Reducing Risk on Projects

Don't Trust to Luck

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Introduction

Webster defines risk as the "chance of injury, damage, or loss." In the context of an IT project it's the chance that the project will be less than a complete success . . . that it will be late or over budget, perform unacceptably when completed, fail to realize the expected business results, or even be a complete failure.

We understand intuitively what makes a project risky—aggressive schedule, unproven technical approach, ill-defined objectives, inexperienced staff, communication and leadership breakdowns, dependencies on outside agents, and more. If we eliminate these sources of risk we can increase the likelihood of a successful project. Sounds simple, eh?

In the real world, unfortunately, we often have to live with such risk factors. An aggressive schedule may be imposed for political or economic reasons. An unproven technical approach may be necessary to achieve the required performance or functionality (think of the Apollo program to land a man on the moon). The dream team you were hoping for may not be available.

Communication and leadership breakdowns can manifest in a variety of ways: a disconnect between what the user community needs or wants and what the project is developing; lack of coordination with interfacing concurrent projects; a failure to address the impact of the new system on people, procedures, and policies; and more.

There are so many risk factors that can contribute to a less-than-successful project. How is a project manager to decide which factors to focus on and how to address them? The traditional approach to risk management is to make a list of the risk factors, assess the probability and severity of each, rank them in order of importance, and write a risk management plan to address them. Although this sounds reasonable, experience has shown that it doesn't work because it's so open-ended.

The list typically includes everything the project manager is worried about—aggressive targets, dependencies on external agents, resource constraints, potential managerial and technical problems, and more. Because the probability and severity assessments are so subjective it's hard to decide which risk factors deserve attention. The list of risk factors becomes just a worry list, not a recipe for action.

A related problem is the tendency to treat risk reduction as an activity separate from day-to-day project work. An extreme example: During a consulting engagement one of my client's project managers told me he participated in both a project status meeting and a separate risk management meeting. I was stunned. What can be more relevant to project status than risk factors that are threatening the success of the project?

This paper proposes an approach that addresses both of these problems …

1. Deciding which risk factors deserve attention, and
2. Integrating risk reduction into the project holistically instead of treating it as a separate activity.

The approach requires that the project first establish a clear definition of success in terms of what we'll call *success targets*. Starting with the goals of the project (schedule, cost, business results, data quality, usability, performance, etc.), specify an explicit set of targets that define a successful outcome for the project. See the appendix for a starter set.

A *risk* is then the chance that one of the success targets will not be achieved, resulting in a less-than-fully-successful outcome for the project. A *risk factor* is something that creates or aggravates risk.

Deciding Which Risk Factors Deserve Attention

If brainstorming a list of risk factors and attempting to prioritize them is ineffective, what's an alternative approach? By starting with the project's success targets, evaluating whether we're likely to meet them, and—if not—identifying why, we can <u>derive</u> the risk factors that are threatening the success of the project.

Here's how it works …

1. Specify how success will be measured at the project's conclusion—the *success targets*. See the appendix for a starter set.
2. From time to time (especially for project review meetings) estimate the expected result for each success target using a traffic light model:

   ● **Green**   The project is likely to meet the target.

   ● **Amber**   Uncertain; either no estimate is available, or the target is at risk and corrective action is underway.

   ● **Red**   The project is unlikely to meet the target, and no feasible solution has been identified.

3. Identify what is causing a success target to be amber or red; these are the risk factors that require attention to keep the project on track.
4. Specify actions to correct amber and red success targets. See Figure 1 for an example.

Note that a success target will be amber if no estimate is available for it. If we don't have any idea if it will be met, we're trusting to luck. With red targets we know we have a problem; with amber targets we're not sure. Don't trust to luck . . . find out.

Figure 1. Deriving risk factors from success targets.

TARGET		
Completion date for Release 1: 30 September	PREVIEW → CURRENT	
THE TARGET IS AT RISK BECAUSE . . .		
We have not staffed the project with the planned level of SAP expertise. We won't be able to confirm the date until this problem is corrected.		
The sponsor has not yet approved the functional design spec.		
CORRECTIVE ACTIONS	**STATUS**	
Hire a SAP consultant for two months to help the team overcome the learning curve.	Currently interviewing consultants	
Add 3 developers to the team and provide training.	Developers on board, due to complete training on 15 January	
Escalate the functional design spec approval issue to the sponsor's VP.	Meeting scheduled for 7 January	

This approach to deriving the risk factors provides transparency, clarity, and focus, both for the project team and for senior managers and sponsors. It's not just a worry list. Rather, it's a call to action to address issues that may cause the project to be unsuccessful.

Make Risk Reduction an Integral Part of the Project, Not an Add-On.

The rest of this paper is organized around seven elements of a project into which risk reduction can be integrated holistically, thus eliminating the need for a separate risk list, risk management plan . . . and risk meetings.

- Success targets
- Communication and leadership
- Dependencies
- Planning
- Solution approach
- Execution
- Management oversight

SUCCESS TARGETS

In establishing success targets, it's better to under-promise and over-deliver than to over-promise and under-deliver. Be as conservative as possible. Sometimes, however, senior management or the project sponsor may impose an unrealistic deadline or a demanding performance target. Expectations must be taken into account, but they may have to be negotiated to establish targets that are feasible.

Ambitious goals are not inherently bad provided two conditions are met:

1. The targets are in fact achievable. Never allow impossible targets to be imposed.[1]
2. There is an appropriate risk/reward tradeoff. Added value should accompany a more aggressive target.

Remember the old saying, "You can have it fast, cheap, or good. Pick any two." If the sponsor wants it fast and cheap, figure out what can be delivered within the constraints. If the sponsor wants it fast and good, figure out how much it will cost. Present the tradeoffs so the sponsor can make an informed decision.

Set realistic targets and negotiate the flexibility to achieve them. If presented with an aggressive schedule, for example, reserve the right to prioritize the features to be included in the first release.

Uncertain success targets always increase the risk of a less-than-successful project. If we don't have a clear picture of the endpoint we are introducing uncertainty and therefore risk. Clarity of the business objectives is absolutely essential, so if they seem ambiguous work with the sponsor to refine them before making commitments. Otherwise we may find at the end that we haven't delivered what the sponsor expected.

Take this target-setting phase of the project seriously. Don't trust to luck.

COMMUNICATION AND LEADERSHIP

The biggest single source of risk on mega-projects is a leadership and communication breakdown in what I'll call the project's ecosystem . . . concurrent related projects, conflicting interests in the sponsor's organization, and the project's own chain of command. A clearly defined strategy for understanding the ecosystem and a leadership structure that addresses it is a must.

Identify and document all of the interfaces between the project and its ecosystem— concurrent projects, affected sponsor interests, internal support groups. Decide a strategy for communicating and coordinating with them so that your project is always aware of changes in the ecosystem and so that changes you need are reflected in it. I developed a project review process for a client organization that brought all the ecosystem members together in a short series of structured meetings. The meetings highlighted disconnects among the participants that could easily have led to failed projects. I'll be happy to share the process with anyone who is interested.

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[1] A counterexample: The No Child Left Behind Act of 2001 (NCLB) mandated that 100% of the nation's students should be proficient in mathematics and English by the school year 2013–2014 as determined by tests.

Define the leadership structure and communication protocol to ensure that the ecosystem is managed. Clarity of the leadership structure is essential. If there is any question about who is responsible for what, get that resolved. If the interfaces between the project and its ecosystem are complex, put this leadership structure and communication protocol in place before miscommunication happens, not after.

DEPENDENCIES

Uncertainty is introduced when the project is dependent on an external agent or factor, for example:

- The quality of source data to be converted
- The sponsor's support for issue resolution
- The performance of a vendor

Since uncertainty introduces risk, it's necessary to identify the dependencies so they can be managed. But how can we manage something over which we have little or no control? We make assumptions and monitor them.

An assumption is our best estimate about what to expect from a dependency. For example, we make assumptions about the quality of source data, the performance of a vendor, and so on. The estimates become the basis for our planning.

Be realistic—don't assume the best case. The more optimistic an assumption, the more likely we will get a result that is worse than assumed. If we make conservative assumptions and plan accordingly, we are less likely to be disappointed.

If you make assumptions about . . .	Then you should allow for . . .
Quality of the source data	Some percentage of missing and incorrect data
Timely response to issues by the sponsor	Delayed responses due to vacations, other reasons
Timely delivery of a quality product by a vendor	Late delivery of a less-than-perfect product

Make the dependencies and assumptions visible to senior management and the sponsor. They may be able to influence the dependencies, thus reducing the risk to the project. Even if they can't, all stakeholders need to understand the dependencies and assumptions on which the project plan is based.

SOLUTION APPROACH

Some solution approaches are less risky than others. A platform that the team has used successfully is less risky than one that is new to them. A phased conversion/cutover approach—by customer type, region, or some other coherent grouping—is less risky than a flash cutover.

Include risk as a criterion in analysis and design tradeoffs. When evaluating alternative design, development and implementation approaches, there are usually tradeoffs among competing options.[2] Include risk as one of the evaluation criteria. An option that presents greater risk than others may be selected, but at least it will be a conscious decision. Presumably the benefits will outweigh the added risk.

Generate fallback solutions to reduce risk. Fallback solutions offer flexibility to deal with risky situations. If there is concern about meeting a schedule, prioritize the features to be delivered so that the least important are delivered later. If the project is using an unproven release of a vendor's product, have a plan for what to do in case it proves unstable.

I once worked with a client that had undertaken a challenging project on a compressed time frame. To reduce the risk to the organization the client also developed a fallback solution in a parallel initiative. The project was successful, but my client felt it was well worth the money to have prepared the fallback.

PLANNING

Once the project has a set of feasible success targets and a solution approach that is expected to achieve them, development of the project plan offers a further opportunity to reduce risk. The project plan lays out the milestones and tasks and the schedule to complete them, the staffing profile and the financial profile.

Plan conservatively. Don't assume that staff with exactly the right skills and experience will be available precisely when needed. Base the plan on achievable productivity. Build slack into the task plan so the project can hit major milestones even if not everything goes exactly as planned.

Regrettably, it often happens that we can't plan conservatively. If the success targets are ambitious a comfortable task plan may be out of the question. Just recognize—and point out to senior managers and sponsors—that this introduces risk into the project. It increases the likelihood that the project will miss its schedule and cost targets. As mentioned earlier, try to negotiate the flexibility to adjust the features to be delivered in the first release.

Include resources in the project plan to reduce uncertainty. Projects invariably start with a level of uncertainty baked in. We can't be certain that our assumptions about dependencies are correct, we can't be certain that the success targets are achievable, and sometimes we can't be certain that our solution approach will work.

To reduce risk it may be worth expending effort to reduce the uncertainty. In *Software Risk Management: Principles and Practices* (Boehm 1991), Boehm calls this "buying information."

If you were paying attention in the Dependencies section, you won't assume perfection about the dependencies. Therefore, allocate time and resources in the plan to deal with such less-than-ideal situations. For example,

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[2] *Decisions: It's a Tradeoff* (Hess 2014) provides a framework for analyzing options in terms of tradeoffs. You can download a copy at intelliven.com/subscriber-content/.

If you make assumptions about . . .	Then you should allow for . . .
Quality of the source data	Additional data purification cycles
Timely response to issues by the sponsor	Additional time for issue resolution and review/ approval cycles
Timely delivery of a quality product by a vendor	Additional testing and correction cycles on the product

If you're not certain that the project will achieve its success targets, allocate time and resources in the plan to reduce the uncertainty. Make sure that the solution the team is developing is the solution the user community expects. Waiting until late in the project to find out whether it will be successful is trusting to luck.

Provide for continuity of project operation. What about the catastrophes often associated with risk—a fire in the server room or the loss of a key team member? Don't try to anticipate all the possible events that can occur. Instead, identify the key resources and assets that the project depends on and establish an appropriate backup and fallback capability for each. Then, whatever happens, you'll be ready to respond.
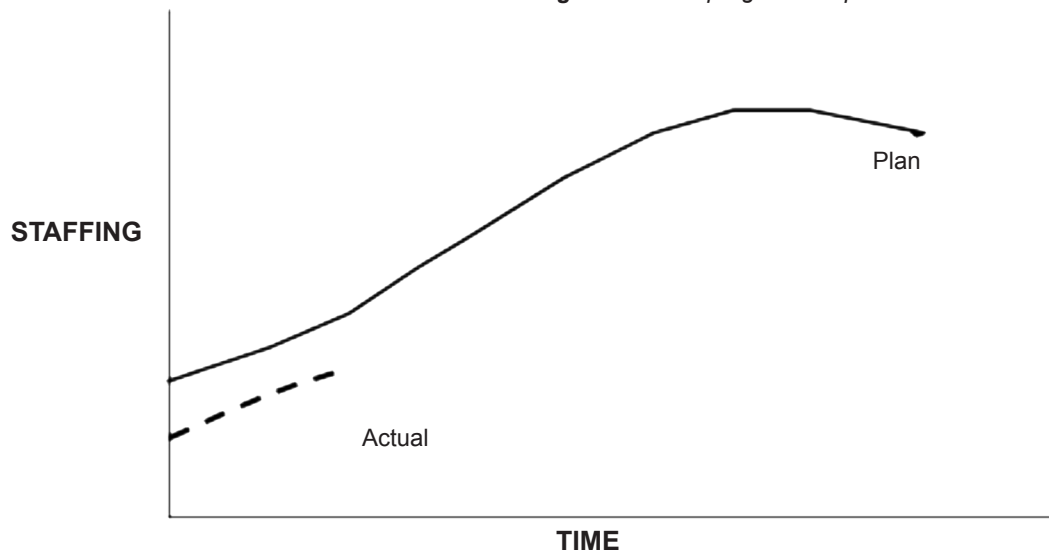
EXECUTION

Once the project is underway, reduce risk by regularly monitoring progress against the plan, validating assumptions, and forecasting whether the project is likely to meet the success targets. If a discrepancy becomes apparent, deal with it right away. Procrastinating corrective action rarely helps.

Monitor progress versus plan. As the project progresses, compare what is happening with the plan . . . staffing, work accomplished, financials. Prepare a set of charts similar to Figure 2.

Don't ignore early deviations. If the project's staffing level is significantly below plan, as in Figure 2, don't simply hope to make up the shortfall later. Assuming a realistic plan (that is, not padded), either get the additional staff <u>now</u>, reduce scope, or adjust the schedule. Ditto for work product completion and expenditures.

Figure 2. Track progress vs. plan.

Monitor assumptions about dependencies. From time to time, confirm that the assumptions made earlier during the planning process are still valid. For example,

If you make assumptions about . . .	Then you should . . .
Quality of the source data	Collect and analyze data samples
Timely response to issues by the sponsor	Record and track response times
Timely delivery of a quality product by a vendor	Require progress reports showing status versus plan
	Conduct quality reviews of interim work products

If any prove to be invalid, assess the impact and revise the plan accordingly.

Forecast results versus targets. Don't wait until late in the project—or until implementation—to learn whether the project's success targets will be achieved. ***Don't trust to luck.*** From time to time, forecast the expected result for each target. Project managers do this all the time for targets like completion date and cost, but they need to do it for the others as well.

If the project is at risk of missing a target, it's a whole lot better to find out early when there may be time to do something about it.

MANAGEMENT OVERSIGHT

Reflecting back on my career I can think of only a few instances where management oversight was effective in helping a project to be successful. Too often, it consisted of sitting through a set of PowerPoint presentations by the project team interspersed with questions that didn't get to the heart of the issues facing the project.

Senior managers need to know two things:

- Whether the project is likely to meet its success targets
- If a success target is at risk, what is being done about it and whether it's enough

They will then be in a position to offer guidance and perhaps resources to help make the project a success, or to understand better why some targets need to be adjusted.

Risk reporting in management reviews. As described earlier in discussing how to identify relevant risk factors, the project manager should present the list of success targets with a green/amber/red indicator for each:

- **Green** The project is likely to meet the target.

- **Amber** Uncertain; either no estimate is available, or the target is at risk and corrective action is underway.

- **Red** The project is unlikely to meet the target, and no feasible solution has been identified.

For success targets that are amber and red, the project manager should use the presentation format we saw in Figure 1. Figure 3 provides another example for a different success target.

This is an example of a success target for which we don't have an estimate, but for which tasks have been included in the project plan to develop an estimate early and to help ensure that the target is met. The uncertainty introduces risk, but it's motivating the project to take proactive steps to reduce the risk.

Figure 3. Reporting project status at management reviews.

TARGET		
Accuracy of converted legacy data: fewer than 0.02% erroneous customer accounts	PREVIOUS → CURRENT	
THE TARGET IS AT RISK BECAUSE . . .		
No estimate is available yet.		
CORRECTIVE ACTIONS	STATUS	
Extract a representative sample of customer account data and assess its quality.	In project plan, scheduled for completion by 31 July.	
Identify common errors and work with sponsor IT staff to correct them.	In project plan, scheduled for completion by 31 August.	
Execute conversion software and assess data quality in converted customer accounts.	In project plan, scheduled for completion by 15 September.	
Identify errors and work with sponsor IT staff to correct them before final conversion.	In project plan, scheduled for completion by 15 October.	

What about success targets that are reported as green? Senior managers should ask about each green target, "How do we know?" If the answer is a shrug and, "I think we're okay," that should be a big red warning flag. The project manager is asking the reviewers to trust to luck.

A more appropriate response would be, "We're confident of the target date because we're tracking to our plan for staffing and work product completion, and we've proven our design approach." Or, "We've reviewed the new position design and workflows with the user organization and received confirmation of our approach." Or, "We expect to meet the post-conversion data quality target because we've analyzed the customer database, and the quality is better than we had assumed in our conversion plan."

Be prepared to justify your green targets and to explain the ambers and reds. What happens when a senior manager (who hasn't read this paper) asks, "Where is your list of risks?" Remember the definition of risk . . . the chance that the project will be less than a complete success. Simply point to the amber and red targets and say, "Here they are."

How formal is formal enough? The level of formality with which we manage risk depends on the size and complexity of the project. The formality of the process should be sufficient to demonstrate that:

• We have identified relevant success targets and are forecasting the expected results.
• We have identified key dependencies and made the assumptions visible to senior management and the sponsor.
• We are monitoring progress vs. the plan.
• We are taking action early when a problem threatens the success of the project.
• We are keeping senior management and the sponsor informed.

On a small project, risk reduction may simply be part of the project manager's day-to-day management of the project. On a large project, there may be increased emphasis on identifying, documenting and tracking threats to success.

Conclusion

This approach to risk management turns the traditional approach on its head. Instead of thinking about all the things that can go wrong, it focuses on what has to go right. Start with the specification of success targets, and integrate risk reduction into every element of the project to increase the likelihood of meeting them.

A project manager is always exposed to risk. The only question is how we manage it . . . by trusting to luck and worrying a lot, or by integrating risk reduction into the project.

Appendix:
Starter Set of Success Targets

PROJECT EXECUTION	Schedule	Dates for key milestones	Acceptance of Phase 1 by September 30
	Cost	Development budget	$$$ through Transition & Deployment
BUSINESS RESULTS	Strategic Performance Measures	Improvements in strategic performance measures	Time-to-market for a new service offering 30 days or less
	Operational Performance Measures	Improvements in operational performance measures	Incorrect bills for commercial accounts X% or less
TRANSITION & DEPLOYMENT	Transition Trauma	How smoothly the solution is deployed	Fewer than 100 accounts unable to process during first billing cycle
	Operational Stability	How stable the solution is after deployment	% of end-user sessions completing successfully
SOLUTION QUALITY	Capacity and Performance	Ability to support the work-load	Throughput at least 5,000 service requests during peak busy hour Capacity at least 2 million customers
	Availability	Ability to support operational availability requirements	Online access 6 a.m.–10 p.m.
	Usability	How easily staff and customers can learn and recall how to use the solution accurately and efficiently	Greater than X% of target proficiency (error rate, productivity) within one week after completing training
	Defect Density	Number of defects in the solution	Fewer than 20 category 1 and 2 failures during first 3 months of service