Fundamentals of
Applied Project Management

Presented by
Dr. Eldon R. Larsen
Marshall University
Presentation Objectives:

• Briefly discuss several important key principles and fundamentals of successful Project Management

• Understand the importance of these keys
Some Common Project Challenges

- Insufficient communication, planning, re-planning, monitoring & control, and teamwork

- We often need better definition of:
  - Project objectives
  - Roles and responsibilities
  - Project plans

- Project Management application depends on culture---be flexible
What do I need to succeed?

- There are many important aspects of project management, but some are essential for success.
- There are three essential aspects that are like the legs of a three-legged stool—if you do any one of them incorrectly, the project will collapse and not succeed.
Successful Project Management

THREE MAJOR KEYS:

1. PEOPLE

2. GOOD OBJECTIVES

3. GOOD PLANNING
KEY 1: Getting along well with people is essential!

“People aren’t just part of project management, they are project management.”--Charles Brod

If you don’t care about people in your heart, no one will be fooled very long. Learn to care!
Getting Along With People

- Caring
- Communication and Listening
- Meetings
- Leadership
- Teamwork
Caring
Caring—How you answer the following questions will be prophetic regarding your people success

- **Question:** Do you truly care deeply about other people, or is your focus on yourself?

- **Question:** How much do you really understand empathically?

- **Question:** How much do you value the differences?

- **Question:** Are you willing to do what it takes to care; will you commit?
Communication and Listening
Someone once said,

“I know that you believe you understand what you think I said, but I am not sure you realize that what you heard is not what I meant.”
“Communication is the Principle Business of the Manager”—Babcock & Morse

In one study, Mintzberg estimated that managers spend:

- 78% of time in oral communication
- 22% of time doing deskwork
What is most important with people?

In Real Estate it’s…
Location, Location, Location

With Managing People it’s…

*Communication, Communication, Communication*
What is “Communication”? 

- What does it really mean?
- High school English teachers often tell students to look at the “roots” of the word to understand it.
- I’ll look at the roots for you in French, rather than Latin, because I know French.
- “Communication” is in fact a French word derived from Latin....
What is “Communication”? 

Look at the roots: communication

comme = “like” or “as”

un = “one”

ication = “the process of becoming”

Therefore... Communication =

“The process of becoming like one or as one”
Again...

Communication is the process of becoming “Like one” or “As one.”
“Like One” ≠ Being the Same

The process of becoming like one does NOT mean becoming the same, or identical.

“We can be unified without being the same. In fact, we will usually be stronger and can synergize if we truly value the differences in each other and are harmoniously unified in working together for the same objectives.”—Stephen Covey
To Truly *Communicate*, You Need To...

Honestly and mutually *CARE* about each other.

Since you can’t control the *other person*, you must start with *yourself*—you can decide that you will *really* care about and respect the people around you, not just for your own self interest, but for theirs too.
One Very Common Communication Model…

The “Communication Process” Model
The Communication Process

**Who** says what... in what way... to whom...

**Sender** — **Message** — **Medium** — **Receiver**

- **Encoding**
- **Decoding**
- **Feedback** (a Message through a Medium)

Encoding and decoding often involves “filtering”

Background noise throughout the entire process
However, this only tells half the story

- True communication is not just one way with some feedback—this is not how we usually become “Like one” or “As one.”

- Instead, a more correct communication model shows that both people have information to share, both need feedback, and they must interact until they come to a common understanding—like one or as one.
Effective Communication Process Model—With Two Directional Interaction

Person A (sender & receiver)  
Encoding and decoding often involves “filtering”

What  
Medium  
Message  
Medium  
Message  
What  
In What Way  
In What Way

Person B (sender & receiver)

Founded upon mutual caring and alignment

Background noise exists throughout the process
Listening
Here is a fundamental habit...

In Stephen Covey’s bestselling book *The Seven Habits of Highly Effective People*, the fifth habit, and the second in Public things, is:

“Seek first to understand, then to be understood.”

This habit is KEY to successful communication!
Effective listening starts with us.

*You*, the listener, are in control of most of your good or bad listening habits!

And, we need to listen empathically!
Planning Helps To Improve Communication

Include in your plan:

- With Whom to communicate
- What to communicate
- Frequency and when to communicate
- Format (of memos or reports for example)
- How to communicate: the medium—formal or informal meeting, email, newsletter, voicemail, etc.
- Who will do the communicating
Make a Project Communications Plan!

<table>
<thead>
<tr>
<th>To Whom?</th>
<th>What to Communicate?</th>
<th>Frequency and/or When?</th>
<th>Format?</th>
<th>How (The Medium)?:</th>
<th>Who will do it?</th>
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Meetings
Meetings often have multiple purposes

- 1. Informational
- 2. Planning
- 3. Problem solving
- 4. Decision making
- 5. Other

*Meeting objectives* must be clear, and agendas carefully planned to support those objectives.

Meetings should generate *specific next steps* with *clear accountabilities* and *time commitments.*

Focus on *how* to achieve meeting objectives.
Some Meeting Do’s and Don’ts

- **DO** listen empathically
- **DO** build on each other’s ideas
- **DO** phrase critique as “how to” or “I wish”
- **DO** stay focused on the meeting objective and agenda

-----------------------------

- **DON’T** lob grenades and launch missiles
- **DON’T** come with hidden agendas
- **DON’T** have two meetings at the same time
- **DON’T** violate time contracts
Ten Rules for Effective Meetings

1. Clearly identify a written meeting objective (the meeting destination)

2. Have a clearly defined agenda, focused on achieving the meeting objective (map to the destination)

3. Have both a clear *start time* and *end time*, and treat these as a contract!
Ten Rules for Effective Meetings

4. Be prepared, both in content & process

5. Have the team establish its *meeting rules of conduct*—keep them simple & effective

6. Understand the fundamental meaning of the word *communication* and apply it!

7. Teach the team to listen *empathically* and live this principle in all you do as a team
Ten Rules for Effective Meetings

8. Create a supportive and task-oriented environment during the meeting

9. Close the meeting effectively

10. Follow up!
Leadership
Leadership

- Essential for successful project management
  - Vision
  - Inspiration
  - Perseverance during *tough times*
  - Effective interaction with stakeholders
  - Effective decision making
Leadership

- Requires excellent communication
- Alignment of project objectives and decisions with organizational mission and strategy
- Always maintain personal and project integrity
- Courage to tell the truth
One Thing Is Sure:

- Followers know leadership when they see it, and they act as a result
You see...

- There are no leaders without followers, and
- The best leaders have followers who choose to follow because they want to follow
- Power and heart-commitment come from the choice to follow
Teamwork
What is a *Team*?

- Is more than just a group of individuals
- Seeks to achieve *common* organizational goals and project objectives
- Values and needs the differences in its members
- Has members who are *both independent and interdependent*
- Helps its members to achieve their individual goals
What is *Teamwork*?

- Teamwork: *Interdependently working in unity to achieve common goals*

  - *Interdependence* means:
    - Each member is proactive, has a vision of what to do, puts first things first
    - *And, each member needs the others; thinks and practices win/win; seeks first to understand, then to be understood; and values the differences in the team members and synergizes with them*
Doing Teamwork

- Doing teamwork involves each member progressively developing habits which both empower themselves and increase their abilities to work interdependently.

- Teambuilding is an ongoing, nurtured effort to motivate & inspire team members, helping them to reach their goals, both personal and organizational.
KEY 2: Set Good Objectives

- SMART Objectives
- Triple Constraints and Drivers
- Tolerances
<table>
<thead>
<tr>
<th>Objectives should be SMART</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Specific:</td>
<td>targeted, focused, clear</td>
</tr>
<tr>
<td>Measurable:</td>
<td>you can tell when you’ve reached it</td>
</tr>
<tr>
<td>Agreed-Upon:</td>
<td>stakeholders are aligned</td>
</tr>
<tr>
<td>Realistic:</td>
<td>challenging; not impossible to achieve</td>
</tr>
<tr>
<td>Time-Oriented:</td>
<td>a time frame for project completion</td>
</tr>
</tbody>
</table>
The Triple Constraints & Drivers

Resources
(Equipment, People, Cost)

Time
(Schedule)

Performance Criteria (Results)

Of the Triple Constraints, there is one that is the primary driver and is the least flexible, one that is the weak driver and is the most flexible, and one that is the middle driver in between.

The project leader must ask many trade-off questions of the sponsor to probe and ascertain which is the primary driver & which is the weak driver.

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Tolerances

- Most projects have some kind of *ideal targets* in each of the triple constraints
- Yet, often the *ideal* cannot be reached, and an *acceptable compromise* is agreed upon
- If we cannot reach at least an *acceptable compromise*, then we have *failure*
Understand the Objective Tolerances & Limits: *One-Directional Tolerance Diagram*
One-Directional Tolerance Diagram

*Example: Cost of Replacement Automobile*

- **Ideal Target**: < $5,000
- **Acceptable Compromise**: $5,000 - $7,000
- **Unacceptable Compromise**: > $7,000

(Minimum Criteria For Success Are Not Satisfied)
Two-Directional Tolerance Diagram Example:
Density Specifications on New Polymer Product

<table>
<thead>
<tr>
<th>Density Range</th>
<th>Tolerance</th>
<th>Compromise</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polymer Density is &lt;0.932 g/cm³</td>
<td>Unacceptable Compromise (Minimum Criteria For Success Are Not Satisfied)</td>
<td></td>
</tr>
<tr>
<td>Polymer Density is 0.932-0.933 g/cm³</td>
<td>Acceptable Compromise</td>
<td></td>
</tr>
<tr>
<td>Polymer Density is 0.933-0.934 g/cm³</td>
<td>Ideal Target</td>
<td></td>
</tr>
<tr>
<td>Polymer Density is 0.934-0.935 g/cm³</td>
<td>Acceptable Compromise</td>
<td></td>
</tr>
<tr>
<td>Polymer Density is &gt;0.935 g/cm³</td>
<td>Unacceptable Compromise (Minimum Criteria For Success Are Not Satisfied)</td>
<td></td>
</tr>
</tbody>
</table>

Polymer Density is 0.933-0.934 g/cm³

Polymer Density is <0.932 g/cm³

Polymer Density is >0.935 g/cm³
Key 3: Importance of Good Planning

Planning is...

Pre-determining *what questions* need to be answered and *when to answer* them; and *which activities* need to be executed and *when to execute* them in order to *narrow the uncertainty* and achieve the project objectives.
Characteristics of a Successful Project

- Clear goals and commitment to these goals
- Clearly established success criteria
- Capable project team
- Good planning and control techniques (“The plan is your Servant, not your Master.”)
- Absence of bureaucracy

Planning takes time, is hard, is inconvenient, and can be frustrating.....However, “You can pay me now, or you can pay me later.”
Planning: An interesting quotation...

During the 1990s “Gulf War,” General Norman Schwarzkopf quoted General Dwight D. Eisenhower in making the following very important statement:

“Plans are Worthless, Planning is Essential.”
What does the quotation mean?

It’s the *process* of planning that leads to the rewards!
Those who do the work need to help with the plan!

Why? → You end up with a better plan!
If “doers” make the plan, they have....

- a greater sense of accomplishment
- a greater understanding of the plan
- a greater commitment to the plan
- the ability to change the plan as needed

PLANNERS PLAN AND DOERS DO
The Planning Process...

**Project Objectives**

- Contingency
- Budget

**Charter**

- CHARTER: Project Objectives plus: Scope, Deliverables, Standards, Critical Success Factors, Personnel roles & authority

**PROJECT PLANNING CYCLE**

- WBS
- RAM
- Gantt Chart
- Resource Histogram
- List Predecessors & Estimates for Tasks’ Durations, Costs, & Resources
- Network Diagram, Durations, Crit. Path

**Budget**

**Resource Histogram**

**Gantt Chart**
Very Simple WBS—Generic Deliverable-Oriented

- Project XYZ
  - Work to do Deliverable 1
    - *1.1 Piece of work for Deliverable 1
      - *1.2.1 Piece of work to do for 1.2
    - 1.2 Piece of work for Deliverable 1
      - *1.2.2 Piece of work to do for 1.2
  - *Work to do Deliverable 2
  - Work to do Deliverable 3
    - *3.1 Piece of work for Deliverable 3
    - *3.2 Piece of work for Deliverable 3
    - *3.3 Piece of work for Deliverable 3

*Lowest-level, either a work package or a schedule activity
Project XYZ objectives
NOTE: Building the WBS using sticky notes works very well—highly recommended at the beginning of each project!
Project XYZ objectives

1. Deliverable A
2. Deliverable B
Project XYZ objectives

1. Deliverable A
   - 1.1 Smaller deliverable
   - 1.2 Smaller deliverable

2. Deliverable B
Project XYZ objectives

1. Deliverable A
   1.1 Smaller deliverable
   1.2 Smaller deliverable

2. Deliverable B
   2.1 Smaller deliverable
   2.2 Smaller deliverable
   2.3 Smaller deliverable
Project XYZ objectives

1. Deliverable A
   1.1 Smaller deliverable
   1.2 Smaller deliverable

2. Deliverable B
   2.1 Smaller deliverable
   2.2 Smaller deliverable
   2.3 Smaller deliverable
Project XYZ objectives

1. Deliverable A
   - 1.1 Smaller deliverable
   - 1.2 Smaller deliverable
     - 1.2.1 Work Package
     - 1.2.2 Work Package
   - 1.2.3 Work Package

2. Deliverable B
   - 2.1 Smaller deliverable
   - 2.2 Smaller deliverable
   - 2.3 Smaller deliverable
Project XYZ objectives

1. Deliverable A
   - 1.1 Smaller deliverable
   - 1.2 Smaller deliverable
     - 1.2.1 Work Package
       - 1.2.1.1 Activity (use action verbs!)
       - 1.2.1.2 Activity
       - 1.2.1.3 Activity
       - 1.2.1.4 Activity
       - 1.2.1.5 Activity

2. Deliverable B
   - 2.1 Smaller deliverable
   - 2.2 Smaller deliverable
   - 2.3 Smaller deliverable
     - 1.2.2 Work Package
     - 1.2.3 Work Package
Project XYZ objectives

1. Deliverable A
   1.1 Smaller deliverable
   1.2 Smaller deliverable
     1.2.1 Work Package
       1.2.1.1 Activity (use action verbs!)
       1.2.1.2 Activity
       1.2.1.3 Activity
       1.2.1.4 Activity
       1.2.1.5 Activity
     1.2.2 Work Package
       1.2.2.1 Activity
       1.2.2.2 Activity
   1.2.3 Work Package

2. Deliverable B
   2.1 Smaller deliverable
   2.2 Smaller deliverable
   2.3 Smaller deliverable
Project XYZ objectives

1. Deliverable A
   1.1 Smaller deliverable
   1.2 Smaller deliverable
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       1.2.1.3 Activity
       1.2.1.4 Activity
       1.2.1.5 Activity
     1.2.2 Work Package
       1.2.2.1 Activity
       1.2.2.2 Activity
   1.2.3 Work Package

2. Deliverable B
   2.1 Smaller deliverable
   2.2 Smaller deliverable
     2.2.1 Activity
     2.2.2 Activity
   2.3 Smaller deliverable
     2.3.1 Activity
     2.3.2 Activity
     2.3.3 Activity

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Project XYZ objectives

1. Deliverable A
   - 1.1 Smaller deliverable
     - 1.2.1 Work Package
       - 1.2.1.1 Activity
       - 1.2.1.2 Activity
       - 1.2.1.3 Activity
       - 1.2.1.4 Activity
       - 1.2.1.5 Activity
     - 1.2.2 Work Package
       - 1.2.2.1 Activity
       - 1.2.2.2 Activity
     - 1.2.3 Work Package
       - 1.2.3.1 Activity
       - 1.2.3.2 Activity
       - 1.2.3.3 Activity
   - 1.2 Smaller deliverable

2. Deliverable B
   - 2.1 Smaller deliverable
   - 2.2 Smaller deliverable
   - 2.3 Smaller deliverable

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NOTE: The yellow elements in this WBS are activities, or schedule activities. They make up all the work of the project, and are the elements used to make the project schedule—first in a network diagram, and then in a Gantt chart.
NOTE: The yellow elements in this WBS are activities, or schedule activities. They make up all the work of the project, and are the elements used to make the project schedule—first in a network diagram, and then in a Gantt chart.
Example WBS

Project: Bake a Cake From Scratch

1. Assemble ingredients
   1.1 Identify needed ingredients
     1.1.1 Decide cake type & flavor
     1.1.2 List all ingredients in the recipe
     1.1.3 Review "Cakes" section in cookbook
     1.1.4 Select cake recipe
   1.2 Purchase needed ingredients
     1.2.1 Identify ingredients we already have
     1.2.2 Make shopping list of ingredients we don't have
     1.2.3 Go to store and buy shopping-list ingredients

2. Make the cake
   2.1 Mix the ingredients
   2.2 Prepare to make cake
     2.2.1 Review recipe instructions
     2.2.2 Pre-heat oven
     2.2.3 Gather utensils, pans, bowls
     2.2.4 Grease & flower baking pans
   2.3 Cook the cake
     2.3.1 When cake is done, remove cake from oven
     2.3.2 Place cake in oven
     2.3.3 Set timer
     2.3.4 Cool cake
     2.3.5 Place cake on serving dish
     2.3.6 Frost & decorate cake

3. Cleanup
   3.1 Soak pans
   3.2 Wash all pans and utensils
   3.3 Put away clean dishes
WBS

- Extremely important part of the Scope Baseline
- As part of the Scope Baseline, the WBS is used as input to the following processes:
  - Define Activities, and then to Schedule the Activities
  - Estimate Costs
  - Determine Budget
  - Plan Quality Management
  - Identify Risks
  - Plan Procurement Management
Responsibility Assignment Matrix (RAM)

- Matrix showing the tasks and who is responsible to do them
- Form the matrix in one of two ways:
  - Tasks versus specific people (preferable)
  - Tasks versus function or skill center
- You can add to the Work Breakdown Structure and the Linear Responsibility Chart and update them as changes occur --You want a “living” plan.

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<th>Fred</th>
<th>Sally</th>
<th>Kathy</th>
<th>John</th>
<th>Steve</th>
<th>Sue</th>
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Example Schedule Network Diagram
Critical Path Method Example

Diagram:
- Start
  - A (5 d)
  - B (7 d)
- C (1 d)
  - D (8 d)
  - E (2 d)
- F (3 d)
  - G (2 d)
  - H (4 d)
- End

Critical Path (CP):
- ACF (9)
- ADF (16) <-- CP
- ADG (15)
- BEG (11)
- BEH (13)

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Example Gantt Chart for a Project

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<th>TASK</th>
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<th>W3</th>
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<th>W9</th>
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<td>4</td>
<td>Submit resume, cover letter, etc.</td>
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<td>5</td>
<td>Wait for response to application</td>
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<td>6</td>
<td>Schedule interview</td>
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<td>7</td>
<td>Prepare a presentation</td>
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<td>8</td>
<td>Be interviewed and make presentation</td>
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<td>9</td>
<td>Wait for response to interview</td>
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<td>10</td>
<td>If job offer made, make decision</td>
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</tbody>
</table>
### Risk Planning: Fatal Flaw Analysis
(as devised by ERL)

<table>
<thead>
<tr>
<th>Importance to success of the project, if not resolved</th>
<th>Highly Probable</th>
<th>Moderately Probable</th>
<th>Unlikely</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fatal</td>
<td>A</td>
<td>B</td>
<td></td>
</tr>
<tr>
<td>Acceptably compromises some deliverables</td>
<td></td>
<td>B</td>
<td>C</td>
</tr>
<tr>
<td>Little or no effect</td>
<td></td>
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</tbody>
</table>
Re-planning

Re-planning is a “way of life” for a project leader.

Re-planning is necessary when

- unforeseen events occur
- tasks take longer/shorter time than estimated
- experiments give unexpected results
- the project objectives are modified
- a change occurs in one of the “Triple Constraints”
- someone “steals” your manpower resources
- etc., etc., etc.
In Review...

- **People** are the most important element in project management.

- Upfront, clear definition of *project objectives* is vital—use the tools presented here to help!

- The discipline of *planning* can be very difficult initially, but the long-term benefits can be enormous.
To learn more...

- Start asking to become involved with projects and helping to lead them
- Watch and learn from experienced P.M.s
- Take courses in project management, especially applied courses
- Visit professional project management websites, like PMI’s, and apply what you learn
Thanks!

Eldon R. Larsen