Chapter 9: Project Human Resource Management

Information Technology Project Management, Sixth Edition

Note: See the text itself for full citations.

More Courses at cie-wc.edu
Learning Objectives

- Explain the importance of good human resource management on projects, including the current state and future implications of the global IT workforce
- Define project human resource management and understand its processes
- Summarize key concepts for managing people by understanding the theories of Abraham Maslow, Frederick Herzberg, David McClelland, and Douglas McGregor on motivation, H. J. Thamhain and D. L. Wilemon on influencing workers, and Stephen Covey on how people and teams can become more effective
Learning Objectives (continued)

- Discuss human resource planning and be able to create a human resource plan, project organizational chart, responsibility assignment matrix, and resource histogram.
- Understand important issues involved in project staff acquisition and explain the concepts of resource assignments, resource loading, and resource leveling.
- Assist in team development with training, team-building activities, and reward systems.
- Explain and apply several tools and techniques to help manage a project team and summarize general advice on managing teams.
- Describe how project management software can assist in project human resource management.
The Importance of Human Resource Management

- Many corporate executives have said, “People are our most important asset”
- People determine the success and failure of organizations and projects
The Global IT Workforce

- Although there have been ups and downs in the IT labor market, there will always be a need for good IT workers.
- The Digital Planet 2008 study estimated that the global marketplace for information and communications technology (ICT) would top $3.7 trillion in 2008 and reach almost $4 trillion by 2011.
Communications products and services represented the largest single category of ICT spending (57 percent) in 2007 with $1.9 trillion; consumers spent 29 percent of ICT dollars worldwide, while spending by business and government accounted for 71 percent.

The top ten ICT spending countries are, in descending order: the U.S., Japan, China, Germany, U.K., France, Italy, Brazil, Canada, and Spain; in 2008, China jumped ahead of Germany, the United Kingdom, and France.

The Americas’ growth in ICT spending will be the slowest of the three broad regions at 4 percent between 2007 and 2011; the Asia-Pacific region and the Europe, Africa, and Middle East regions will grow annually at 10.5 percent and 5 percent, respectively.
U.S. IT Workforce

- U.S. IT employment topped 4 million for the first time in 2008
- Several IT-related occupations will be among the top 30 fastest-growing occupations in the U.S. between now and 2016, with network systems/data communications analysts and computer software engineers listed as numbers one and four
- IT staff struggle to transition to project management, CIOs argue, and complain that educational institutions are not putting adequate focus on these skills through coursework
Implications for the Future of IT Human Resource Management

- Proactive organizations are addressing workforce needs by:
  - Improving benefits
  - Redefining work hours and incentives
  - Finding future workers
Here’s the dirty little secret: U.S. productivity is No. 1 in the world when productivity is measured as gross domestic product per worker, but our lead vanishes when productivity is measured as GDP per hour worked…Europeans take an average of six to seven weeks of paid annual leave, compared with just 12 days in the United States; twice as many American as European workers put in more than 48 hours per week.

Sociologists have shown that many Americans, especially men, would like to have more family or leisure time; recent surveys show that many Americans are willing to sacrifice up to a quarter of their salaries in return for more time off.
What Went Wrong?


- Four-year college graduates were listed as deficient in the following three skills:
  - Written communications - 27.8%
  - Writing in English - 26.2%
  - Leadership - 23.8%
What is Project Human Resource Management?

- Making the most effective use of the people involved with a project

Processes include:

- **Developing the human resource plan**: identifying and documenting project roles, responsibilities, and reporting relationships
- **Acquiring the project team**: getting the needed personnel assigned to and working on the project
- **Developing the project team**: building individual and group skills to enhance project performance
- **Managing the project team**: tracking team member performance, motivating team members, providing timely feedback, resolving issues and conflicts, and coordinating changes to help enhance project performance
Figure 9-1. Project Human Resource Management Summary

Planning
Process: Develop human resource plan
Output: Human resource plan

Executing
Process: Acquire project team
Outputs: Project staff assignments, resource calendars, project management plan updates

Process: Develop project team
Outputs: Team performance assessments, enterprise environmental factors updates

Process: Manage project team
Outputs: Enterprise environmental factors updates, organizational process assets updates, change requests, project management plan updates

Project Start  Project Finish
Keys to Managing People

- Psychologists and management theorists have devoted much research and thought to the field of managing people at work
- Important areas related to project management include:
  - Motivation theories
  - Influence and power
  - Effectiveness
Intrinsic and Extrinsic Motivation

- **Intrinsic motivation** causes people to participate in an activity for their own enjoyment.
- **Extrinsic motivation** causes people to do something for a reward or to avoid a penalty.
- For example, some children take piano lessons for intrinsic motivation (they enjoy it) while others take them for extrinsic motivation (to get a reward or avoid punishment).
Maslow’s Hierarchy of Needs

- Abraham Maslow argued that humans possess unique qualities that enable them to make independent choices, thus giving them control of their destiny.
- Maslow developed a **hierarchy of needs** which states that people’s behaviors are guided or motivated by a sequence of needs.
Figure 9-2. Maslow’s Hierarchy of Needs

1. Physiological
   - Food, water, etc.
2. Safety
   - Acceptance, love, affection, association with a team/group
3. Social
4. Esteem
   - Recognition, prestige, status
5. Self-Actualization
   - Challenging projects, opportunities for innovation and creativity

A satisfied need is no longer a motivator
Herzberg’s Motivational and Hygiene Factors

- Frederick Herzberg wrote several famous books and articles about worker motivation; he distinguished between:
  - Motivational factors: achievement, recognition, the work itself, responsibility, advancement, and growth, which produce job satisfaction
  - Hygiene factors: cause dissatisfaction if not present, but do not motivate workers to do more; examples include larger salaries, more supervision, and a more attractive work environment
Table 9-1: Examples of Herzberg’s Hygiene Factors and Motivators

<table>
<thead>
<tr>
<th><strong>Hygiene Factors</strong></th>
<th><strong>Motivators</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Larger salaries</td>
<td>Achievement</td>
</tr>
<tr>
<td>More supervision</td>
<td>Recognition</td>
</tr>
<tr>
<td>More attractive work environment</td>
<td>Work itself</td>
</tr>
<tr>
<td>Computer or other required equipment</td>
<td>Responsibility</td>
</tr>
<tr>
<td>Health benefits</td>
<td>Advancement</td>
</tr>
<tr>
<td>Training</td>
<td>Growth</td>
</tr>
</tbody>
</table>
Specific needs are acquired or learned over time and shaped by life experiences, including:

- Achievement (nAch): achievers like challenging projects with achievable goals and lots of feedback
- Affiliation (nAff): people with high nAff desire harmonious relationships and need to feel accepted by others, so managers should try to create a cooperative work environment for them
- Power (nPow): people with a need for power desire either personal power (not good) or institutional power (good for the organization); provide institutional power seekers with management opportunities
Douglas McGregor popularized the human relations approach to management in the 1960s.

- **Theory X**: assumes workers dislike and avoid work, so managers must use coercion, threats, and various control schemes to get workers to meet objectives.

- **Theory Y**: assumes individuals consider work as natural as play or rest and enjoy the satisfaction of esteem and self-actualization needs.

- **Theory Z**: introduced in 1981 by William Ouchi and is based on the Japanese approach to motivating workers, emphasizing trust, quality, collective decision making, and cultural values.
Thamhain and Wilemon’s Ways to Have Influence on Projects

1. Authority: the legitimate hierarchical right to issue orders
2. Assignment: the project manager's perceived ability to influence a worker's later work assignments
3. Budget: the project manager's perceived ability to authorize others' use of discretionary funds
4. Promotion: the ability to improve a worker's position
5. Money: the ability to increase a worker's pay and benefits
6. Penalty: the project manager's ability to cause punishment
7. Work challenge: the ability to assign work that capitalizes on a worker's enjoyment of doing a particular task
8. Expertise: the project manager's perceived special knowledge that others deem important
9. Friendship: the ability to establish friendly personal relationships between the project manager and others
Ways to Influence that Help and Hurt Projects

- Projects are more likely to succeed when project managers influence with:
  - Expertise
  - Work challenge

- Projects are more likely to fail when project managers rely too heavily on:
  - Authority
  - Money
  - Penalty
Power

- **Power** is the potential ability to influence behavior to get people to do things they would not otherwise do

- Types of power include:
  - Coercive
  - Legitimate
  - Expert
  - Reward
  - Referent
Covey and Improving Effectiveness

- Project managers can apply Covey’s 7 habits to improve effectiveness on projects
  - Be proactive
  - Begin with the end in mind
  - Put first things first
  - Think win/win
  - Seek first to understand, then to be understood
  - Synergize
  - Sharpen the saw
Empathic Listening and Rapport

- Good project managers are **empathic listeners**; they listen with the intent to understand.
- Before you can communicate with others, you have to have **rapport**, a relation of harmony, conformity, accord, or affinity.
- **Mirroring** is the matching of certain behaviors of the other person, a technique to help establish rapport.
- IT professionals need to develop empathic listening and other people skills to improve relationships with users and other stakeholders.
Developing the Human Resource Plan

- Involves identifying and documenting project roles, responsibilities, and reporting relationships
- Contents include:
  - Project organizational charts
  - Staffing management plan
  - Responsibility assignment matrixes
  - Resource histograms
Figure 9-3. Sample Organizational Chart for a Large IT Project
Figure 9-4. Work Definition and Assignment Process

- **Steps**
  - Requirements Finalization
  - How Work Will Be Done
  - Break Down the Work
  - Assign the Work

- **Key Outputs**
  - Finalized Project Scope Baseline
  - Finalized Technical Baseline
  - Program/Team Approach
  - Technical Approaches
  - Work Breakdown Structure (WBS)
  - Activity Definitions
  - Organizational Breakdown Structure (OBS)
  - OBS Responsibilities
Responsibility Assignment Matrices

- A **responsibility assignment matrix (RAM)** is a matrix that maps the work of the project as described in the WBS to the people responsible for performing the work as described in the OBS.
- Can be created in different ways to meet unique project needs.
### Figure 9-5. Sample Responsibility Assignment Matrix (RAM)

<table>
<thead>
<tr>
<th>OBS units</th>
<th>WBS activities</th>
<th>1.1.1</th>
<th>1.1.2</th>
<th>1.1.3</th>
<th>1.1.4</th>
<th>1.1.5</th>
<th>1.1.6</th>
<th>1.1.7</th>
<th>1.1.8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Systems Engineering</td>
<td>R</td>
<td>R P</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>R</td>
<td></td>
</tr>
<tr>
<td>Software Development</td>
<td></td>
<td>R P</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hardware Development</td>
<td></td>
<td></td>
<td>R P</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Test Engineering</td>
<td></td>
<td>P</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality Assurance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>R P</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Configuration Management</td>
<td></td>
<td></td>
<td></td>
<td>R P</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Integrated Logistics Support</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>P</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Training</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>R P</td>
<td></td>
</tr>
</tbody>
</table>

**R** = Responsible organizational unit

**P** = Performing organizational unit
Figure 9-6. RAM Showing Stakeholder Roles

<table>
<thead>
<tr>
<th>Items</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit Test</td>
<td>S</td>
<td>A</td>
<td>I</td>
<td>I</td>
<td>R</td>
</tr>
<tr>
<td>Integration Test</td>
<td>S</td>
<td>P</td>
<td>A</td>
<td>I</td>
<td>R</td>
</tr>
<tr>
<td>System Test</td>
<td>S</td>
<td>P</td>
<td>A</td>
<td>I</td>
<td>R</td>
</tr>
<tr>
<td>User Acceptance Test</td>
<td>S</td>
<td>P</td>
<td>I</td>
<td>A</td>
<td>R</td>
</tr>
</tbody>
</table>

A = Accountable  
P = Participant  
R = Review Required  
I = Input Required  
S = Sign-off Required
Table 9-2. Sample RACI Chart

<table>
<thead>
<tr>
<th></th>
<th>Group A</th>
<th>Group B</th>
<th>Group C</th>
<th>Group D</th>
<th>Group E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Plans</td>
<td>R</td>
<td>A</td>
<td>C</td>
<td>C</td>
<td>I</td>
</tr>
<tr>
<td>Unit Test</td>
<td>C</td>
<td>I</td>
<td>R</td>
<td>A</td>
<td>I</td>
</tr>
<tr>
<td>Integration Test</td>
<td>A</td>
<td>R</td>
<td>I</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>System Test</td>
<td>I</td>
<td>C</td>
<td>A</td>
<td>I</td>
<td>R</td>
</tr>
<tr>
<td>User Acceptance Test</td>
<td>R</td>
<td>I</td>
<td>C</td>
<td>R</td>
<td>A</td>
</tr>
</tbody>
</table>

R = responsibility  
A = accountability, only one A per task  
C = consultation  
I = informed

Note that some people reverse the definitions of responsible and accountable.
Staffing Management Plans and Resource Histograms

- A **staffing management plan** describes when and how people will be added to and taken off the project team.
- A **resource histogram** is a column chart that shows the number of resources assigned to a project over time.
Figure 9-7. Sample Resource Histogram

- Jan
- Feb
- March
- April
- May
- June

- Managers
- Business analysts
- Programmers
- Technical writers
What Went Right?

- In addition to providing technical training for IT personnel, several companies have made significant investments in project management training to provide career paths for project managers
  - Hewlett Packard employed only six registered PMPs in 1997, but by August 2004, it employed more than 1,500 PMPs and was adding 500 more per year
  - While most consulting firms offer a single path to a leadership position, IBM has four to allow their people to succeed by focusing on their strengths and interests in one or more disciplines
Acquiring the Project Team

- Acquiring qualified people for teams is crucial.
- The project manager who is the smartest person on the team has done a poor job of recruiting!
- It’s important to assign the appropriate type and number of people to work on projects at the appropriate times.
Resource Assignment

- Staffing plans and good hiring procedures are important, as are incentives for recruiting and retention
  - Some companies give their employees one dollar for every hour a new person they helped hire works
  - Some organizations allow people to work from home as an incentive

- Enrollment in U.S. computer science and engineering programs has dropped almost in half since 2000, and one-third of U.S. workers will be over the age of 50 by 2010

- CIO’s researchers suggest that organizations rethink hiring practices and incentives to hire and retain IT talent
Best Practice

- Best practices can be applied to include the best places for people to work
  - For example, Fortune Magazine lists the “100 Best Companies to Work For” in the United States every year, with Google taking the honors in 2007 and 2008
  - Working Mothers Magazine lists the best companies in the U.S. for women based on benefits for working families
  - The Timesonline (www.timesonline.co.uk) provides the Sunday Times list of the 100 Best Companies to Work For, a key benchmark against which UK companies can judge their Best Practice performance as employers
Resource Loading

- **Resource loading** refers to the amount of individual resources an existing schedule requires during specific time periods.
- Helps project managers develop a general understanding of the demands a project will make on the organization’s resources and individual people’s schedules.
- **Overallocation** means that more resources than are available are assigned to perform work at a given time.
Figure 9-8. Sample Histogram Showing an Overallocated Individual
Resource Leveling

- **Resource leveling** is a technique for resolving resource conflicts by delaying tasks.
- The main purpose of resource leveling is to create a smoother distribution of resource usage and reduce overallocation.
Figure 9-9. Resource Leveling Example

Project network with Activities A, B, and C and durations as shown. Activity A has 3 days of slack, and Activity C has 2 days of slack. Assume Activity A has 2 workers, B has 4 workers, and C has 2 workers.

Resource usage if all activities start on day one

Resource usage if Activity C is delayed 2 days, its total slack
Benefits of Resource Leveling

- When resources are used on a more constant basis, they require less management.
- It may enable project managers to use a just-in-time inventory type of policy for using subcontractors or other expensive resources.
- It results in fewer problems for project personnel and accounting department.
- It often improves morale.
Developing the Project Team

- The main goal of **team development** is to help people work together more effectively to improve project performance
- It takes teamwork to successfully complete most projects
Tuckman Model of Team Development

- Forming
- Storming
- Norming
- Performing
- Adjourning
Training

- Training can help people understand themselves, each other, and how to work better in teams
- Team building activities include:
  - Physical challenges
  - Psychological preference indicator tools
Meyers-Briggs Type Indicator (MBTI)

- MBTI is a popular tool for determining personality preferences and helping teammates understand each other.
- Four dimensions include:
  - Extrovert/Introvert (E/I)
  - Sensation/Intuition (S/N)
  - Thinking/Feeling (T/F)
  - Judgment/Perception (J/P)
- NTs or rationals are attracted to technology fields.
- IT people vary most from the general population in not being extroverted or sensing.
Social Styles Profile

- People are perceived as behaving primarily in one of four zones, based on their assertiveness and responsiveness:
  - Drivers
  - Expressives
  - Analyticals
  - Amiables
- People on opposite corners (drivers and amiables, analyticals and expressives) may have difficulties getting along
Figure 9-10. Social Styles

- Task-Directed Responsiveness
- Analytical
- Amiable
- People-Directed Responsiveness
- Expressive
- Driver
- Tell-Directed Assertiveness
- Ask-Directed Assertiveness
DISC Profiles

- Also uses a four-dimensional model of normal behavior
  - Dominance
  - Influence
  - Steadiness
  - Compliance

- People in opposite quadrants can have problems understanding each other
Figure 9-11. The DISC Profile

<table>
<thead>
<tr>
<th>It Compliance (Blue)</th>
<th>I Dominance (Red)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data driven, risk averse,</td>
<td>Direct, decisive, assertive,</td>
</tr>
<tr>
<td>concerned, works well alone,</td>
<td>outcome oriented, competitive,</td>
</tr>
<tr>
<td>prefers processes and</td>
<td>self assured, takes control, has to</td>
</tr>
<tr>
<td>procedures, not very</td>
<td>win</td>
</tr>
<tr>
<td>communicative or social</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>You Steadiness (Green)</th>
<th>We Influence (Yellow)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calm, sincere, sympathetic,</td>
<td>Persuasive, optimistic,</td>
</tr>
<tr>
<td>cooperative, cautious,</td>
<td>outgoing, verbal, enthusiastic,</td>
</tr>
<tr>
<td>conflict averse, good</td>
<td>strives to win others over,</td>
</tr>
<tr>
<td>listener, wants to maintain</td>
<td>leadership through acclimation</td>
</tr>
<tr>
<td>stability</td>
<td></td>
</tr>
</tbody>
</table>
Team-based reward and recognition systems can promote teamwork

Focus on rewarding teams for achieving specific goals

Allow time for team members to mentor and help each other to meet project goals and develop human resources
Managing the Project Team

- Project managers must lead their teams in performing various project activities.
- After assessing team performance and related information, the project manager must decide:
  - If changes should be requested to the project
  - If corrective or preventive actions should be recommended
  - If updates are needed to the project management plan or organizational process assets
Tools and Techniques for Managing Project Teams

- Observation and conversation
- Project performance appraisals
- Conflict management
- Issue logs
- Interpersonal skills
General Advice on Teams

- Be patient and kind with your team
- Fix the problem instead of blaming people
- Establish regular, effective meetings
- Allow time for teams to go through the basic team-building stages
- Limit the size of work teams to three to seven members
Five Dysfunctions of a Team

- Patrick Lencioni, author of several books on teams, says that “Teamwork remains the one sustainable competitive advantage that has been largely untapped”*

- The five dysfunctions of teams are:
  1. Absence of trust
  2. Fear of conflict
  3. Lack of commitment
  4. Avoidance of accountability
  5. Inattention to results

General Advice on Teams (continued)

- Plan some social activities to help project team members and other stakeholders get to know each other better
- Stress team identity
- Nurture team members and encourage them to help each other
- Take additional actions to work with virtual team members
Using Software to Assist in Human Resource Management

- Software can help in producing RAMS and resource histograms
- Project management software includes several features related to human resource management such as:
  - Assigning resources
  - Identifying potential resource shortages or underutilization
  - Leveling resources
Project Resource Management Involves Much More Than Using Software

- Project managers must:
  - Treat people with consideration and respect
  - Understand what motivates them
  - Communicate carefully with them

- Focus on your goal of enabling project team members to deliver their best work
Chapter Summary

- Project human resource management includes the processes required to make the most effective use of the people involved with a project.
- Main processes include:
  - Develop human resource plan
  - Acquire project team
  - Develop project team
  - Manage project team