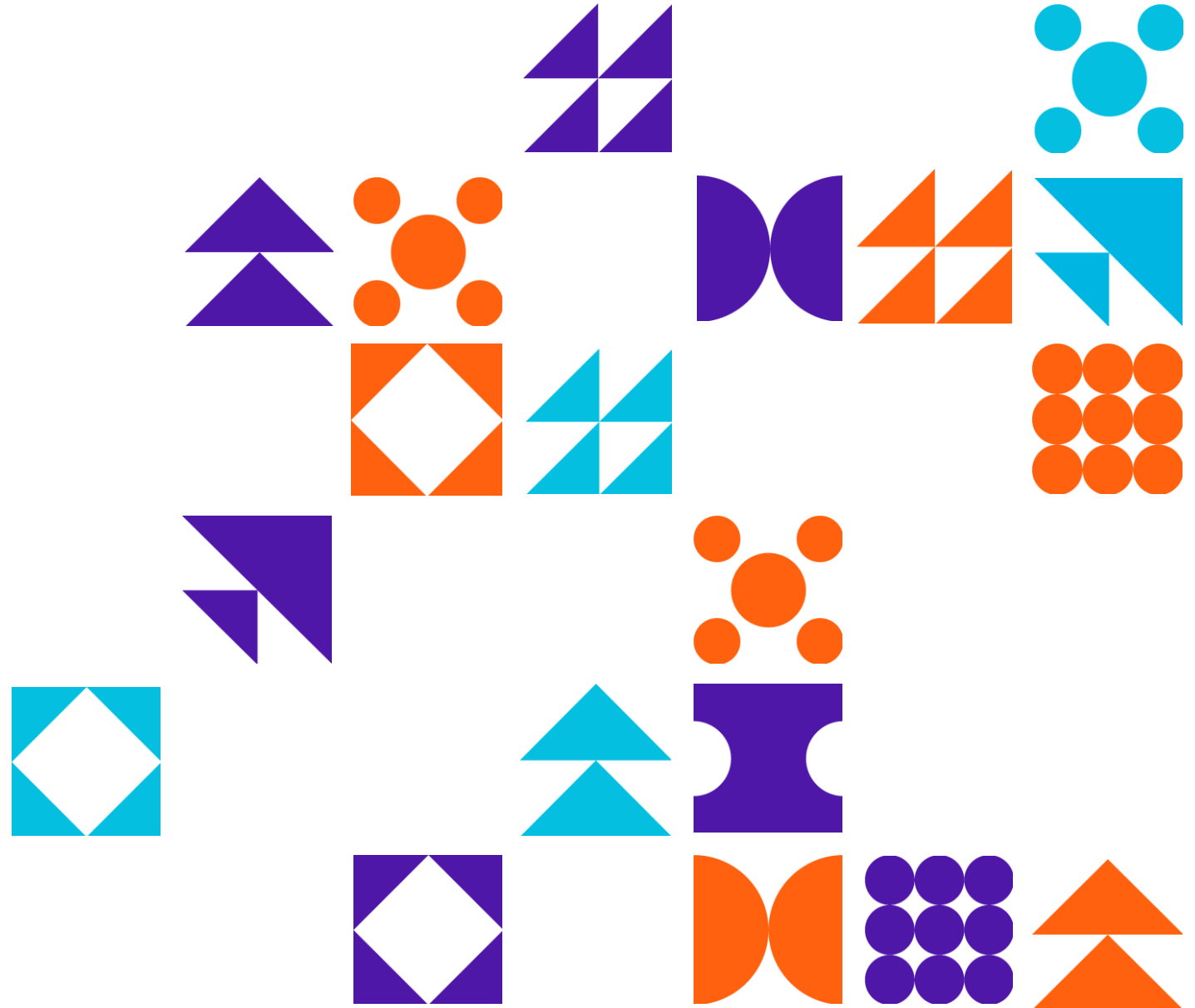


STRATEGIES FOR LEADING COMPLEX PROJECTS

Rick Hefner, PhD

PDD 2024 | PMI-OC

02 24 2024



Presentation Outline

In today's dynamic and rapidly evolving business landscape, project managers are frequently tasked with leading complex projects that demand a unique set of skills and strategies

This presentation will help you:

- Identify the factors which make a project complex (as opposed to complicated or challenging)
- Make effective decisions under uncertain conditions
- Manage conflict without draining your energy
- Apply systems thinking principles and tools to project management
- Communicate decisions to your team and senior management

Topics



Identifying Factors that Make a Project Complex



Making Effective Decisions Under Uncertain Conditions



Managing Conflict Without Draining Your Energy



Applying Systems Thinking Principles and Tools to Project Management



Communicating Decisions to Your Team and Senior Management

Characteristics of a Simple (Not Easy) Project

Well-defined statement of work

Project can be decomposed into well-defined tasks (Work Breakdown Structure) and stages (lifecycle)

Resources are known, stable, and have the capability to perform the tasks

Tasks can be performed (mostly) in isolation

Environment and culture is relatively stable and predictable

A standard project management methodology can be applied for planning, monitoring, control, and risk management

What is a Complex Project?

A project with interconnected and interdependent social and technical elements on many different levels

- Unclear objectives and deliverables
- Multiple stakeholders with conflicting needs
- Changing environment (e.g., scope, schedule, budget, available resources)
- Technical challenges, unproven technologies
- Cultural differences
- Unknowable risks
- Dependency on non-controllable factors

Simple vs. Complex Projects

	Move possessions to a new home (simple)	Build a new home for the family (complex)
Scope	Known and not likely to change	Unknown, driven by value trades, conflicting stakeholder needs
Effort	Predictable	Uncertain, driven by decisions, resources
Schedule	Predictable for a given set of resources	Uncertain, driven by external factors
Monitoring	Progress can be measured	Progress difficult to measure
Control	Resources can be added to meet a tighter schedule	Additional resources may not help or be available

Effectively Managing Complex Projects

Challenges	Approaches
Unclear objectives and deliverables	Clarify the business case
Multiple stakeholders with conflicting needs	Manage the stakeholders
Changing environment (e.g., scope, schedule, budget, resources available)	Respond to change
Cultural differences	Develop your team
Technical challenges, unproven technologies	Establish a risk-embracing culture
Unknowable risks	Build margin into your plans
Non-controllable factors	Build consensus with management

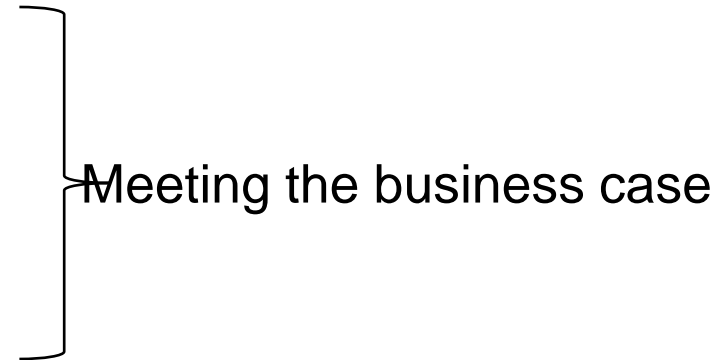
The Importance of a Strong Business Case

All projects are justified by a business case

The business case drives the project scope, schedule, and budget

Ultimately, the business case determines whether a project is successful

- Completing the agreed-to scope
- Meeting the budget
- Meeting the schedule
- Satisfying the stakeholders
- Satisfying management



Project managers must:

- Understand how the project aligns with corporate strategy
- Use the business case to negotiate management expectations

Business Case



Stakeholder Analysis

A method used to analyze the interests of the various stakeholders, and determine the degree of influence they have on project success

The most influential stakeholders are asked to shape project priorities, plans, and actions

Anticipating stakeholder needs and reactions guides decision-making

The need for stakeholder information guides your communications approach

- Identify stakeholders
- Discover/document their power, influence and interests
- Discover/document their needs and wants
- Classify and group the stakeholders
- Prioritize their needs and wants
- Reflect in project plans and action



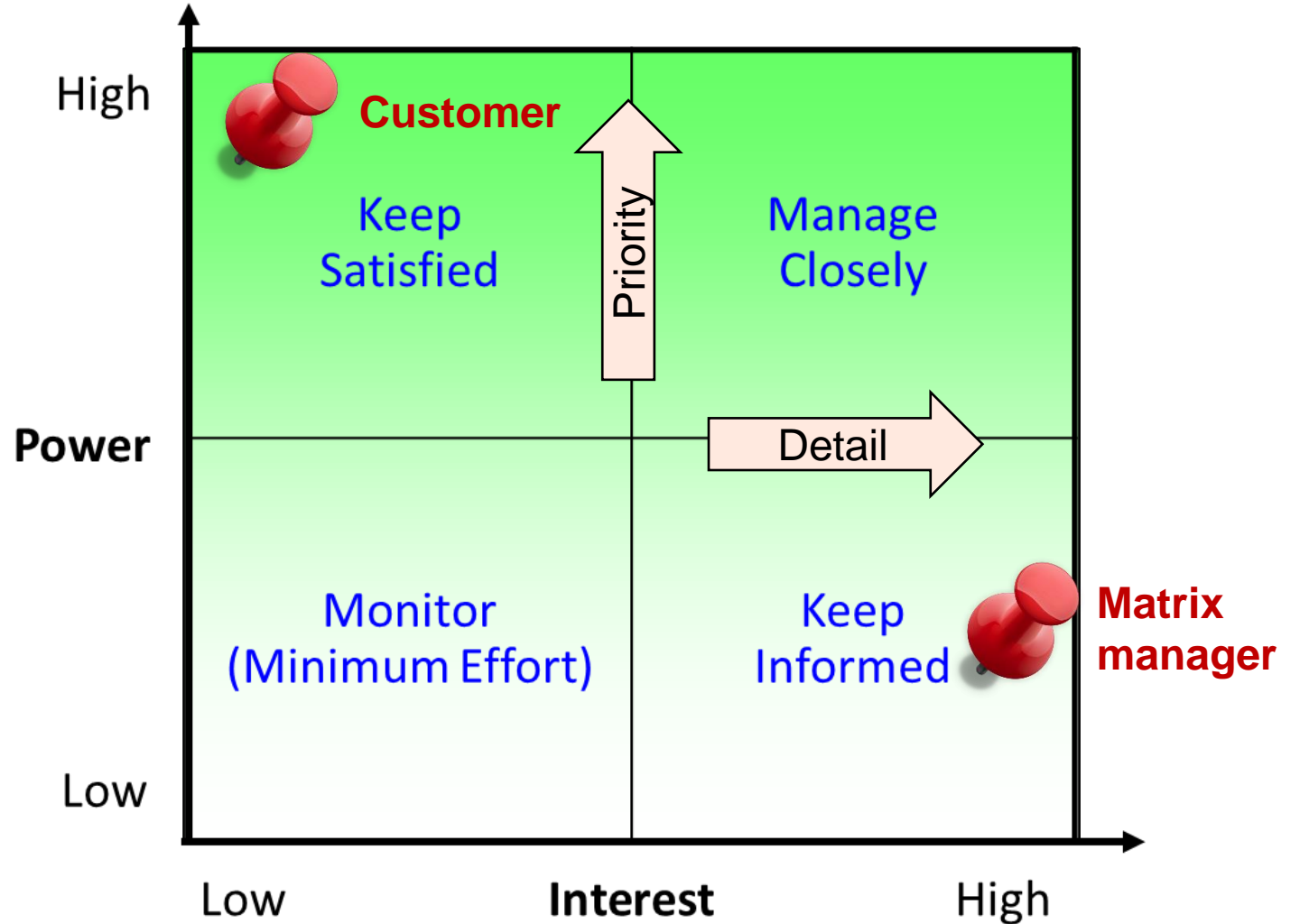
Power-Interest Matrix Drives Communication with the Stakeholders

The greater the power (control of your project's outcomes), the higher the priority on communicating with them

The higher their interest, the more detailed the communications need to be

Considerations:

- Live presentation vs. report
- Data vs. insight
- Frequency

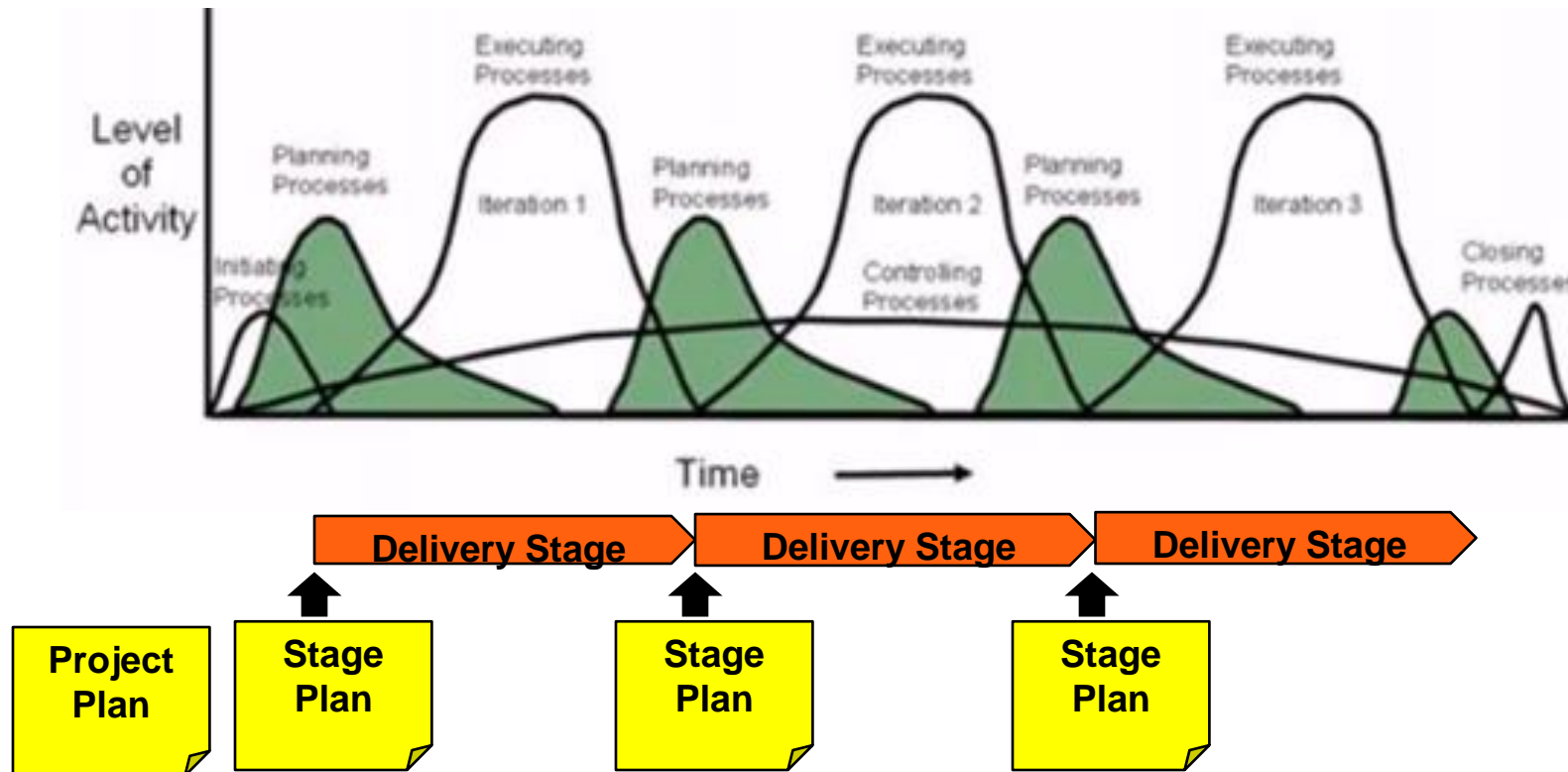


PMBOK

Planning for Extensive Changes – Rolling Wave Planning

The project is planned as a series of small stages

- Broad planning from now until the end of the project
- Detailed planning for the next stage

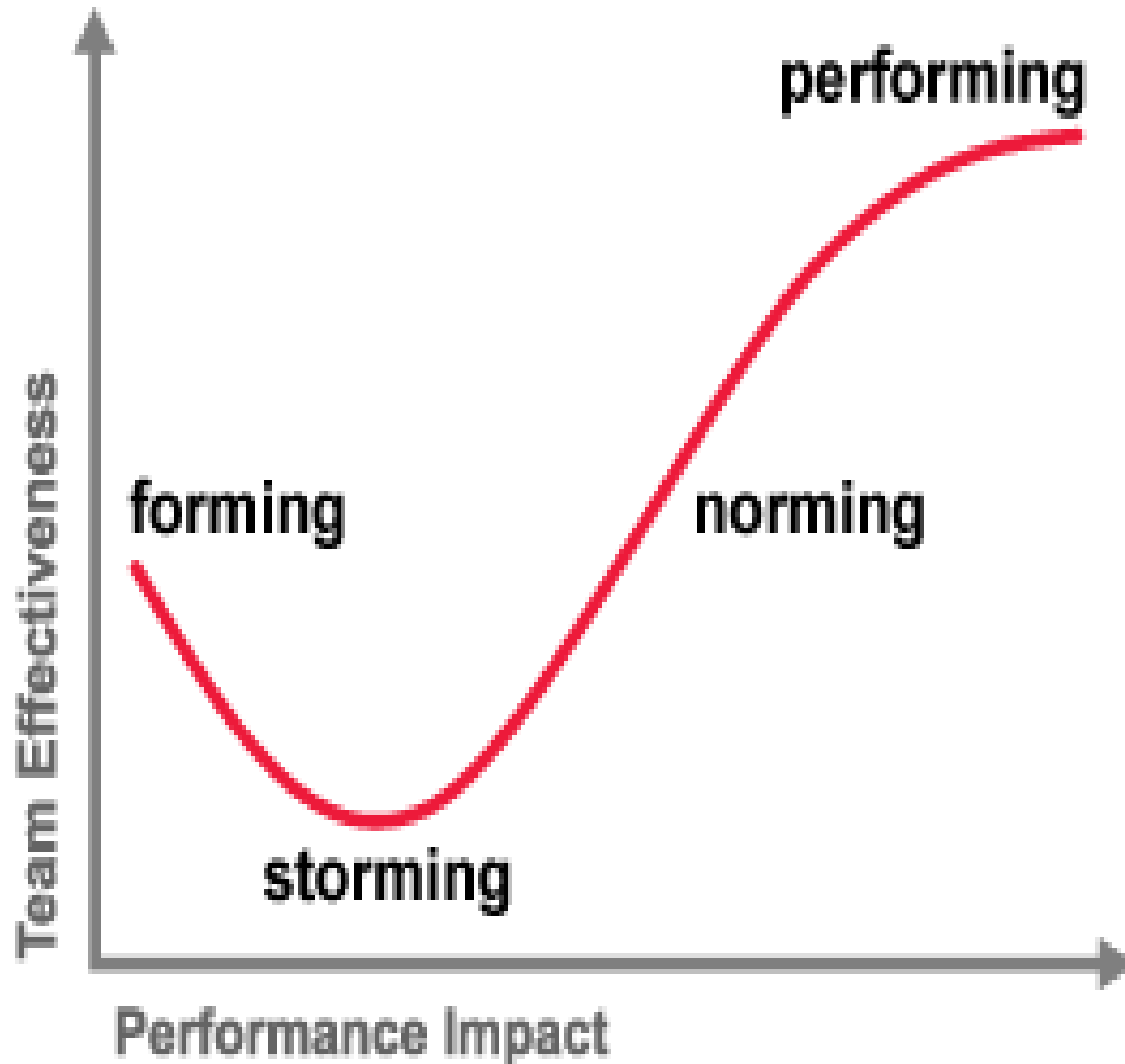


Characteristics of a High Performing Team

1. Aligned to a common vision
2. Open communication
3. Integrity
4. Accountability
5. Trust
6. Respect
7. Commitment to team goals
8. Focus on performance



Stages in Team Growth (Tuckman)



Forming	The team act as individuals and there is a lack of clarity about the team's purpose and individual roles.
Storming	Conflict arises as people begin to establish their place in the team.
Norming	There is a level of consensus and agreement within the team. There is clarity about individual roles. The role of the leader is important in managing this.
Performing	The group has a clear strategy and shared vision. It can operate autonomously and resolve issues positively.

Bruce W. Tuckman, "Developmental Sequence in Small Groups"

Stage Characteristics and Preferred Leadership Style

Stage 1 - Forming

- Dependence on leader for guidance and direction
- Individual roles & responsibilities unclear
- Leader must be prepared to answer lots of questions about the team's purpose, objectives and external relationships
- Processes are often ignored
- Members test tolerance of system and leader
- **Leader directs**

Stage 2 - Storming

- Decisions don't come easily within group
- Team members vie for position
- Clarity of purpose increases but uncertainties persist.
- Cliques and factions form, power struggles
- The team must focus on goals to avoid becoming distracted by relationships and emotional issues
- **Leader coaches**

Stage 4 - Performing

- High degree of autonomy
- The team is more strategically aware, knows clearly why it is doing what it is doing
- Team makes decisions against agreed-to criteria
- Disagreements occur but are resolved within the team positively and necessary changes to processes and structure are made by the team
- **Leader delegates and oversees**

Stage 3 - Norming

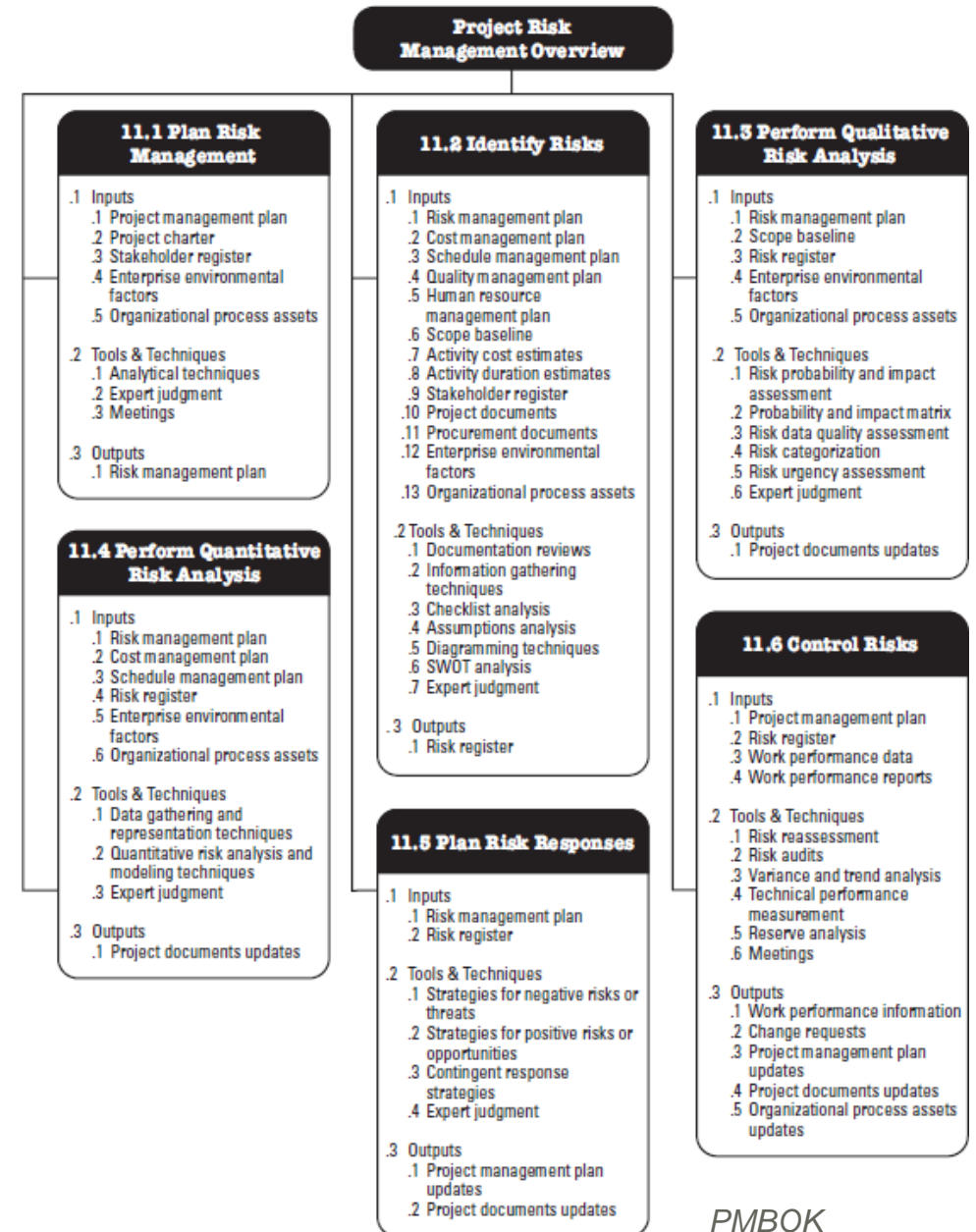
- Agreement and consensus
- Roles and responsibilities clear and accepted
- Commitment and unity is strong
- The team discusses and develops its processes and working style.
- There is general respect for the leader and leadership is more shared by the team
- **Leader facilitates and enables**

Project Risk Management

A formal, systematic method of managing projects which concentrates on identifying and controlling areas or events that have a potential of causing change

Risk management seeks to minimize the consequences of adverse events (risks)

Risk management processes include identifying, analyzing, and responding to project risks



PMBOK

Promoting a Risk-Embracing Culture

Technical personnel may resist identifying and discussing risks

May see risk management as outside their responsibility and/or beyond their control

- May prefer to work in “known” conditions

May fear repercussions from management

- “Shoot the messenger”
- Micro-management
- Perceived technical inability
- Selection of lower risk, less technically exciting solutions

- 
- ✓ Express commitment
 - ✓ Create awareness of the need
 - ✓ Define and communicate the expected behaviors
 - ✓ Reinforce the behaviors
 - ✓ Encourage a frank and open discussion of risks
 - ✓ Bring in external interviewers or reviewers to help identify risks
 - ✓ Recognize the risk environment changes over the project life cycle

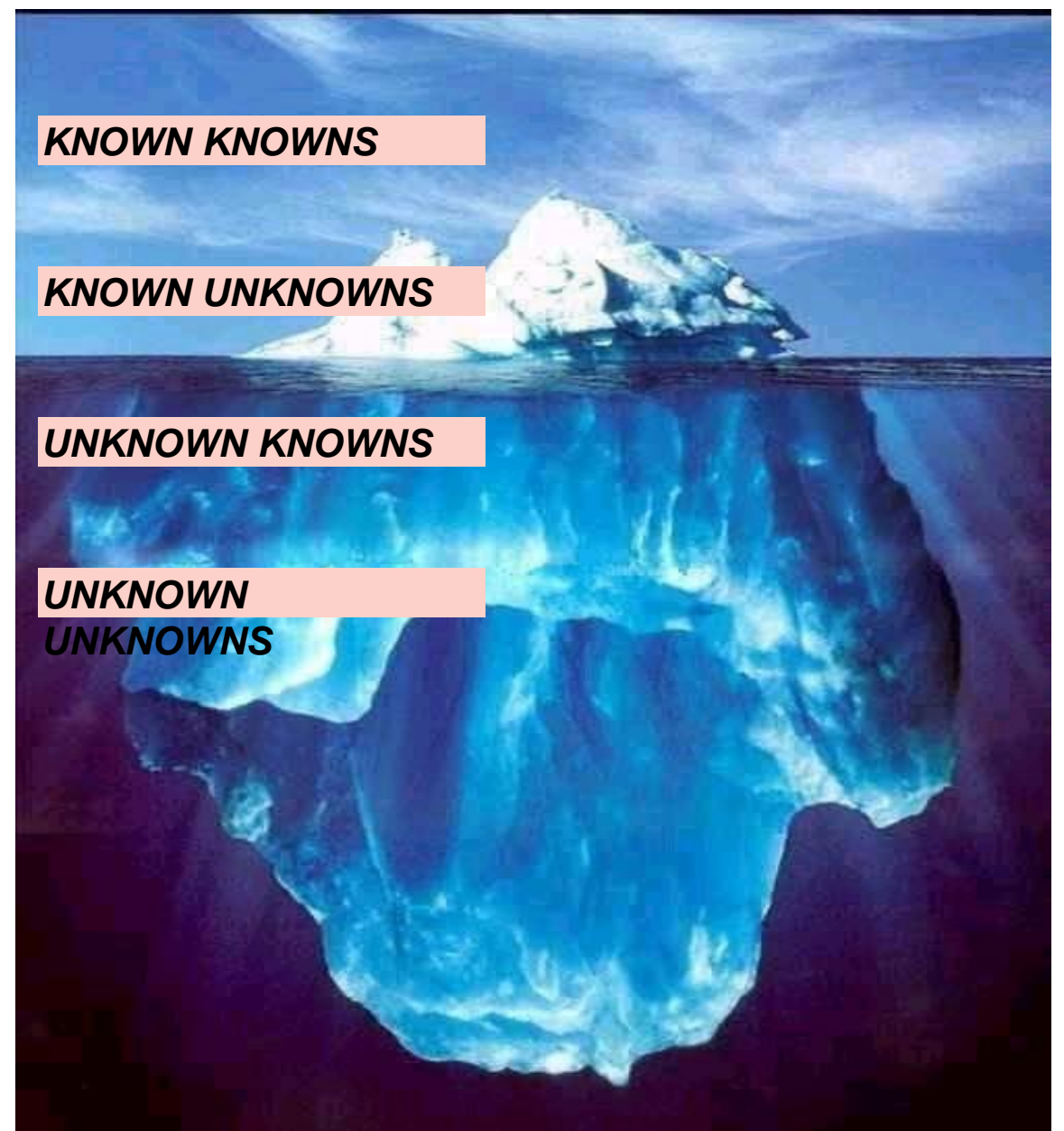
Iceberg Model of Risk Knowledge

Problems already visible (or realized risks) are **KNOWN KNOWNS**

Known risks that have not yet happened are **KNOWN UNKNOWNNS**

Risks that could be identified (by the right people) are **UNKNOWN KNOWNNS**

Risks that no one can foresee are **UNKNOWN UNKNOWNNS**



Calculating the Management Reserve (MR)

Time/budget needed for unidentified risks

Typically, 5-10% of the project's costs, or whatever is consistent with the organization's history

If this work is unprecedented, the project manager should argue for a larger MR

- Tasks that were missed in the original planning, internal re-planning
- Unanticipated redesign, remake, or retest
- Make/buy adjustments
- Work transfers from one organization to another
- Adjustments in labor rates based on resource changes

Can we accept a cost or schedule overrun if an unidentified risk is realized?

Building Consensus with Management Relies On...

Interdependence

- There must be an incentive for people to work together and cooperate
- Ensure management understands the skills and knowledge you bring; clarify what help you need from them

Constructive approach

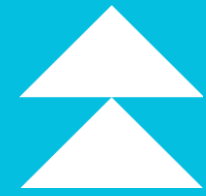
- Differences in values, needs, and interests must be recognized and respected
- Ensure you understand management's goals

Joint ownership of the decisions made

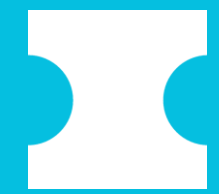
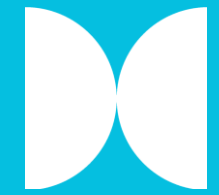
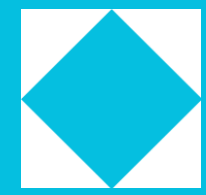
- Participants in the consensus-building process must agree on the final decisions
- Accept management decisions and implement them, without complaining

An emergent process

- Decisions and outcomes must be carried out in a flexible way
- Keep management apprised of new information; review outcomes



THANK YOU



Rick Hefner, PhD
rhefner@caltech.edu

Caltech Center for Technology and Management Education
<http://ctme.caltech.edu>

**Please scan QR code
to get PDU credit and
provide feedback.**

