The PRIMMS Parimutuel Engine

Program Risk Identification Measurement and Mitigation System

Using the Voice of the Team To Manage Project Risk

www.myprimms.com

Overview

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Revised 12/19/09

PART 1—The Need for a More Effective Project Risk Management Approach

The Project Management Challenge For Implementing New Technologies in Organizational Settings

•Technology projects bring novelty and innovation required for sustained economic growth.

• When the technology is new and unfamiliar to the sponsoring organization, the management of these projects is difficult. Project planning is necessary, but not sufficient to ensure adequate direction is provided through the execution phases.

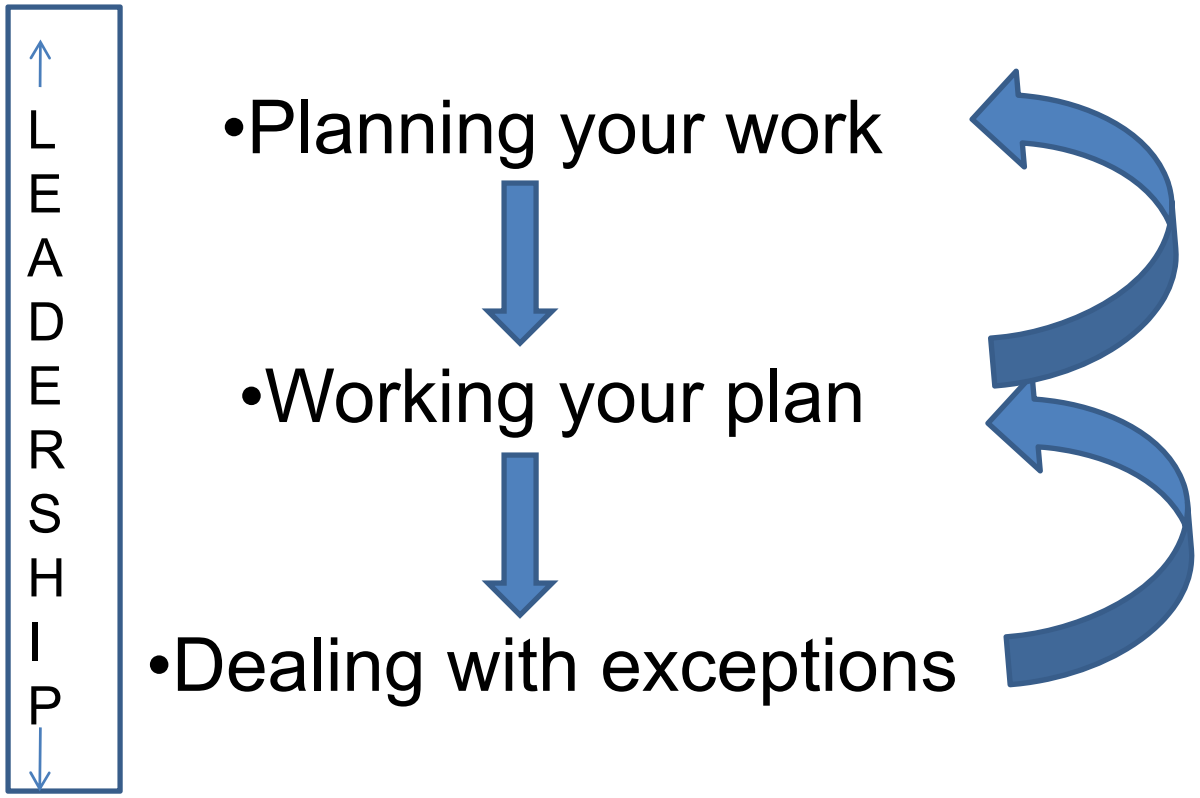
•Unplanned emergent problems on these projects create risk of schedule slippage, cost over-runs and poor results. These problems often emerge in ambiguous, unclear terms.

•Also the need to resolve complex integration issues may require the use of collaborative problem solving approaches that may be unfamiliar to the sponsoring organization.

• During the Execution Phases these challenges can adversely affect the project unless the project manager and team can identify and respond to them quickly.

•How the project manager deals with these challenges is what constitutes his/her effectiveness.

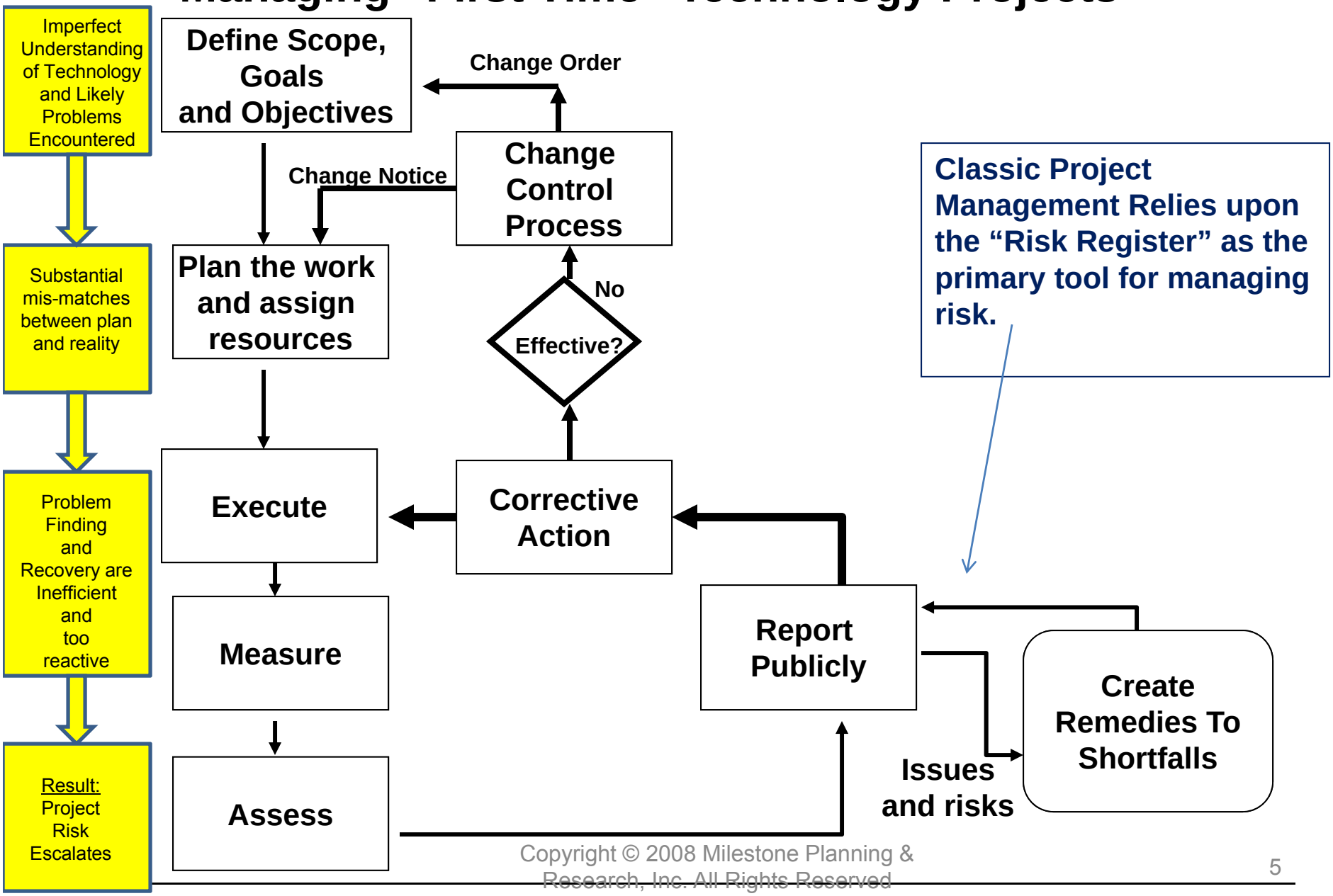
Project Management is a Cybernetic Loop that Supports Leadership



We will see that the planning and control process has limitations. The way the project manager chooses to identify and deal with exceptions can be a source of competitive advantage or competitive disadvantage.

Both management and leadership are necessary elements for excellence in execution.

The Classic Cybernetic Process and Limitations For Managing "First Time" Technology Projects



Project Plans and Risk Registers Alone are Sub-optimal Tools for Managing Project Risk

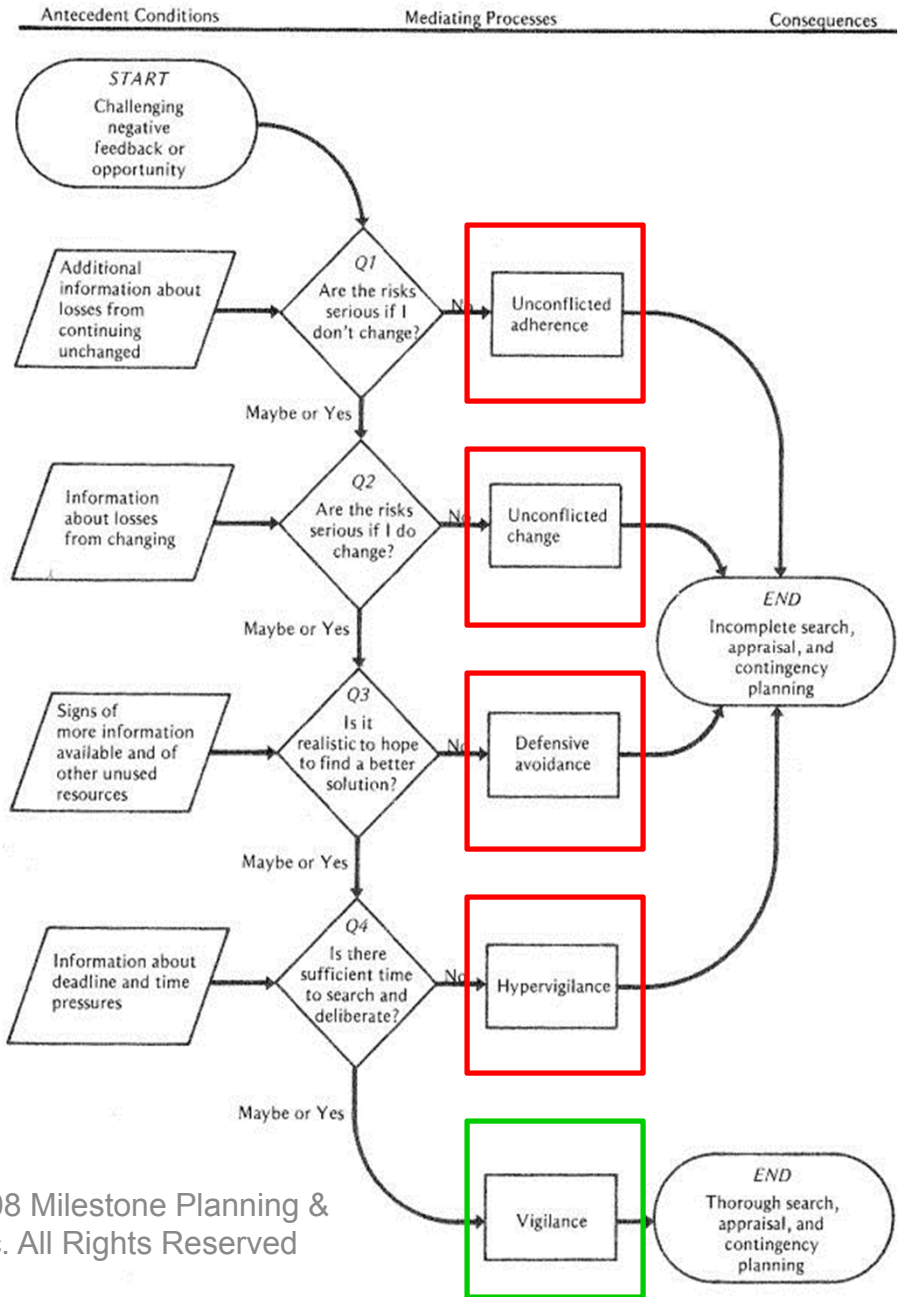
Key Concerns:

- How are the risks actually identified? Does the risk register really reflect more than one person's viewpoint?

- How often is the risk register updated and reviewed? More than monthly?

- How can a risk register be made proactive rather than reactive? How can a project manager stay ahead of risks?

In Addition to Limitations of Risk Registers, Human Limitations in Decision Making Work Against Project Managers



-The Janis and Mann Conflict Model Predicts Sub-optimal Decision Making when confronted with challenging feedback.

- Risk information is frequently ignored unless information alerting the project manager is also presented that warns of losses from ignoring those risks.

Janis and Mann's Coping Patterns
Indicate the Chances for Poor Decision Making Are Quite High

Unconflicted Adherence: The decision maker complacently decides to continue whatever he or she has been doing, ignoring information about the risk of losses.

Unconflicted change to a new course of action: The decision maker uncritically adopts whichever new course of action is most salient or most strongly recommended.

Defensive avoidance: The decision maker escapes the conflict at least temporarily by procrastinating, shifting responsibility, to someone else, or constructing wishful rationalizations to bolster the least objectionable alternative, remaining selectively inattentive to corrective information.

Hypervigilance: The decision maker searches frantically for a way out of the dilemma and impulsively seizes upon a hastily contrived solution that seems to promise immediate relief, overlooking the full range of consequences of his or her choice as a result of emotional excitement, perseveration, and cognitive constriction (manifested by reduction in immediate memory span and simplistic thinking). In its most extreme form, hypervigilance is referred to as "panic".

Vigilance: The decision maker searches painstakingly for relevant information, assimilates information, assimilates information in an unbiased manner, and appraises alternatives carefully before making a choice.

Desired Behavior

Undesired But Common Behavior

Risk Trigger Points and Turning Points on Projects Can Be Unclear

In addition to the “Janis-Mann effect”, project problems can emerge in a confusing and ambiguous fashion. This can lead to misinformation and miscalculation which can delay decisions and corrective actions.

To clarify problems it is useful to receive the viewpoints of multiple stakeholders which fosters the faster clarification of potential problems and development of preventative and corrective actions.

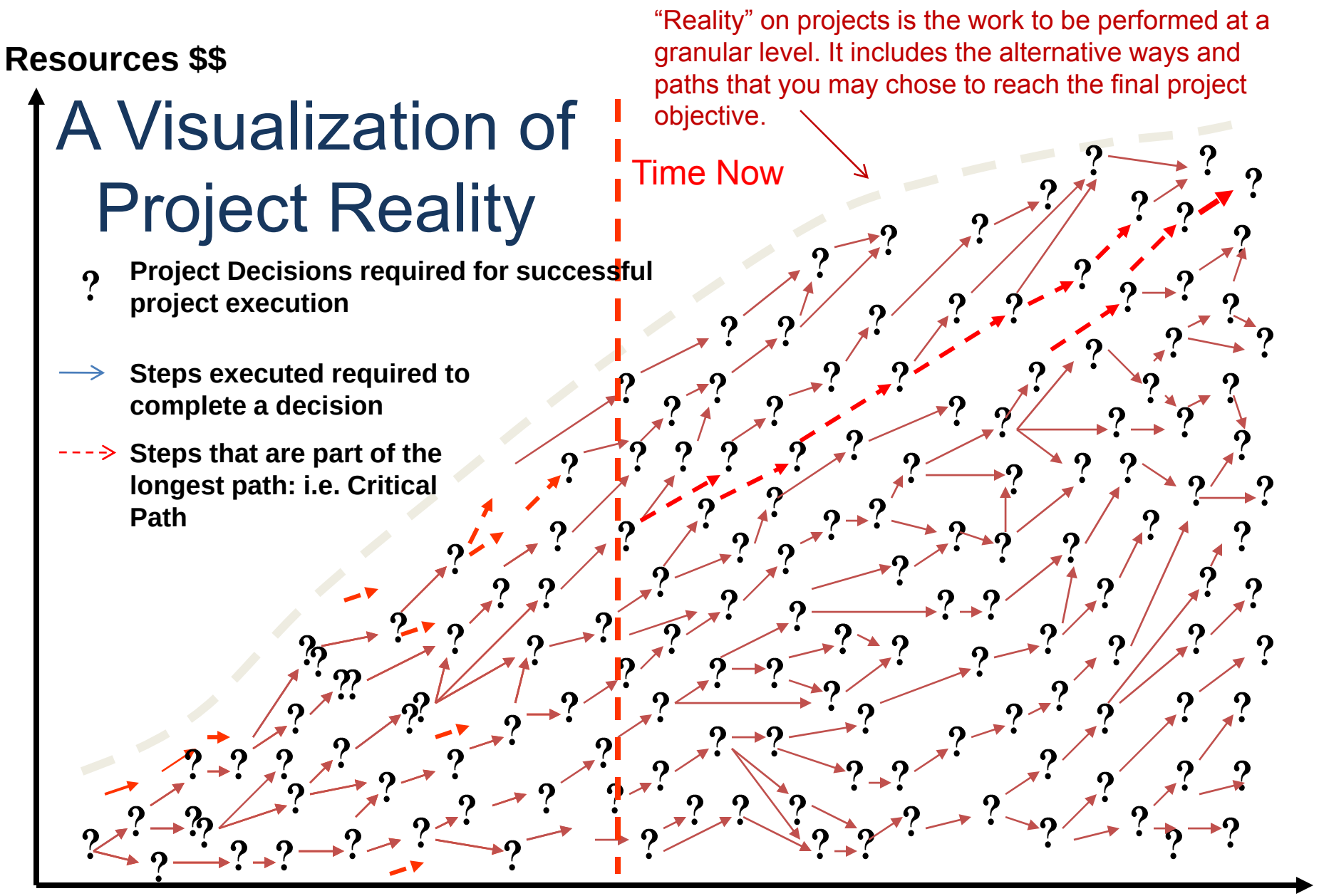
PART 2— Modeling Reality on Projects as a Rationale for PRIMMS

A Model of Reality on Projects

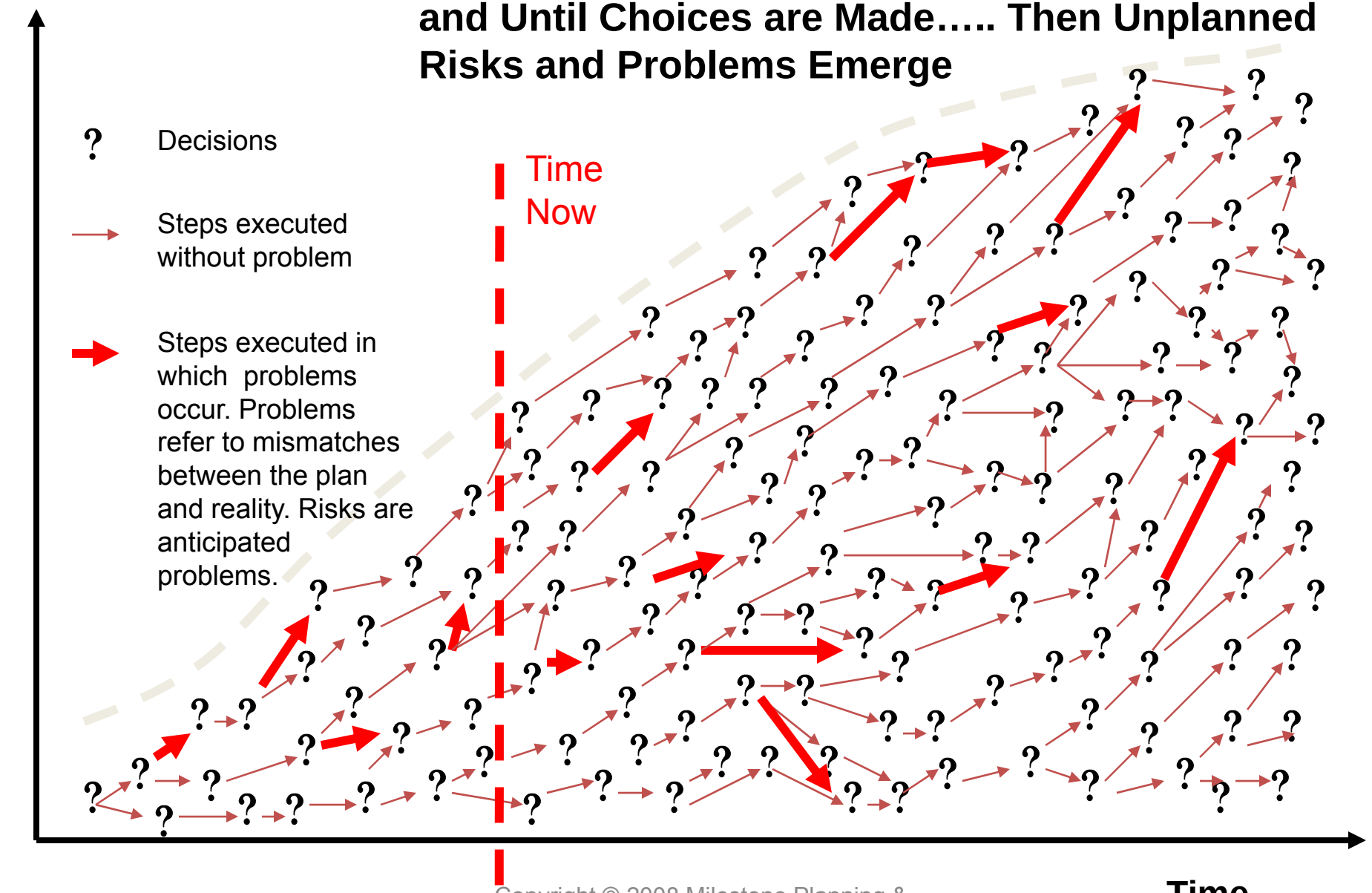
Consider for the moment that project scope contains a set of required team actions consisting of sequenced chains of steps and decisions leading to the attainment of an overall project objective.

We can refer to these chains as reality since they define the work that must actually be performed. This can be depicted as follows…..

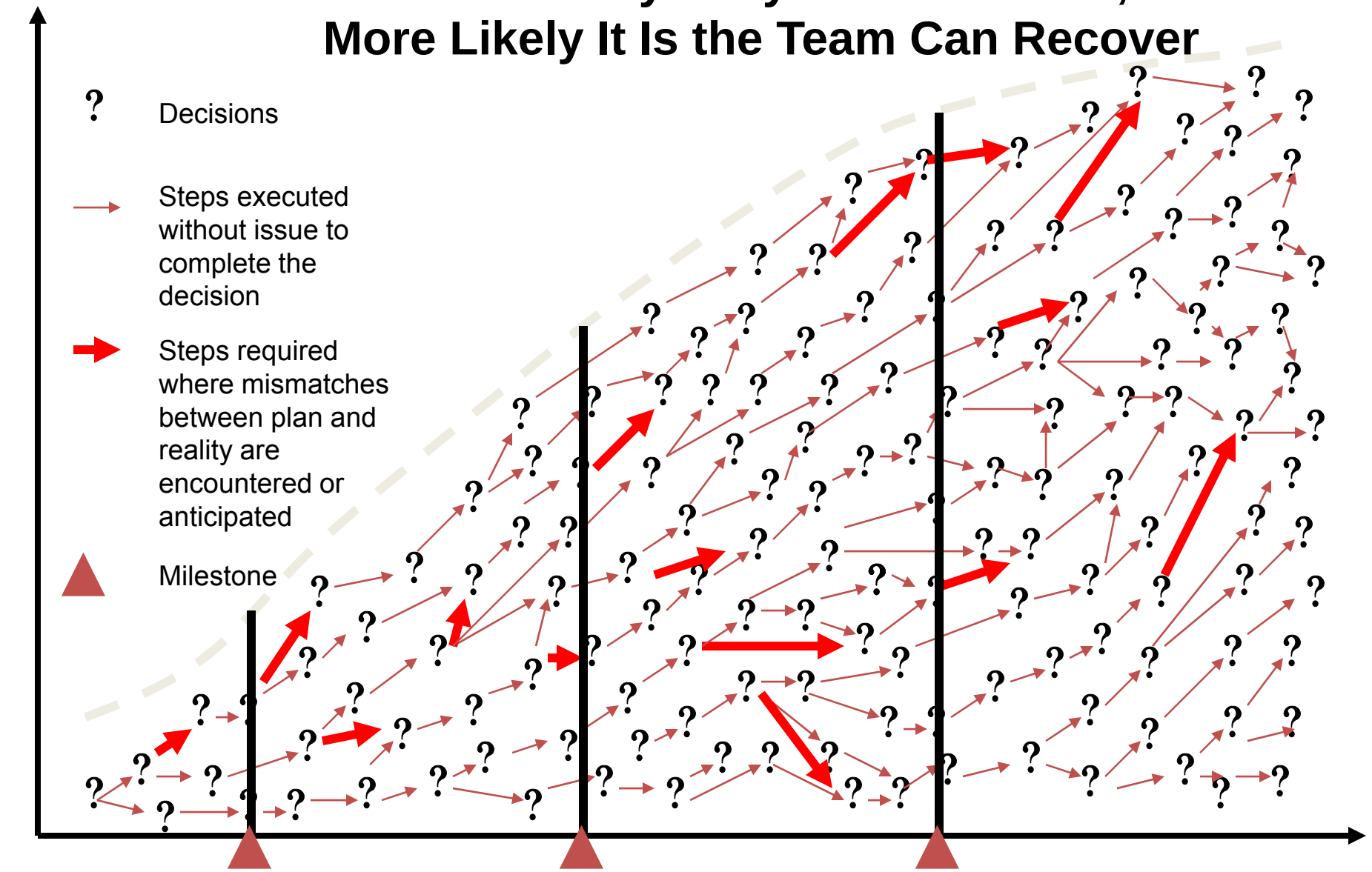
A Visualization of Project Reality



Due to Limitations of Planning Reality Can Remain Masked Until the Project Moves Forward and Until Choices are Made….. Then Unplanned Risks and Problems Emerge



The Earlier These Risks are Identified and the More Clearly They are Presented, The More Likely It Is the Team Can Recover



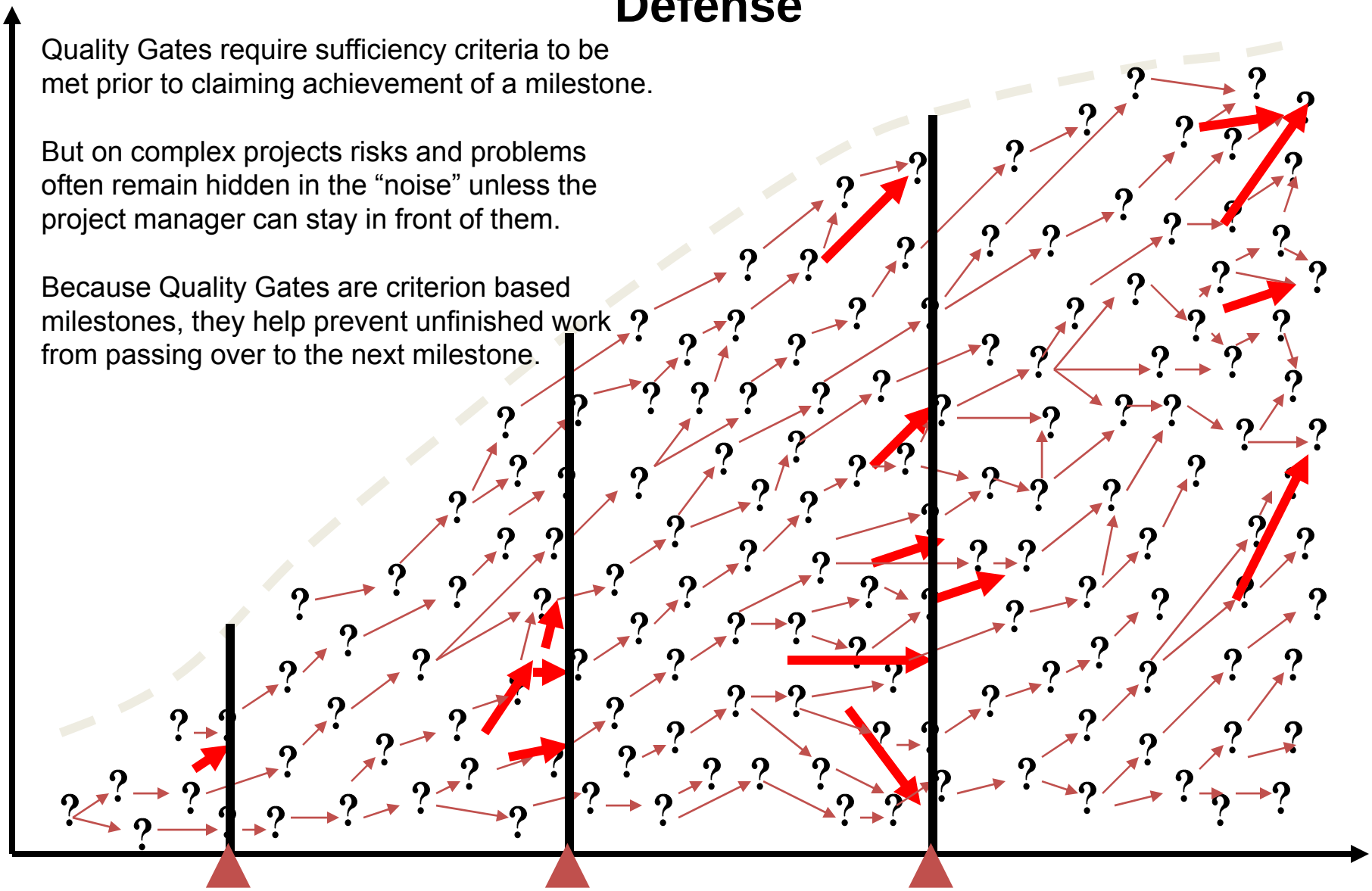
Quality Gates are the First Line of Defense

Resources $$

Quality Gates require sufficiency criteria to be met prior to claiming achievement of a milestone.

But on complex projects risks and problems often remain hidden in the “noise” unless the project manager can stay in front of them.

Because Quality Gates are criterion based milestones, they help prevent unfinished work from passing over to the next milestone.



Time

Some Observations About Managing The Execution Phases of Technology Projects

From a day-to day perspective the project management problems in the foreground relate to completing the work on time (i.e. scope, schedule and quality). Cost is , of course, critical but tends to slip into the background of daily issues as a “given” from an overall team perspective. Success is largely tied to getting the work done on time requires efficiency in identifying, preventing and resolving issues and risks.

More often than not, the problem you confront is not the problem that will hurt you…. as long as you see that problem early enough and the team provides a sustained focus on resolving it…….but that is easier said than done.

Project complexity, environmental “noise” and spatial distance of team members can mask problems until it is too late to recover. In addition, people tend to avoid problems rather than confront problems….usually to the detriment of the project.

To the extent possible the project manager needs to stay in front of problems and risks. Problem prevention is a value proposition of PRIMMS.

Key Point

- Differences between the project plan and reality are inevitable on first time technology projects.

- Unfolding events and circumstances can obscure these differences which can mask the “true critical path” of the project.

- The project manager needs a process and a toolset that unambiguously signals risks allowing the team to stay ahead of problems and to reorient the team’s actions toward reality as risks materialize.

Objectives Of PRIMMS

Providing a process and toolset that promotes the efficient execution of project work while simultaneously identifying and signaling emergent critical problems and promoting a sustained focus on those problems.

Leveraging simple, team dynamics to guide project teams to trigger the early identification and timely resolution of critical project problems.

PART 3—Elements of the PRIMMS Risk Management Approach Based Upon Ubiquitous Sensing of Project Stakeholders

Summarizing the Project Risk Management Challenge

- Project planning on “first time” technology projects for an organization is imperfect.
    1. Unknown unknowns in general→ wrong end of the learning curve
    2. Inevitable problems requiring solutions with unknown consequences, leading to unplanned directions
    3. Technical complexity and organizational complexity
    4. Limitations of “Centralized Planners” to process complex information

- The inability to model reality completely during the planning phase makes rolling wave planning inevitable on “first time” projects.

- Reality is revealed only during Execution Phases as an unfolding, recursive set of events that are both independent of and dependent upon team actions.

Risk Information and Process Structures Are the Critical Elements in Resolving the Problem

•The project manager alone seldom has the capacity to observe all risks, especially those involving cross functional integration.

•Conflict avoidance and other biased coping patterns found in individual behavior require systemic structures to instill vigilance.

•Experience indicates that the multiple viewpoints of team members and stakeholders are an excellent source of risk information. Using a *ubiquitous sensing* approach to garner project participant viewpoints, we can structure a method to extract and evaluate this critical risk information on a recurring basis.

• Metrics can be established that discriminate the risk “signal” from the risk “noise”.

Market Structures Bring Interesting Possibilities

• Market structures yield unbiased estimates –typically of price. Market structures also produce other forms of critical information needed by buyers and sellers.

•Participation is voluntary based upon mutual self interest of multiple buyers and sellers.

•Markets deliver equilibrium quantities of output—in this case information regarding project risk.

•Markets provide useful recurring signals (metrics) at points in time---such as price, risk.

•Market mechanisms promote a “freedom within structure” style of management which is appropriate for execution of “first time” projects.

Market Attributes

Supply of Risk Information: Acting in their own self-interest, team members and project stakeholders will take the time and be willing to supply risk information to the project manager as perceived risk on the project increases.

Demand for Risk Information: Acting in their own self interest the project manager and project stakeholders will demand more information from the team as the opportunity cost[1] falls.

1 Opportunity costs arise as team members spend time providing risk information as opposed to spending time in completing tasks related to project scope.

What is a Project Risk In This Context?

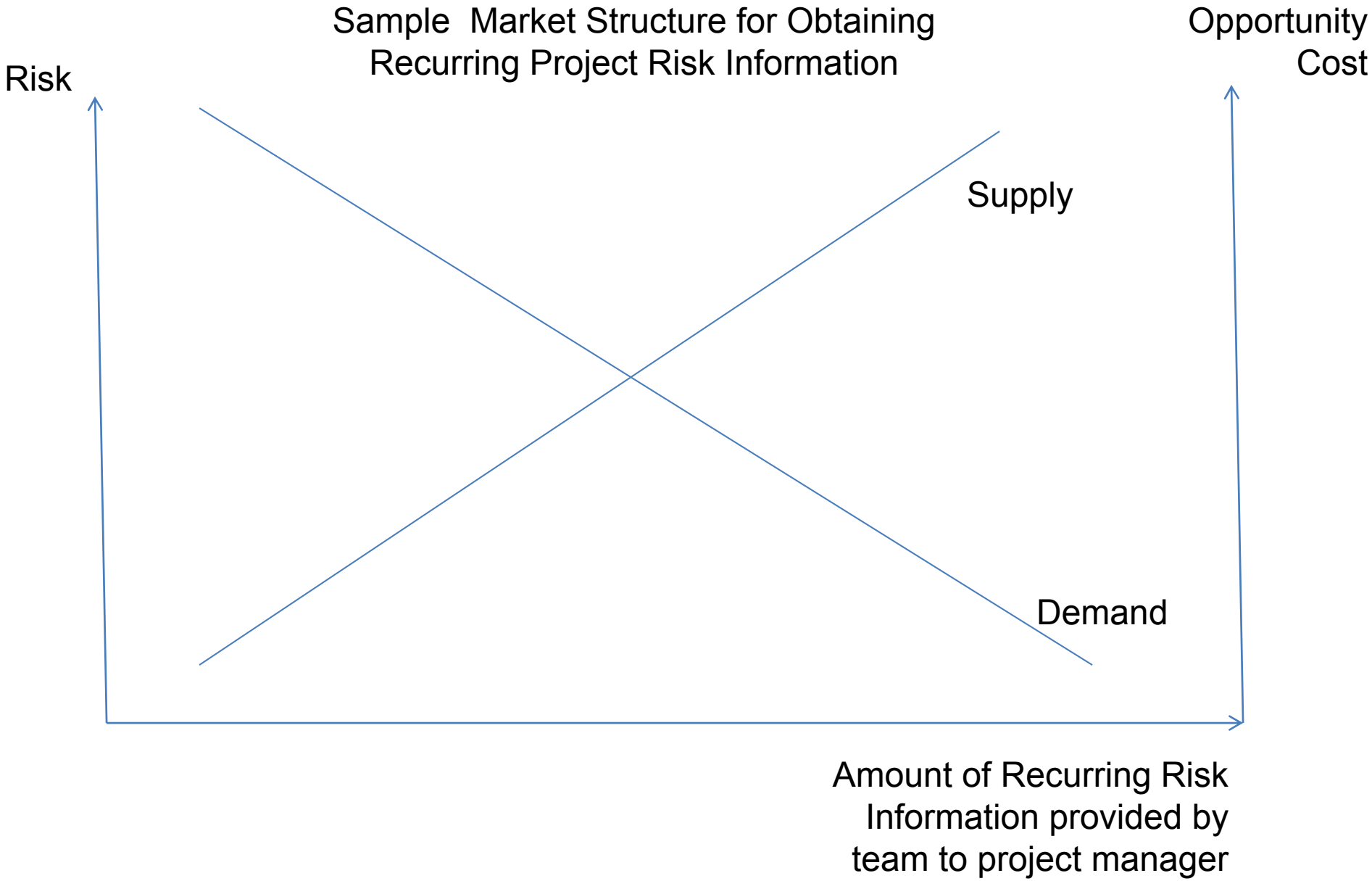
•Project risk is the sum of anticipated mis-matches between the remaining work time required as directed by a project plan versus perceived work time required in reality.

•A project risk is a singular mis-match that can be observed by a team member or other stakeholder and can be articulated as a bit of information.

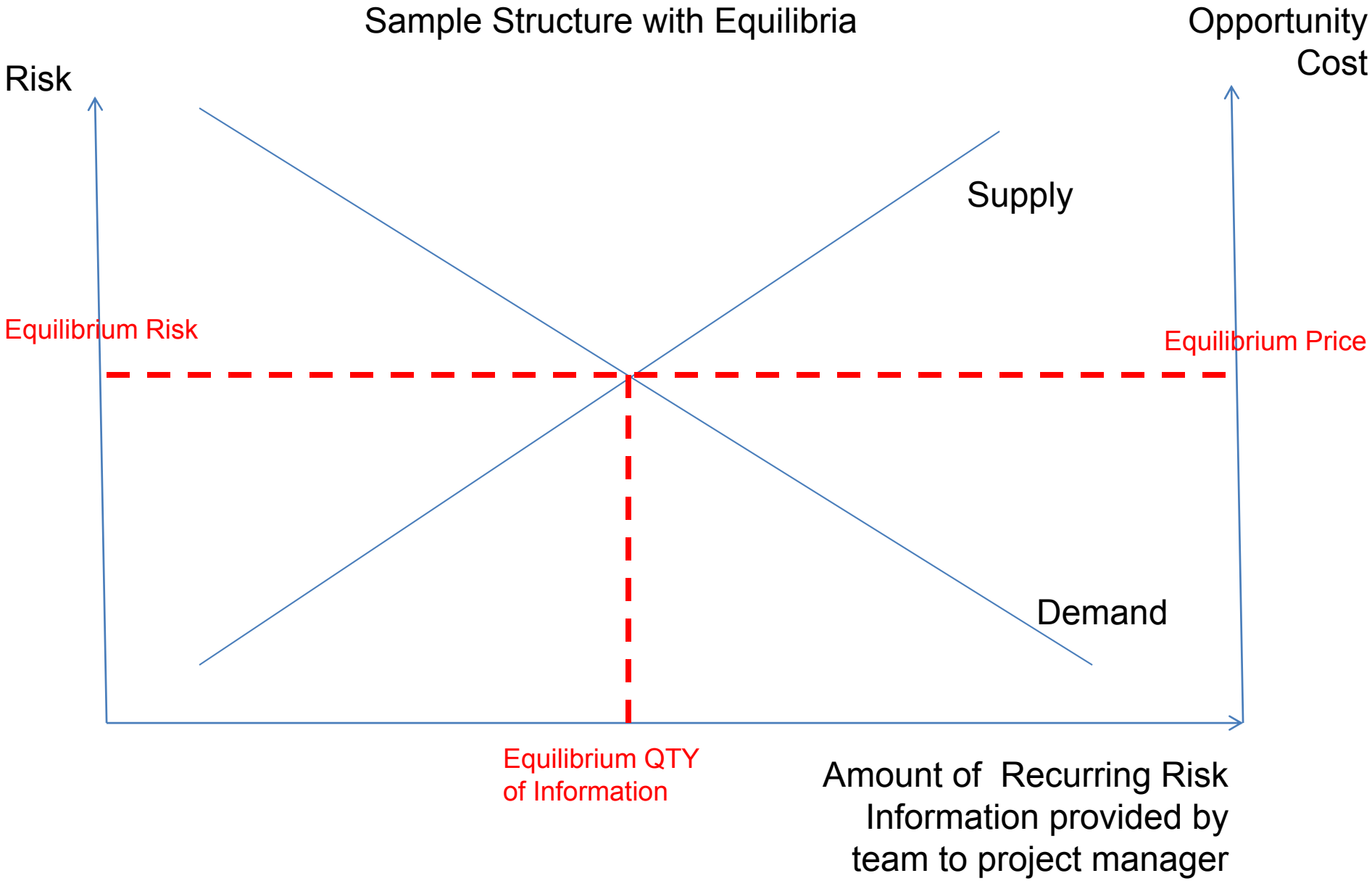
•Project risks can be observed or unobserved. If observed they can be eliminated, mitigated or ignored. If unobserved they can blindside the project manager or they may fester and lead to downstream problems.

•A good project management system makes risks visible and enables a sustained focus toward elimination or mitigation.

Sample Market Structure for Obtaining Recurring Project Risk Information



Sample Structure with Equilibria



Elements of an Ideal Market Structure on a Project?

•Provides critical risk information to the project manager on a timely, recurring basis.

•Simple, easy to use, and taking minimal time away from the team's productive work.

•Supports traditional project management tools such as Stage Gates/Quality gates, MS Project plans and risk registers.

•Provides clear, unambiguous signals of impact on unfolding risk events.

•Promotes a sustained focus of critical risks until they are eliminated or mitigated properly.

PRIMMS Parimutuel Engine
Fulfills these requirements

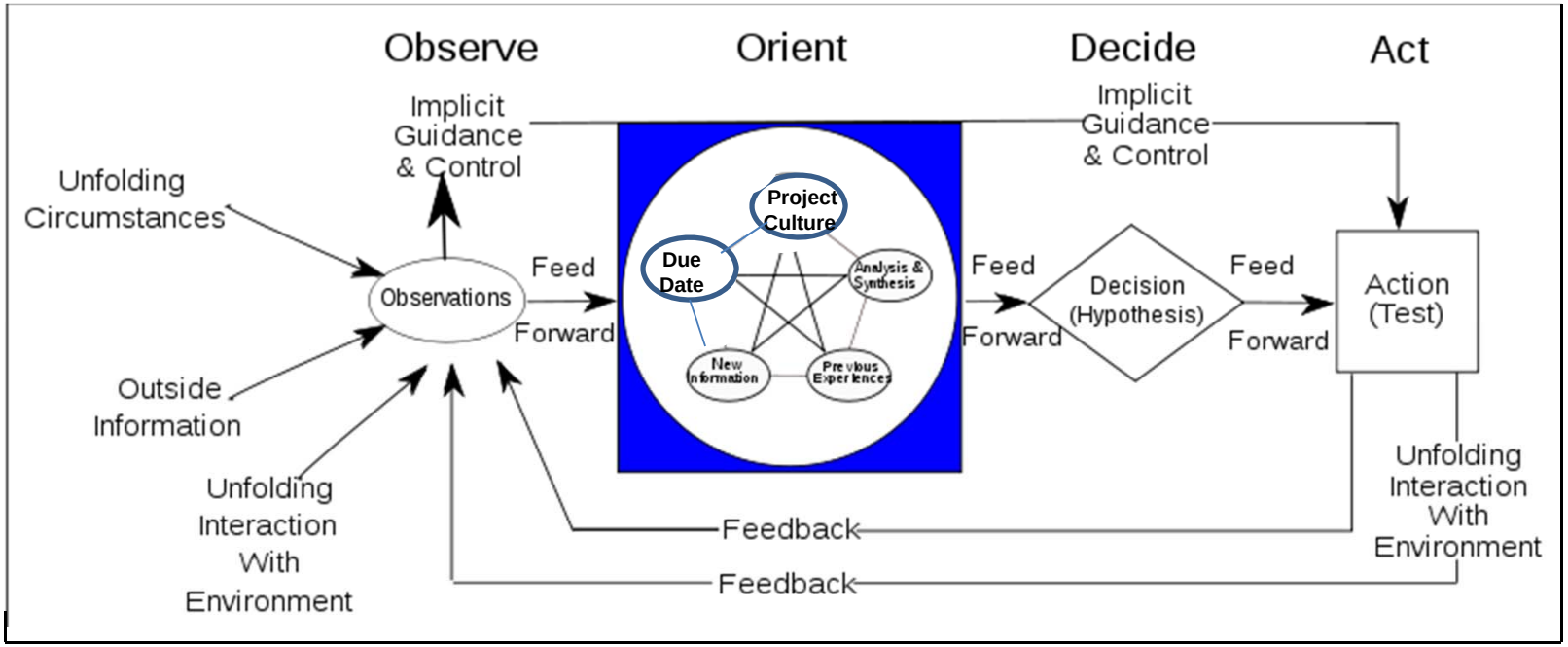
• Makes project risks visible and apparent to stakeholders early enough to head off problems before they jeopardize a project.

•Vividly shows the effectiveness of risk mitigation strategies.

•A Patent Pending parimutuel process based upon wagering/voting of all project participants and stakeholders.

•Works in tandem with OODA loops to alert the PM and reorient the team towards corrective actions.

The OODA Loop is a Proven Methodology for Adapting and Recalibrating Human Decision Making

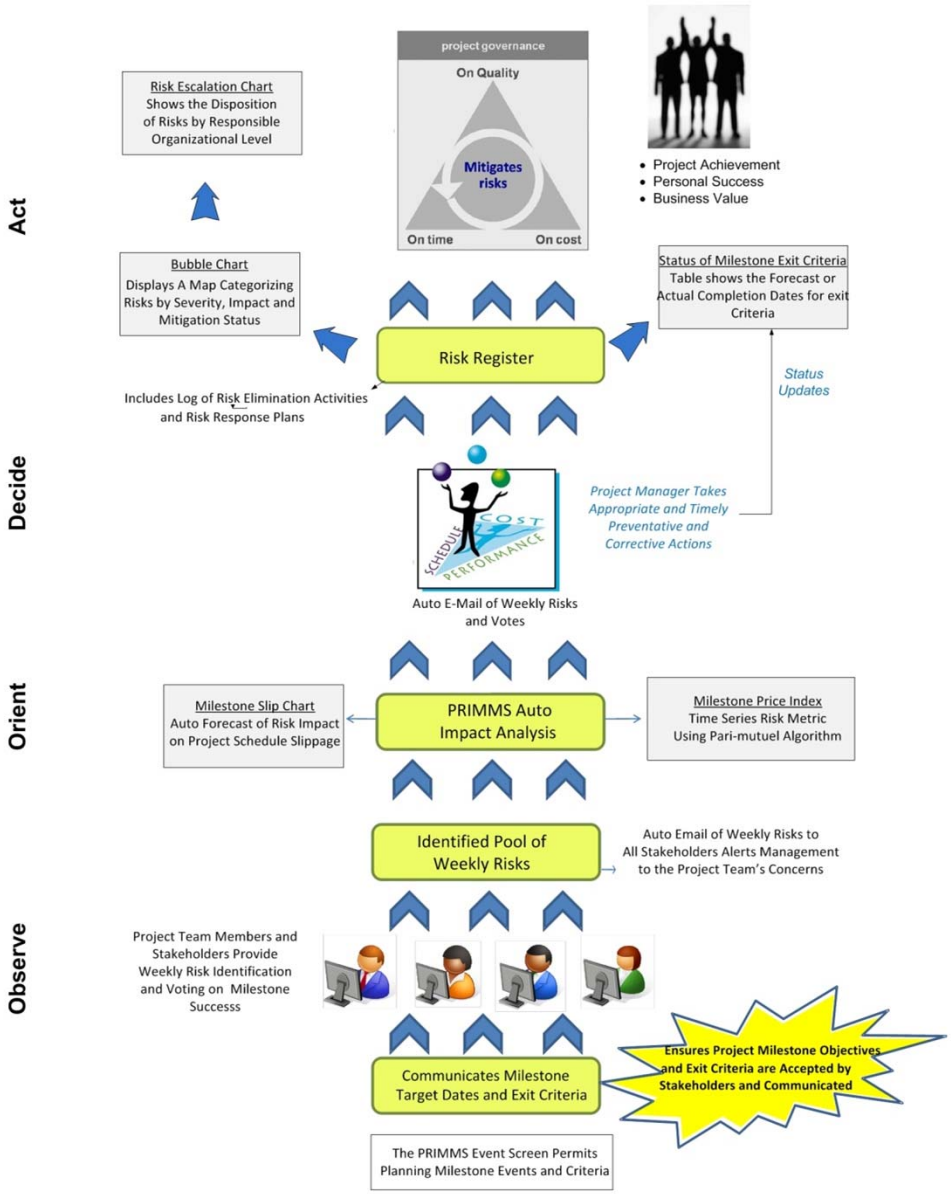


•The PRIMMS Tool Makes the OODA Loop Operational in Project Environments.

• Borrowing from Free market Principles, PRIMMS Uses a Parimutuel Engine of Wagering/Voting that provides risk identification and guidance signals to help the team recalibrate toward reality.

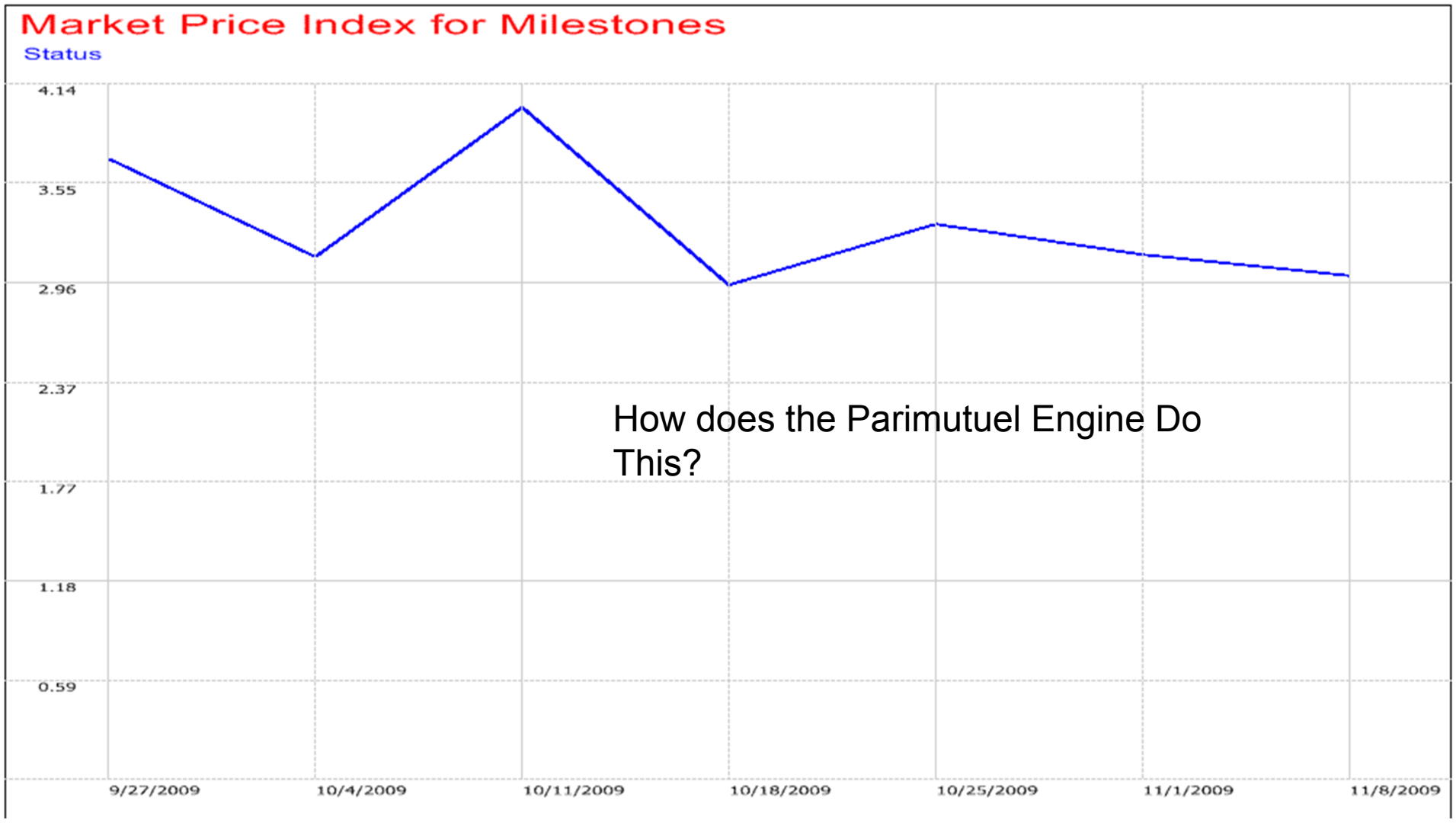
PRIMMS Uses A *Parimutuel Engine* to Deliver Unbiased Signals of Risk

The PRIMMS Toolset Supports the OODA Process for Effective Project Management and Governance



PRIMMS Uses *Ubiquitous Sensing* of Project Stakeholders to Force reality Out into the Open

PRIMMS Milestone Parimutuel Market Price Index Based Upon Wagering/Voting Signifies Changing Health of the Project



PRIMMS Builds on The Story of the ***Emperor's New Clothes*** Which Is a Powerful Meme Depicting the Plight of Project Sponsors of High Stakes Technology Projects

Just about everyone has heard of the Hans Christian Anderson story of the Emperors New Clothes. Here is the plot courtesy of Wikipedia:

"An emperor who cares too much about clothes hires two swindlers who promise him the finest suit of clothes from the most beautiful cloth. This cloth, they tell him, is invisible to anyone who was either stupid or not fit for his position. The Emperor is nervous about being able to see the cloth himself so he sends his ministers to view it. They see nothing yet praise the cloth. When the swindlers report a suit of clothes has been fashioned, the Emperor allows himself to be dressed in their creation for a procession through town. During the course of the procession, a small child cries out, "But he has nothing on!" The crowd realizes the child is telling the truth and begins laughing. The Emperor, however, holds his head high and continues the procession."

All to often this same situation occurs with project managers and sponsoring executives. Their projects are in trouble, everyone beneath them knows it, but no one will say anything for fear of displeasing the 'emperor'. And then even after the truth (bad news) starts to leak out into the open, everyone continues to pretend that things are fine until the day of reckoning occurs, and then it is too late to recover. Ironically the earlier that management embraces the truth, the greater the chances they can fix the problem successfully.

PRIMMS is a tool and methodology to solve this problem.

Another Powerful PRIMMS Meme, this time from Dickens

To use a metaphor from Charles Dickens. PRIMMS is like the Ghost of the Future appearing before Ebenezer Scrooge showing him the outlook if he refuses to change his ways.

As Scrooge said:

"Ghost of the Future. I fear you more than any spectre I have seen. But as I know your purpose is to do me good, and as I hope to live to be another man from what I was, I am prepared to bear you company, and do it with a thankful heart. …..Ghost, answer me one question……. a*re these the shadows of the things that Will be, or are they shadows of things that May be, only……. Men's courses will foreshadow certain ends, to which, if persevered in, they must lead. But if the courses be departed from, the ends will change. Ghost*, s*ay it is thus with what you show me! " ----Scrooge*

And this is the point. Effective project management requires understanding what will happen if you don't change your ways…and seeing it early enough in order to change your ways in time to avoid crises before they occur.

This is what PRIMMS provides!

How the Non Monetary Voting/Wagering Process Works Continued

Keeping in mind that the voting/wagering is in points, not money---the processing within PRIMMS gives the participating stakeholders a view of the "Tote" board both before and after placing their bets to show the cumulative wagers placed on each of six possible project performance outcomes. See next slide.

To encourage participation and truthfulness senior management offers a simple prize (even recognition) to be split proportionately by all of those who bet on the winning outcome. The distribution of the prize follows the parimutuel methodology utilized in horse racing. It is quite likely that recognition as to winners will be a sufficient prize.

In addition to processing the wagering , PRIMMS administers a survey of stakeholders asking them to articulate the risks they see on the project through questioning as follows:

Q1. What risks do you see that are currently jeopardizing this project?

Q2. What does senior management need to know about this project that it may not currently know?

These Risk responses are automatically fed back to management weekly to trigger mitigation activities. A mitigation curve is also plotted to show the perceived effectiveness of mitigations.

PART 3—Example of the Weekly Parimutuel Process

Example of How the Process and Tool Works

At the kick-off of a critical project or project phase, the project sponsors ask all stakeholders to participate in a weekly voting survey that includes a horse-race style wagering process (in points, not real dollars) for the likely milestone, phase or project outcome. The survey is anonymous. So, each week all stakeholders would log into PRIMMS and place their bets (in points) on something like this:

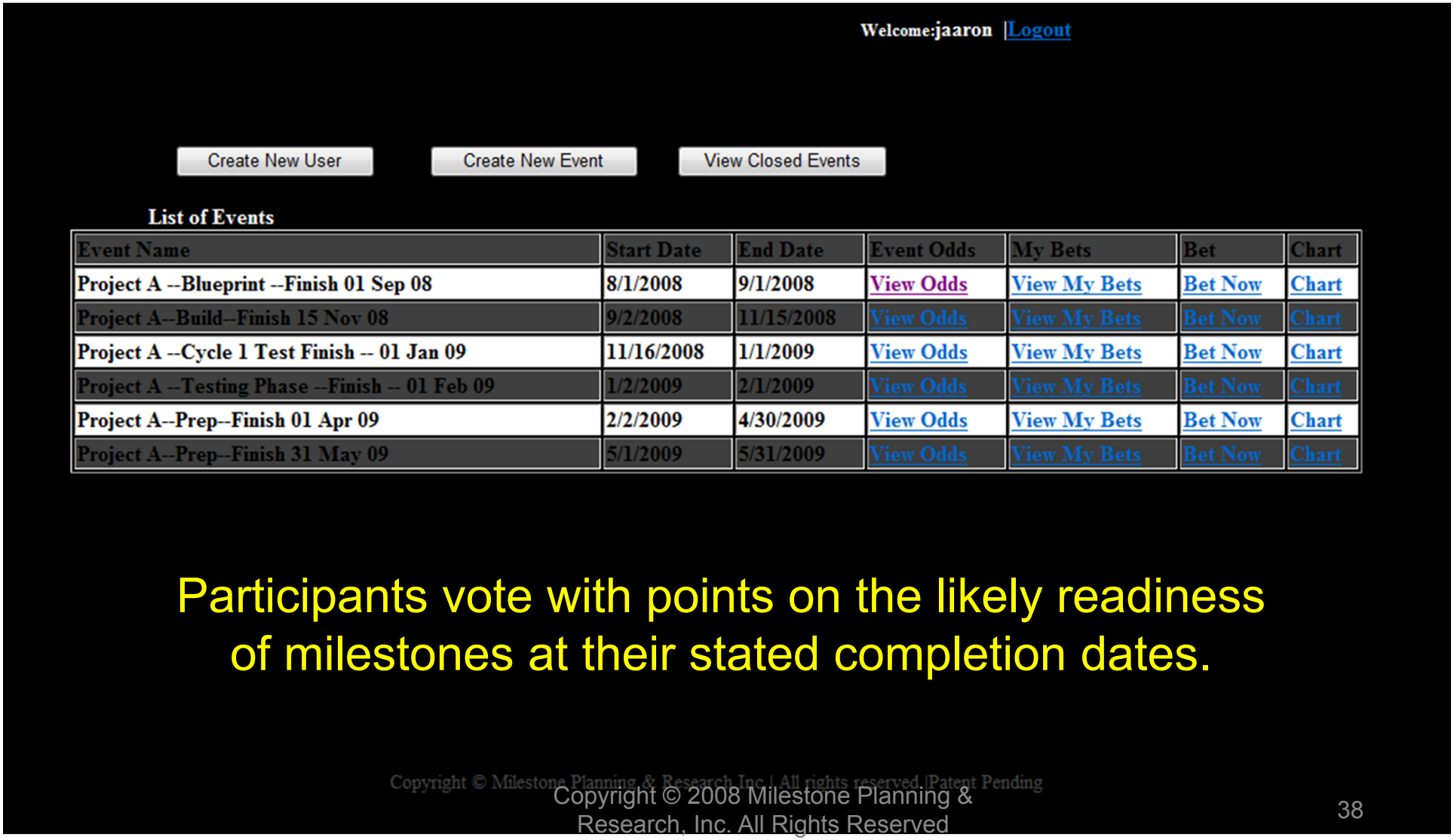
"In regard to the XYZ project cutting over to SAP on June 1, 2008 for ABC company, place your "votes" on any or all of the following six possible project outcomes".

You have a total of 600
points to vote with this week.

How the tool works.

All Stakeholders Participate by Logging into the tool on the web

Looking within the Tool: Critical Project Milestones are Displayed on the Event Screen

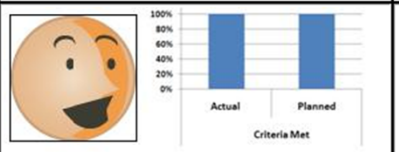
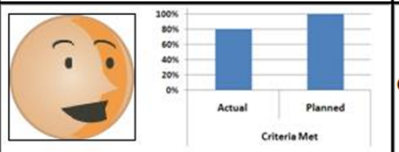
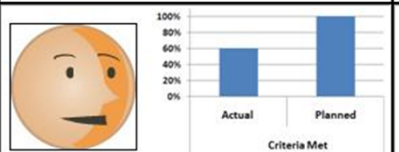
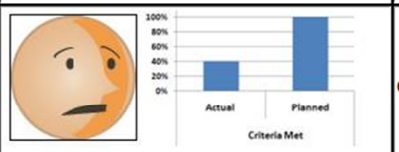
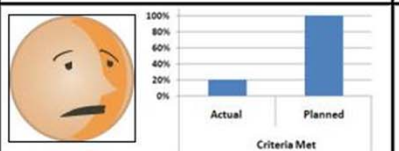
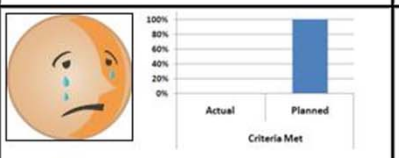


Event Name	Start Date	End Date	Event Odds	My Bets	Bet	Chart
Project A --Blueprint --Finish 01 Sep 08	8/1/2008	9/1/2008	View Odds	View My Bets	Bet Now	Chart
Project A--Build--Finish 15 Nov 08	9/2/2008	11/15/2008	View Odds	View My Bets	Bet Now	Chart
Project A --Cycle 1 Test Finish -- 01 Jan 09	11/16/2008	1/1/2009	View Odds	View My Bets	Bet Now	Chart
Project A --Testing Phase --Finish -- 01 Feb 09	1/2/2009	2/1/2009	View Odds	View My Bets	Bet Now	Chart
Project A--Prep--Finish 01 Apr 09	2/2/2009	4/30/2009	View Odds	View My Bets	Bet Now	Chart
Project A--Prep--Finish 31 May 09	5/1/2009	5/31/2009	View Odds	View My Bets	Bet Now	Chart

Participants vote with points on the likely readiness of milestones at their stated completion dates.

For Each Milestone The Tote Board Allows Participants To View the Current "Market Price" in Odds Prior to Wagering on Outcomes

Event: Project A --Blueprint --Finish 01 Sep 08 | Add User | Risk description for this week | 7/30/2008

Milestone Outcome Icon	Outcome Description: Sufficiency Criteria Achieved by Planned Milestone Date	Wagers To Date	%	Odds this week
	Outcome #1: 91-100% of Milestone Criteria Met by Planned Exit Date	200	11.1	8.00 to 1
	Outcome #2: 81-90% of Milestone Criteria Met by Planned Exit Date	100	5.6	17.00 to 1
	Outcome #3: 61-80% of Milestone Criteria Met by Planned Exit Date	100	5.6	17.00 to 1
	Outcome #4: 41-60% of Milestone Criteria Met by Planned Exit Date	200	11.1	8.00 to 1
	Outcome #5: 21-40% of Milestone Criteria Met by Planned Exit Date	300	16.7	5.00 to 1
	Outcome #6: 0-20% of Milestone Criteria Met by Planned Exit Date	900	50.0	1.00 to 1

Six Possible Milestone Outcomes

Submitting Votes and Risks on Milestone Outcomes

Event **Blueprint Phase Criteria Met**

Weekly Wager 600

Please fill in all the mandatory fields

Place your wagers here

	Points	%
91-100% of Milestone Criteria Met by Planned Exit Date	0	0
81-90% of Milestone Criteria Met by Planned Exit Date	0	0
61-80% of Milestone Criteria Met by Planned Exit Date	0	0
41-60% of Milestone Criteria Met by Planned Exit Date	100	16.666666
21-40% of Milestone Criteria Met by Planned Exit Date	200	33.333333
01-20% of Milestone Criteria Met by Planned Exit Date	300	50
Total	600	

Please answer the following questions:

1. What risks do you see that are currently jeopardizing this project? *

This appears to be a consultant driven project. Client resources not available (max 1000chars)

2. What does senior management need to know about this project that it may not currently know?*

Design choices are not being made by the client due to lack of participatio (max 1000 chars)

Submit | Back to Event list

Votes can not be submitted until identified risks are also submitted

This leads to the Logical Next Question…What Risks Exist That Will Prevent the Project from Completing It's Exit Criteria on That Target Date?

Risk descriptions for this week

What risks do you see that are currently jeopardizing this project?

We have not yet looked at data conversion requirements.

The client is looking for over 120 reports at go live. We do not have the development staff to do that.

The Sales and Distribution team lead just left the company. I think we will recover, but we are scrambling to get a new team lead who is willing to spend time on the project

I have not seen any exit criteria published. How can we meet criteria that no one has seen?

What does senior management need to know about this project that it may not currently know?

This project is not adequately staffed on the supply chain side. We are missing a PP consultant and have no business involvement in manufacturing.

The development team has not attended any Blueprint meetings. How will we be able to properly scope RICEF requirements?

I am hearing that data cleansing for the sales order conversion is going to be a nightmare. I am concerned that the SD team will not allocate adequate resources to clean the data up

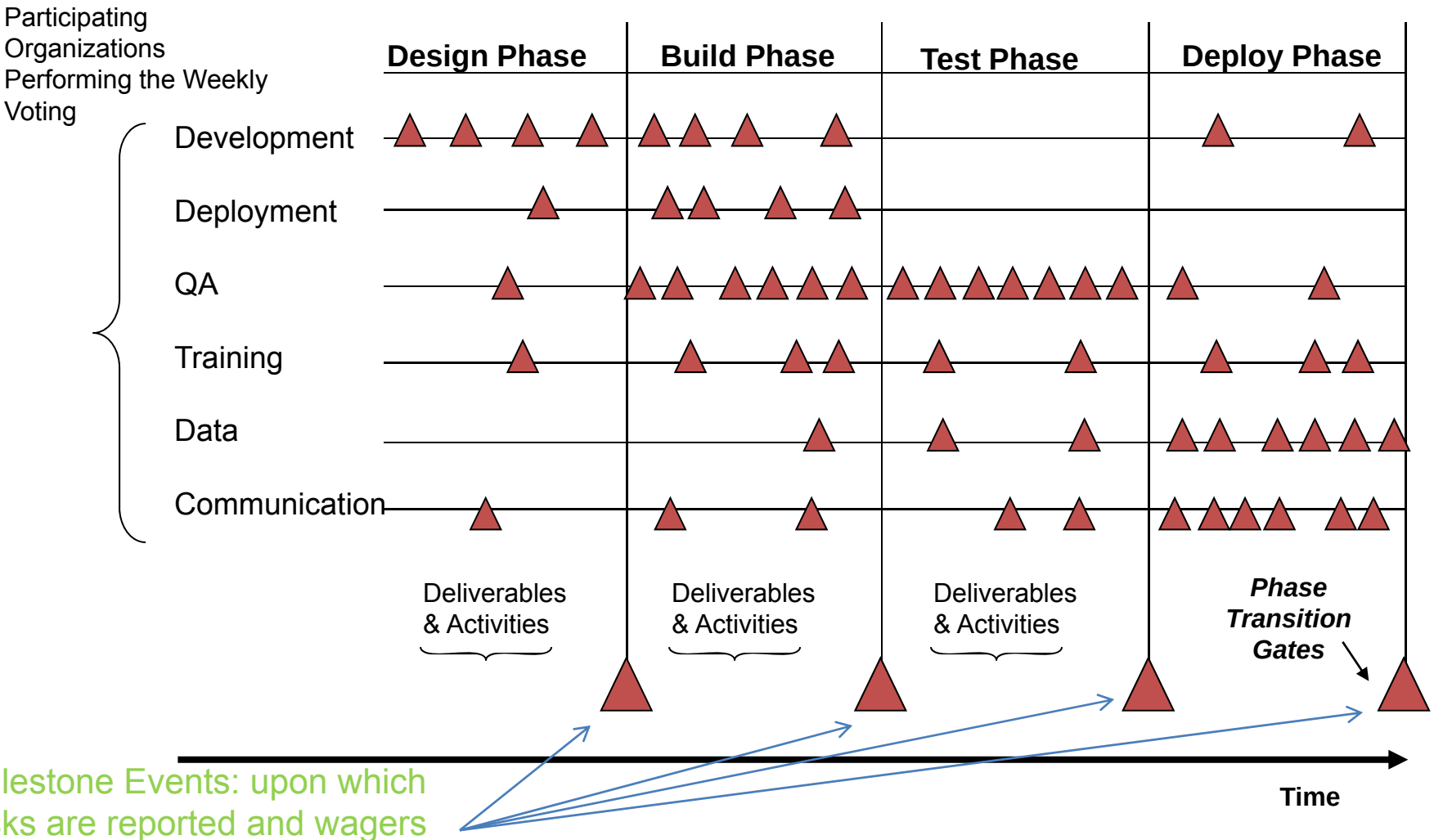
This project manager needs to communicate the criteria before I can wager on whether or not the project will meet it by 9/1/08

Having an unfiltered list of risks enables management to formulate mitigations and corrective actions…the impact of which will begin being measured the following week.

So, Here's What's Happening…….

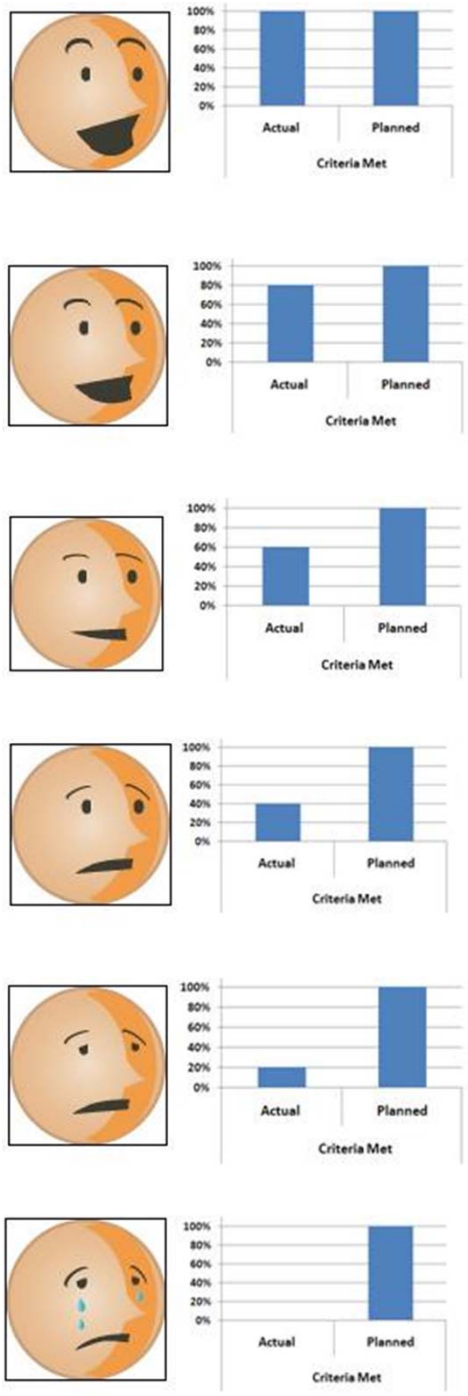
PRIMMS helps the project manager establish the team orientation by facilitating the use of sufficiency criteria for project milestones (AKA quality gates for phase exits)….which are a well established project management best practice.

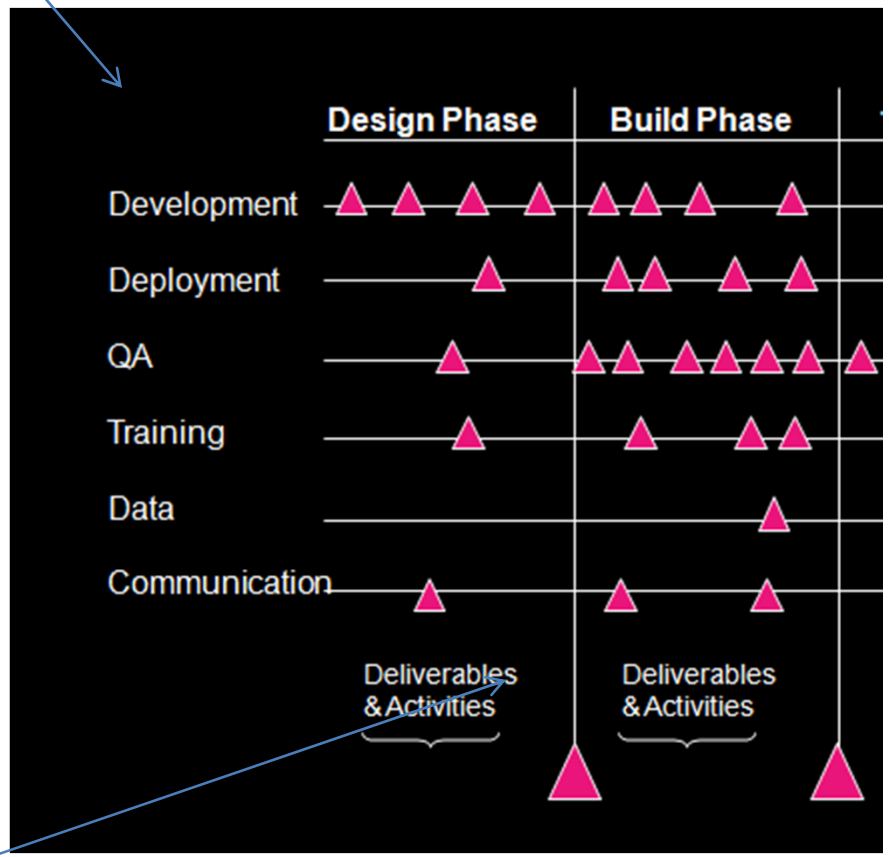
Voting by Team Members on the Anticipated Quality of Interim Phase Exit Milestones by the Target Finish Date. The Process Enforces the Use of Stage Gates and Exit Criteria



Milestone Events: upon which risks are reported and wagers placed.

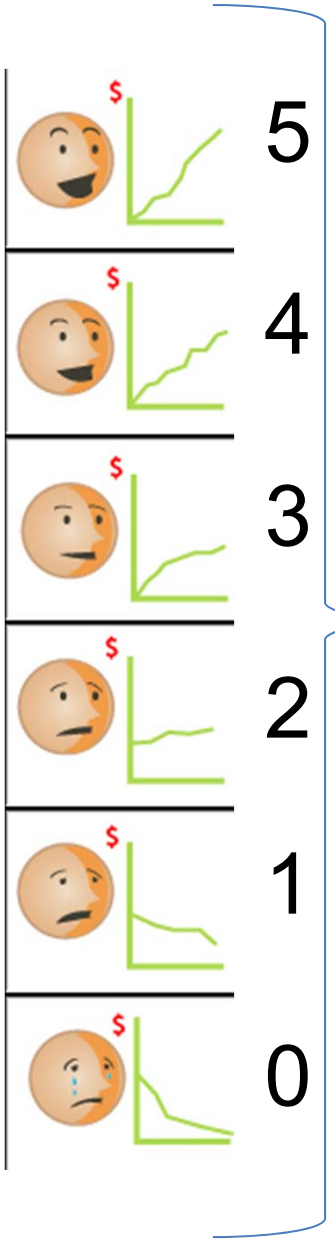
Voting on milestone outcomes by participants is tied to scenarios for criteria met from all areas and leads to a determination of an overall average pseudo market "price"



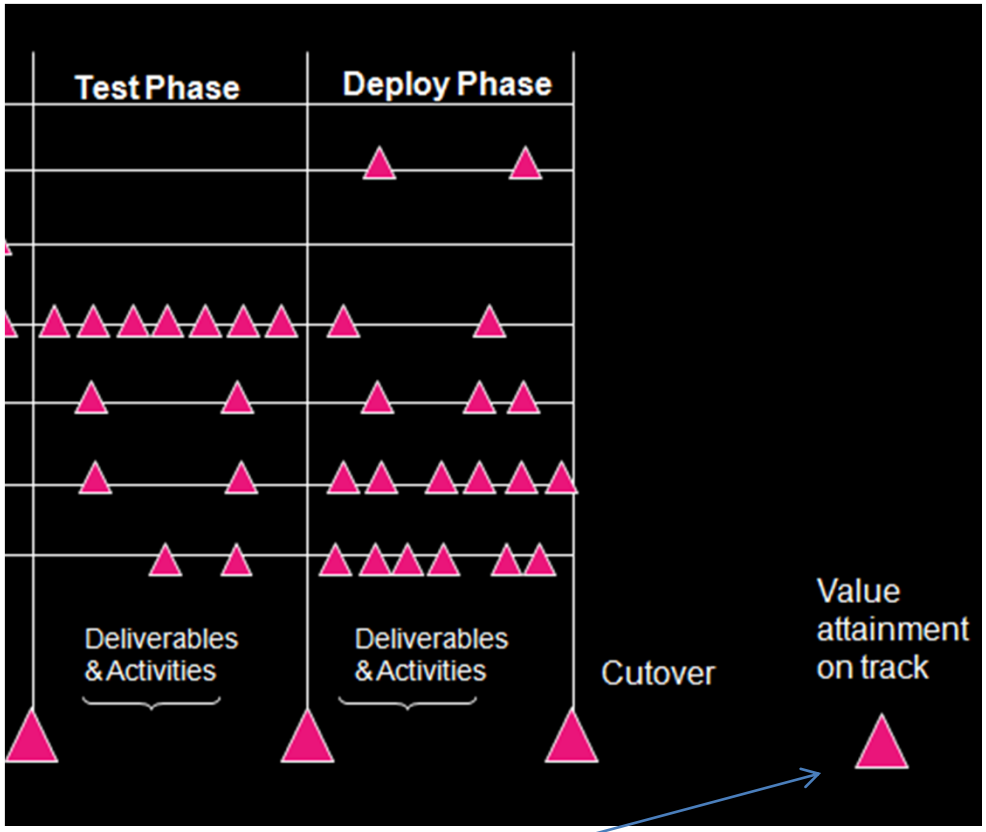


Possible Milestone Outcomes related to criteria met by the target date

Stakeholders Vote in points on Outcomes and Identify Risks Related to Interim Phase Exit Milestones In Terms of Criteria Met By Target Date



Voting on Benefit Outcomes



Odds for all Possible Outcomes leads to a "market price" which is a tripwire metric.

In addition to phase exit criteria Stakeholders Can Also Vote on Benefit Outcomes from the Project and Identify Risks Related to Business Case Milestone In Terms of Value Attainment being on Track By Target Date

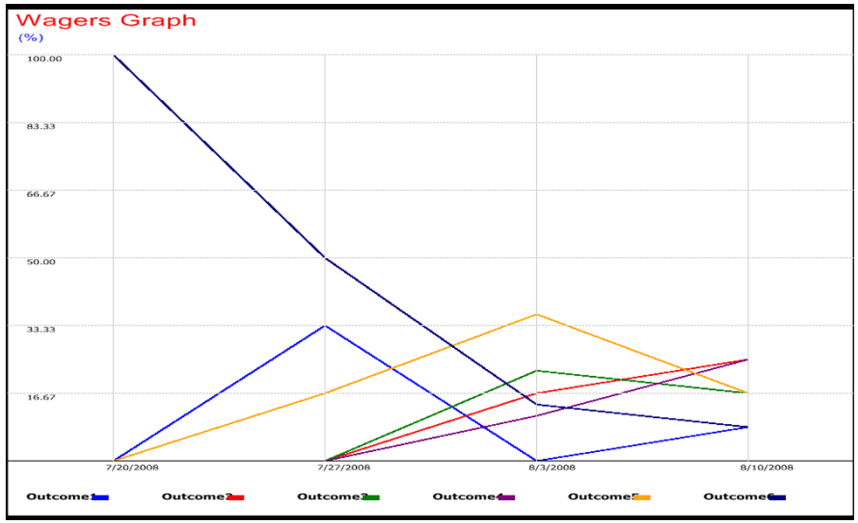
Outputs --Triggering Corrective Actions

Output 1) The entire list of identified risks for the week are automatically grouped and emailed to stakeholders and input into an Electronic Risk Register.

Output 2) The voting in points creates a defensible "pseudo market price" reflecting *wisdom of the crowd* and conveyed *as a* project risk metric and a forecast for the week on the likelihood of meeting exit criteria on the target date.

Output 3) Auto-forecast Slip Chart, Bubble Chart and Escalation Chart show risk impact and risk disposition.

Market Price Index

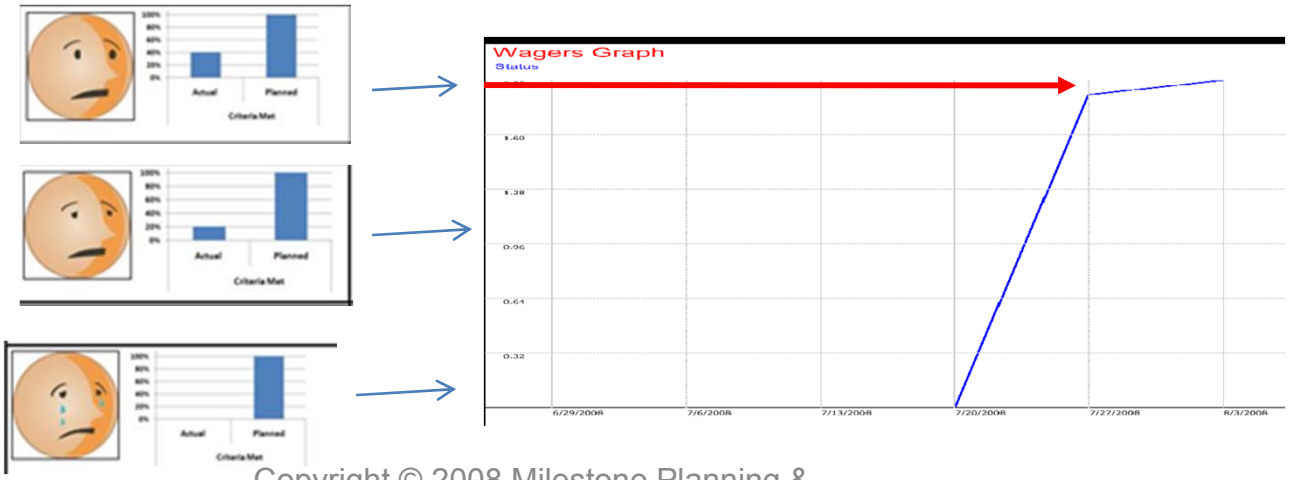


By outcome

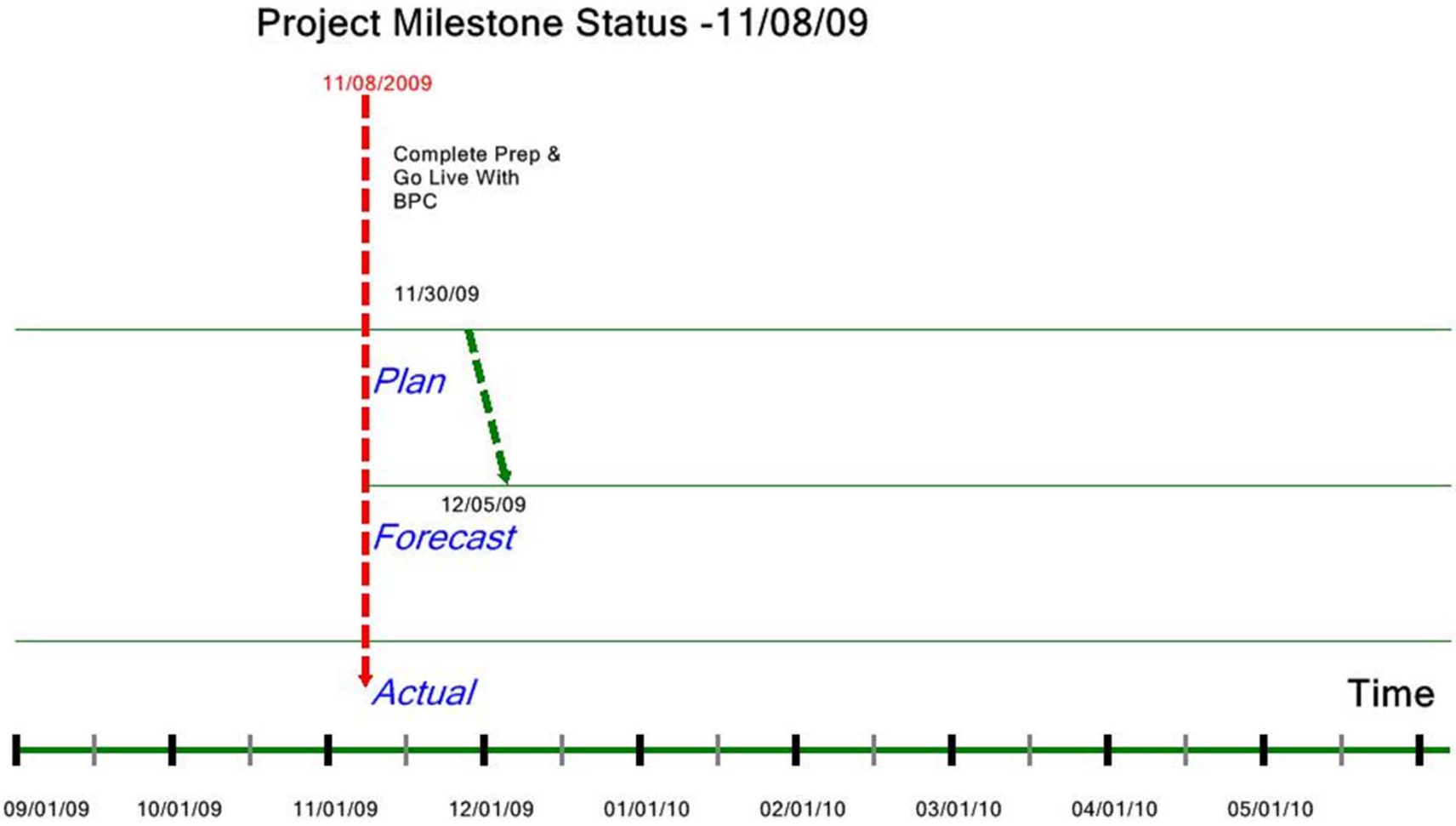
By Project

Looking at Weekly Inflection Points on Market Prices Suggests Presence of New Risks and/or Impact of Mitigation Activity

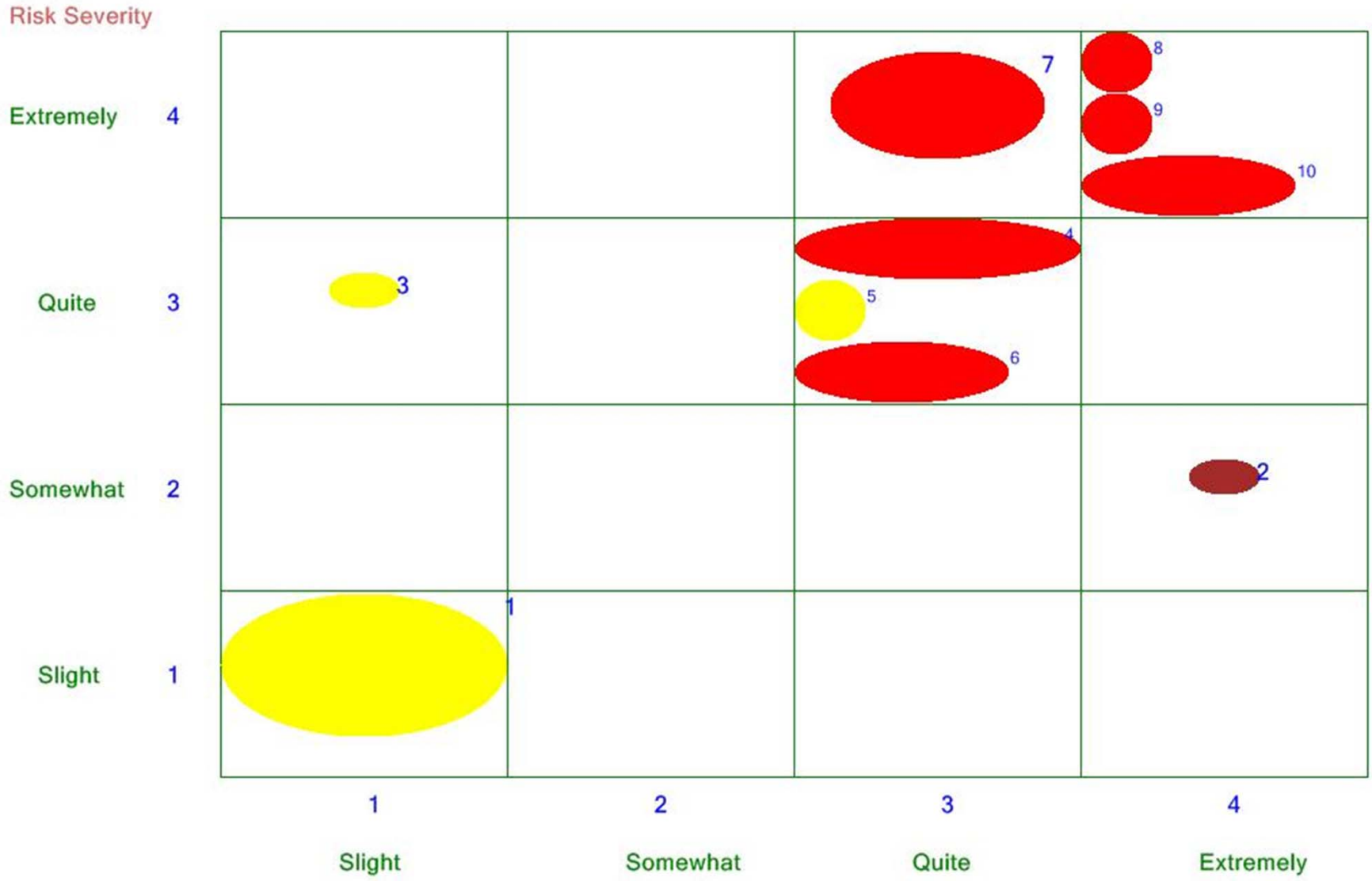
This example shows stakeholders on average forecasting significant risk reduction and that 40-60% of criteria will be met by target phase exit date



PRIMMS Auto-forecast Slip Chart Signifies Anticipated Slippage Based Upon Parimutuel Voting/Wagering. This provides a "wakeup call" to project stakeholders.



PRIMMS Bubble Chart Transfers Data from the Electronic Risk Register to Clarify the "Quadrant of Risk"



Rewarding People for Honesty and Accuracy Encourages People to Monitor and Manage Risks

Welcome:jaaron Logout

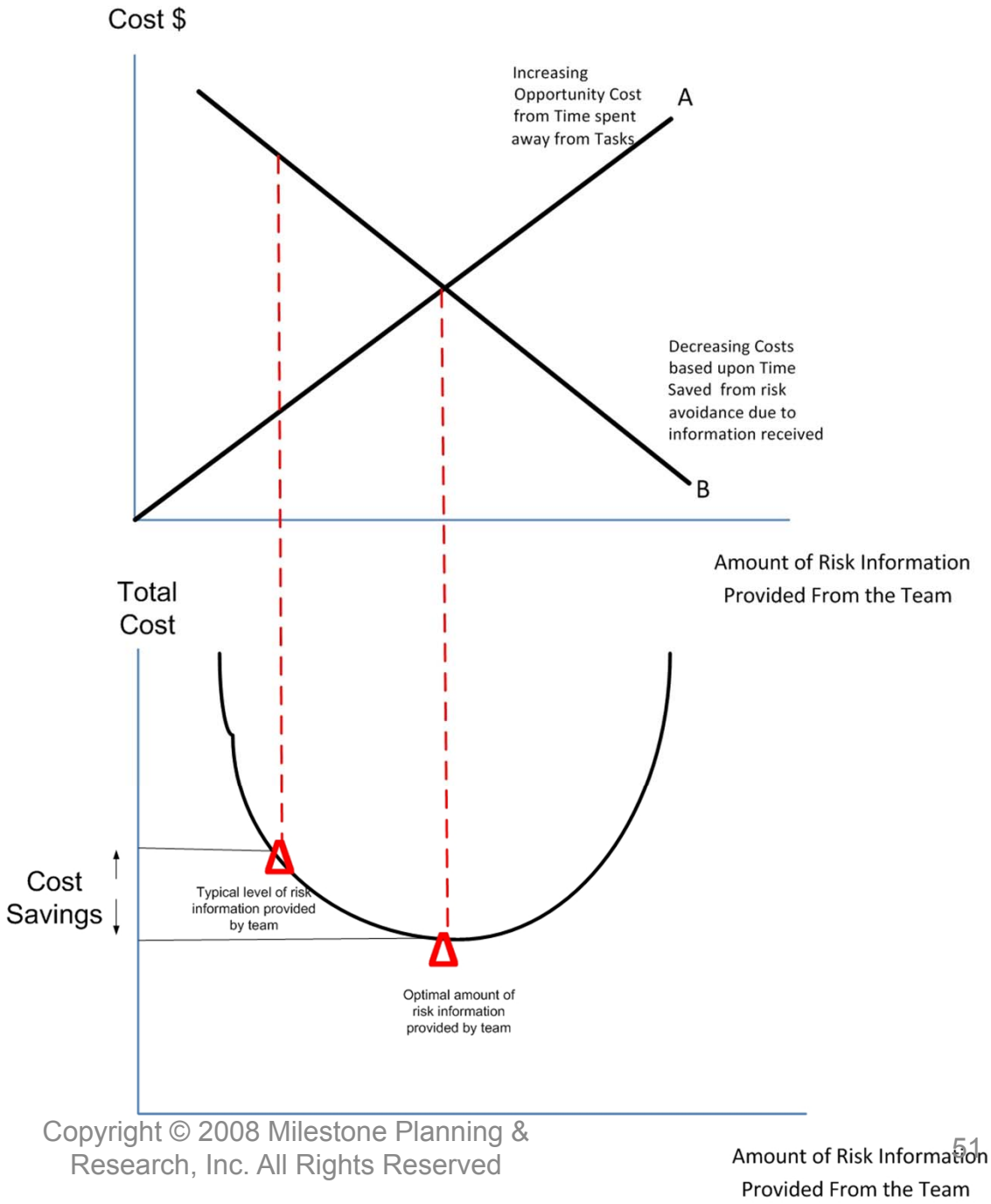
The event has now expired.Results for this event are as follows.

Rank	User Id	Points wagered on the winning outcome
1	persong	800
2	persone	700
3	personf	600
4	jaaron	400
5	jkhan	300
6	tom	200

Congratulation to the winners!!

PRIMMS keeps a confidential tally of votes by each participant. After the milestone is met, the results are displayed and the winner(s) receive a reward or recognition.

PRIMMS Reduces Overall Project Costs By Facilitating Risk Identification and Elimination



Philosophical and Technical Concepts Embedded within this Tool and Methodology Transcend Standard PMBOK Approaches

External Influences:

Frederich Hayek
- -Individualism and Economic Order
- -Road to Serfdom, et al

Karl Popper
- -Critical Rationalism

James Surowiecki
- -Wisdom of Crowds

John Von Neumann & Oskar Morgenstern
- -Theory of Games and Economic Behavior

Frederic Koessler & Anthony Ziegelmeyer
- -Economic papers re: Parimutuel betting

Adam Smith
- -The Wealth of Nations

Our Own PM Experiences:

John Aaron
- -1993 Quality Gate theory first presented at PMI San Diego
- -SAP project mgmt since 1995
- -Dean and Director of Master's Degree Program in Project Mgmt-DeVry University 1989-1991

Jameer Khan
- -Consultant with AT&T on their dashboard application
- -Consultant with Motorola on their Visual modeling and Simulation platform
- -Development mgmt—Info Sys

Appendix: Walking Through a Cycle on a Simplified Project

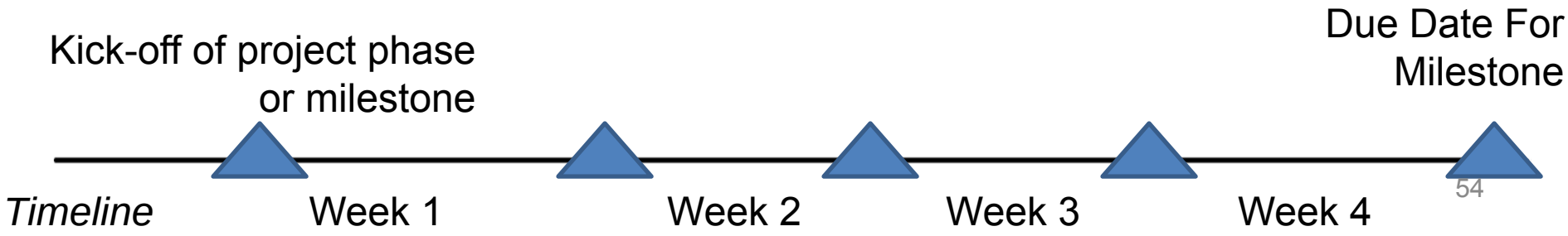
Example of Parimutuel Voting/Wagering Weekly Cycle (in Points) Through the Project Life Cycle

Project Starts with kick-off communication

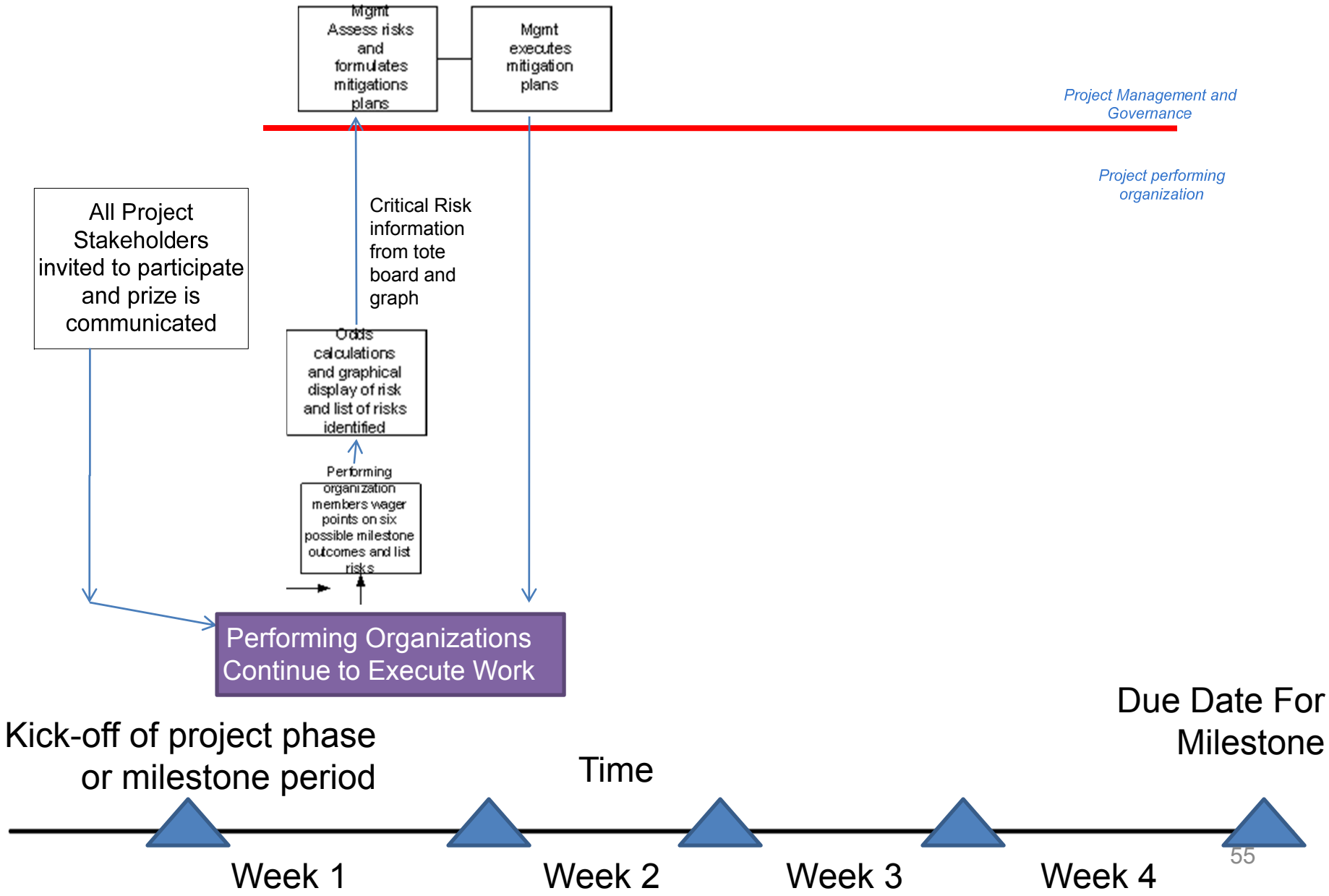
All Project Stakeholders invited to participate and prize is communicated

Prize can be simply recognition as to who best guessed the correct outcome

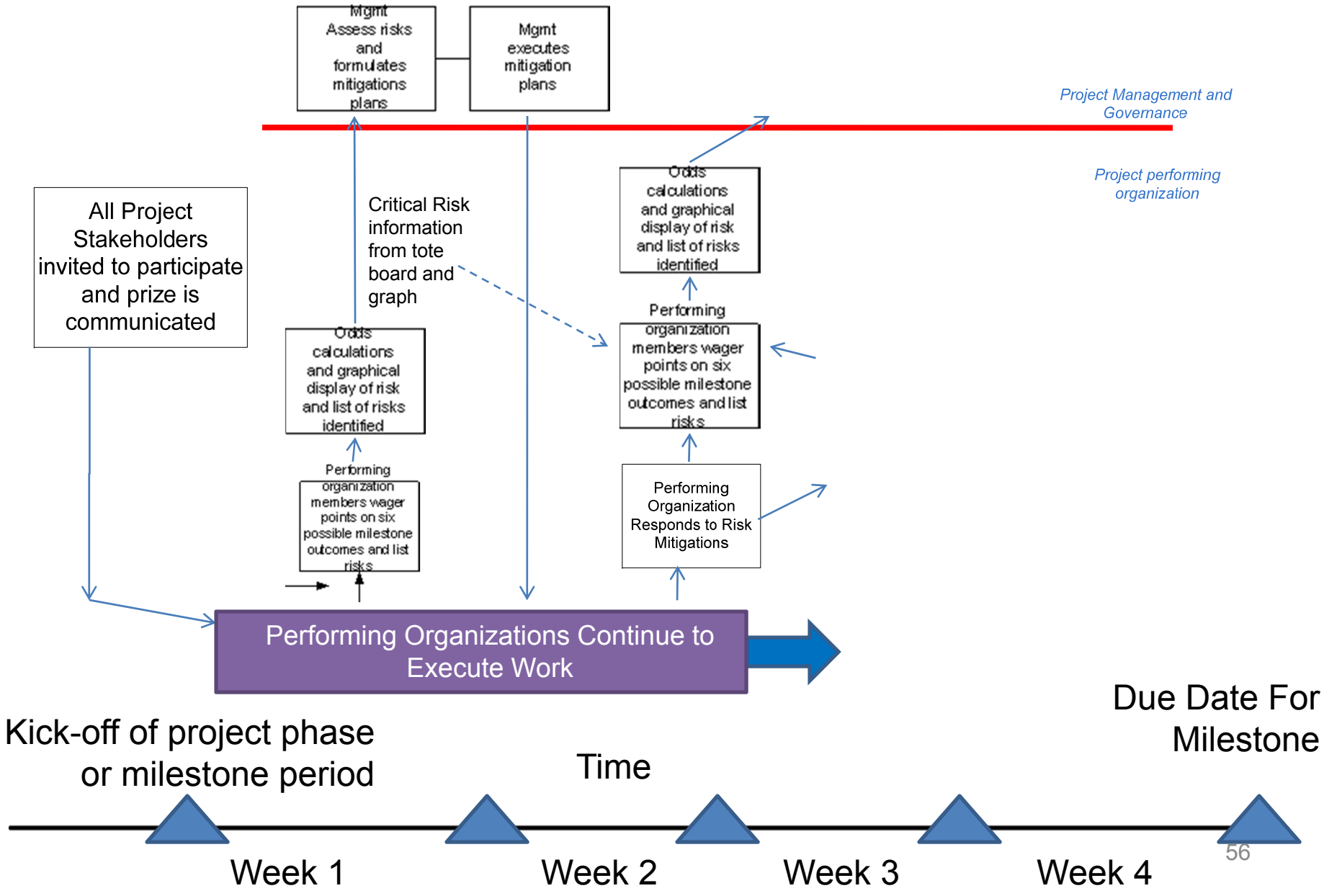
Performing Organizations Begin to Execute Work



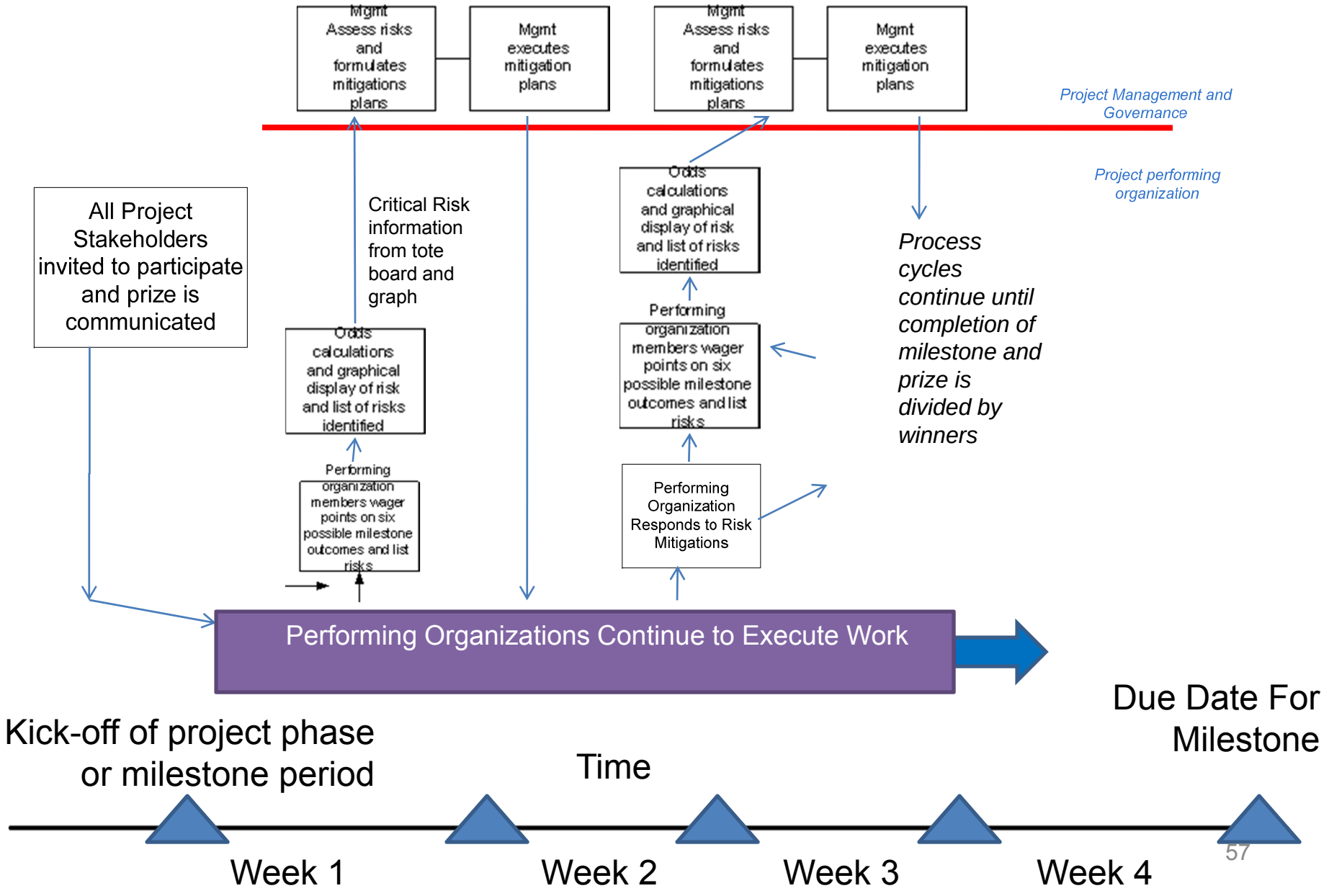
Parimutuel Voting/Wagering Cycle Example



Iterative Parimutuel Voting/Wagering Cycle Example Continued



Iterative Parimutuel Voting/Wagering Cycle Example Continued



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