Connecticut Department of Social Services

Making a Difference

Risk Assessment Toolkit

Version 1.0

Project Management Office

Risk Assessment Toolkit

Contents

Revision History

Date	Version	Author(s)	Notes
3/15/2018	0.01	Mike Montgomery	Initial Draft

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Introduction

A risk is a variable that, within its normal distribution does not yet exist, but could take a value that endangers or eliminates the success of a project. In plain terms, a risk is whatever may stand in the way to success, and is currently unknown or uncertain. When a risk is realized, it manifests itself as an issue.

It is important for everyone on the project to understand the difference between a risk and an issue. Risks and issues are often mistaken for having the same meaning by some members of a project team when they are not the same. The main difference between a risk and an issue is that a risk is something that may lead to a negative outcome. Whereas, an issue is something that has already happened that must be addressed or corrected. In simple terms, a risk is something that might happen in the future, an issue is something happening now. When a risk escalates it manifests as an issue.

From the project's perspective, a risk is potential bad news for which conditions are monitored and contingencies are planned, an issue is bad news that must be addressed.

While some issues may not be traceable back to a risk, every *identified* risk has the potential to become an issue. An issue that cannot be traced back to an identified risk is termed a discovery. Issues of this type are most likely the progeny of an unidentified risk.

Risk Management is the systematic process of identifying, analyzing, and responding to risk. It includes maximizing the probability and consequences of positive events and minimizing the probability and consequences of adverse events to program or project objectives. The purpose of Risk Management is to catalog and control risks using a structured and well-defined process to mitigate the impact of each risk should it escalate into an issue.

Purpose

Effective Risk Management provides a mechanism by which risks are identified, documented, assessed, assigned contingencies, communicated, escalated, and resolved.

The goals of Risk Management are to

- Reduce risks
- Plan resolution strategies before risks become issues
- Standardize how risks are documented and communicated
- Minimize the disruption of rework
- Insure transparency up, down, and across the project organization both internal and external
- Provide a process that facilitates a controlled yet responsive environment

Effective Risk Management provides the following value to a project:

- Provides a focal point for those seeking to highlight risks and issues
- Ensures that risks and issues are properly documented, analyzed, and resolved
- Communicates information effectively and consistently to all affected parties
- Encourages the identification of potential risks and issues early enough to minimize impacts and reduce rework

The purpose of this toolkit is to aid the Project Manager in assessing risk, developing an effective project Risk Management Plan, and documenting identified project risks in a risk log.

Assessing Risk

There are four primary steps to preparing a risk assessment for a project, organization, or set of operating processes. All projects in the department will at minimum follow these four steps to categorize program or project risks. Working in conjunction with the Department of Social Services Project Management Office, project leaders may extend the steps to reflect the realities of individual programs and projects.

Step	Description
1	**Identification**: identify the main risks
2	**Assess Risks**: assess the likelihood of each identified risk occurring and the consequences of occurrence. Calculate the exposure the risk presents to the organization
3	**Assess Responses & Contingencies**: identifying the response that needs to be put in place for each risk and develop contingencies should the response plan fail
4	**Monitor**: Establish a schedule to regularly review and update the risk assessment

Step 1: Identification

The risk assessment exercise begins with the Project Manager forming a risk assessment team. The first task in conducting a risk assessment is to identify the risks associated with the management and operational processes of the project. A good way to start is for the Project Manager to hold a brainstorming session with the team. The initial aim being to identify risks, without debating or assessing them at this initial phase of the process.

One potential area to consider (but not limited to) is the risks and assumptions made about the project to date. An initial listing of risks can be established with the risks and assumptions identified in the project's charter. All assumptions can be restated as risks themselves. The team should next complete the Project Risk Factors Assessment from the Risk Factors Checklist in the appendix of this toolkit. Other sources of risk include stakeholders, funding, health and safety, security, client service levels, Information Technology (IT) infrastructure, etc. Each area may have several risks associated with it. The funding area, for example, may contain risks involving loss of core funding, loss of a significant grant or contract, or late payments.

The risk assessment team should start by documenting all risks identified during the assessment exercise into a risk log using the Risk Log Template. Once the team has identified all risks for the project, a review of the list should be done to remove any overlaps and to make sure all the important risk areas are covered.

As a risk progresses through the risk assessment process and the risk log is built, the following information will be captured:

- Project Name
- Assigned To ("Risk Owner") – the project team member responsible to develop and implement the Risk Response Plan
- Status – the status of the risk as it flows through the process
- Priority – a subjective assignment of the significance of the risk used by the Project Manager for prioritization and status reporting. The priority risk ratings for the project are as follows:

- o High – the Risk Response Plan must be defined and executed as soon as possible
- o Medium – the Risk Response Plan can be developed any time before the next risk review meeting
- o Low – a Risk Response Plan is not required.
- Type – a means for categorizing risks (see subsequent section)
- Probability – the likelihood of the risk occurring
- Impact – the overall impact if the risk does occur
- Description – a brief description of the risk
- Date Assigned – the date the risk was assigned to the owner
- Comments – any necessary comments
- Due Date – the date of the next action (mitigation plan, plan approval, reevaluation, etc.) by the owner
- Risk Score – defines the severity of the risk and is calculated by multiplying impact by probability

The risk log should be stored in a central project repository. Identified risks can also be recorded in the EPPM tool by Project Managers, track leads, and/or suppliers. When a risk is captured in the EPPM tool, the risk is assigned a risk owner.

Step 2: Assess Risks

The second step in the risk assessment process is to analyze each risk and assign it attributes to assist the project team in developing a priority of focus and effort in the management of the risks identified in step one.

Assign a Category or Type

Certain areas or dimensions of projects are prone to risk events. These areas can be categorized into groups to aid in the assessment process. DSS Project Management recognizes the following high-level, standard categories:

Risk Type	Description
Contract	Any risk related to the contracts of the project (such as a signed agreement between vendor and State or subcontractors)
External	Any risk related to environmental factors largely outside the control of the project (such as cultural, legal, or regulatory)
Funding Source	Any risk related to the funding source for the project. An example would be the Centers for Medicaid and Medicare Services (CMS) 90/10 match for Medicaid modernization projects
Financial	Any risk related to the budget or cost structure of the project (such as increase or decrease in the project-related budget)
Functional	Any risk related to the overall function of the product (such as requirements or design) being developed by the project
Quality	Any risk related to the quality requirements of the project
Organization	Any risk related to internal, client, or third-party organizational or business changes (such as executive leadership role changes)
Performance	Any risk associated with the performance of the application (such as response time, stress testing, and development environments)

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Risk Type	Description
Project Management	Any risk related to the management of the project (such as communications, status reporting, and issues management)
Resource (staff)	Any risk related to project staffing (such as the addition or removal of personnel to/from the project)
Schedule	Any risk related to the Work Plan and related tasks (such as extensions or reductions of the project timeline)
Scope	Any risk related to project scope (such as process, module, and development objects)
Technical	Any risk related to software or hardware, including infrastructure related to the project
General	Any risk that cannot be categorized into one of the above categories

Analyze the Risk

Risk assessment involves the analysis of each risk against at least two dimensions; probability and impact. Probability is a measure of the likelihood of a risk becoming an issue. Impact is a measure of the severity of the consequences that could occur should a risk transform into an issue. These two dimensions are quantified and combined to derive a value for prioritizing the risk by the level of exposure the risk represents as a block to the success of the project. Risk prioritization by exposure is an economy of effort exercise that ensures the highest risks receive most of the project team's attention, planning, and resources. Because these priorities can change with time, risks must be regularly re-evaluated throughout the life cycle of the project.

Exposure is both quantitatively and qualitatively analyzed in terms of impact and probability.

Assess Probability

The probability aspect of risk assessment involves deciding how likely it is that the risk will occur. Because the selection of a probability value is based off guidelines that are subjective, it is recommended to make the probability assessment of each risk a team exercise. Each risk should be scored by the team in one of the five categories listed:

Probability	Guidelines
1	**Low**; less than 25% likely
2	**Moderately Low**; between 25% to 50% likely
3	**Even**; 50% chance of occurrence
4	**Moderately High**; between 50% and 75% likely
5	**High**; greater than 75% chance of occurrence

Assess Impact

The impact aspect of risk assessment involves considering what is the severity potential the risk poses on the organization, client, or project should it escalate into an issue. Each risk should fall into one of five categories. The following table describes the general guidelines for determining a risk impact score:

Impact	Guidelines
1	**Low**; easily mitigated by an individual or team. The impact would be small and easily managed at a relatively routine level within the project team.
2	**Fair**; project team coordination required to mitigate. The impact would be manageable within the contingency of the Project Manager's budget, timeline, or performance expectations.
3	**Moderate**; manageable impact to cost/schedule/scope. The impact would be manageable within the contingency of the sponsor's budget, timeline, or performance expectations.
4	**Significant**; change to cost/schedule/scope that requires re-baseline. The project would continue but the risk will have significantly affected scope, performance, timescales, or costs.
5	**Catastrophic**; impact to cost/schedule/scope resulting in project failure. The organization might be forced to terminate activities because of a catastrophic failure or occurrence defined by the risk.

Calculate Exposure

Risk exposure is calculated by multiplying the probability score by the impact value assigned to the risk.

The chart below depicts three levels of urgency for risk response planning. These levels also determine risk reporting levels.

Impact	Probability				
	1-Low	**2-Moderately Low**	**3-Even**	**4-Moderately High**	**5-High**
1-Low	Low (1)	Low (2)	Low (3)	Low (4)	Medium (5)
2-Fair	Low (2)	Low (4)	Medium (6)	Medium (8)	Medium (10)
3-Moderate	Low (3)	Medium (6)	Medium (9)	High (12)	High (15)
4-Significant	Low (4)	Medium (8)	High (12)	High (16)	High (20)
5-Catastrophic	Medium (5)	Medium (10)	High (15)	High (20)	High (25)

Based on the risk score in the chart above, each risk will be categorized into one of three levels of exposure as depicted in the table below.

Score	Severity
1-4	Low
5-10	Medium
11-25	High

Risk exposure is subject to change at any time during a project. All Project Managers, State, client, or vendor are responsible for regularly reviewing all risks and re-evaluating risk exposure.

Step 3 – Assess Response and Contingency

After each project risk identified has been assessed, the next step in the risk assessment process is to develop a response plan for all high exposure risks and any medium exposure risks the team believes are of special significance. The risk assessment team works together to develop the appropriate risk response strategy for an identified risk.

It is important to balance the severity of the risk with the level of effort for the risk response. It can be a drain on resources to create a risk response that is too comprehensive for a risk with a low severity. On the other hand, high severity risks must be managed closely, and it is important to dedicate resources to plan for these types of risks. A risk assessment team may develop responses for low exposure risks. However, as an economy of effort, it is not uncommon to simply monitor low exposure risks until they escalate or are dropped from the risk log because they are no longer valid probabilities.

At a minimum, the risk assessment team will analyze all high exposure risks in detail to determine the appropriate risk response strategy, assign ownership, and develop an appropriate response plan. In some cases, multiple strategies may apply to a risk under review.

Response Strategies for Managing Risks

The key concept in risk management is not to wait passively until a risk materializes and becomes a problem or kills the project before initiating a response. The primary objective is to decide what to do with it. For each identified risk, the risk assessment team decides in advance how the project team will respond when a priority risk escalates to an issue.

There are five main possible strategies for managing risks with many combinations thereof:

- **Avoid**: reorganize the project so it cannot be affected by that risk
- **Transfer**: reorganize the project so someone or something else bears the risk (customer, vendor, bank, another element, etc.)
- **Accept**: decide to live with the risk as a contingency. Monitor the risk symptom, and decide on a contingency plan of what to do if the risk emerges.
- **Mitigate**: develop proactive steps to reduce the impact of the risk
- **Prevent**: develop proactive steps to reduce the probability of the risk occurring

For each identified risk, a response strategy and/or series of actions should be identified. These tactics should be crafted to prevent or lower the probability or impact of a risk event. Risks with a high severity and, optionally, medium severity requires response planning and very close monitoring throughout the life of the project. When developing a response plan, the Project Manager and risk assessment team will consider which of these response strategies are most applicable.

Avoid

Risk avoidance involves changing the Project Management Plan to eliminate the threat entirely. The Project Manager may also isolate the project objectives from the risk's impact or change the objective that is in jeopardy. Examples of this include extending the schedule, changing the strategy, or reducing scope. The most radical avoidance strategy is to shut down the project entirely. This strategy might be the best one to preserve capital until the issue is resolved. Some risks that arise early in the project can be avoided by clarifying requirements, obtaining information, improving communication, or acquiring expertise.

Transfer

Risk transfer requires shifting some or all the negative impact of a risk, along with ownership of the response, to a third party. Transferring the risk simply gives another party responsibility for its management – it does not eliminate it. Transferring liability for risk is most effective in dealing with financial risk exposure. Risk transference nearly always involves payment of a risk premium to the party taking on the risk.

Accept

The accept strategy is adopted because it is seldom possible to eliminate all threats from a project. This strategy indicates the project team has decided not to change the Project Management Plan to deal with a risk or is unable to identify any other suitable response strategy. This strategy can be either passive or active. Passive acceptance requires no action except to document the strategy leaving the project team to deal with the risks as they occur. The most common active acceptance strategy is to establish a contingency reserve including amounts of time, money, or resources to handle these risks. Often low exposure risks follow this contingency.

Mitigate

A mitigation response addresses the impact of a risk by targeting the linkages that determine severity. Mitigation implies a reduction in the impact of an adverse risk event after the risk has become an issue. Having a plan to take decisive early action to address the impact of a risk that has escalated facilitates communication, reduces response time, and can significantly minimize the damage of the event to the project. The impact of a risk event is often time sensitive and grows worse the longer the event remains unaddressed. Establishing and securing approval for the immediate steps the project will implement in advance is an important aspect of a mitigation strategy. Prioritizing scope, adding resources, or adding time are examples of mitigating actions.

Prevent

Risk prevention involves the implementation of active countermeasures or changes in the Project Management Plan to prevent a threat from occurring. Risk prevention addresses the probability of a risk event escalating into an issue. Acting to reduce the probability of a risk occurring in a project is often more effective than trying to repair the damage after a risk has occurred. Adopting less complex processes, reducing scope, planning more tests, or choosing an experience and stable supplier are examples of preventive actions. Prevention may require prototype development before the start of the full project effort to reduce the risk of scaling up from a bench-scale model of a process or product. For example, designing redundancy into a system may prevent the impact of a single point of failure in a system.

Contingency Planning

The response plan details the risk response strategy selected for each risk, whereas a contingency plan identifies actions to take as a backup if a risk response does not work.

Once the risk assessment team has completed the analysis, identified a preferred risk response strategy for all identified risks, and recorded this in a risk log, the risk landscape is defined and ready for the Project Manager to review with the sponsor and select executive leaders to decide what contingencies, if any, should be put in place to assure the project and its operational performance are secure.

There are four aspects to consider when assessing and developing contingencies:

- Performance
- Finance
- Schedule
- Scope

Performance

This is the standard of performance or service that has been promised to a client or sponsor. In general, a commitment should be made for 5-10 percent less than what the project team believes they can achieve under ideal conditions.

Financing

The financing contingency is determined from two accounting perspectives: funding and cost.

Funding and its contingency is owned and managed by the sponsor. Most sponsors will not want to commit all their sources of funding in full at the start of a project. They will typically commit funds when resources are assured or major milestones with deliverables are met. Depending on the risk landscape, it can be sensible for the sponsor to hold an appropriate level of funding in reserve.

Project costs or ongoing operational costs, including inflation, is a major area of contingency planning. Depending on the risk landscape, the project management team might decide to forecast a somewhat higher cost than they estimate for the effort to allow for discovery that creates additional costs or resource requirements, redirection, scope expansion through elaboration, or anything else that could cause the project to run for longer than planned. When the problem domain is known, a 5 percent contingency above the estimated cost of the effort is common.

Schedule

This contingency relates to the completion date of a project or the date at which a certain level of performance is achieved. The typical contingency is to quote a later completion date than is necessary to allow for the downstream impact of unpredictable delays due to discovery, redirection, or late responses and sign-offs.

Scope

Project scope relates to the body of work for the effort. This contingency is best identified up front with the client or sponsor in terms of deliverables that are must have, should have, and nice to have. As risks become issues and their impact is absorbed by the project, these levels of priority allow the project team to adjust to ensure delivery of important project aspects remain on track, while the response plan for the risk is implemented.

Step 4: Monitor

Risk assessment is a continuous process of improvement and should be fully integrated into all project management and review processes.

The final step in the risk assessment process is to establish a plan for monitoring, reviewing, and reassessing all identified risks. Either weekly or monthly, the Project Manager should conduct a risk review meeting with the risk owners and key project team members (i.e., team leads, stakeholders, selected end-users, or subject matter experts) to reappraise the highest risks and to add and assess any new risks discovered. The top risks with high severity and a high/critical priority will be discussed on a weekly basis during the project status meeting.

Risk Meetings

Project leadership (i.e., Project Managers and team leads) will review and add/update risks during the weekly project status meeting.

After each status review meeting, the vendor Project Manager has the following responsibilities:

- Update risks log to record risk changes and additions
- Archive any approved risk response plans
- Communicate the updated risk records

Risk Monitoring

The Project Manager monitors all identified project risks throughout the life of the project for as long as the risk remains in active (i.e., "In Progress") status. A risk that is realized will either: (1) initiate the approved response plan defined for the risk; or (2) be logged as a new issue to be addressed by the project's defined issue management process.

Key responsibilities when conducting a risk review are

- Determine the appropriate new risk owner(s) if the risk assignment needs to change
- Where necessary, update the risk assessment, response, or other details
- Determine if or when a risk needs to be escalated to the next project level

Determine if a Risk is Realized

As part of risk monitoring, the Project Manager determines whether the risk has been realized on the project.

For realized risks, follow the risk realization steps included in the approved risk response plan (where applicable), and log a new issue in the project's issues log for the realized risk. Once the issue record is created, cross-reference the new Issue number (#) in the old risk record before closing the risk record.

If the risk has not been realized, continue monitoring it throughout the project for as long as the risk is active (In Progress) status.

Manage Issues

For a realized risk that converts to a project issue, address it using the project's standard issue management process as defined in the Issue Management Plan.

The outstanding issue list in the EPPM tool will be managed by the client and vendor project managers. However, issue owners are expected to drive their issues to resolution, following the priority guidelines defined above. Issues will be reviewed on a weekly basis by the Project Manager, and an ad hoc meeting will be scheduled, if necessary, to review issues with members of the project team and relevant stakeholders. Critical and high priority issues will also be reviewed during the daily management meetings.

Risk Status

Determine the status of the risk:

- If the risk is no longer active, proceed to closing the risk.
- If the risk is still active, continue monitoring the risk, escalating when necessary.
- Set the risk record status to closed by setting the status in the risk log to "Closed."

Risk Escalation and Reporting

All active high exposure risks will be tracked and published in a weekly project status report and in the monthly executive steering committee report. When a risk has been reviewed and is found to be in a state of escalation to a high level of exposure, it should be added to all reports.

Escalation and reporting of high exposure risks should, at minimum, include in the reporting chain the

- Project Sponsor
- Business Lead
- Steering Committee
- Program Director

Related Documents:

- Project Risk Management Plan
- Project Risk log

Appendix A – Risk Factors Checklist

A risk refers to future conditions or circumstances that could have an adverse impact on the project if they occur. This is different than an issue, which is a condition or circumstance that is occurring or has occurred and is adversely impacting the project. A reactive response resolves problem when they occur. A proactive response tries to resolve or mitigate problems (risks) before they occur. While Issue Management is reactive, Risk Management is a proactive response.

There are inherent characteristics of projects that imply high and low levels of risk. For instance, a project estimated to take 10,000 effort hours is inherently riskier than one that takes 1,000 effort hours. Likewise, a project utilizing new technology or a new architecture will have more risk than one utilizing older and more stable technology.

Section I of this template is used to determine whether there are inherent risks in your project. The results should be used as guidelines, since there will be other factors that may lower or raise the risk level. For instance, you may have a large project, which implies higher risk. This risk could be reduced if you also have an experienced Project Manager. Depending on where your project characteristics fall, you can evaluate whether your risk is high, medium, or low. (Medium risks fall in between the extremes.) If your project has many high-risk characteristics, it does not mean you will not be successful. However, it does mean that you should put a plan into place to manage the risk.

This checklist can be especially valuable if your organization customizes the specific risk characteristics and risk criteria that apply to your company. For instance, you may find in your organization a project of less than 5,000 hours is considered low risk, while one that is 20,000 hours or more is high risk.

When you have completed the checklist, look at all the high-risk items and refer to Section II of this template. In this section, you will see each high-risk factor and examples of problems you may encounter. For each high-risk factor, create a plan to ensure the risk is mitigated and does not occur. The second column of Section II shows examples of activities that can be added to the risk plan to help mitigate the risk.

After the high-risk factors have been evaluated, look at the medium-level risks to determine if the impact is severe enough that they should have a risk mitigation plan created for them as well. If so, create a risk plan for them. Then look at any low-risk items to see whether they should be listed as assumptions. In this way, you recognize there is a potential for problems, but, because the risk is low, you are assuming the condition will not occur. The activities associated with managing the various risks should then be moved to your project work plan.

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Section I - Project Risk Factors

Characteristics	Low	Medium	High
The business benefit of the project is:	☐ Well defined	☐	☐ Under defined
The scope of the project is:	☐ Well defined	☐	☐ Under defined
The project sponsor is:	☐ Identified, committed, and enthusiastic	☐	☐ Not identified or not enthusiastic
The business customer commitment level is:	☐ Passionate and enthusiastic	☐	☐ Passive and difficult to engage
The Project Manager has:	☐ Similar experience on multiple projects	☐	☐ Little experience on similar projects
The project team is:	☐ Located together	☐	☐ Dispersed at multiple sites
Project management processes and procedures are:	☐ Familiar and will be utilized	☐	☐ Not familiar and will not be utilized
The business requirements of the project are:	☐ Understood and straightforward	☐	☐ Vague or very complex
The business domain is:	☐ Understood and straightforward	☐	☐ New, unknown, or very complex
The system availability requirements include:	☐ Windows of availability and downtime	☐	☐ Available on a 24 X 7 basis
The technical requirements are:	☐ Like others in the company	☐	☐ New and complex
The data requirements are:	☐ Simple	☐	☐ Complex
The number of locations to deploy to is:	☐ One	☐	☐ More than four
The number of system interfaces are:	☐ One or none	☐	☐ More than five
The number of agencies this will impact is:	☐ One or two	☐	☐ More than five
The total estimated effort hours are:	☐ Less than 1,000 hours	☐	☐ Greater than 5,000 hours
The total estimated project duration is:	☐ Less than three months	☐	☐ Longer than one year
The subject matter is:	☐ Well-known by the project team	☐	☐ Not well-known by the project team

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Characteristics	Low	Medium	High
The project is dependent on:	☐ Zero or one other project or team	☐	☐ Three or more other teams or projects
Business processes, procedures, policies require:	☐ Little or no change	☐	☐ Substantial change
Changes to the organizational structure require:	☐ Little or no change	☐	☐ Substantial change
The technology being utilized consists of:	☐ Existing software, hardware, languages, databases, and tools.	☐	☐ New software, hardware, languages, databases, or tools (or new releases)
The quality of current data is:	☐ Well defined and simple to convert	☐	☐ Poor or complex to convert
If a package implementation:	☐ No (or minimal) customization is needed	☐	☐ Heavy customization is needed
	☐ The product or release is stable	☐	☐ The product or release is new to market
	☐ The vendor is familiar in this market	☐	☐ The vendor is new to this market

Section II - Risk Management Strategy Tables

High Risk Factors /Potential Issues	Risk Management Activities
The business benefit of the project – under defined • Project is in jeopardy of being placed on-hold or cancelled if higher value work is identified • Hard to get resources required • Hard to evaluate the value of the project to the organization • Hard to define scope changes in terms of cost/benefit • Hard to know if business value was achieved when project is complete	• Try to get business customer to quantify the overall business value of the project • Look at the major requirements and try to quantify the value of the various deliverables • Document the intangible benefit that the project will achieve • Review prior, similar projects to see how the benefits were quantified • Don't start the project while the business value is undefined
The scope of the project – under defined • Hard to provide sound estimates • May spend time and cost on areas out of scope • Hard to gather concise requirements • Difficult to write project definition and work plan • Hard to invoke scope change procedures • Project deliverables are under defined	• Focus on firming up scope in the planning process • Define various components of scope, such as what organizations are impacted, what deliverables are expected, what type of information is required • Clearly define what is out of scope for the project • Begin to define business requirements at a high level, and then work upward to define scope • Ask project sponsor to make decisions on conflicting scope statements • Document all scope assumptions when providing estimates of work, cost or duration • Use pictures or diagrams to communicate scope and options • Establish firm scope change procedures up front • Ensure the project definition and business requirements are formally approved and signed off • Distribute scope statements to all stakeholders for confirmation • Do not begin project until scope is clear

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High Risk Factors /Potential Issues	Risk Management Activities
The project sponsor is – not identified or not enthusiastic • Project may not get the resources it needs • Project may not have the long-term commitment needed • Political battles may delay the project • Issues and change requests may not be resolved in a timely manner	• Establish a strong steering committee to help guide the project • Establish a process for resolving disputes between organizations • Try to identify a different sponsor • Ask the sponsor to delegate full authority to another person who can act on his/her behalf • Don't start the project
Customer commitment level is – passive / hard to engage • May point out low confidence in the business value • Harder to get customer time and resources needed • Harder to gather business requirements • Customers may undermine or work against the project	• Create an aggressive Communication Plan to keep customers engaged and communicate the business benefit • Create user group to surface concerns and build enthusiasm • Ask for customer participation in planning and requirements gathering • Ask for help from the sponsor to generate excitement • Look for opportunities to sell project in fun settings and contexts • Be proactive in gaining commitments for customer resources when you need them • Don't start the project
Project management experience – light • May take longer to define the project and build work plan • May make more mistakes in judgment, causing rework and project delays • More difficulty organizing and managing a complex project • May not be familiar with sound project management practices • May not know when to call for help	• Provide up-front project management training • Designate a more senior person to coach and mentor the project manager • Break the project into smaller pieces that are easier to manage • Put a strong quality assurance process in place to ensure the project is on the right track • Make sure the major deliverables are formally approved • Utilize strong team leaders and team members to bring additional experience to bear

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High Risk Factors /Potential Issues	Risk Management Activities
Project team is in – dispersed locations • Harder to communicate effectively • Less team interaction and cohesion • Harder to build personal relationship with the entire team • Some members may feel isolated and not a part of the team • Technology problems may result in productivity decreasing	• Try to get the team into one location, at least for the length of the project • Create an aggressive Communication Plan to ensure the team communicates effectively • Hold regular meetings where the entire team meets face-to-face • Schedule team-building activities where the entire team meets face-to-face • Have backup methods to communicate if the primary technology fails • Maintain frequent contact by phone with remote team members • Create a central repository that all team members can access to hold the project documentation
Project management processes – not familiar or will not use • Team may have a difficult time understanding how to raise issues, scope changes and risks • Project may get out of control as the internal processes become more complex and harder to manage • Communication will tend to be poorer • Project deliverables might be completed in different formats • Issues may not be addressed in a timely manner, scope changes may be adopted without thought of impact to the project, risks may be ignored and quality may be compromised • Chance that the project may be in trouble before it is recognized	• Provide training to the project manager and project team on sound project management processes and procedures • Assign an experienced project management coach or mentor to the project • Break the project into smaller pieces that can be managed with less rigorous project management • Define and gain approval for a set of project management procedures before the project starts, including issues management, change management, risk management and quality management • Create a solid communication plan to ensure everyone knows what's going on and can provide feedback • Solicit input on issues, risk, scope change and quality concerns on an ongoing basis

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High Risk Factors /Potential Issues	Risk Management Activities
The business requirements of the project are – vague or complex • Difficult to document the requirement properly • Difficult to use tools to document the requirements • Difficult to understand what the expectations of the project are • Chance that the resulting solution will not meet business need • May be a sign of a lack of focus from the customer	• Use joint application design (JAD) session to gather requirements from all stakeholders together • Utilize prototyping and iterative development techniques to assist users in discovering the requirements of the new system. • Get access to the sponsor and senior management people to provide overall guidance • Provide training to the customers on how to think about and express business requirements • Ensure that the final business requirements are approved in writing, and that a change management procedure is enforced after that
The system availability requirements are – 24x7 • Downtime problems may result in productivity decreases or loss of revenue • Redundancy may be needed, which increases system complexities • Newer advanced technology may be required • More procedures and processes are needed to maintain the system environment	• Allocate more time to analysis, design, testing and overall quality assurance activities • Focus extra time and energy on technology architecture • Focus more time and energy on database design • Use industry best practices for all technology and process components • Provide appropriate training to the team so they understand the 24x7 implications of the project • Determine exactly what portions of the system have a 24x7 requirement • Look for internal or outside experts to validate overall technical design and architecture • Develop solid disaster recovery procedures • Develop a strong partnership with the hardware and software vendors

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High Risk Factors /Potential Issues	Risk Management Activities
The technical requirements are – new and complex • May be difficult to understand the requirements and the implications of design decisions • May be integration issues between old and new technology • May be difficulties testing the complex technology • The more complex the technology, the greater the risk that problems will occur • Problems with incompatible technologies may not be uncovered until integration or system testing	• Utilize system and technical design documents to clearly lay out how the technology fits together • Define the overall system's technical architecture and have it approved by knowledgeable people in your company • Send the architecture proposal to outside consultants for further feedback and validation • Create a pilot test or prototype to utilize the new technology in a small way at first • Try to substitute more proven and familiar technology in the architecture • Utilize multiple products from the same vendor to ease integration complexities • Use products that utilize open standards and architectures to reduce the risk of integration problems
The project data requirements are – complex • Hard to understand the implications of how data relates • Hard to know when all data elements have been captured • More likely that some data elements will be discovered missing until system construction • Solution may have more limited value if all required data is not present • Solution will take longer to analyze, design, construct and test	• Utilize an automated tool to capture data elements and the relationships • Gain agreement on logical design before databases are built • Gather customer approval for the data models once they are completed • Utilize trained data architects to help collect the data and design what the data structures should look like

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High Risk Factors /Potential Issues	Risk Management Activities
The number of locations to deploy to – many • May be different requirements from the different locations • May be different procedures, processes or technology • May be technology problems with tying all the pieces together at each location • Technology infrastructure may be different at different locations	• Gather requirements from all locations you will deploy to • Make sure the sponsor agrees with any customization of process or system based on different locations • Implement at a simple site first to gain experience and modify implementation processes before proceeding with all other sites • Make sure an overall architecture is in place that will flexibly accommodate all locations and any communication that needs to take place • Make sure the technical infrastructure is understood at each location
Number of system interfaces – many • Increased complexity of testing • More reliance on other projects or systems • More chance for incompatibility • Harder to track down problems, errors and bugs	• Reduce the need for interfaces when possible • Reduce the amount of information being passed when possible • Use as flexible a technology for the interface as possible (i.e. XML) • Break the project into smaller sub-projects with fewer interfaces to manage • Work early to set expectations regarding the need for knowledgeable resources from the other systems • Test the interfaces as early in the project as possible • Add extra analysis to ensure the needs of the interfaces are well understood • Include the people that support the interfaces in the official communication and status reporting

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High Risk Factors /Potential Issues	Risk Management Activities
Number of organizations that are impacted – high • Coordination is more complex • Approvals can be more cumbersome and lengthy • More difficult to reach consensus • More people and groups to involve in planning and requirements • Harder to know the major stakeholders of the various organizations • Implementation is harder and more complex	• Establish a formal approval process • Create a steering committee to represent the entire stakeholder community • Keep the sponsor engaged and ready to intervene in the various organizations • Include a representative from each organization in requirements, quality assurance and testing • Include opportunities for people from the various organizations to meet and interact • Work with the team on strict adherence to overall project objectives and priorities • Use consensus-building techniques when at all possible
Total estimated effort hours – high • Implication of a high number of effort hours is that there are many people involved and more complexity • Harder to communicate effectively with the team • Bottlenecks can occur when decisions are needed quickly • More chance of people problems • Increased chance of turnover • More people to train	• Use a project management tool to control resource utilization • Have team members utilize weekly status reports to report on progress against their assigned workplan activities. • Utilize team leaders to manage sub-teams • Organize team-building activities to build cohesion • Schedule status meetings to keep people informed of project status • Utilize structured internal procedures for scope, issue, quality and risk management • Break the project into smaller, shorter sub-projects • Reduce available project work time per person, per day to recognize additional people and team related activities

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High Risk Factors /Potential Issues	Risk Management Activities
Total estimated project duration - long • Harder to manage to the schedule • Easier for the team and the customer to drift or lose focus • More chance that project will lose organizational commitment • More chance business requirements will change • More chance of change in software or hardware versions • Difficult to instill sense of urgency at the beginning of project • More chance of team and customer turnover	• Break the project into smaller, shorter sub-projects • Identify clear milestones to check that the project is on schedule • Be diligent using formal change management procedures • Rotate team members into different roles to keep up the interest level • Strive to get ahead of schedule as early as possible. • Instill a sense of urgency from the start of the project • Organize team-building activities to build cohesion and reduce friction • Ensure all major deliverables are formally approved so that change management can be invoked afterward • Make technical design and architecture decisions as flexible as possible to account for potential changes
The subject matter is – not well-known by the project team • Longer learning curve for project team members • The project may slip behind in the early portions of the project • No sense for whether business requirements make sense • Possibility that critical features or functions will be missed • Need to initially rely on customer for all subject-matter expertise	• Take as much training as practical, as early on as possible • Bring the key customers onto the project team • Spend extra time understanding and documenting the requirements • Set up approval process for requirements that require multiple subject-matter experts • Use joint application design (JAD) session to gather requirements from all stakeholders together • Utilize more frequent walkthroughs and include the users • Build extra time into the estimates for application analysis and design activities

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High Risk Factors /Potential Issues	Risk Management Activities
Dependency on outside projects or teams – many • Delays in the other projects/teams could delay your project • Changes to deliverable from other projects/teams could force your project to make changes • More complexity involved in requirements, design, testing, etc. • More chance of incompatible standards, processes, technology • More people and groups to communicate effectively with • Harder to build consensus, longer time for decisions that impact multiple groups	• Be very specific in defining how other projects/teams impact your project • Be very specific on the timing for when deliverables are needed from other projects/teams • Establish central contacts as the focal points of communication between the projects/teams • Include the dependent projects/teams in your status reports and meetings • Continually communicate expectations from the other projects/teams
Business processes and policies require – substantial change • Policy changes could delay the project • People will be confused by new processes, which will affect their ability to utilize the solution • Possibility that new processes will not be fully integrated at first • Possible void if new processes don't fully cover all contingencies • System functions may not be used if not supported by correct procedures • Substantial change in processes may result in destructive behavior	• Document all current policies and processes and ensure that they are correct • Communicate precisely how the new processes differ from the old ones • Communicate potential changes as far in advance as possible • Ensure the customers are defining the process and policy changes • Have one person responsible for all process and policy changes • Create an aggressive Communication Plan to keep customers engaged and informed • Use the new processes in a pilot test or prototype first to ensure they are workable and correct • Include the successful implementation of new policies and processes as part of the performance criteria for managers • Be open to customer input on process changes to allow them to feel they have impact

High Risk Factors /Potential Issues	Risk Management Activities
Changes to organization structure – substantial • Organizational uncertainty can cause fear in the organization • People may not focus on the project if they have organizational concerns • People may fear loss of jobs in a new organization • People may not use the system if they are unhappy with the organizational change • Uncertainty may cause decisions to be delayed • Organizational change may result in decisions made for political purposes	• Document the concerns that come out of a new organization, and look for ways to mitigate the concerns. • Communicate early and often about the potential for change and the business reasons for it • Involve representatives from all stakeholder areas in the organizational design and options • Get Human Resources involved to deal with potential people issues
The project technology is – new and unfamiliar (or new releases) • Learning curve may result in lower initial productivity • May be integration problems between old and new technology • Resistance to technology changes may cause the project to be delayed • May be difficulties testing the new technology • Technology may not be installed or configured correctly, which will lead to project delays • New tools can lead to longer delivery times • New technology may require substantial conversion efforts • System performance may be poor while expertise is gained in optimizing and configuring the technology	• Provide as much training on the new technology as practical, as early as possible • Train everyone who needs to install, use or support the new technology • Decide to rely on vendor technical specialists, when needed • Use outside consultants who are familiar with the technology • Make sure there is an adequate test environment where the technology can be utilized without impacting production • Ensure that solid analysis is completed regarding the new technology functions, features and capabilities • Create procedures and standards for how the new technology should be utilized • Create a pilot test or prototype to utilize the new technology in a small way at first

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High Risk Factors /Potential Issues	Risk Management Activities
The quality of current data is – poor and difficult to convert • More work to convert the old data to the new system • Scrubbed data may still cause problems in the new system • Data conversion problems can cause significant project delays	• Make sure that all the old data elements are correctly mapped to the new system • Test the conversion process rigorously before proceeding with final conversion • Determine if the cost and trouble associated with the converted data is worth the value. Ask whether the new system can start with new data only • Keep the old system around for some period to access the old data • Spend the effort to manually clean up the old data as much as possible before conversion
Package implementation – heavy customization • Customization brings added complexity to the project • Making modifications may result in something else breaking • Customization can lead to poor performance • Customization can complicate migrating to newer releases • Heavy customization may mean that the wrong package was selected • Package will probably take longer to implement • Customization will require more reliance on the vendor	• Consider other packages • Consider custom development • Cut back on the business requirements so that customizations are not required • Get a firm estimate of the cost and duration of the modifications from the vendor, and build into your overall work plan • Manage the vendor relationship to ensure all needed work is completed on schedule • Make sure the sponsor has approved the customizations being proposed • Thoroughly test the modified package for functionality and performance • Maintain a vendor log to track issues and milestones

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High Risk Factors /Potential Issues	Risk Management Activities
Package implementation – new product or release • Greater chance of problems surfacing • More reliance on the vendor to ensure problems are corrected quickly • Installation, testing and deployment will take longer • Hard to know up-front whether the package meets all the business requirements	• Schedule training on the package as early in the project as possible • Add an internal resource or a consultant with prior product experience onto the project. • Schedule a pilot test or a prototype to gain familiarity with the package before full implementation • Establish agreements with the vendor stipulating support level and problem resolution times • See if the project can be delayed until other companies have utilized the product • Seek out other companies that have used the product for their feedback and key learnings
Package implementation – new vendor • Possibility that vendor may not survive and leave you with no support • Upgrades may be in jeopardy if there are not enough sales in the marketplace • No prior relationships from which to build a quick partnership • Legal and financial concerns may delay contracts and the project	• Make sure that all agreements with the vendor be in writing • Insist that source code be placed in escrow in case the company does not survive • Ask the vendor to be a part of the project team • Maintain a vendor log to track problems with the package • Make sure the vendor is financially sound • Establish agreements with the vendor stipulating support level and problem resolution times
<Risk> • <detail> • <detail>	• <Activity> • <Activity> • <Activity>