

# Project Resource Management

Prepared by Donald Ardiel

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## Resource Management Processes



Plan Resource Management



Estimate Activity Resources



Acquire Resources



Develop Team



Manage Team



Control Resources

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## Plan Resource Management



- Resource Management Plan
  - Identification of resources
  - Plan for acquiring resources
  - Staffing roles and responsibilities
  - Plan for training and release

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## Plan Resource Management

| WBS            | OBS               |                   |                   |                   |
|----------------|-------------------|-------------------|-------------------|-------------------|
|                | Functional Unit 1 | Functional Unit 2 | Functional Unit 3 | Functional Unit 4 |
| Work Package 1 | Responsible       |                   |                   | Consults          |
| Work Package 2 |                   | Supports          |                   | Responsible       |
| Work Package 3 |                   |                   | Responsible       | Inform            |
| Work Package 4 | Responsible       | Approves          |                   |                   |

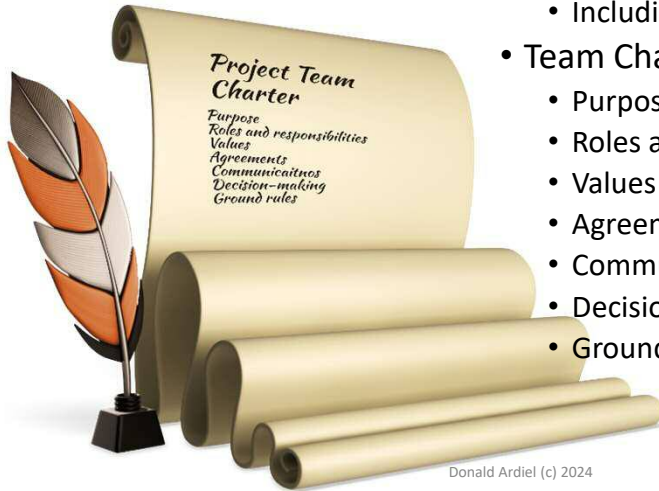
- Tools and Techniques
  - Hierarchy Charts
    - Organizational Structure
  - Responsibility Assignment Matrix
    - RAM
    - RACI
    - RASCI
    - Comprehensive Responsibility Chart

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## Plan Resource Management



### • Outputs

- Resource Management Plan
  - Including RASCI
- Team Charter
  - Purpose
  - Roles and Responsibilities
  - Values
  - Agreements
  - Communications
  - Decision-making
  - Ground rules

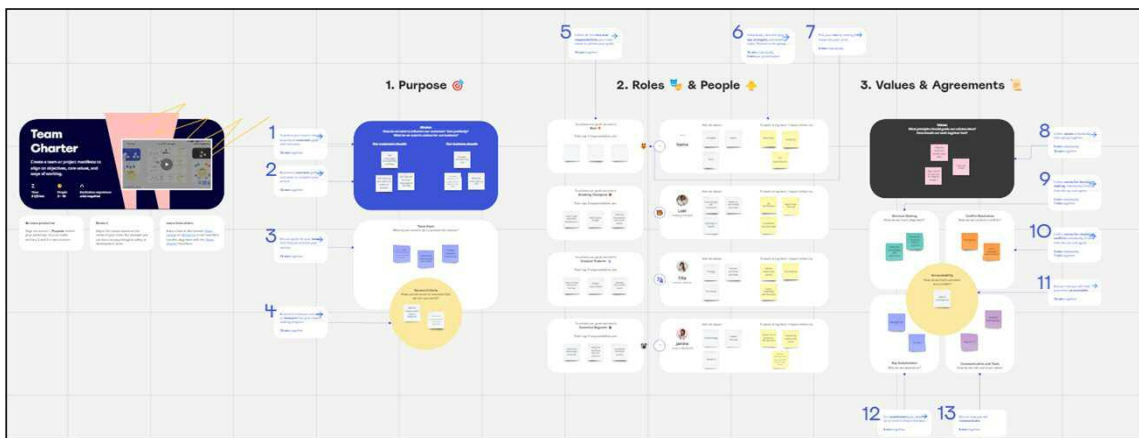
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## Team Charter



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## Estimate Activity Resources

| WBS   | Task Name                        | Resources |       |      | Duration |        |          |           | Total Duration | Total Resources |
|-------|----------------------------------|-----------|-------|------|----------|--------|----------|-----------|----------------|-----------------|
|       |                                  | Resource  | Units | Cost | Start    | Finish | Duration | Resources |                |                 |
| 1.0   | Project Start                    |           |       |      |          |        |          |           |                |                 |
| 1.1   | Project Kick-off                 |           |       |      |          |        |          |           |                |                 |
| 1.2   | Project Charter                  |           |       |      |          |        |          |           |                |                 |
| 1.3   | Project Management Plan          |           |       |      |          |        |          |           |                |                 |
| 1.4   | Project Organization             |           |       |      |          |        |          |           |                |                 |
| 1.5   | Project Risk Management          |           |       |      |          |        |          |           |                |                 |
| 1.6   | Project Communication Management |           |       |      |          |        |          |           |                |                 |
| 1.7   | Project Stakeholder Management   |           |       |      |          |        |          |           |                |                 |
| 1.8   | Project Procurement Management   |           |       |      |          |        |          |           |                |                 |
| 1.9   | Project Quality Management       |           |       |      |          |        |          |           |                |                 |
| 1.10  | Project Resource Management      |           |       |      |          |        |          |           |                |                 |
| 1.11  | Project Schedule Management      |           |       |      |          |        |          |           |                |                 |
| 1.12  | Project Cost Management          |           |       |      |          |        |          |           |                |                 |
| 1.13  | Project Risk Management          |           |       |      |          |        |          |           |                |                 |
| 1.14  | Project Communication Management |           |       |      |          |        |          |           |                |                 |
| 1.15  | Project Stakeholder Management   |           |       |      |          |        |          |           |                |                 |
| 1.16  | Project Procurement Management   |           |       |      |          |        |          |           |                |                 |
| 1.17  | Project Quality Management       |           |       |      |          |        |          |           |                |                 |
| 1.18  | Project Resource Management      |           |       |      |          |        |          |           |                |                 |
| 1.19  | Project Schedule Management      |           |       |      |          |        |          |           |                |                 |
| 1.20  | Project Cost Management          |           |       |      |          |        |          |           |                |                 |
| 1.21  | Project Risk Management          |           |       |      |          |        |          |           |                |                 |
| 1.22  | Project Communication Management |           |       |      |          |        |          |           |                |                 |
| 1.23  | Project Stakeholder Management   |           |       |      |          |        |          |           |                |                 |
| 1.24  | Project Procurement Management   |           |       |      |          |        |          |           |                |                 |
| 1.25  | Project Quality Management       |           |       |      |          |        |          |           |                |                 |
| 1.26  | Project Resource Management      |           |       |      |          |        |          |           |                |                 |
| 1.27  | Project Schedule Management      |           |       |      |          |        |          |           |                |                 |
| 1.28  | Project Cost Management          |           |       |      |          |        |          |           |                |                 |
| 1.29  | Project Risk Management          |           |       |      |          |        |          |           |                |                 |
| 1.30  | Project Communication Management |           |       |      |          |        |          |           |                |                 |
| 1.31  | Project Stakeholder Management   |           |       |      |          |        |          |           |                |                 |
| 1.32  | Project Procurement Management   |           |       |      |          |        |          |           |                |                 |
| 1.33  | Project Quality Management       |           |       |      |          |        |          |           |                |                 |
| 1.34  | Project Resource Management      |           |       |      |          |        |          |           |                |                 |
| 1.35  | Project Schedule Management      |           |       |      |          |        |          |           |                |                 |
| 1.36  | Project Cost Management          |           |       |      |          |        |          |           |                |                 |
| 1.37  | Project Risk Management          |           |       |      |          |        |          |           |                |                 |
| 1.38  | Project Communication Management |           |       |      |          |        |          |           |                |                 |
| 1.39  | Project Stakeholder Management   |           |       |      |          |        |          |           |                |                 |
| 1.40  | Project Procurement Management   |           |       |      |          |        |          |           |                |                 |
| 1.41  | Project Quality Management       |           |       |      |          |        |          |           |                |                 |
| 1.42  | Project Resource Management      |           |       |      |          |        |          |           |                |                 |
| 1.43  | Project Schedule Management      |           |       |      |          |        |          |           |                |                 |
| 1.44  | Project Cost Management          |           |       |      |          |        |          |           |                |                 |
| 1.45  | Project Risk Management          |           |       |      |          |        |          |           |                |                 |
| 1.46  | Project Communication Management |           |       |      |          |        |          |           |                |                 |
| 1.47  | Project Stakeholder Management   |           |       |      |          |        |          |           |                |                 |
| 1.48  | Project Procurement Management   |           |       |      |          |        |          |           |                |                 |
| 1.49  | Project Quality Management       |           |       |      |          |        |          |           |                |                 |
| 1.50  | Project Resource Management      |           |       |      |          |        |          |           |                |                 |
| 1.51  | Project Schedule Management      |           |       |      |          |        |          |           |                |                 |
| 1.52  | Project Cost Management          |           |       |      |          |        |          |           |                |                 |
| 1.53  | Project Risk Management          |           |       |      |          |        |          |           |                |                 |
| 1.54  | Project Communication Management |           |       |      |          |        |          |           |                |                 |
| 1.55  | Project Stakeholder Management   |           |       |      |          |        |          |           |                |                 |
| 1.56  | Project Procurement Management   |           |       |      |          |        |          |           |                |                 |
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| 1.59  | Project Schedule Management      |           |       |      |          |        |          |           |                |                 |
| 1.60  | Project Cost Management          |           |       |      |          |        |          |           |                |                 |
| 1.61  | Project Risk Management          |           |       |      |          |        |          |           |                |                 |
| 1.62  | Project Communication Management |           |       |      |          |        |          |           |                |                 |
| 1.63  | Project Stakeholder Management   |           |       |      |          |        |          |           |                |                 |
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| 1.67  | Project Schedule Management      |           |       |      |          |        |          |           |                |                 |
| 1.68  | Project Cost Management          |           |       |      |          |        |          |           |                |                 |
| 1.69  | Project Risk Management          |           |       |      |          |        |          |           |                |                 |
| 1.70  | Project Communication Management |           |       |      |          |        |          |           |                |                 |
| 1.71  | Project Stakeholder Management   |           |       |      |          |        |          |           |                |                 |
| 1.72  | Project Procurement Management   |           |       |      |          |        |          |           |                |                 |
| 1.73  | Project Quality Management       |           |       |      |          |        |          |           |                |                 |
| 1.74  | Project Resource Management      |           |       |      |          |        |          |           |                |                 |
| 1.75  | Project Schedule Management      |           |       |      |          |        |          |           |                |                 |
| 1.76  | Project Cost Management          |           |       |      |          |        |          |           |                |                 |
| 1.77  | Project Risk Management          |           |       |      |          |        |          |           |                |                 |
| 1.78  | Project Communication Management |           |       |      |          |        |          |           |                |                 |
| 1.79  | Project Stakeholder Management   |           |       |      |          |        |          |           |                |                 |
| 1.80  | Project Procurement Management   |           |       |      |          |        |          |           |                |                 |
| 1.81  | Project Quality Management       |           |       |      |          |        |          |           |                |                 |
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| 1.83  | Project Schedule Management      |           |       |      |          |        |          |           |                |                 |
| 1.84  | Project Cost Management          |           |       |      |          |        |          |           |                |                 |
| 1.85  | Project Risk Management          |           |       |      |          |        |          |           |                |                 |
| 1.86  | Project Communication Management |           |       |      |          |        |          |           |                |                 |
| 1.87  | Project Stakeholder Management   |           |       |      |          |        |          |           |                |                 |
| 1.88  | Project Procurement Management   |           |       |      |          |        |          |           |                |                 |
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| 1.90  | Project Resource Management      |           |       |      |          |        |          |           |                |                 |
| 1.91  | Project Schedule Management      |           |       |      |          |        |          |           |                |                 |
| 1.92  | Project Cost Management          |           |       |      |          |        |          |           |                |                 |
| 1.93  | Project Risk Management          |           |       |      |          |        |          |           |                |                 |
| 1.94  | Project Communication Management |           |       |      |          |        |          |           |                |                 |
| 1.95  | Project Stakeholder Management   |           |       |      |          |        |          |           |                |                 |
| 1.96  | Project Procurement Management   |           |       |      |          |        |          |           |                |                 |
| 1.97  | Project Quality Management       |           |       |      |          |        |          |           |                |                 |
| 1.98  | Project Resource Management      |           |       |      |          |        |          |           |                |                 |
| 1.99  | Project Schedule Management      |           |       |      |          |        |          |           |                |                 |
| 1.100 | Project End                      |           |       |      |          |        |          |           |                |                 |

- Type and number of resources needed
- Performed concurrently with activity duration estimation in Schedule Management
- Build on previous experience
  - Bottom-up estimation
  - Analogous estimation
  - Parametric estimation
- Resource breakdown Structure

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## Acquiring Resources

- Assigning team members to specific roles



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Develop Team

## Develop Team

- Builds the team and improves performance
- Leadership and Management

*Management is doing things right ...  
Leadership is doing the right things"*  
Peter Drucker



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Develop Team

## Project Architect/Project Manager

**Leader**

Set direction and vision  
Inspire teamwork  
Align team members  
Motivate and support



**Manager**

Plan, estimate, and budget  
Organize work and responsibilities  
Acquire and manage resources  
Monitor and control

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## Leadership

- Many theories about leadership; comes down to:

*Creating the vision*

*Communicating that vision*

*Motivating people to act to realize that vision*

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## Leadership



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## Tuckman's Ladder Five Stages of Team Development



- **Adjourning**
  - Team realizes achievement and is recognized for a successful outcome
- **Performing**
  - Hard work leads to success
  - Issues resolved without friction or disrespect
- **Norming**
  - Differences are resolved
  - Authority of the leader is recognized
- **Storming**
  - Pushing against boundaries
  - Challenging the leader's authority
  - Interpersonal conflicts emerge
- **Forming**
  - Recruiting the appropriate team members with the needed skill sets
  - Establishing boundaries and responsibilities

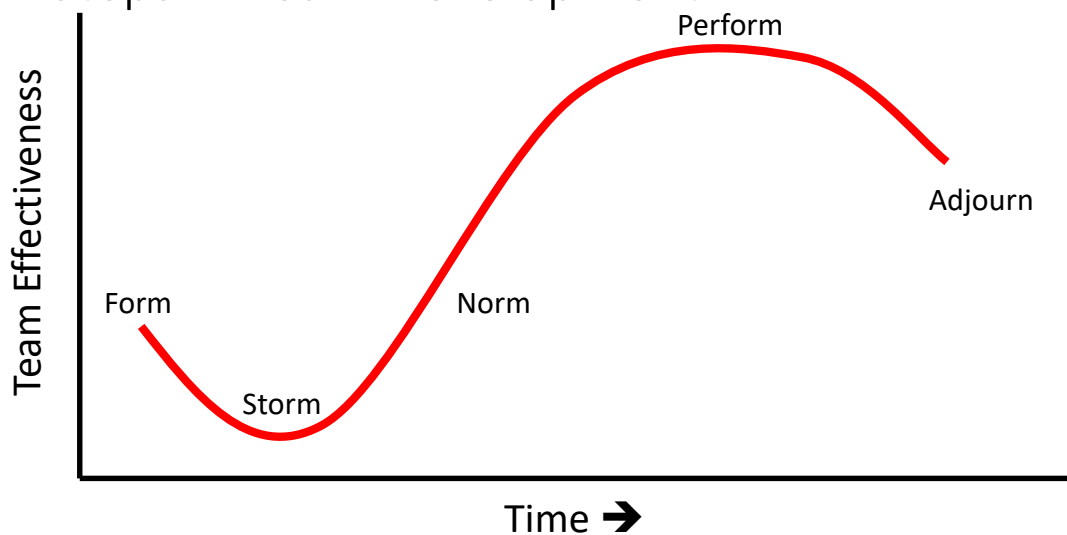


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## Tuckman's Ladder Steps in Team Development



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## Tuckman's Ladder – “Remember the Titans”



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## Tuckman's Ladder – “Lord of the Rings”



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## Motivation



- Influences productivity
- Is an intrinsic and internal phenomenon or process
- Encourages people to achieve their objectives
- Involves psychological, social and economic satisfaction
- Involves the creation of an environment that helps everyone achieve work-related objectives while gaining the maximum personal satisfaction

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## Motivation

### Six core phases in the motivational process:

1. Needs are identified
2. Drives created
3. Select goal-directed behaviour
4. Perform the task
5. Receive feedback
6. Reassess needs and goals

### Content

#### Motivation Theories

- Link internal factors or “needs” with particular behaviours
  - Maslow’s Hierarchy of Needs
  - Herzberg’s Motivational/Hygiene Theory

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## Content Motivational Theories

- Maslow's Hierarchy of Needs
- Herzberg's Motivational/Hygiene Theory
- McClelland's Achievement Motivation Theory
  - (Three Needs Theory)



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## Maslow's Hierarchy of Needs



*Within every human being there exists a hierarchy of five types of needs.*



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Manage Team

# Maslow's Hierarchy of Needs

**How the workplace can satisfy Maslow's needs**

The diagram shows a pyramid with five levels. From top to bottom, the levels and their descriptions are:

- Self Actualization Needs:** Reaching your potential, independence, creativity, self-expression.
- Esteem Needs:** Responsibility, self-respect, recognition, sense of accomplishment, sense of competence, sense of equity.
- Social/Affiliation Needs:** Companionship, acceptance, love and affection, group membership.
- Safety/Security Needs:** Security for self and possessions, avoidance of risks, avoidance of harm, avoidance of pain.
- Physiological Needs:** Food, Clothing, Shelter, Comfort, self-preservation.

Workplace strategies for each level:

- Self Actualization:** (No specific strategies listed in this diagram)
- Esteem:** Opportunities to interact/network, Team-based work, Friendly co-workers.
- Social/Affiliation:** Fringe benefits, Job security, Sound policies and practices, Proper supervision, Safe working conditions.
- Safety/Security:** Adequate compensation, Rest periods, Labour-saving devices, Efficient work methods.
- Physiological:** (No specific strategies listed in this diagram)

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# Maslow's Hierarchy of Needs

**How the workplace can satisfy Maslow's needs**

The diagram shows a pyramid with five levels. From top to bottom, the levels and their descriptions are:

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- Safety/Security Needs:** Security for self and possessions, avoidance of risks, avoidance of harm, avoidance of pain.
- Physiological Needs:** Food, Clothing, Shelter, Comfort, self-preservation.


Workplace strategies for each level:

- Self Actualization:** Involvement in planning your work, Opportunities for growth and development, Creative work.
- Esteem:** Freedom to make decisions, Status symbols, Recognition / awards, Challenging work, Opportunity for advancement, Sharing decision making.
- Social/Affiliation:** (No specific strategies listed in this diagram)
- Safety/Security:** (No specific strategies listed in this diagram)
- Physiological:** (No specific strategies listed in this diagram)

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Herzberg's  
Motivator/Hygiene  
Theory



Two factors associated with  
motivation:

- Motivators (eg. the work itself)
- Hygiene (eg. the work environment)

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Manage Team

Herzberg's  
Motivator/Hygiene  
Theory

**Hygiene  
Factors**

*Hygiene factors  
do not motivate.*

- Pay cheque
- Personal life
- Status
- Security
- Relationship with co-workers
- Policies
- Supervision
- Relationship with management
- Working conditions

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## Herzberg's Motivator/Hygiene Theory

### Motivation Factors

- Achievement
- Recognition
- Work
- Responsibility
- Advancement
- Growth



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## McClelland's Achievement Motivation Theory



- Need for achievement
  - The drive to succeed
- Need for power
  - Influence others to behave in a manner they would not behave otherwise
- Need for affiliation or association
  - Desire for friendly and close personal relationships at work



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# Motivation

## Process Motivation Theories

- McGregor's Theory X and Theory Y
- Contingency Theory
- Expectancy Theory
- Reinforcement Theory
- Equity Theory



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# McGregor's Theory X and Theory Y

## Theory X

- Dislike work and will try to avoid it - inherently lazy
- Lack of ambition and little capacity for problem solving
- Want to be controlled and directed
- Are resistant to change and don't care about organizational needs
- Are motivated by money, position and punishment

## Theory Y:

- Are creative, ambitious and committed to organizational goals
- Can direct and control themselves
- Are highly self-motivated
- Desire responsibility



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## Contingency Theory



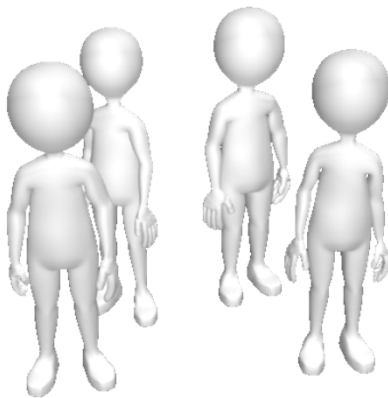
- Leader's style is contingent on the situation
- Leader may be task oriented or relationship oriented



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## Contingency Theory



- Shared Leadership
  - Collaboration
  - Collective decision-making
  - Distribution of authority
  - Team member's unique contribution to the effort



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## Expectancy Theory



Canadian, Yale School of Management professor Victor Vroom

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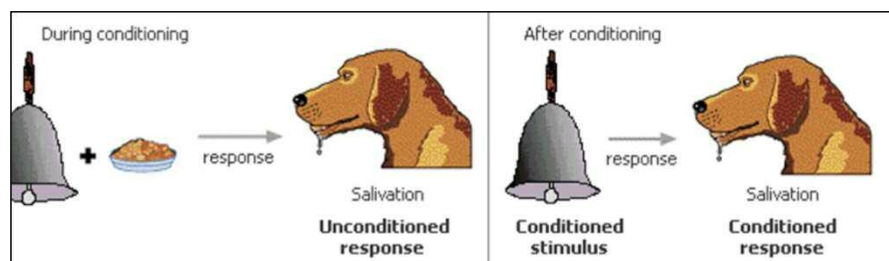
- People think seriously about how much effort they should put into a task
- Motivation occurs if there is an expectation of a favourable reward
- People choose behaviours they believe will lead to desired rewards or outcomes
- Reward must be achievable



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## Reinforcement Theory

- Based on B.F. Skinner's behaviour modification theories
- Human behaviour is shaped by the previous positive or negative outcomes experienced
- Desirable behaviour will be repeated if rewarded
- Undesirable behaviour will be discouraged if punished



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## Equity Theory



- Developed by J. Stacy Adams
- People want to be treated equitably
- Team members compare job inputs and outputs with other team members
- Inequities can influence the degree of effort exerted



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## Manage Team



- Conflict Management
- Decision-making
- Emotional Intelligence
- Influencing
- Leadership



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## Conflict Management



### Conditions Leading to Conflict

- Ambiguous roles or work boundaries
- Incompatible goals
- Communication challenges
- Dependence
- Differentiation/specialization
- Need for joint decision making
- Behavioural regulations
- Unresolved prior conflict



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## Conflict Management



### Sources of conflict

1. Schedules *50% of project conflicts come from these three sources.*
2. Priorities
3. Human resources
4. Technical issues
5. Administrative problems
6. Personality
7. Cost



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Manage Team

## Conflict Management

| Conceptual                                                                                                                                                                                                               | Planning                                                                                                                                                                                                           | Implementation                                                                                                                                                                                      | Close-out                                                                                                                                                                                          |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>•Project priorities</li> <li>•Administrative procedures</li> <li>•Schedules</li> <li>•Manpower</li> <li>•Cost</li> <li>•Technical opinions</li> <li>•Personal conflict</li> </ul> | <ul style="list-style-type: none"> <li>•Project priorities</li> <li>•Schedules</li> <li>•Administrative procedures</li> <li>•Technical opinions</li> <li>•Manpower</li> <li>•Cost</li> <li>•Personality</li> </ul> | <ul style="list-style-type: none"> <li>•Schedules</li> <li>•Technical opinions</li> <li>•Manpower</li> <li>•Project priorities</li> <li>•Procedures</li> <li>•Cost</li> <li>•Personality</li> </ul> | <ul style="list-style-type: none"> <li>•Schedule</li> <li>•Manpower</li> <li>•Personality</li> <li>•Project priorities</li> <li>•Cost</li> <li>•Technical opinions</li> <li>•Procedures</li> </ul> |

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Manage Team

## Conflict Management

|                      |                              |                                  |
|----------------------|------------------------------|----------------------------------|
| Importance to self → | Competing or Forcing         | Collaborating or Problem-solving |
|                      | Avoiding                     | Accommodating or Smoothing       |
|                      | Compromising                 |                                  |
|                      | Importance to relationship → |                                  |

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## Conflict Management



|                                |             | Concern for    |                    |
|--------------------------------|-------------|----------------|--------------------|
|                                |             | Personal Goals | Relationship Goals |
| <i>Competing or Forcing</i>    | Win-lose    | High           | Low                |
| <i>Accommodating or Smooth</i> | Yield-lose  | Low            | High               |
| <i>Withdraw</i>                | Lose-leave  | Low            | Low                |
| <i>Compromise</i>              | Compromise  | Medium         | Medium             |
| <i>Confront</i>                | Integrative | High           | High               |

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## Emotional Intelligence



- **Self-awareness**
  - Knowing one's strengths and weaknesses
- **Social-awareness**
  - Aware of how one is perceived by others
  - Tailoring behaviour as needed
- **Gauging the mood and emotions of others**

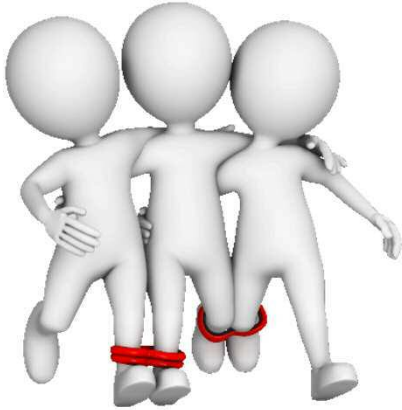
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# Resource Management Processes



Plan Resource Management



Estimate Activity Resources



Acquire Resources



Develop Team



Management Team



Control Resources

