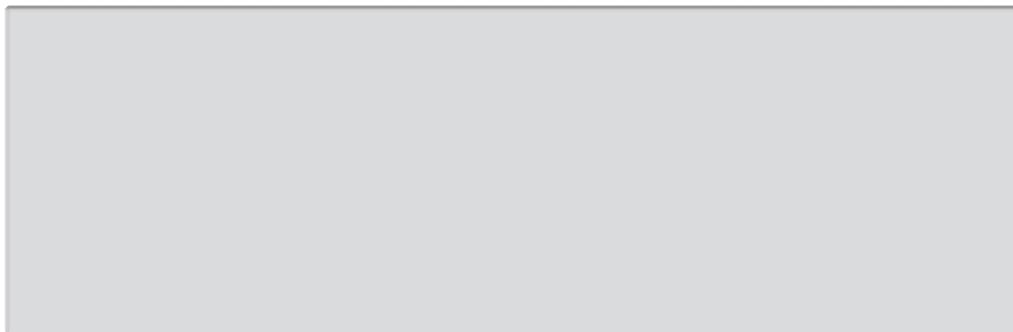# Managing SW Acquisition Risks

Austin SPIN

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Dr. Joyce Statz

Introspection: Meeting Risks

- **Consider your thoughts and worries about this meeting**
- **What is the biggest risk to you, coming to this session? [Be honest! Everyone else will be! You won't be forced to give your answer.]**

Debriefing: Risks for Attendance

Risks Cited	# of participants
Session will be boring; I won't like it and will be annoyed that I gave up the time	
I won't learn anything new, so I'll be wasting my time	
I won't be able to offer my insights because too many other people will talk	
I'm not sure what the topic really is; couldn't figure out the announcement! So… I may leave when I figure it out.	
There's never any food, so I'll die of hunger if this doesn't finish on time	
Other:	

My Risk Mitigation Plans

Risks Anticipated	How to Handle Them
Session will be boring; I won't like it and will be annoyed that I gave up the time	Use a little humor, minimize the slide count. Incorporate variety
I won't learn anything new, so I'll be wasting my time	Bring out areas of acquisition that most software professionals don't encounter
I won't be able to offer my insights because too many other people will talk	Use small team exercises that give everyone a chance to participate
I'm not sure what the topic really is; couldn't figure out the announcement! So… I may leave when I figure it out.	Do a sanity check at the start of the session, adjust if the expectations are just a bit different, and I can do that.
There's never any food, so I'll die of hunger if this doesn't finish on time	Watch the clock and finish on time! Bring snacks!
Other	

Quick Tally of Acquisition Experience

Types of Acquisition Experience	Have done that….	It's coming….
1. Buy a software package from a supplier, and have it extended *by the supplier*	5	1
2. Specify a software product (or component) and have a *supplier build* that product (or component) to our requirements	6	2
3. Have a *supplier provide a service* for our organization (e.g. help desk, order handling, …)	5	1
4. Have our whole *IT operations outsourced* to a supplier	1	0
5. Have *our whole IT organization outsourced* to a supplier	1	0
6. Work with an *off-shore supplier*	1	0
7. Be the supplier to another (external) organization	5	0

Agenda

- ***Personal Meeting Risks***
- ***Risk Management Process***
  - Establish Risk Management Approach
  - ***Identify Risks***
  - Analyze Risks
  - Plan Risk Mitigation
  - Handle Risks
  - Monitor and Report on Risks
  - Evaluation and Improve Risk Management
- ***Augmenting Risk Factors from Your Experience***
- ***Next Steps***

Risk Management Enables Innovation

Opportunities to innovate carry inherent risks

Rewards go to those who can
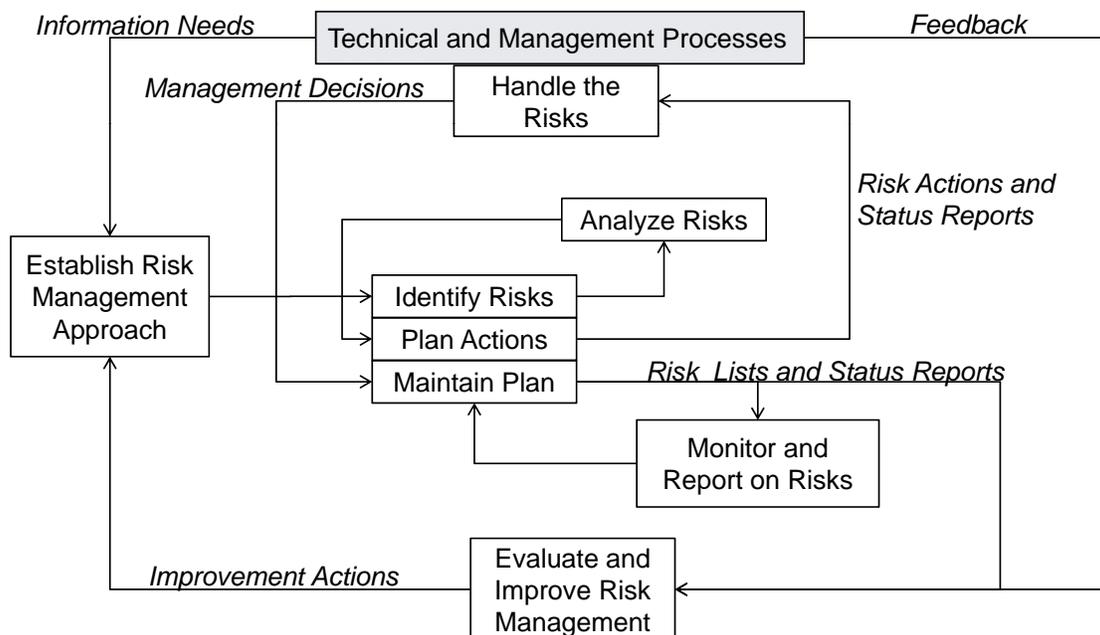effectively manage just enough risk

Risk Definitions

- **Dictionary definitions of risk**
  - Possibility of suffering loss or harm
  - Factor, element, or course involving uncertain danger
- **General definition**
  - Problem waiting to happen
- **"Down to Earth" definition**
  - Risks are the rattlesnakes that can poison projects if you don't actively deal with them. (Steve Keim, DCG)

- **Risk management is the process of identifying the risks and handling those which are most threatening, so that they don't become problems**

Approaches to Risk Management

- **Denial that risks exist**
- **Reactive risk management**
  - Mitigation of symptoms
  - Crisis management or fix on failure
- **Transitional – Prevention**
- **Proactive risk management**
  - Anticipation of risk during planning
  - Elimination of root causes
- **Opportunistic risk management**
  - Managing risk to innovate and shape the future

Proactive Risk Management Process

Information Needs Technical and Management Processes *Feedback*

Management Decisions Handle the Risks

Risk Actions and Status Reports

Analyze Risks

Establish Risk Management Approach

Identify Risks

Plan Actions

Maintain Plan *Risk Lists and Status Reports*

Monitor and Report on Risks

Improvement Actions Evaluate and Improve Risk Management

Source: Derived from ISO/IEC/IEEE 16085:2004 Risk Management standard

Techniques for Identifying Risks

- **Brainstorming**
  - Review possible sources of risk and brainstorm specific risks they could create for your project
  - Review potential adverse outcomes for your project and brainstorm how they might arise

- **Review lessons learned**
  - Identify projects similar to this one
  - Determine what risks faced by those projects may recur

- **Use industry experience**
  - Available in books, lists provides by various process collections
  - Taxonomies of types of risk and their causes
  - Tables of risk factors and indicators of level of risk

Exercise: Brainstorm Risks

- **Based on your acquisition experience number, work in teams of 3. Brainstorm the top 5 risks you have seen.**
  - 1.

  - 2.

  - 3.

  - 4.

  - 5.

- **Expected Time: 10 minutes**

Debriefing: Risk Brainstorming

- **Things to consider:**
  - Was there good agreement in your teams on the risks you thought most significant?
  - Were you able to quickly identify 5 risks?
  - Are those risks likely to be present in future acquisitions?

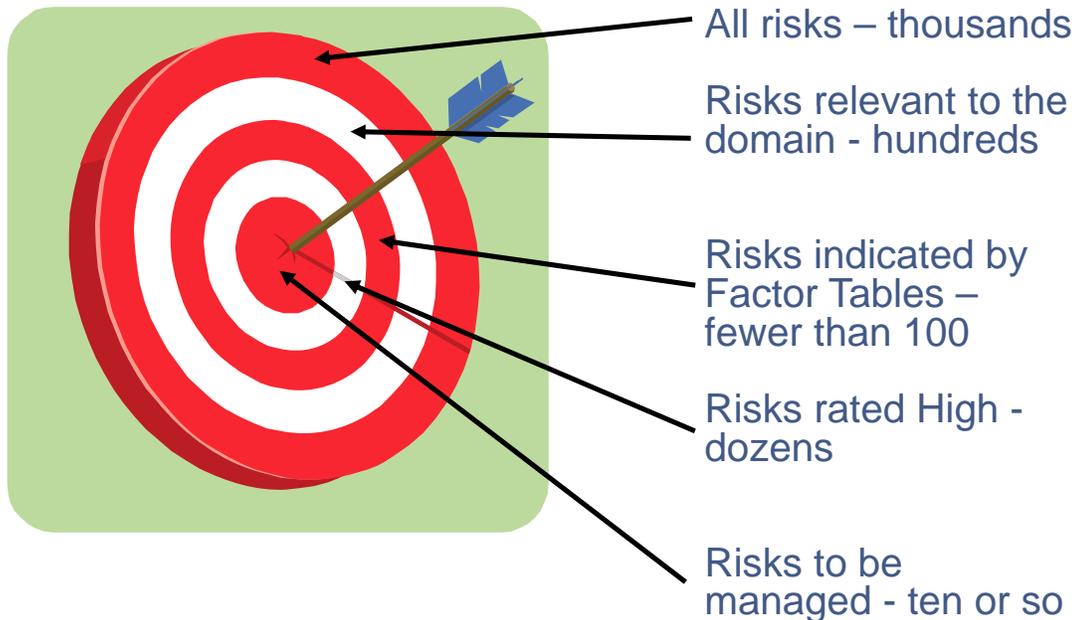- **Hold those as background information, as we prepare for the next activity**

Industry Experience in Risk Tables

Mission and Goals Category

Risk Factor	Low Risk Cue	Medium Risk Cue	High Risk Cue
Project fit	Directly supports customer's mission and goals	Indirectly impacts one or more goals	Does not support or relate to customer's mission or goals
Customer perception	Customer expects team to provide this product	Team is working on project not expected by customer	Project is mismatch with prior products of this team
Work flow	Little or no change to work flow	Will change some aspect or have small affect on work flow	Significantly changes work flow or method of organization

Factors Help You Focus

All risks – thousands

Risks relevant to the domain - hundreds

Risks indicated by Factor Tables – fewer than 100

Risks rated High - dozens

Risks to be managed - ten or so

Reviewing Factors

- **Select appropriate table of factors**

- **Examine each risk factor and rate its relevance**
  – High - suggests a potentially high threat risk
  – Medium - may suggest a risk to the project
  – Low - no apparent risk to project from this
  – NA - factor is not applicable to project
  – NI - need more information; check with experts
  – TBD - need to have project proceed further; revisit later

- **Will use high rated factors to develop specific risk statements for the work or project being performed**

Exercise: Reviewing Risk Factors

- **In teams, examine the acquisition risk factors for your acquisition experience or focus**

- **Guidance:**
  - Work as teams on this in a way that is comfortable to you.
    - Some teams work together, jointly rating the items.
    - Some teams work individually, then form a consensus rating
  - Consider which will work more quickly and effectively for you
  - *As you work, consider if there are other risks you know of in each category you review; make a note of those*

- **Expected Time: 20 - 30 minutes**

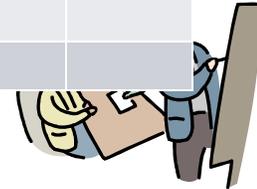# Debriefing: Reviewing Risk Factors

- **Things to consider:**
  - How much of the table were you able to review during the time allowed?

  - Were the risks you brainstormed also covered in the table?

  - How well would this kind of table match your project needs?   The working style of those helping you identify risks?

Debriefing: Counts of Risk Factors

- **How many factors were High or Medium for your team, by category:**

Category	0 to 2	3 to 5	>5
Acquisition requirements and constraints	1	2	1
Acquisition strategy and potential supplier id	2	4	
Acquisition project parameters	2	2	
Supplier proposal evaluation			
Supplier qualification and selection		2	
Supplier agreement (contract)		3	
Supplier monitoring			1
Verification, validation and acceptance			
Deployment and transition to use			

Debriefing: Missing Risk Factors

- **What risk factors were missing from the table? [or perhaps were unclear, needing rephrasing]**

Category	Factor	Description
xx		

From Cue to Risk Statement

Risk Factor	Low Risk Cue	Medium Risk Cue	High Risk Cue
Project fit	Directly supports customer's mission and goals	Indirectly impacts one or more goals	Does not support or relate to customer's mission or goals

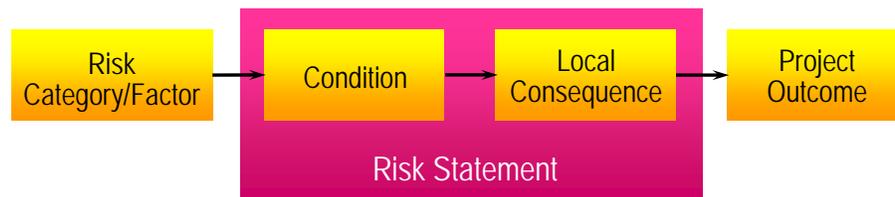Condition → Local Consequence

Risk Statement

Because the customer's business has changed from store-based supplier to Internet supplier, this point of sale application upgrade is no longer the top priority and is likely to have critical resources removed.

Forms of Risk Statements

- **Common forms**
  - If <some condition arises>, then <this result is projected>.
  - Because <some condition is already true or anticipated>, then <this result is projected>.

- **State each risk so that any team member or stakeholder can understand it**

- **Risk statements are generally negative in appearance; the action planned later is generally the positive response**

The Risk Statement


```
Risk              Condition        Local           Project
Category/Factor                    Consequence     Outcome
                        Risk Statement
```

| Project Requirements / Well-defined requirements | If the stated requirements are not easily understood by our supplier,. . . | Then we may have to conduct more reviews of the requirements than planned now in the schedule | Time Delays |

For a risk to be managed, it must be clearly stated

Evolving Corporate Learning

- **Factor tables carry corporate learning about risk**
  - Format should be concise
  - Cues should be adjusted to the organization
  - Cues should be changed with project experience
  - Factors and categories should evolve with project experience

- **In project sessions on lessons learned**
  - Review success with risk management
  - Identify what to change in factor tables

Summary

- **Proactive risk management process is iterative**

- **Risk approach is unique to each project, based on project characteristics and organization processes**

- **Risk identification can leverage industry experience captured in tables or taxonomies**

- **Risk analysis should lead to prioritized lists of risks, of which those most threatening must be handled**

- **Actions are incorporated into the project work to prevent risks from being problems**

- **Monitoring and reporting on risk occurs regularly**

- **Lessons learned on managing risk need to be captured for future benefit**

Contact Information

Dr. Joyce Statz

5305 Valburn Circle

Austin, TX 78731

joycestatz@gmail.com