



ERP Deliverables Series

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Project Implementation

Risk Management Plan

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1. Executive Summary

This document describes a generic plan for Risk Management to implement a full featured ERP system (i.e. >20 modules) that supports a large consumer products manufacturing and distribution business.

Go Live is a 'big bang' implementation over a few days, which means one instance of changes to all system functions, data, business processes, and organizational responsibilities instead of many changes phased in over a long period of time. Further, it is estimated that there will be less than 72-hours after Go Live before it will be impractical to return to the old systems. Therefore, it is critical to the success of the project and the business to ensure that all risks have been recognized, evaluated and successfully mitigated, and if not, that appropriate contingency plans are prepared and ready for execution should the risk(s) materialize.

Although every reasonable effort will be made to identify and assess risks, it is also recognized that many aspects of the Project will be 'works in progress' with outstanding issues, change requests, and other uncertainties. More than anything else, the decision to proceed and subsequent implementation activities will be based on the collective assessment of the risks. It is therefore important for the decision makers to understand the details of risks and the thresholds of acceptability.

2. Risk Management Plan and Methodology

This document describes the Risk Management Plan and Methodology for the remaining phases of The Project – specifically, Testing, Training & Documentation, Change Management, Conversion, Go-Live and On-Going Support.

Risk management is focused on the risks to the overall success of the Project. In practice, risk management is a distinct function and integral part of the project management framework and is also recommended as an on-going function throughout the life-cycle of the Project.

Parts of this document are generic in order to demonstrate the nature and extent of the recommended risk management work. As work proceeds, more specific details of risks and risk management actions will be added. The work required will be performed by a combination of Project Team members, staff and potentially contracted risk management consultants or specialists.

2.1 Background

The project risk management methodology is based on proven methodologies, tools and techniques that have been utilized by other public and private sector projects. It is by-and-large compliant with the risk management practices advocated by the Project Management Institute (PMI).



Project success can be defined a number of ways but, for the purposes of the Risk Management Plan, is focused on two major areas:

- Achieving the defined scope of the Project within the approved budget and timeframe; and,
- Ensuring that the new system(s) and business changes work properly and meet or exceed expectations of the users.

Therefore any potential risk event that can materially affect scope, time and/or cost is a candidate for mitigation and/or contingency planning.

Risk refers to uncertain future conditions or circumstances that may adversely impact a project if they occur. A risk represents the possibility, not the certainty, of a future event affecting the success of a project.

Risk management is a repeatable, structured process that identifies and systematically addresses risks to minimize their affect on the Project. Risk is inherent in all projects and by effectively managing risks, the Project Team can reduce the likelihood of occurrence of an adverse event and the impact should such an event occur. Without risk management, the Project can be faced with unanticipated risk events and not have adequate time or resources to mitigate the impact of the risks.

Risk management has a number of significant benefits for a project including:

- Aggressive risk-taking is enabled because of the insights learned from risk identification and analysis activities;
- Risk events that would otherwise be surprises are anticipated with appropriate levels of mitigation planning;
- Stretch goals can be recognized and adopted that otherwise could have been considered as falling short of the stated goals;
- Risk management tends to bound uncertainty that, if unbounded, may cause risk-adverse or carefree actions that are inappropriate;
- Risk management provides downside protection at minimum cost. Mitigation strategies and plans can be developed appropriate for the uncertainty and potential impact;
- Risk management tends to prevent transfers of responsibility that are otherwise invisible or unclear. Ultimately, the party responsible for managing a risk is also liable for the cost of the undesirable outcome;
- Risk management can save a project or part of a project from failure. It tends to focus management attention on the critical parts of the project to avoid problems and/or to develop, in advance, steps that will mitigate the impact of a problem.

Risk management has a number of downsides including the fact that unanticipated, unknown risk events and problems will occur regardless of the



rigor of risk management. A critical success factor for good risk management is for the organization to encourage a tolerance of risk and open discussions of uncertainty.

2.2 Definitions

A number of terms associated with risk management in this document are defined below:

- Risk – a possible future event that will lead to an undesirable or adverse outcome or the undesirable outcome itself. Alternatively, a risk is a problem that has yet to occur, and a problem is a risk that has already occurred.
- Risk management – the process of thinking out corrective actions before a problem occurs. The opposite of risk management is crisis management, trying to figure out what to do about the problem after it happens.
- Risk event or risk transition – the moment when a risk becomes a problem.
- Risk event indicator – ideally, for every identified risk there is a measurable or observable indicator that the risk event has already occurred or is about to occur.
- Risk probability – the degree of certainty that the risk event will take place. Although probability can be described as variable function of time or other conditions, for the purposes of this document, probability is categorized as low, medium or high.
- Risk impact – the significance of the undesirable outcome(s) should a risk event occur. Although impact can be described as a variable function of cost or other factors, for the purposes of this document, impact is categorized as low, medium or high.
- Risk exposure – the combined effect of risk probability and impact.
- Mitigation strategy and/or plan – the work done in advance to reduce the probability of a risk event occurring and/or enable a response that avoids or reduces the impact.
- Contingency strategy and/or plan – the work done in advance in order to have a timely and effective response when the risk event occurs.
- External risk factors - sometimes called environmental factors, are circumstances over which project management cannot exert a controlling influence. Examples are: Externally imposed constraints (e.g. scope, time, budget, resources, empowerment, status reporting requirements, etc.); Lengthy and/or uncertain timeframes for external reviews and approvals of deliverables; Unplanned and/or unexpected communications or review and approval of deliverables activities by external parties; Level of uncertainty (e.g. technical, functional, financial, operational, etc.) at



critical review points or 'gates' such as the decision to Go Live; or, Changes in priorities;

- Internal risk factors - are circumstances that project management can control. These factors include, but are not limited to: Changes in scope as a result of changes in requirements, poor estimates, design errors, omissions, misunderstandings, etc.; Inadequate allocation of resources and/or poorly defined roles and responsibilities; Unplanned activities, unexpected delays or other schedule variances; and, Unplanned or unexpected effort, costs or other cost variances.

2.3 Sources of Project Risk

Potential sources and examples of The Project risks are summarized below. External risks are circumstances over which project management cannot exert a controlling influence. Internal risks are circumstances that project management can control.

The examples given are not necessarily potential areas of risk at this time, but are areas that will be monitored. Also, the examples below do not utilize qualifiers (e.g. "inadequate", "inappropriate", "failure", "lack", etc.). The potential sources and examples include, but are not limited to the following:

2.3.1 Potential External Risks

- Changes in management, governance structure or leadership;
- Key stakeholder priorities and expectations;
- Timeliness of review and/or approval processes;
- Alignment with business objectives and strategies;
- Changes in policies;
- Cooperative arrangements or agreements with third parties;
- Imposed scope, deadlines, assumptions and/or constraints;

2.3.2 Potential Internal Risks

- Project Team organization;
- PM processes, support systems and tools for project integration management;
- Proven, common methodologies;
- Properly skilled, dedicated resources;
- Business users integrated with Project Team;
- Empowerment of PM and team;
- Scope change management;
- Document management;
- Intensity and complexity of workload;
- Requirements and other definitions of scope;



- Balance of scope, time and budget;
- Assumptions and constraints
- Provisions based on historical data and “lessons learned”;
- Time and experience of planners;

2.3.3 Procurement Risks

- Viability of potential service providers;
- Complexity of procurement options (e.g. multiple providers, termination for convenience, etc.);
- Statement of Requirements and adoption of best practices;
- Evaluation and selection methodology;
- Terms and conditions of Contract(s);

2.3.4 Implementation Risks

- Internal and external risks of service provider;
- Data conversion;
- Testing (e.g. system, usability, acceptance, failure/recovery, stress/volume, etc.)
- Integration with other systems;
- Change management and transition;

2.3.5 Operations Risks

- On-going program office organization, resources, processes and empowerment;
- Service and/or system change management;
- Supplier/Customer relationship management
- Information Protection, business continuity and disaster recovery provisions;
- Operations service levels and compliance with standards (e.g. IT Infrastructure Library [ITIL] for service management);
- Internal and/or external audit;
- Compliance with privacy, security and other requirements;
- Data integrity and control;

2.4 Risk Management Processes

The primary processes in the Risk Management Plan, discussed in more detail later in this section, are:

Risk Identification - Determining which risks are likely to adversely affect the project and documenting the characteristics of each;



Risk Quantification - Evaluating the risks and risk interactions to assess their probability of happening, potential impact and range of possible project outcomes;

Risk Response Development - Defining mitigation and contingency strategies and plans, or other responses to risks. Where appropriate, the work is further subdivided into Response, Recover, Repair or Replace and Restoration steps; and,

Risk Response Control – Managing risk mitigation steps and responding to changes in risk over the course of the project.

2.5 Risk Identification

Initial risk identification and risk profile should be performed as soon as possible. This should be done by reviewing risks identified (or encountered but not identified) on other similar projects, brainstorming with the Project Team and key stakeholders, and by extracting risks identified in other reviews, status reports and working papers for the project.

It is essential that end users and other key stakeholders be involved in the risk identification process, as well as members of the Project Team. Risk is inherent in all projects and proactively identifying and managing potential risks will increase the likelihood of project success.

Even at this point in the project (i.e. completion of development and start of testing), not all details of the project may be known, and these unknowns may constitute potential risks to the project. For example, requirements definition, and therefore project scope, may not be fully completed. Project assumptions and constraints will be carefully reviewed. It is possible that attempting to simultaneously address conflicting constraints could pose a risk to the project.

All identified potential risk events that are deemed to be relevant to the project are to be recorded using the Risk Management Matrix. The risk matrix maintains a record of “resolved” risks as well as “current” risks and is usually sorted in a sequence showing the “Top Risks” first. Note that should a previously unidentified risk event occur at any point during the project life cycle, this event will be immediately recorded on the Risk Management Matrix.

Risk identification is an ongoing process to document the future risk events. Any new or changed risks will be incorporated into the analysis from a project's start through its completion. All risks are to be recorded on the Risk Matrix.



In addition to project inception, Risk Identification will take place on a formal basis at the beginning of each major project phase or iteration and any time a significant change to the project occurs, such as a scope change or changes in key project personnel.

2.6 Risk Evaluation and Quantification

Risk evaluation, quantification and analysis are also ongoing processes that analyze risks and their potential impacts. There are four risk components determined in this step:

- Probability
- Impact
- Exposure
- Priority

2.6.1 Risk Probability

Risk Probability is the chance that the risk event will occur. This probability will be defined as:

- HIGH (value = 3): The event probably will likely occur within 75-100% certainty;
- MEDIUM (value = 2): The event is equally likely to occur or not occur within a range of 25-75% certainty; or,
- LOW (value = 1): The event is unlikely to occur during the life of the project within a range of 0-25% certainty.

Risk Probability is mostly determined by expert judgment based on evaluating the history of other similar projects and the information available. In this methodology, if an adverse event is virtually certain to occur (i.e. 90+ %), it will be treated as either an Issue or a Constraint by the Project Team. If an adverse event is extremely unlikely to occur (i.e. <10 %), it may be considered an Assumption.

2.6.2 Risk Impact

The impact of a risk event is usually considered in the context of the three key factors of Scope, Cost and Time. Note that risk impact should also consider the impact on the end users and other key stakeholders including disruption to normal operations. As an example, a schedule impact may have a significant impact on the end user if the project must support implementation of a new function that must start on or before a given date. On the other hand, a schedule slippage may have no appreciable impact on the end user but may mean that

resources dedicated to this project will result in increased project costs. All impacts must be identified and assessed.

The impact of a risk event is defined as:

- **HIGH** (value = 3): A risk that has a critical if not catastrophic impact to the scope, time and or cost of the project, potentially resulting in project cancellation, a major re-planning effort or disruption of normal operations.
- **MEDIUM** (value = 2): A risk that has a significant, but not catastrophic impact on the Project. The project should be able to recover and meet the approved scope, albeit with the potential for significant schedule, cost and operations variances.
- **LOW** (value = 1): A risk that has a relatively little impact on the project scope or major objectives, and that can be absorbed within acceptable schedule, cost and operations variances.

2.6.3 Risk Exposure and Priorities

Risk exposure is the combination of Risk Probability and Risk Impact. In this methodology, the ratings are multiplied, yielding a numeric Risk Exposure of 1, 2, 3, 4, 6 or 9 as shown in the table below.

<i>IMPACT</i>			
High	3	6	9
Medium	2	4	6
Low	1	2	3
	Low	Medium	High

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Risk priorities can be set according to the risk exposure ratings and utilized to focus attention where it is needed the most. The risks that are potentially the most harmful to the project are also the risks with the highest exposure ratings, often called “Top Risks”. These are identified, monitored closely and re-analyzed frequently. If appropriate, additional tools (e.g. risk sensitivity analysis) can be utilized to clarify the uncertainty of the risk.

The following table indicates the recommended actions to be taken based on the risk exposure and priority ratings.

<i>Exposure</i>	<i>Rating</i>	<i>Mitigation Action</i>	<i>Contingency Action</i>
1	Low	Monitor Periodically	
2	Guarded	Monitor & Re-assess Periodically	
3-4	Elevated	Develop Strategy, Monitor & Re-assess Periodically	Develop Strategy, Monitor & Re-assess Periodically
6	High	Develop & Invoke Plan if triggered	Develop & Invoke Plan if triggered
9	Severe	Develop & Invoke Plan or consider cancelling project	Develop & Invoke Plan if triggered

2.7 General Dispositions to Risk

There are four general dispositions for risks, which are summarized below.

2.7.1 Avoidance of Risk

Avoid a risk by taking action to eliminate or significantly reduce the probability of the risk event.

2.7.2 Control of Risk

Control the impact of a risk by taking action to minimize the impact of the risk event.

2.7.3 Transfer of Risk

Shift the risk to another party, including the responsibility for the response to a risk event. For example, transferring a risk to a third party such as a vendor or insurance company. For an ERP Project, this may not be feasible.

2.7.4 Acceptance of Risk

Accept the risk without making any changes to the project. It assumes that the project can absorb the consequences of the risk event, and deal with it effectively should the event occur. (Same as ignoring a risk.)



2.8 Risk Response Development

For risks requiring a response, there are two strategies that are considered: mitigation and contingency.

2.8.1 Mitigation Strategies and Plans

Mitigation is a pre-emptive strategy that is concerned with changing the probability and/or impact of the risk before it occurs. Mitigation plans are developed and invoked as soon as the risk is recognized as serious (i.e. beyond an agreed threshold of probability and impact).

2.8.2 Contingency Strategies

A contingency plan minimizes or reduces the impact of a risk after it happens. The contingency plan is developed as soon as the risk is recognized as serious (i.e. beyond an agreed threshold of probability and impact). However, the contingency plan is not invoked until the risk event or risk event indicators occur.

Contingency planning has three elements:

- The plan itself, containing specific actions for immediate response, recovery, replace or repair and restoration;
- Indicators or trigger thresholds to invoke the contingency plan regardless of whether or not the risk event has occurred. For example, a contingency plan that is activated when the project is more than x-weeks behind schedule; and,
- If appropriate, indicators or trigger thresholds to determine when to de-activate a contingency plan. For example, a contingency plan could be de-activated when the project is back on schedule.

2.9 Risk Monitoring and Control

For each risk, the Project Manager will assign an owner responsible for developing and maintaining the risk mitigation and contingency plans. The project work plan will contain specific tasks with dates for the development of mitigation and contingency plans for all risks.

The Project Manager will implement and direct mitigation actions, monitor the mitigation actions to determine their effectiveness, and revise the mitigation strategies as needed.

New risks that have been identified and old risks that have changed within the reporting period will be communicated in Project Team meetings and will be included in all Project Status reporting. Overall risk management metrics will be maintained and periodically reviewed including:



- Risks identified by categories of probability and impact;
- Number and percentage of risks successfully mitigated;
- Number of occurrences of risk events, both identified and unidentified;
- Number and percentage of occurrence of unidentified risk events;
- Cumulative impact of the occurrence of risk events on scope, cost and schedule; and,
- Other measures of the rate and density of risks.

2.10 Cumulative Risks and Overall Project Risk

About ten risks are the most that a Project Team can effectively deal with at any one time. If the team finds that more than ten risks have a Risk Exposure Rating of 9 or 6, they should revisit the entire Risk Management process, and seek guidance from senior management and key stakeholders because the project may be at high risk of failure.

Further, there is an expectation that the overall project will have an assessed risk level. The following subsections describe a rating system.

2.10.1 Assessment of High Risk

A project may be assessed as high risk if any risks events are deemed to have severe risk exposure (e.g. risk exposure of 9) or, if there are two or more risk events with a high risk exposure of 6. Unless mitigated, these risks would likely result in outright project failure or failure to achieve major project objectives and scope without significant variances of cost and time.

Project management will prepare and action appropriate mitigation plans. Contingency plans with appropriate risk indicators will be prepared and ready for deployment if the risk event occurs.

2.10.2 Assessment of Moderate Risk

A project may be assessed as moderate risk if one or more risks events are deemed to have high risk exposure (e.g. risk exposure of 6) or if there are two or more risk events with an elevated risk exposure of 3 or 4. And, unless mitigated, may result in failure to achieve major project objectives and scope within acceptable variances of cost and time.

Project management will prepare a mitigation and contingency strategy, and, if deemed necessary, action mitigation plans. The contingency strategy should provide for timely development of contingency plans if needed.

2.10.3 Assessment of Low Risk



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A project may be assessed as low risk if all of the risks events have a risk exposure of 1 or 2.

Project management should continue to monitor and periodically re-assess the project risks but mitigation and contingency plans are not generally required.

