10-point scale with 1 being low likelihood/impact and 10 being high to rank each risk as follows:

Impact / Likelihood Chart

10

**High Impact
Low Likelihood**

**High Impact
High Likelihood**

**Impact on
Achievement of
Objectives**

**Low Impact
Low Likelihood**

**Low Impact
High Likelihood**

1

10

Likelihood of Occurrence

A risk can be viewed in the model above as being more important as it moves toward the upper right of the model. There is no way to objectively measure most risks, so professional judgment and group consensus must be used to quantify impact and likelihood. If the participants' votes on impact and likelihood are all similar, then that is a good indication of consensus understanding of the risk. On the other hand, if participants' votes vary widely, there has not been enough discussion of the controls and consequences related to the risk to reach a consensus.

Determine acceptability of exposure – After each risk is plotted on the impact/likelihood chart, the workshop participants should determine whether each risk has an acceptable

level of exposure. For each risk that is considered unacceptable, project management needs to give further attention about how to manage the risk better.

Identify contributing factors – For each risk that was considered as having an unacceptable level of exposure, the workshop participants should brainstorm a list of contributing factors (i.e. factors that increase or decrease the likelihood of a risk occurring or that increase or decrease the impact of a risk).

For example, in our example of getting to work safely and on time, there is the risk of oversleeping. Contributing factors that could make the likelihood or severity of the risk greater or lesser might include whether you use a snooze button, how lenient your boss is about tardiness, and the reliability of your spouse in letting you know you are late. Another risk would be the risk of your car breaking down. Contributing factors might include your diligence in maintaining the car, the distance you need to travel, and how frequently you take public transportation.

Rank contributing factors for significance and controlability – For each risk, rank the contributing factors by their significance and then again by their controllability. This ranking should be done with a consensus vote of the workshop participants. Significance is the amount that each contributing factor affects the likelihood or impact of the related risk. For example, for the risk of getting in a traffic accident, the weather is a more significant contributing factor than quality of your windshield wiper blades. Controllability is the amount that the workshop participants can control the contributing factor. For example, weather is a significant contributing factor to the risk of a traffic accident but is not very controllable. On the other hand, your ability to telecommute is a contributing factor that is much more controllable.

Develop risk mitigation plan – For each risk that was considered unacceptable, a person should be assigned responsibility to develop a risk mitigation plan and to monitor its execution. The plan is developed considering the contributing factors identified and ranked as described above.

Benefits of Risk Assessment

At the conclusion of this workshop, the participants will have a team-wide consensus understanding of the largest risks facing the project and how to control/manage those risks. Project management will have the combined knowledge of the project team in identifying, assessing and managing project risks. They will have a good understanding of the major issues that they need to monitor throughout the project and to report on to top management. The risks that the workshop participants identify and select for further mitigation are the risks that project management, the steering committee and top management should be most interested in understanding and monitoring throughout the project. Therefore, it is desirable to review the status of each risk periodically at project team meetings and at each steering committee meeting.

In addition, the project team will have a better understanding of what risks are, how they relate to objectives, how to identify and assess them. They will be better equipped to react to new risks as they arise.

The risk mitigation plans will be truly "owned" by the employees who need to carry them out. The likelihood of successful implementation of the risk mitigation strategies is greatly enhanced since the people who need to carry them out were instrumental in their development.

Conclusion

Of course, risks will arise during the course of the project that were not contemplated at the beginning. Therefore, it is worthwhile to hold an update risk workshop once or twice during the project depending on the project's duration.

The risks that face software implementation projects are large and all too frequently cause a project to fail. A project is frequently considered a failure if it takes longer than expected, takes more than expected internal staff time, takes more than expected consulting fees or settles for lower than expected functionality.

There is nothing more important that project management can do to ensure project success than to do the best possible job to identify and assess the risks the project faces and then to put controls in place to manage those risks. If they don't adequately identify and assess risk, they really will be "risking it all".