

# Leading Technical People



# Chapter Overview

Two contrasting views (Theories X and Y)

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## Approaches to Motivation

- Content Theories (based on human needs)
- Process Theories (behavior is determined by expected outcomes)

Nature of Leadership

Effectively motivating Technical Professionals

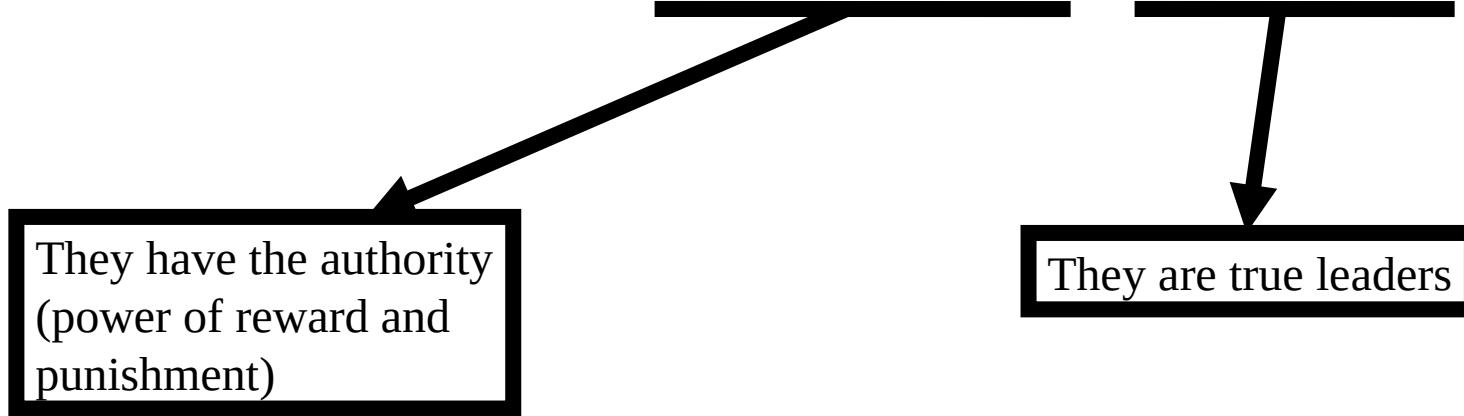
# Leadership

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- Leadership is the process of getting the cooperation of others in accomplishing a desired goal.
- A mixture of persuasion, compulsion and example that makes men do what you want them to do.
- It is the ability of men to get men to do what they don't want to do and like it.

# Nature of Leadership

Leadership is formal (titular) or emergent (informal)



**Formal leaders:** committee chair, branch manager, team captain Have the advantage of formal authority of reward and punish, they can easily persuade others

**Informal leaders:** through referent power or expertise

Formal Leader	Informal Leader
Envy the formal authority over the subordinates	No formal authority over the subordinates
Help to achieve organizational goals	Help to satisfy individual goals along with formal goals
Formally appointed by managers	Emerge out from interaction of informal goals
Employees comply to their order	Employ are committed to their orders
Do very little to increase moral & job satisfaction of subordinates	Increase moral and job satisfaction of subordinates

## **FORMAL**

## **INFORMAL**

### **ADVANTAGE**

You can command the attention of your team. Based on your position, you're empowered to set direction, assign work, and make unpopular decisions. The team is expected to follow.

As an equal member, you're in a position to get full disclosure from others on the team. You get a direct and clear view into what's actually happening, what's working, and what's not.

### **LIMITATION**

It's difficult to get real and unfiltered feedback from your team. Nobody wants to be the messenger — most people will hold back what feels bad and emphasize the good.

You can't really compel anyone to do something they disagree with, no matter how brilliant your ideas are. You have to work at building belief and rallying agreement.

MANAGERS	LEADERS
Deal with status-quo	Deal with change
Work in the system	Work on the system
React	Create opportunities
Control risks	Seek opportunities
Enforce organizational rules	Change organizational rules
Seek and then follow direction	Provide a vision to believe in and strategic alignment
Control people by pushing them in the right direction	Motivate people by satisfying basic human needs
Coordinate effort	Inspire achievement, energize people
Provide instructions	Coach followers, create self-leaders, and empower them

# Leadership Traits (Personal Characteristics)

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- **Physical qualities** of health, vitality and endurance
- **Personnel attributes** of personal magnetism, cooperativeness, ability to inspire, persuasiveness, forcefulness and tact
- **Character attributes** of integrity, humanism, self-discipline, stability, and industry
- **Intellectual qualities** of mental capacity, ability to teach others and a scientific approach to problems



**Table 3-1** Highest- and Lowest-Ranked Qualities and Attributes in Engineering Leaders

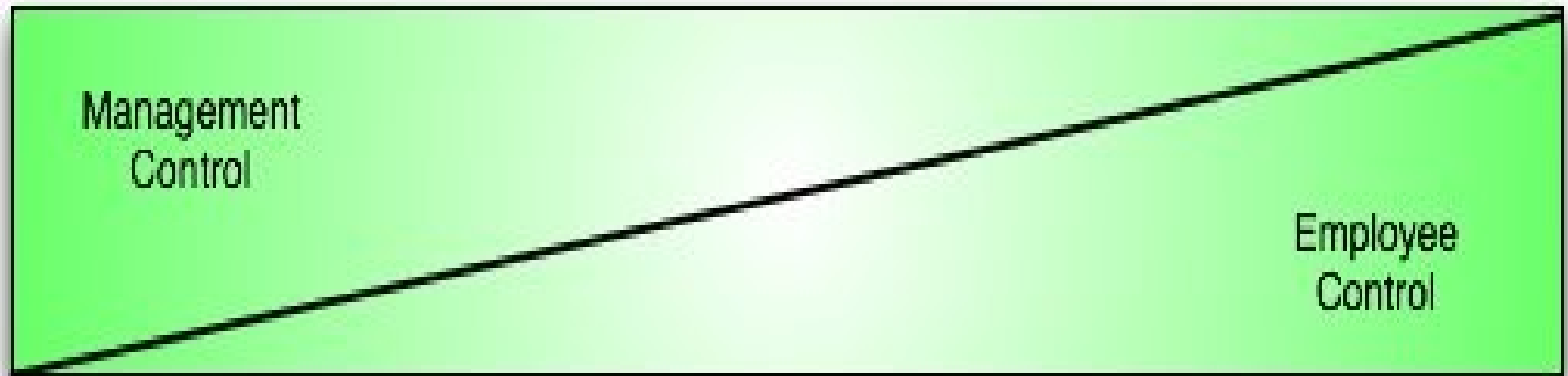
Group I	Group II	Group III
0–5 Years Engineering Experience	6–15 Years Engineering Experience	> 15 Years Engineering Experience
Highest-Ranked Qualities and Attributes		
1. Ability to inspire	1. Enthusiasm	1. Integrity
2. Persuasiveness	2. Stability	2. Ability to inspire
3. Mental capacity	3. Self-discipline	3. Tact
4. Self-discipline	4. Ability to inspire	4. Stability
5. Enthusiasm	5. Integrity	5. Self-discipline
6. Tact	6. Mental capacity	6. Persuasiveness
7. Stability	7. Persuasiveness	7. Industry
8. Integrity	8. Cooperativeness	8. Enthusiasm
9. Cooperativeness	9. Ability to teach	9. Mental capacity
Lowest-Ranked Qualities and Attributes		
18. Health	18. Health	18. Health
17. Forcefulness	17. Vitality	17. Forcefulness
16. Personal magnetism	16. Forcefulness	16. Ability to teach
15. Humanism	15. Personal magnetism	15. Personal magnetism
14. Vitality	14. Humanism	14. Humanism
13. Endurance	13. Endurance	13. Cooperativeness
12. Industry	12. Industry	12. Vitality
11. Scientific approach to problems	11. Scientific approach to problems	11. Scientific approach to problems
10. Ability to teach	10. Tact	10. Endurance

Source: E. Douglas Harris, "Leadership Characteristics: Engineers Want More from Their Leaders," *Proceedings of the Ninth Annual Conference, American Society for Engineering Management*, Knoxville, TN, October 2–4, ASEM, 1988, pp. 209–216.

# Leadership Styles

Management has most  
of the Knowledge &  
Skills

Employees have the  
needed Knowledge &  
Skills



Autocratic  
Style

Paternalistic  
Style

Participative  
Style

Delegative  
Style

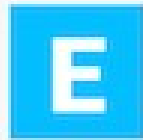
Free Reign  
Style

## Myers-Briggs Preferences

Myers-Briggs Type Indicator (MBTI) measures personal preferences on four scales, each made up of two opposite preferences:

Extraversion (E) vs Introversion (I)	Sensing (S) vs Intuition (N)	Thinking (T) vs Feeling (F)	Judging (J) vs Perceiving (P)
Differentiating people who direct their energy primarily outward toward other people and events (E) from people who direct energy primarily inward toward their inner environment, thoughts, and experiences (I).	Differentiating people who take in information primarily through the senses and immediate experience (S) from those who take in information via facts, hunches, impressions & are more interested in future possibilities (N).	Differentiating people who make decisions primarily based on logic and objectivity (T) from people who make decisions primarily based on personal values and the effects their decisions will have on others (F).	Differentiating people who prefer structure, plans, and achieving closure (J) quickly from those who prefer flexibility, spontaneity, and keeping their options open (P).

# PERSONALITY TYPES KEY



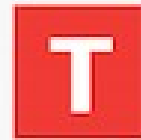
## Extroverts

Extroverts are energized by people, enjoy a variety of tasks, a quick pace, and are good at multitasking.



## Sensors

Sensors are realistic people who like to focus on the facts and details. They apply common sense and past experience to find practical solutions to problems.



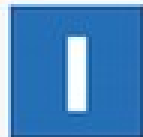
## Thinkers

Thinkers tend to make their decisions using logical analysis, objectively weigh pros and cons, and value honesty, consistency, and fairness.



## Judgers

Judgers tend to be organized and prepared, like to make and stick to plans, and are comfortable following most rules.



## Introverts

Introverts often like working alone or in small groups, prefer a more deliberate pace, and like to focus on one task at a time.



## Intuitives

Intuitives prefer to focus on possibilities and the big picture, easily see patterns, value innovation, and seek creative solutions to problems.



## Feelers

Feelers tend to be sensitive and cooperative, and decide based on their own personal values and how others will be affected by their actions.



## Perceivers

Perceivers prefer to keep their options open, like to be able to act spontaneously, and like to be flexible with making plans.

<h2>Introverted Sensing (ISTJ, ISFJ, ESTJ, ESFJ)</h2>	<h2>Introverted Intuition (INTJ, INFJ, ENTJ, ENFJ)</h2>
<ul style="list-style-type: none"> <li>• Time is a scarce resource; manage it carefully</li> <li>• Concentrate on one activity and/or relationship at a time</li> <li>• Focus on the past, can operate in the present and to some extent the future</li> </ul>	<ul style="list-style-type: none"> <li>• Time is a scarce resource; manage it carefully</li> <li>• Concentrate on one activity and/or relationship at a time</li> <li>• Focus on the future, and to some extent the past – not as interested in working with the present</li> </ul>
<h2>Extraverted Sensing (ESTP, ESFP, ISTP, ISFP)</h2>	<h2>Extraverted Intuition (ENTP, ENFP, INTP, INFP)</h2>
<ul style="list-style-type: none"> <li>• Time is abundant; relax</li> <li>• Concentrate simultaneously on multiple tasks and/or people</li> <li>• Focus on the present and to some extent the past; not as interested in the future</li> </ul>	<ul style="list-style-type: none"> <li>• Time is abundant; relax</li> <li>• Concentrate simultaneously on multiple tasks and/or people</li> <li>• Focus on the future, can operate in the present and to some extent the past</li> </ul>

ENTJ  
(Extroversion-Intuition-Thinking-Judging)

Engineering managers

INTJ  
(Introversion-Intuition-Thinking-Judging)

Scientists, Researchers

ISFP  
(Introversion-Sensing-Feeling-Perceiving)

Worst case,  
non-experienced  
professional

# Be a Leader: How to Change People Without Giving Offense or Arousing Resentment

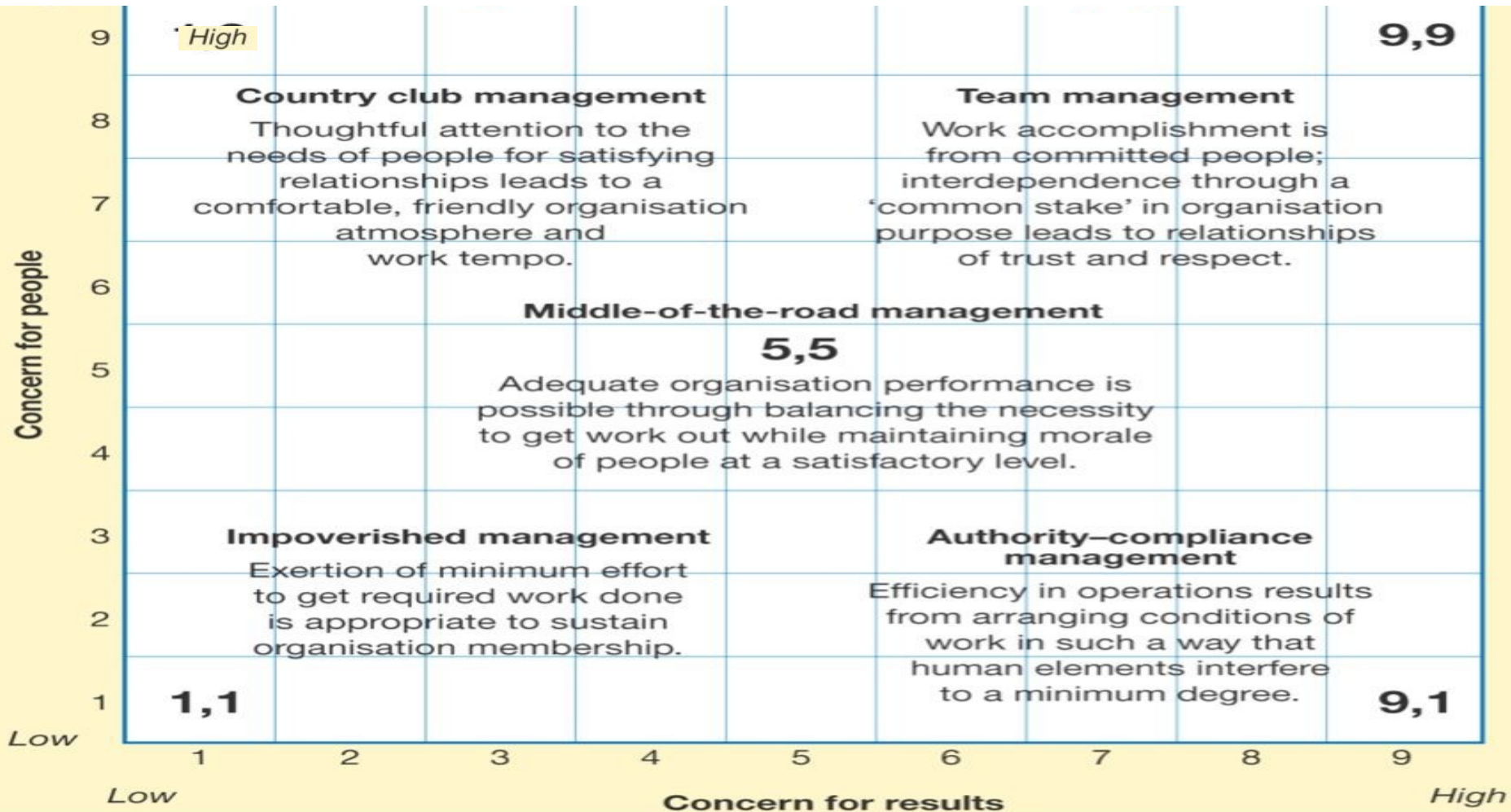
A leader's job often includes changing your people's attitudes and behavior. Some suggestions to accomplish this:

1. Begin with praise and honest appreciation.
2. Call attention to people's mistakes indirectly.
3. Talk about your own mistakes before criticizing the other person.
4. Ask questions instead of giving direct orders.
5. Let the other person save face.
6. Praise the slightest improvement and praise every improvement. Be "hearty in your approbation and lavish in your praise."
7. Give the other person a fine reputation to live up to.
8. Use encouragement. Make the fault seem easy to correct.
9. Make the other person happy about doing the thing you suggest.

<https://www.westegg.com/unmaintained/carnegie/win-friends.html>

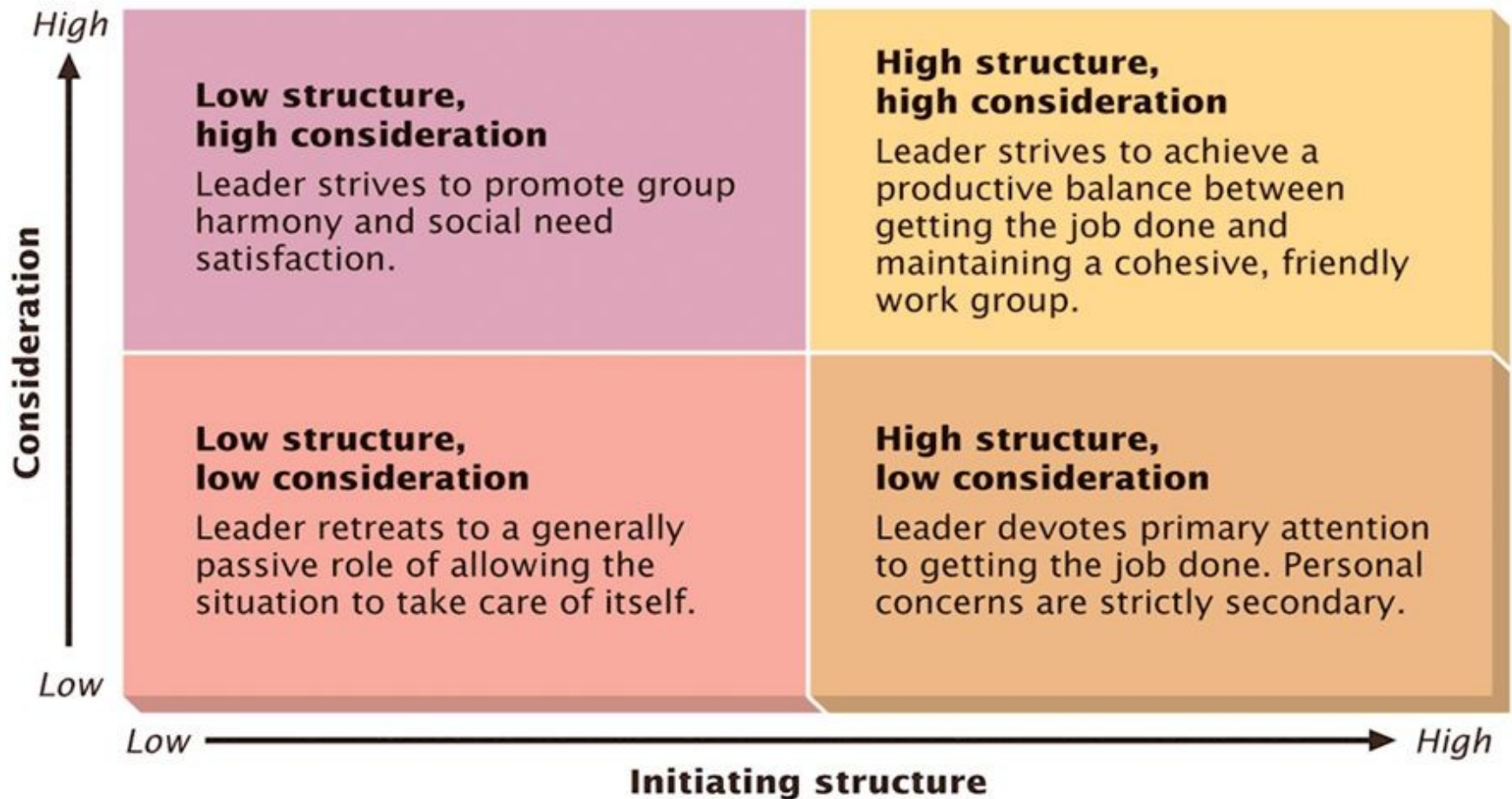


# The Leadership Grid





# Ohio State Leadership Styles



**Initiating structure** refers to the task actions of the leader to define who does what and how, while **consideration** is a measure of the leader's concerns for followers.

Initiating Structure (IS)	Consideration (C)	
	Low	High
High	H(IS)/L(C)	H(IS)/H(C)
Low	L(IS)/L(C)	L(IS)/H(C)

#### Findings:

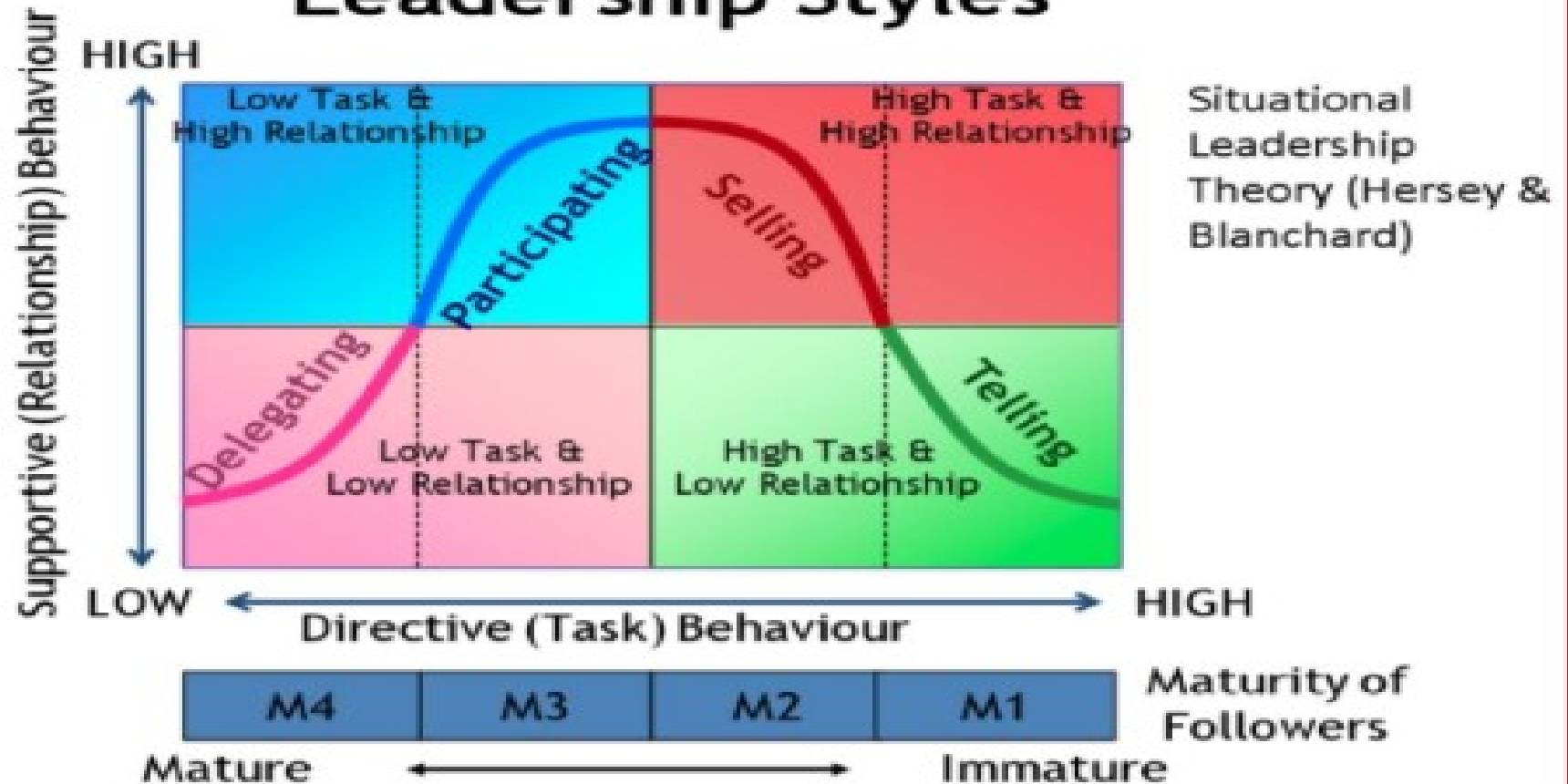
High IS - High C may not be the most effective

High IS helps only if task is unstructured.

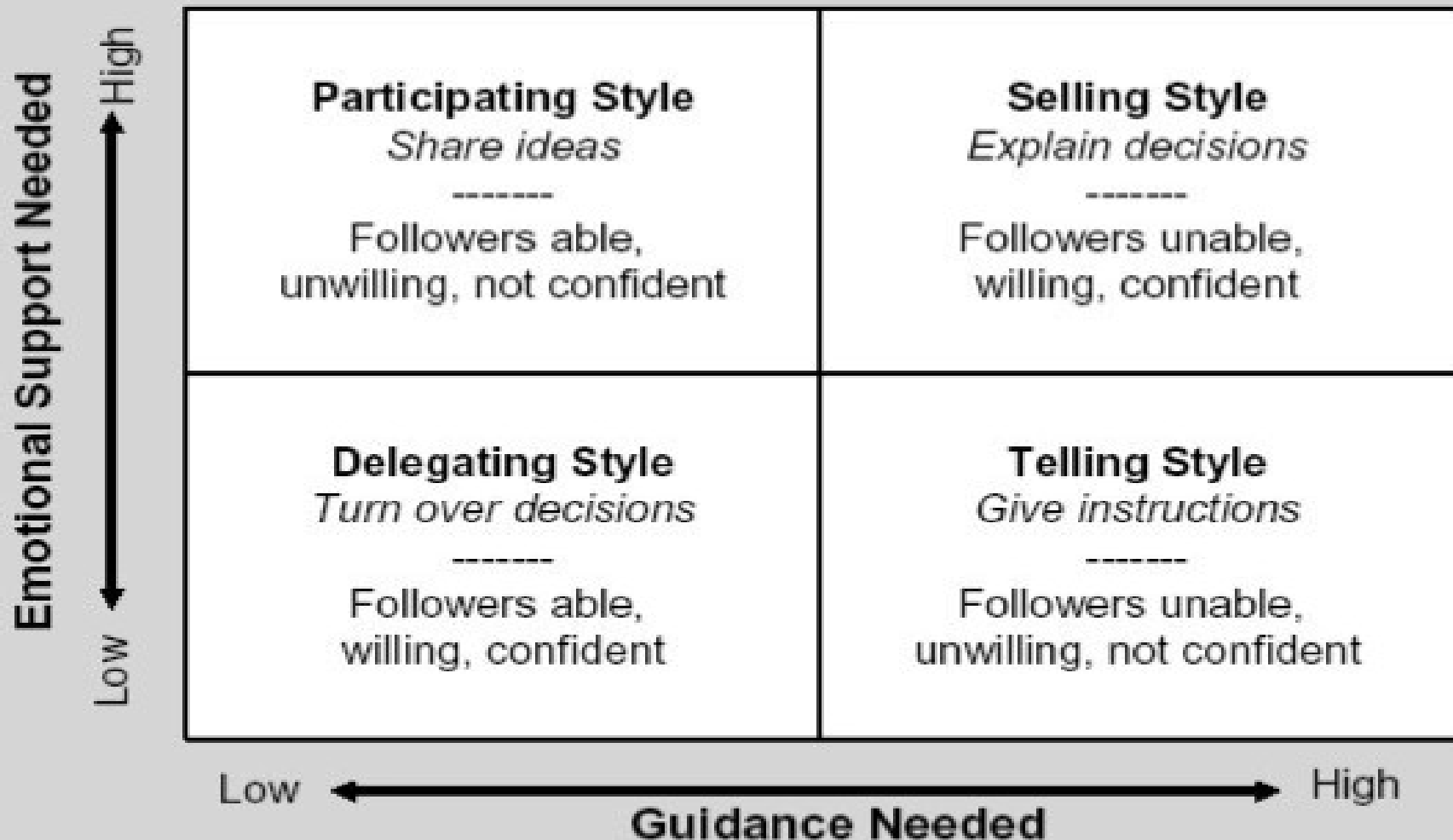
High C helps only if there is no adequate alt. source of satisfaction

# Hersey and Blanchard Leadership Model

## Leadership Styles



# Leadership Styles in the Hersey-Blanchard Situational Leadership Model



# Situational Approaches Contingency Theory

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The manager must develop a reward system, a leadership style, or an organizational structure to be appropriate for the unique combination of such factors as

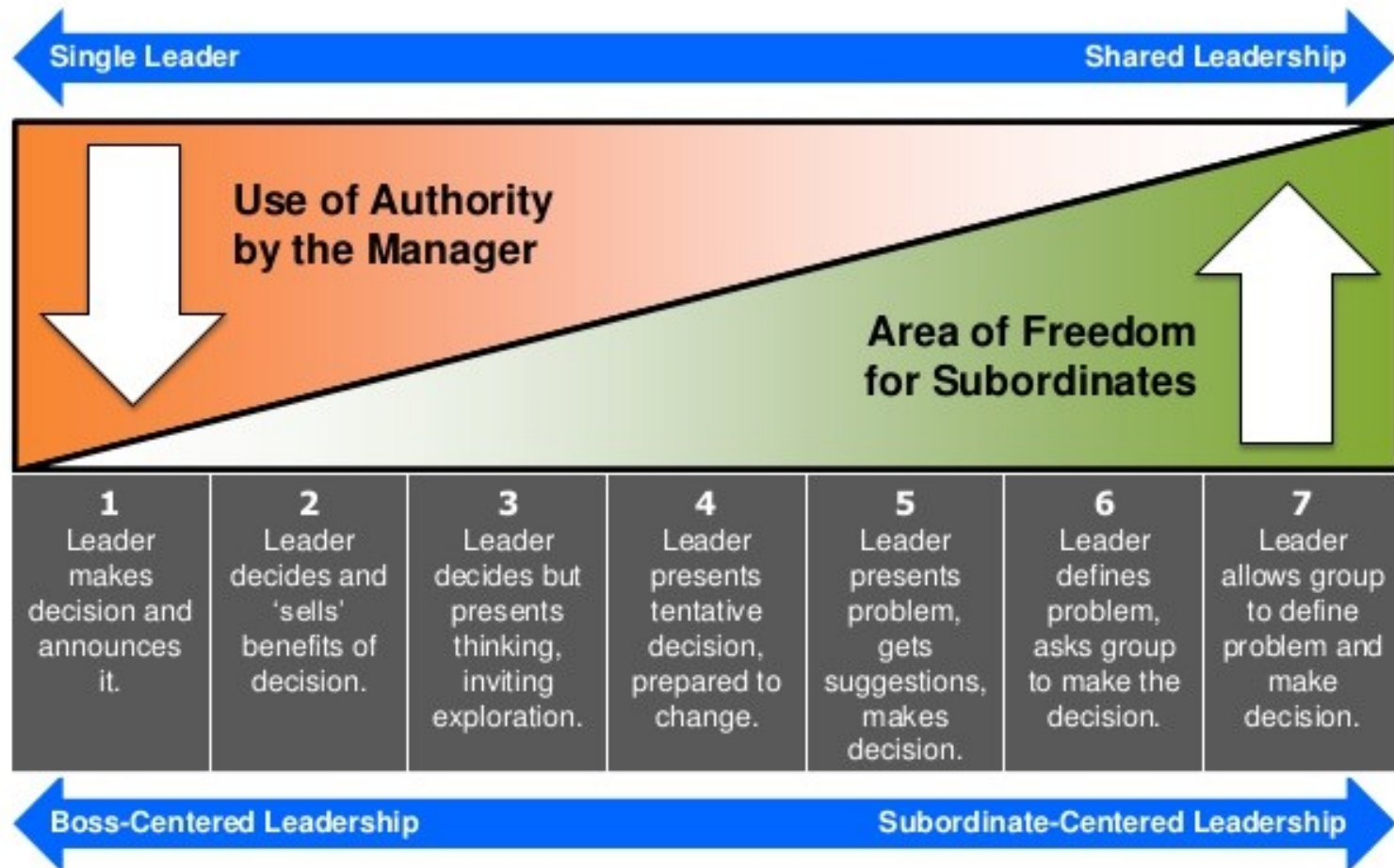
- the nature of the subordinates,
- the technology of the business and the tasks that result,
- the rate of change in the organization,
- the degree of integration of functions required,
- the amount of time the manager has to accomplish the assignment,
- the quality of the manager's relationship with subordinates.

# Leadership Continuum

"a continuum of leadership style extending from complete retention of power by the manager to complete freedom for subordinates"

- **Autocratic ("Telling").** Manager makes decisions with little or no involvement of non-managers.
- **Diplomatic ("Selling").** Manager makes decisions without consultation but tries to persuade non-managers to accept them.
- **Consultative ("Consulting").** Manager obtains non-managers' ideas and uses them in decision making.
- **Participative ("Joining").** Manager involves non-managers heavily in the decision (and may even delegate it to them completely).

# Tannenbaum-Schmidt's Leadership Behavior Continuum



# Three forces to consider before deciding on management style as proposed by Tannenbaum and Schmidt:

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1. Forces in the manager – value system, own leadership inclinations, confidence in nonmanagers, feelings of security in uncertain situations
2. Forces in the subordinate (or nonmanager) – greater delegation when nonmanagers need independence, are ready to assume responsibility, can tolerate ambiguity, are interested in problem
3. Forces in the situation – type of organization and the amount of delegation, experience of nonmanagers working as a group, nature and complexity of problem, pressure of time



# Contingency Theory and Situational Theory

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- Both theories focus on the individuality of a leader being relationship oriented or task oriented.
- Situational leadership is related to contingency theory in that both state that the effectiveness of a leader depends on matching the leader's abilities and approach to the situation
- **Contingency theory** stresses matching the leader (with his or her existing characteristics) to the current situation whereas **situational leadership** emphasizes the leader's need to adapt to his or her followers.

## Similarities

1. Both categories are extension of behavioural group of leadership models
2. They contend that there is no one best or right way of successfully leading a group or an organization because a leadership style that is effective in one situation may be ineffective or a total failure in another situation.
3. A successful leader in a given situation may become a failure in the same position in the same organization when factors around the situation change.
4. They assume that the effectiveness of leadership styles are determined by factors internal and external to the organization, within the leader and employees or followers and the leaders skills and the maturity levels of followers.

## Differences

- Situational theories tend to focus more on the behaviors that the leader should adopt, given the followers' behavior, whereas contingency theories take a broader perspective that include situational factors about leader skills and capability and other variables within the given situation.
- Situational theories – relatively flexible; contingency theories – relatively inflexible.
- Unlike contingency approach, to situational theories, effectiveness of leaders depends on successfully diagnosing where subordinates are on the development continuum and adapting their leadership style as necessary.

**(Example#1):** In the event that there was a black out during your shift at work, there would be no room for situational leadership being that everyone would be responding the same, displaying feelings of panic. This issue would seek the direct leadership style that is administered from the Contingency theory.

**(Example#2):** Put yourself in the shoes of a soldier at war, who looks for accurate instructions based on the “in the moment” situations that present themselves. To be able to efficiently adjust on impulse shows a soldiers’ willingness to comply and remain confident within uniform at all times.

# **What is Servant Leadership?**

Servant leadership is a term used to describe the managerial style of those who want to do good for the sake of doing good (for instance, helping their loved ones or a community), and realize they can use their abilities to help lead and manage others.

The basis of a servant leader's leadership skills relies on them providing solutions to their customers first and foremost.

By focusing on the needs of others, they establish authority and likeability because they create positive change in the lives of those around them.

Example: Southwest Airlines



# Servant Leadership

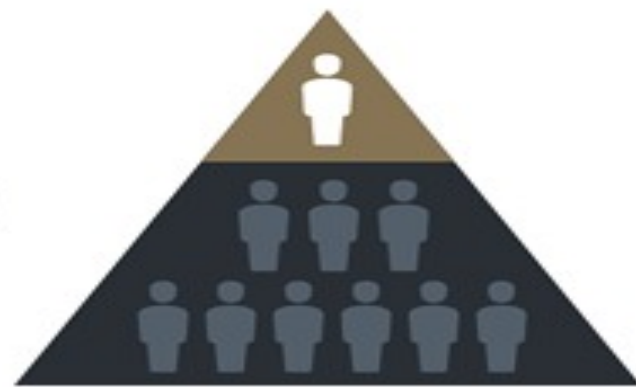
“The first and most important choice a leader makes is the choice to serve, without which one’s capacity to lead is severely limited.”

- Robert K. Greenleaf, 1970



**SERVANT LEADERSHIP  
STRUCTURE**  
*(Bottom Up: Empower)*

*Vs.*



**TYPICAL LEADERSHIP  
STRUCTURE**  
*(Top Down: Control)*

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## Servant Leadership

*"The servant-leader is servant first... It begins with the natural feeling that one wants to serve, to serve first. The conscious choice brings one to aspire to lead... The difference manifests itself in the care taken by the servant—first to make sure that other people's highest priority needs are being served."*



— Robert K. Greenleaf

# **SERVANT LEADER**

- **Puts the needs of followers before self**
- **Communicates frequently and well**
- **Highly trusting of associates**
- **Team is involved in the decision-making process**
- **Gives credit where credit is due**
- **Great for morale but not good for making decisions quickly**



**Captain America always puts the needs of others before himself, making him an example of a servant leader.**

"A leader is best  
when people barely know that he exists,  
not so good when people obey and acclaim him,  
worst when they despise him.

"Fail to honor people, they fail to honor you":  
But of a good leader, who talks little,  
when his work is done, his aim fulfilled,  
they will all say, "We did this ourselves."

Lao Tsu, Philosopher, China.



### Display 3.1

### Defining Qualities of Servant Leaders

- The ability to listen on a deep level and to truly understand
- The ability to keep an open mind and hear without judgment
- The ability to deal with ambiguity, paradoxes, and complex issues
- The belief that honestly sharing critical challenges with all parties and asking for their input is more important than personally providing solutions
- Being clear on goals and good at pointing the direction toward goal achievement without giving orders
- The ability to be a servant, helper, and teacher first and then a leader
- Always thinking before reacting
- Choosing words carefully so as not to damage those being led
- The ability to use foresight and intuition
- Seeing things whole and sensing relationships and connections

# Characteristics of Servant Leadership

Characteristic	Definition
Listening	Emphasizing the importance of communication and seeking to identify the will of the people
Empathy	Understanding others and accepting how and what they are
Healing	The ability to help make whole
Awareness	Being awake
Persuasion	Seeking to influence others relying on arguments not on positional power
Conceptualization	Thinking beyond the present day need and stretching it into a possible future
Foresight	Foreseeing outcomes of situations and working with intuition
Stewardship	Holding something in trust and serving the needs of others
Commitment to the growth of people	Nurturing the personal, professional, and spiritual growth of others
Building community	Emphasizing that local communities are essential in a person's life

## TRANSFORMATIONAL LEADER

*Charisma:* Provides vision and sense of mission, instills pride, gains respect and trust.

*Inspiration:* Communicates high expectations, uses symbols to focus efforts, expresses important purposes in simple ways.

*Intellectual Stimulation:* Promotes intelligence, rationality, and careful problem solving.

*Individualized Consideration:* Gives personal attention, treats each employee individually, coaches, advises.

## TRANSACTIONAL LEADER

*Contingent Reward:* Contracts exchange of rewards for effort, promises rewards for good performance, recognizes accomplishments.

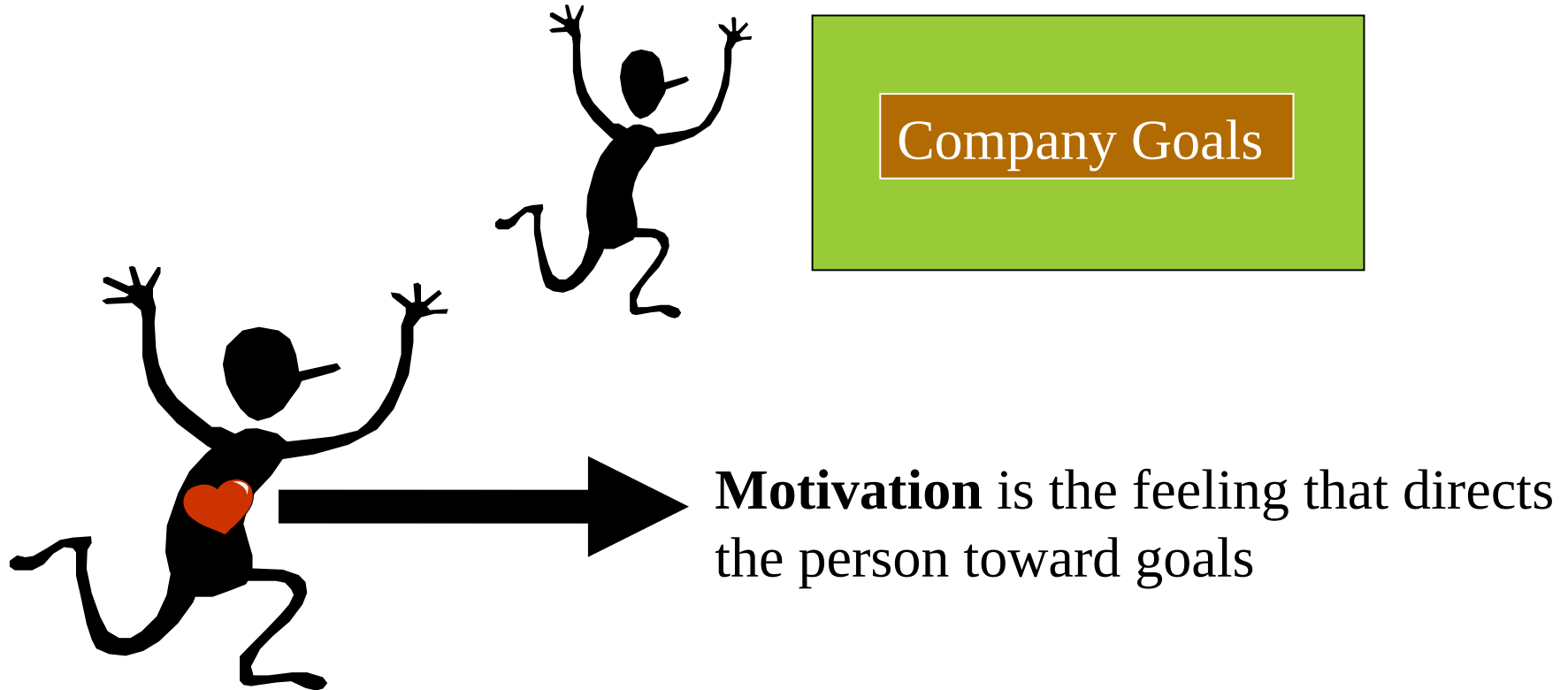
*Management by Exception (active):* Watches and searches for deviations from rules and standards, takes corrective action.

*Management by Exception (passive):* Intervenes only if standards are not met.

*Laissez-Faire:* Abdicates responsibilities, avoids making decisions.

# Motivation

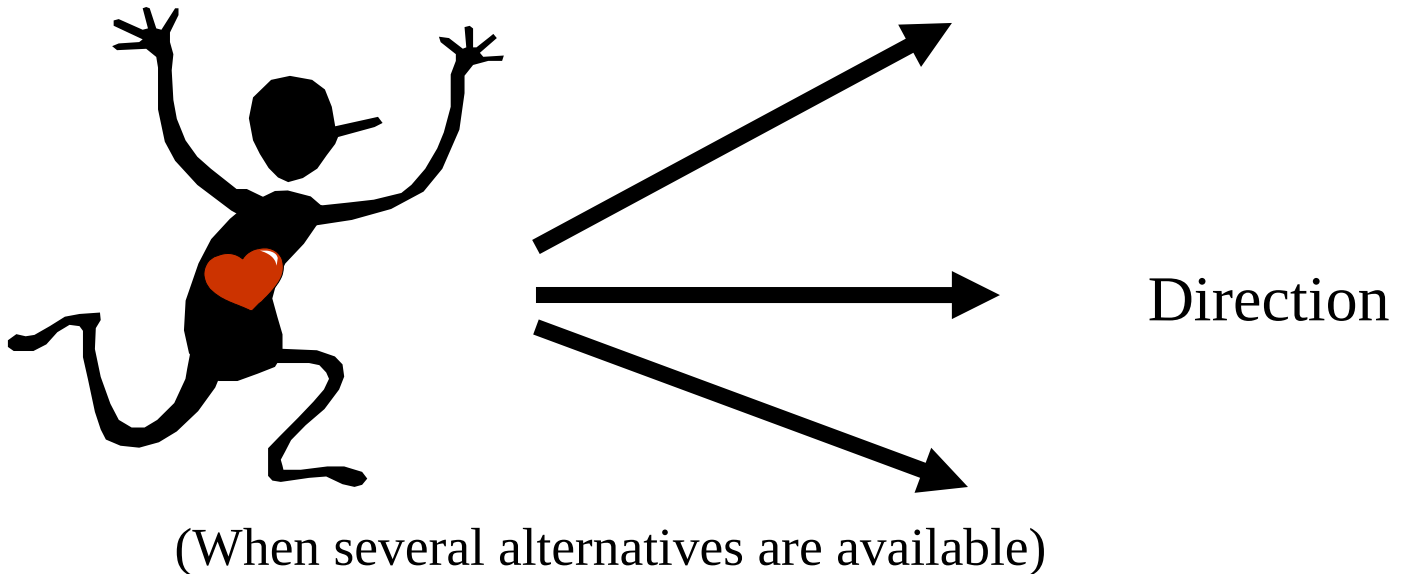
Motive - An inner state that energizes, activates, or moves and that directs or channels behavior toward goals.



# Motivation

We can define motivation in terms of three measures

## 1. Direction

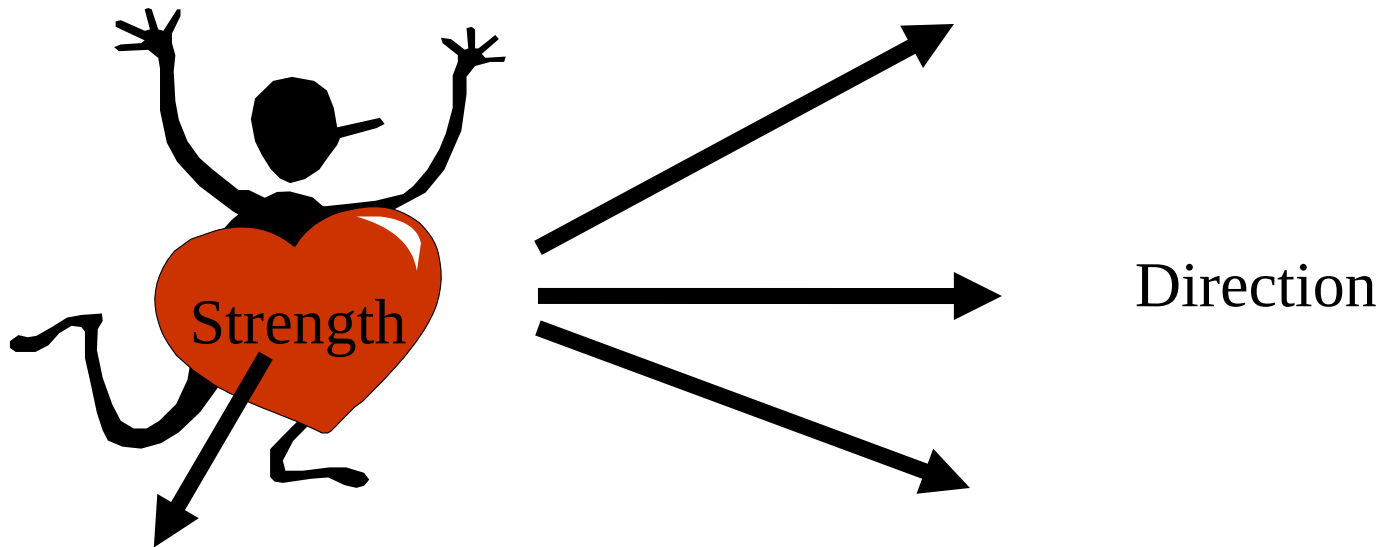


# Motivation

We can define motivation in terms of three measures

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## 2. Strength of behavior when choice is made



Bigger heart shows larger motivation

# Motivation

We can define motivation in terms of three measures

## 3. Persistence of Behavior



Persistence shows the consistency and continuousness

# Motivation

*There is only one way if you want the people to make something for you——*

Making them want to do it.

*In other words, motivate them.*



# McGregor's Theory X & Theory Y

## Theory X

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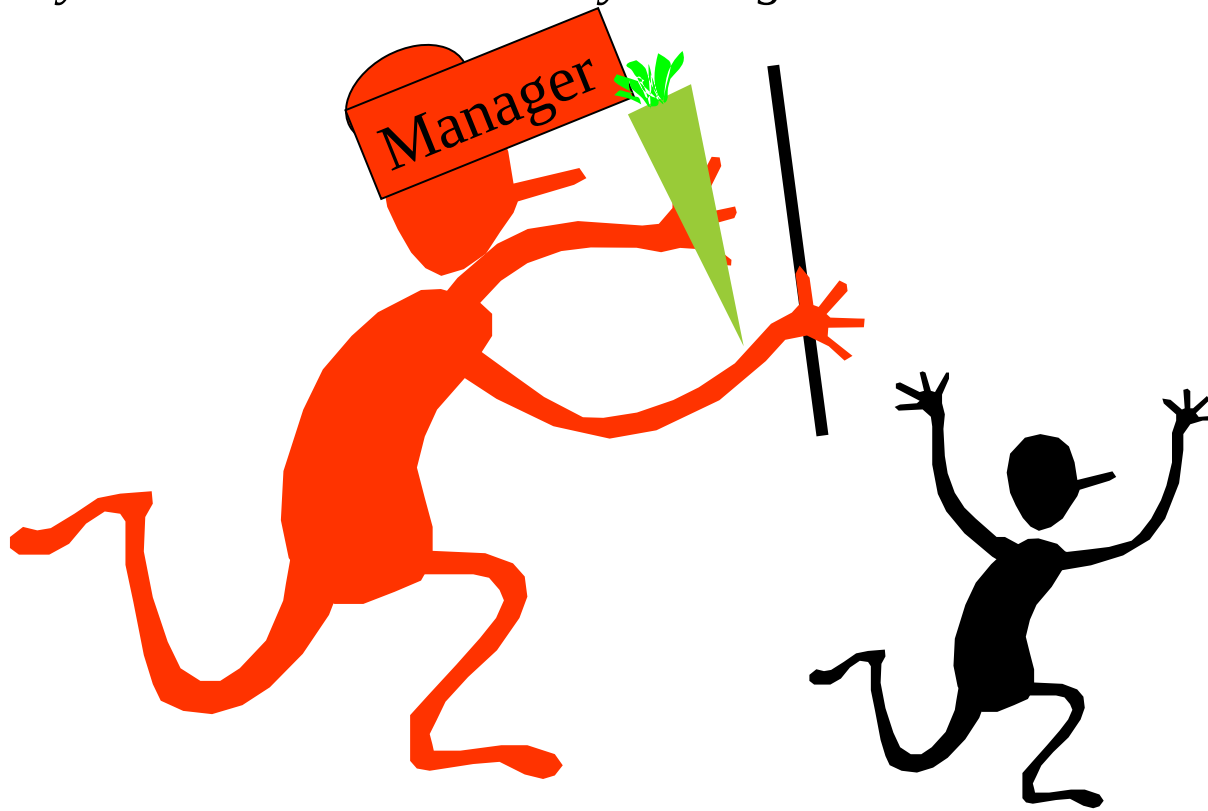
Management is responsible for organizing the elements of productive enterprise (money, materials, equipment, people)

We have to motivate people, direct their efforts, control their actions and modify their behavior to fit the needs of organization

If we don't do this people would be passive even resistant to organization needs. They must be persuaded, rewarded, punished, and controlled by management.

# McGregor's Theory X

*People always have to be motivated by management: Carrot & Stick Approach*



# McGregor's Theory X

Behind this conventional theory there are several beliefs to support

The average person is by nature indolent

He lacks ambition, dislikes responsibility, prefers to be led.

He is self-centered, indifferent to organizational needs.

He is by nature resistant to change.

He is gullible, not very bright, the ready dupe of charlatan and demagogue

# McGregor's Theory Y

Theory Y is opposite to that of Theory X as following,

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Management is responsible for organizing the elements of productive enterprise (money, materials, equipment, people)

People are not passive by nature. They have become so as a result of experience in organizations.

The motivation, potential, and the readiness to direct behavior toward organization goal are all present in people.

Main task of management is to arrange organizational conditions and methods of operation so that people can achieve their own goals.

# McGregor's Theory X & Theory Y

*Theory X relies upon external control of human behavior.*

*Treats people as child*

*Not valid for knowledge workers such as engineers*

*Not valid even for manual workers of developed societies*

*Theory Y relies upon self-control and self direction.*

*Knowledge has to be self-directed.*

# THEORIES of MOTIVATION

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## CONTENT THEORIES



*Based on human needs and  
and satisfaction of them*

## PROCESS THEORIES



*Behavioral choices are made  
more rationally based on expected  
outcomes*

## Content Theories:

Based on human needs and people's effort to satisfy them

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- Maslow's hierarchy of needs
- Herzberg's 2-factor theory
- McClelland's Trio of Needs

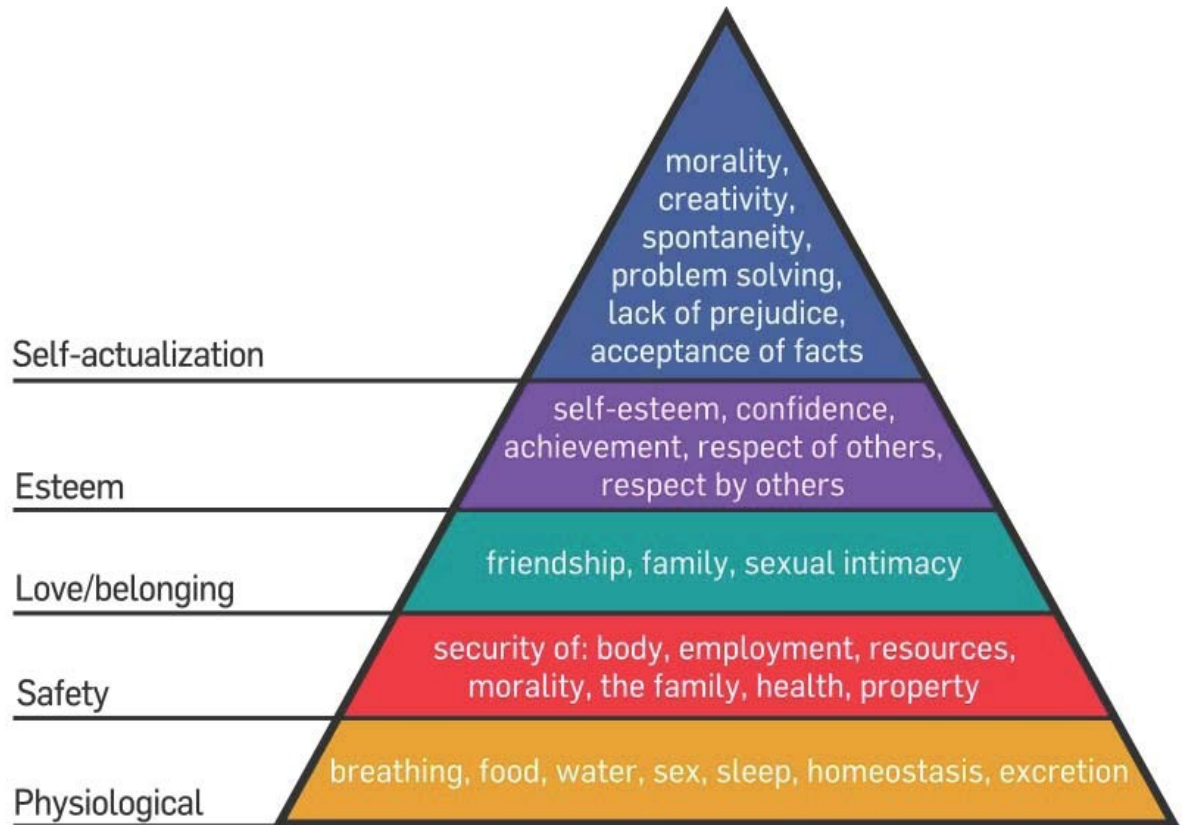
## Process Theories:

Assumes that behavioral choices are based on expected outcomes

- Equity Theory (Adams)
- Expectancy Theory (Vroom)
- Porter-Lawler Extension
- Behavior Modification (Skinner)

# Maslow's Hierarchy of Needs

- Human Needs arrange themselves in hierarchies of prepotency. Appearance of one need usually rests on the prior satisfaction of another





# Herzberg's Two Factor Theory

MOTIVATORS

Satisfaction

No Satisfaction

HYGIENE FACTORS

No Dissatisfaction

Dissatisfaction

## Herzberg's Two Factors

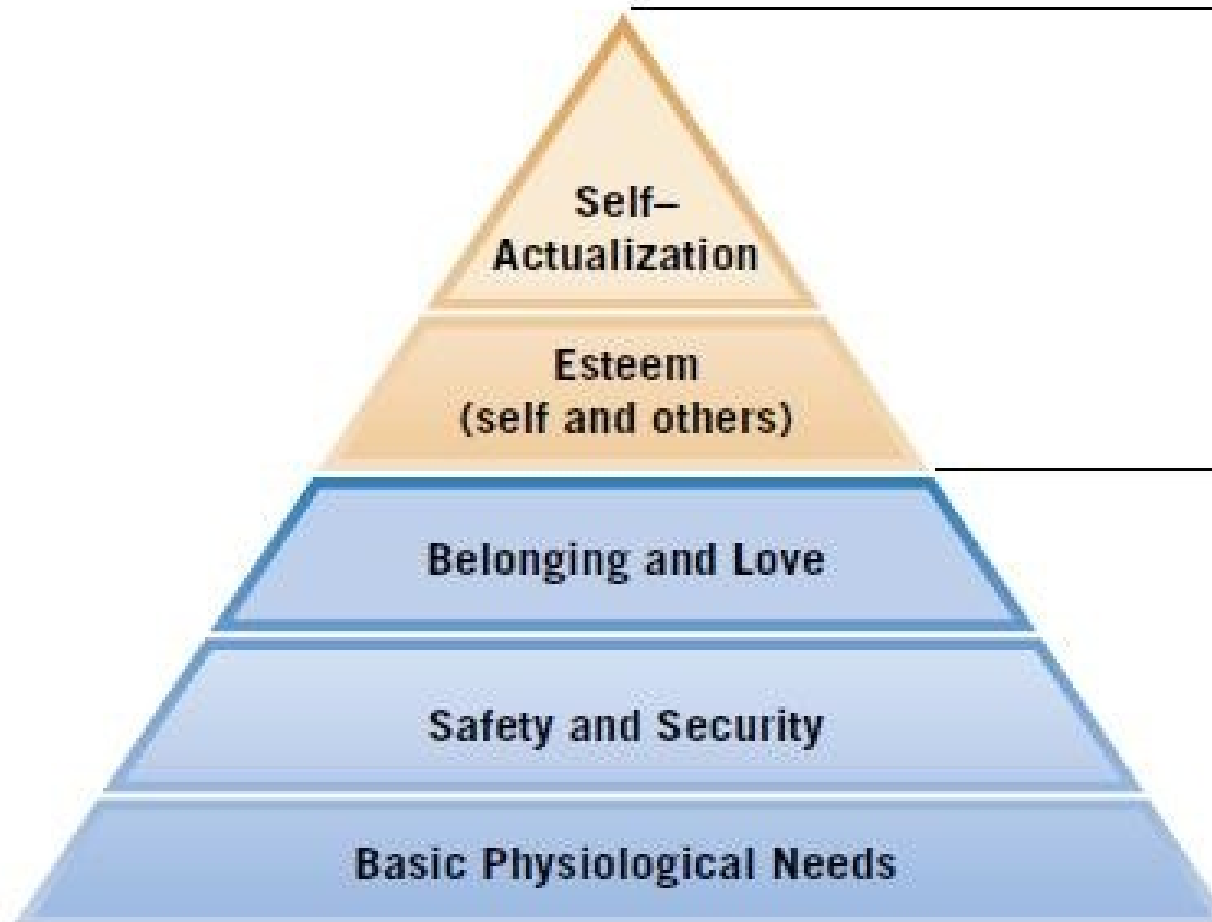
### Motivators

- Achievement
- Recognition
- Work itself
- Responsibility
- Advancement

### Hygiene Factors

- Interpersonal relations
- Company policy/administration
- Supervision
- Salary
- Working conditions

## Maslow's Hierarchy of Needs



## Herzberg's Two Factors

### Motivators

- Achievement
- Recognition
- Work itself
- Responsibility
- Advancement

### Hygiene Factors

- Interpersonal relations
- Company policy/ administration
- Supervision
- Salary
- Working conditions

# Herzberg's Two-Factor Theory

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## Hygiene Factors    Motivation Factors

Salary

Recognition

Working Conditions

Work itself

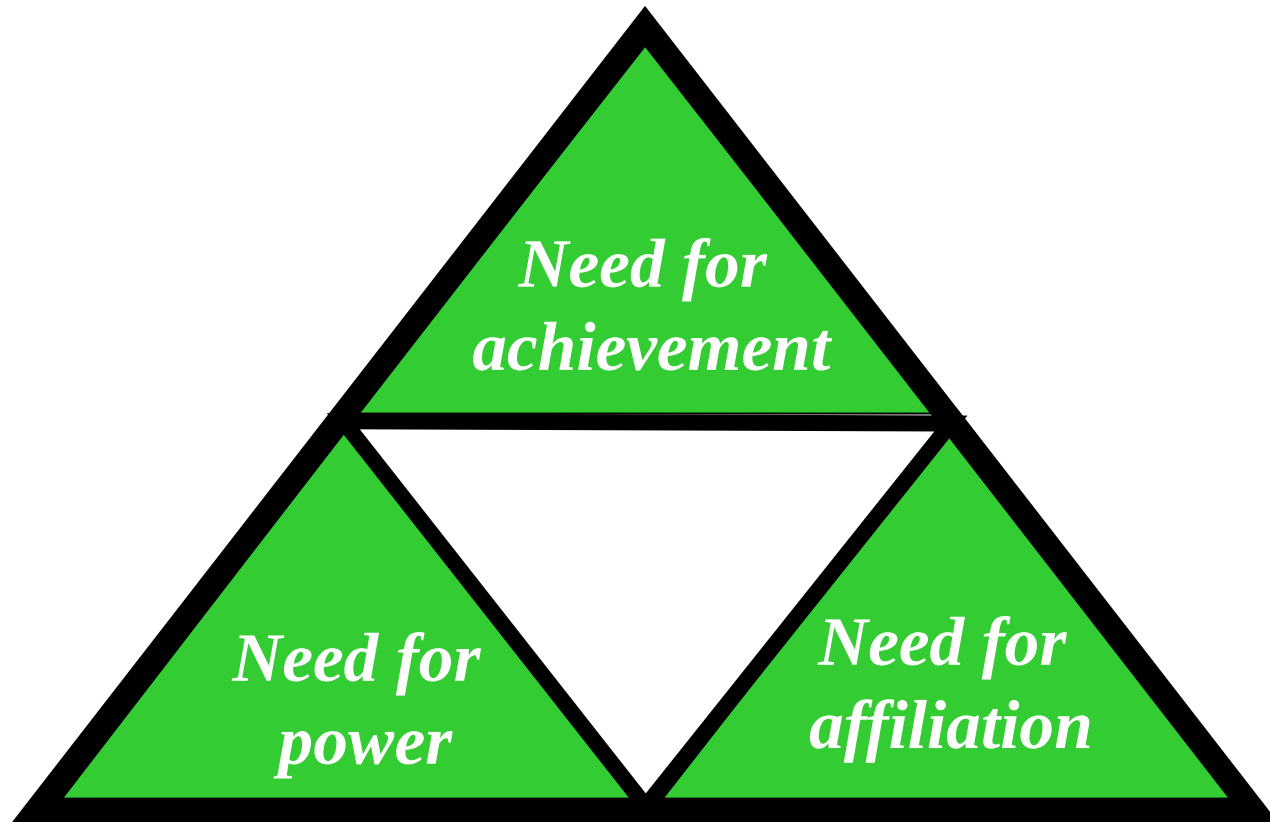
Company Policies    Responsibility

Relationship with Boss    Advancement

Relationship with peer    Achievement

# Content Theories: McClelland's Trio of Needs

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# McClelland's Trio of Needs

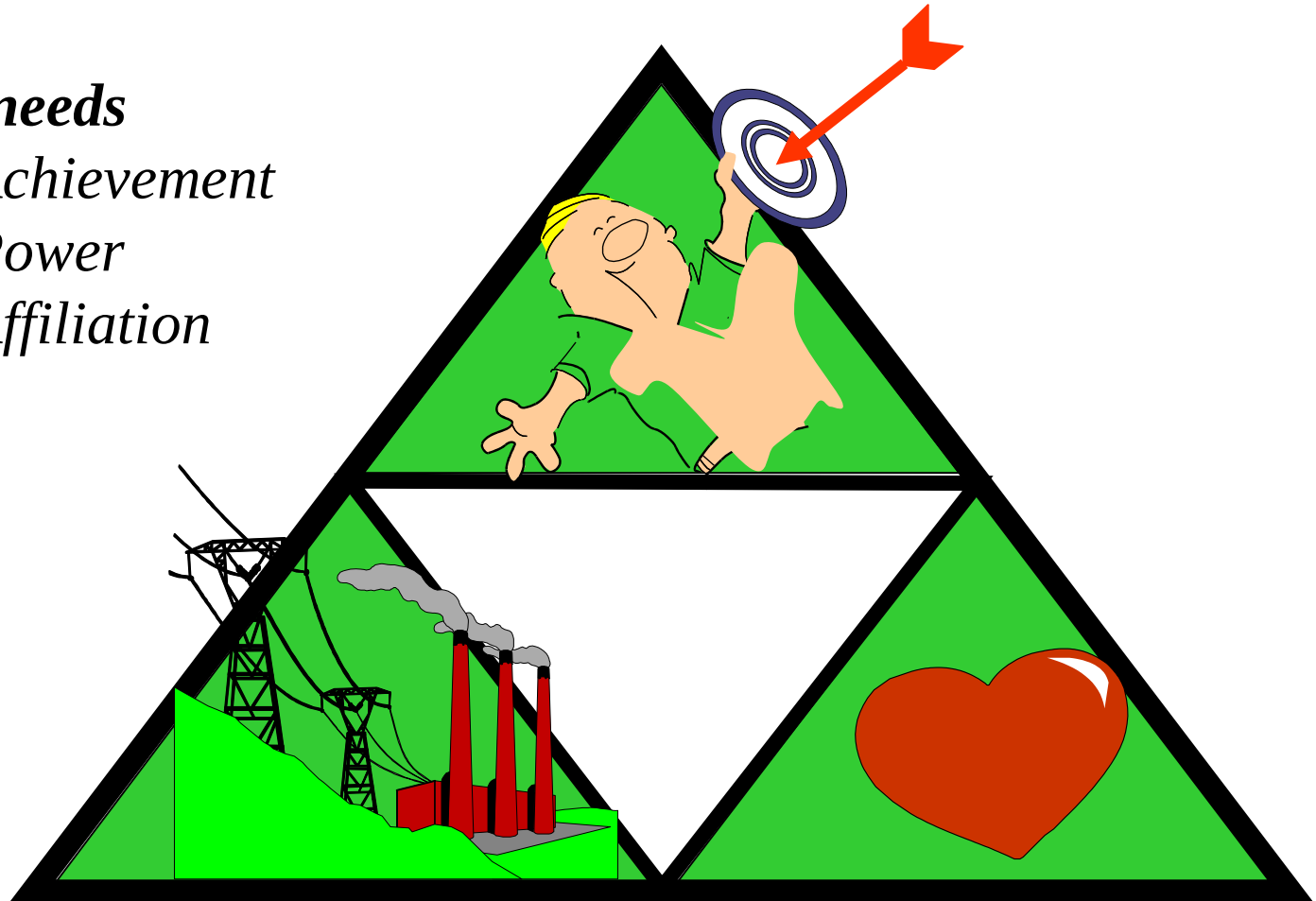
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## *Mixture of three needs*

*Need for Achievement*

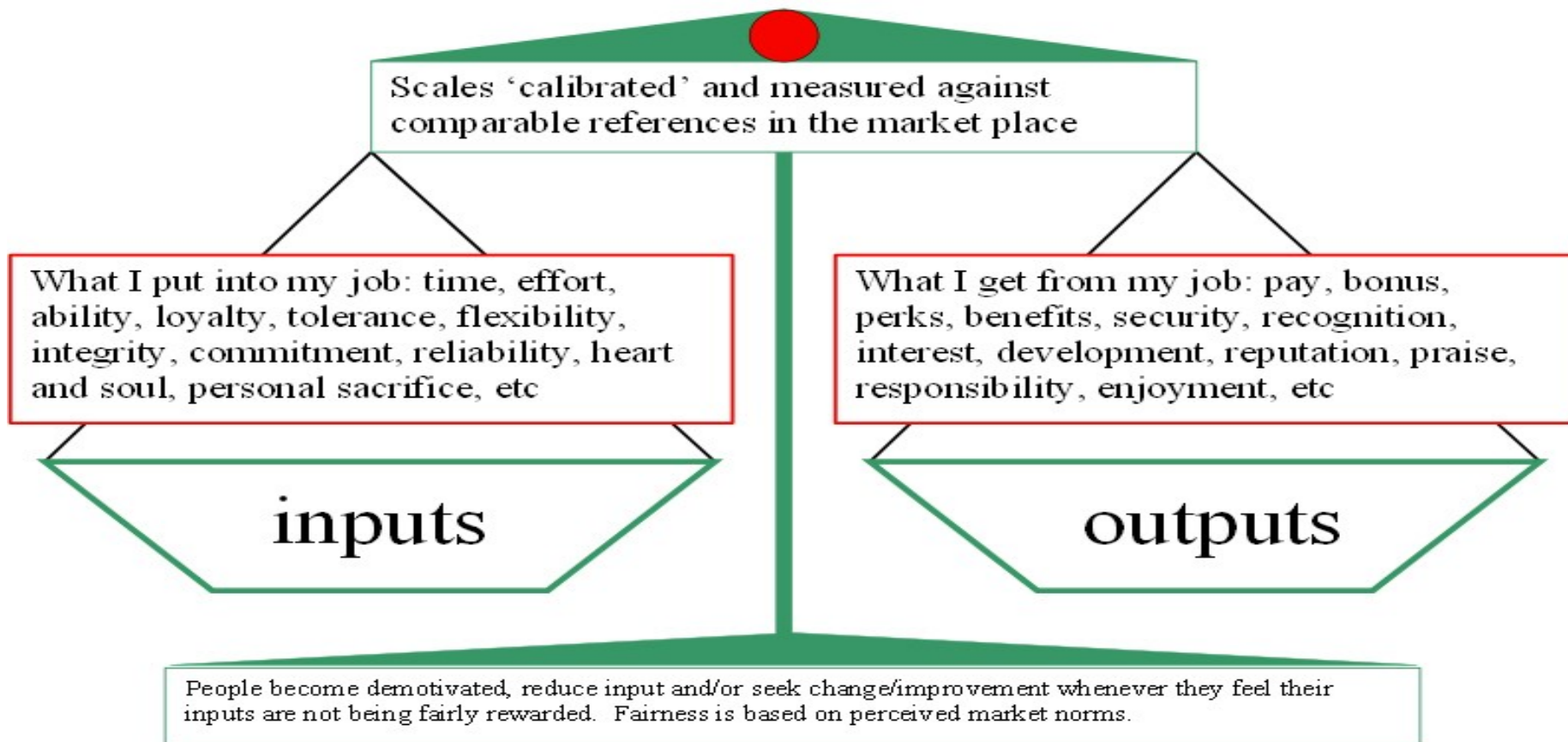
*Need for Power*

*Need for Affiliation*



# Process Theories: Equity

Adams' Equity Theory diagram - job motivation



© design alan chapman 2001-4 based on J S Adams' Equity Theory, 1963. More free online learning materials are at [www.businessballs.com](http://www.businessballs.com).

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# Equity theory of motivation looks at an individual's perceived fairness of an employment situation and finds that perceived inequalities can lead to changes in behaviour.

When individuals believe that they have been treated unfairly in comparison with their co-workers, they will react in one of four ways:

- Changing their work inputs to better match the rewards they are receiving.
- Ask for a raise or take legal action.
- Change their own perception of the situation.
- Quit.

# Process Theories: Expectancy Theory

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*Relates the effort a person puts forward to the expectation of achieving some desired goal.*

1

Effort-to-Performance  
Expectancy

2

Performance-to-outcome  
Expectancy



# Process Theories contd....

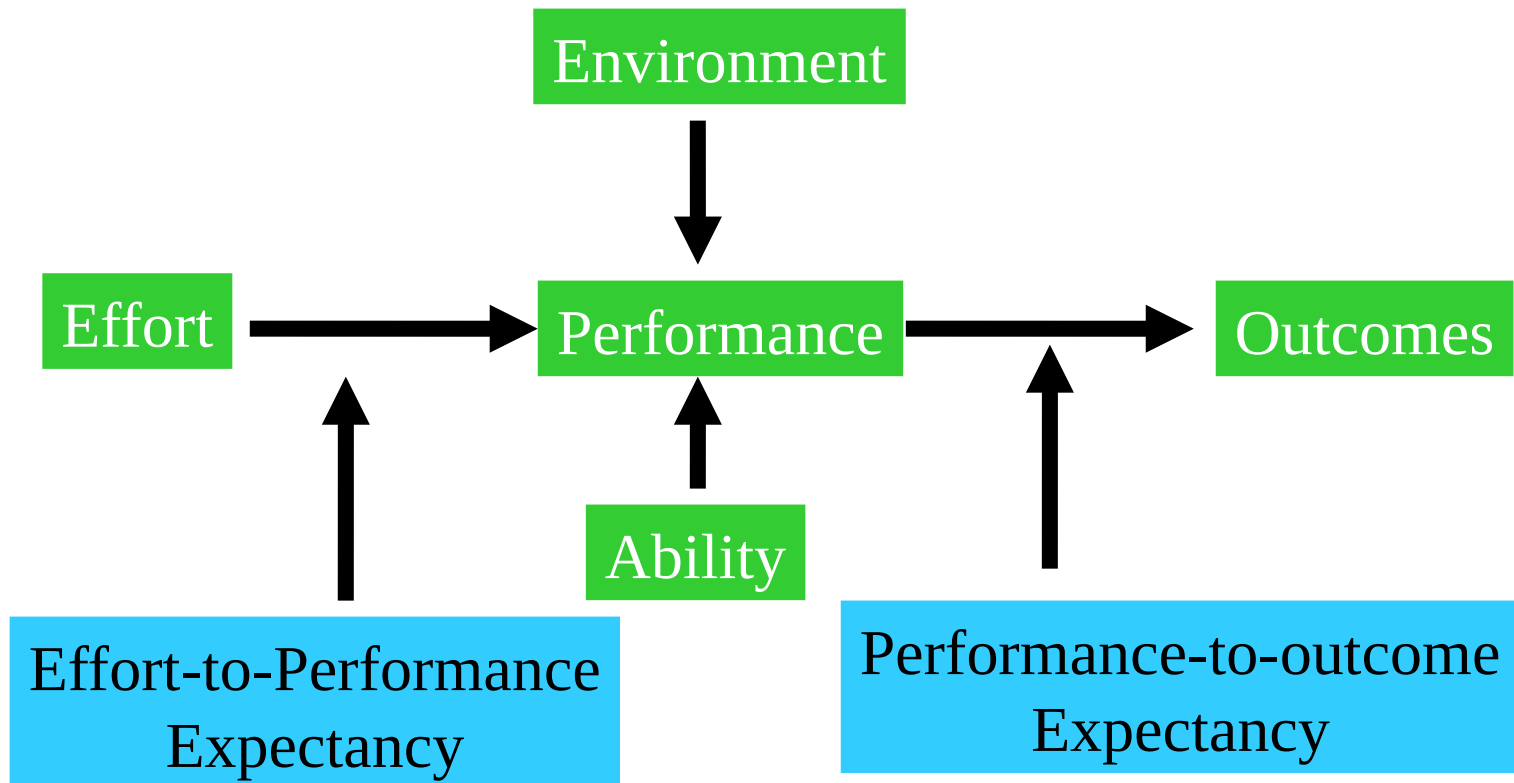
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## Expectancy Theory

- It relates the “effort a person puts forth “to “the expectation of achieving some desired goals”
- Two expectancies:
  - Effort -to -performance expectancy
    - Its a person’s perception of the probability that one’s effort will lead to high performance
    - It is also a function of ability of a person , environment
  - Effort -to- outcome expectancy
    - Its a person’s perception that attaining the performance described above will lead to intrinsic & extrinsic rewards

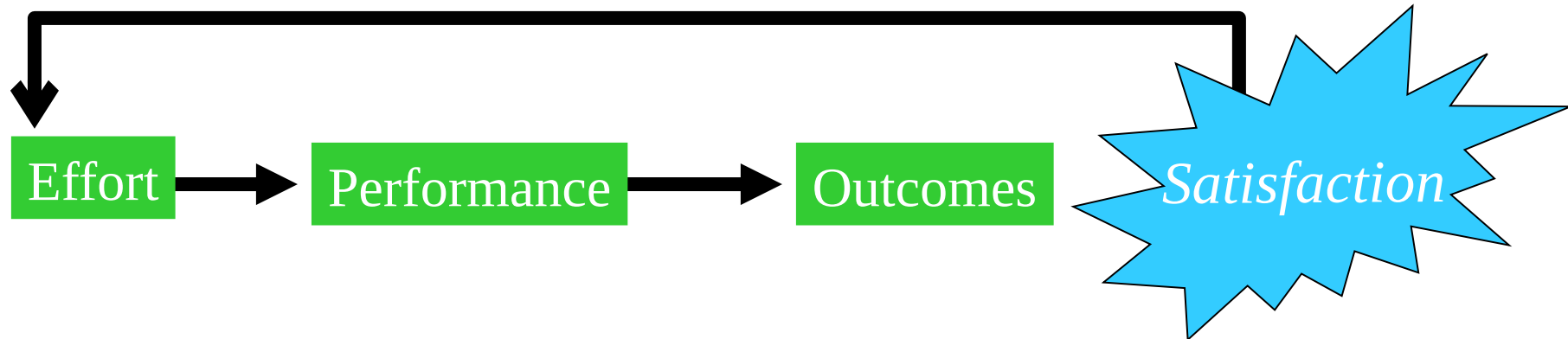
# Expectancy Theory

*Expectancy Theory: Relates the effort a person puts forward to the expectation of achieving some desired goal.*



# Process Theories: Porter- Lawler Extension to Expectancy Theory

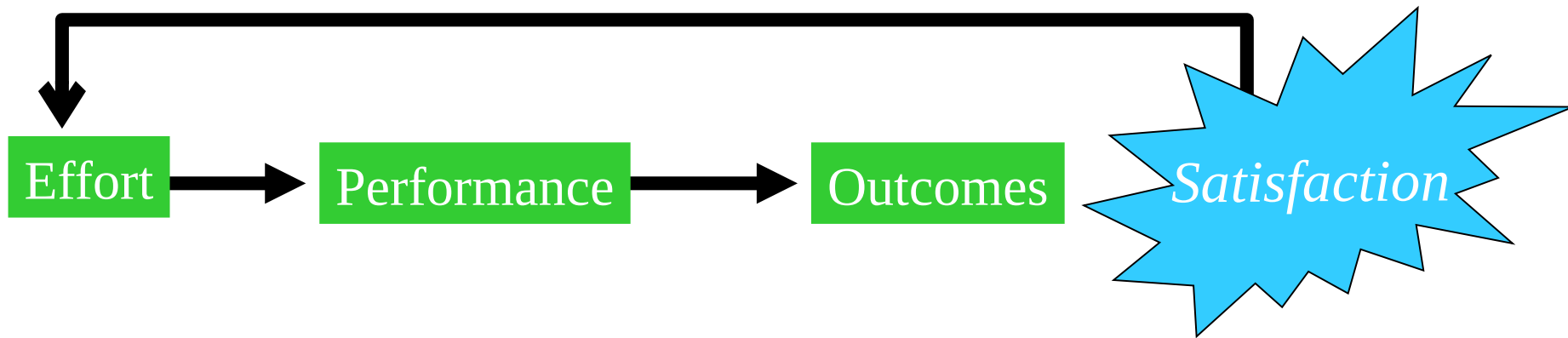
*Porter-Lawler Extension to Expectancy Theory: It adds satisfaction to the Expectancy Theory.*



- \* Personal effort, abilities, role perceptions, environment determine performance*
- \* Performance, in turn, leads to intrinsic and extrinsic rewards as in expectancy*
- \* The perceived equity determines the satisfaction*
- \* Satisfaction influences future effort*

# Porter- Lawler Extension to Expectancy Theory

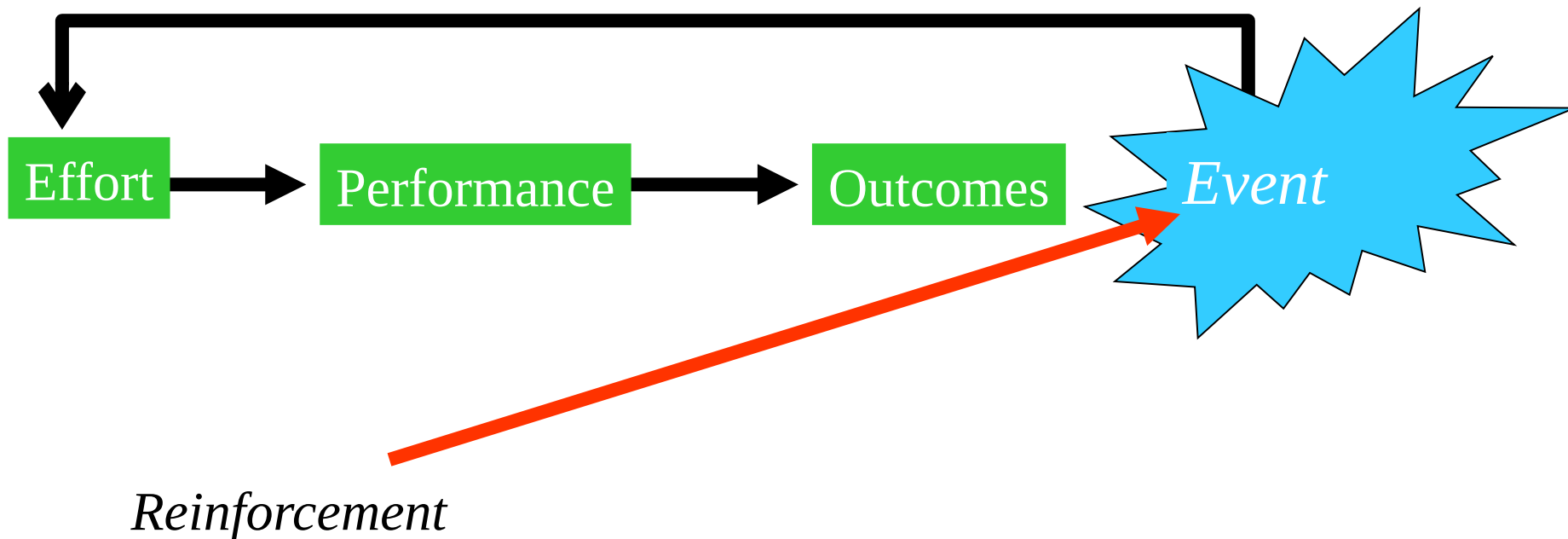
*Porter-Lawler Extension to Expectancy Theory: It adds satisfaction to the Expectancy Theory.*



*Expectancy Theory + Satisfaction + Feedback for future effort*

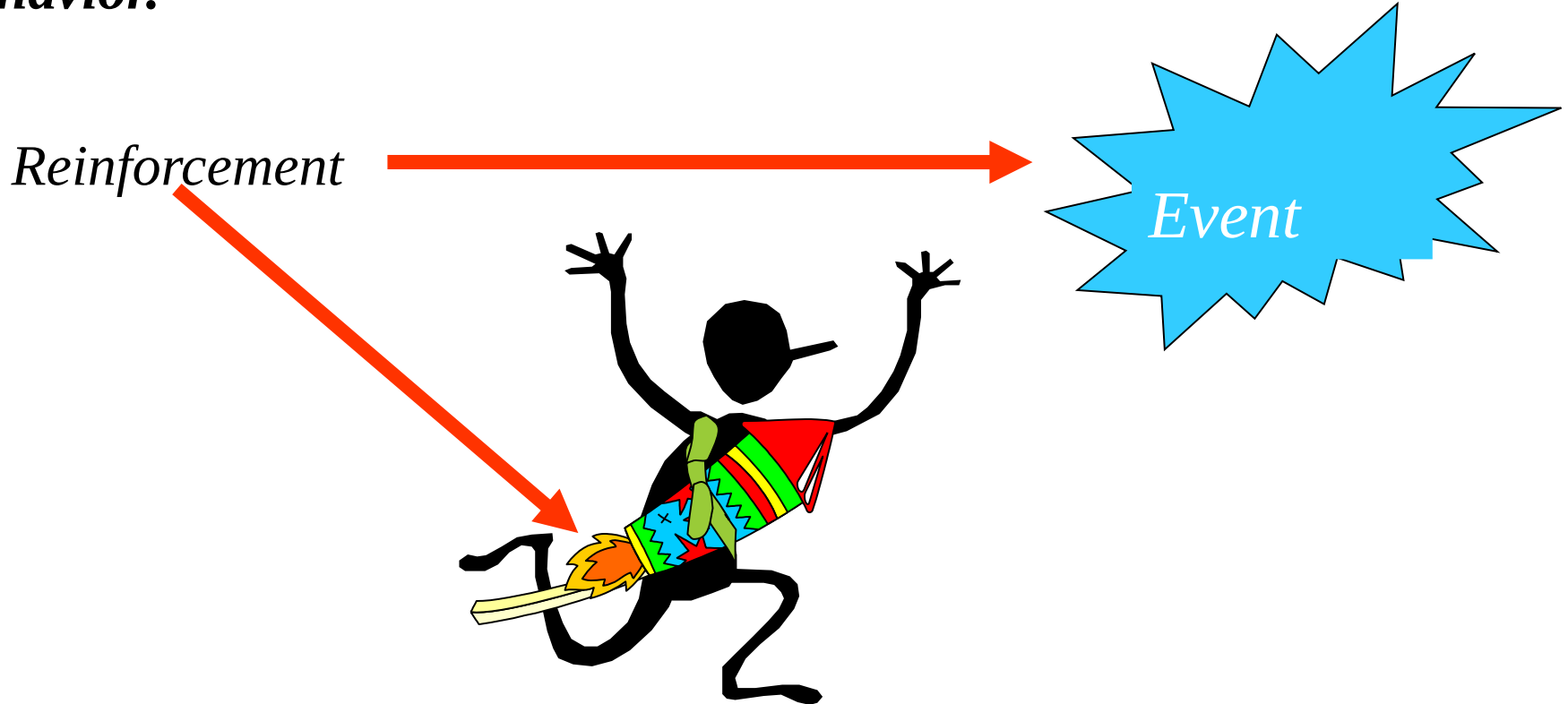
# Process Theories: Reinforcement Theory

*Behavior Modification (Reinforcement Theory): **Motivation (behavior)** followed by an event (reinforcement) which affects the repetition of behavior.*



# Reinforcement Theory

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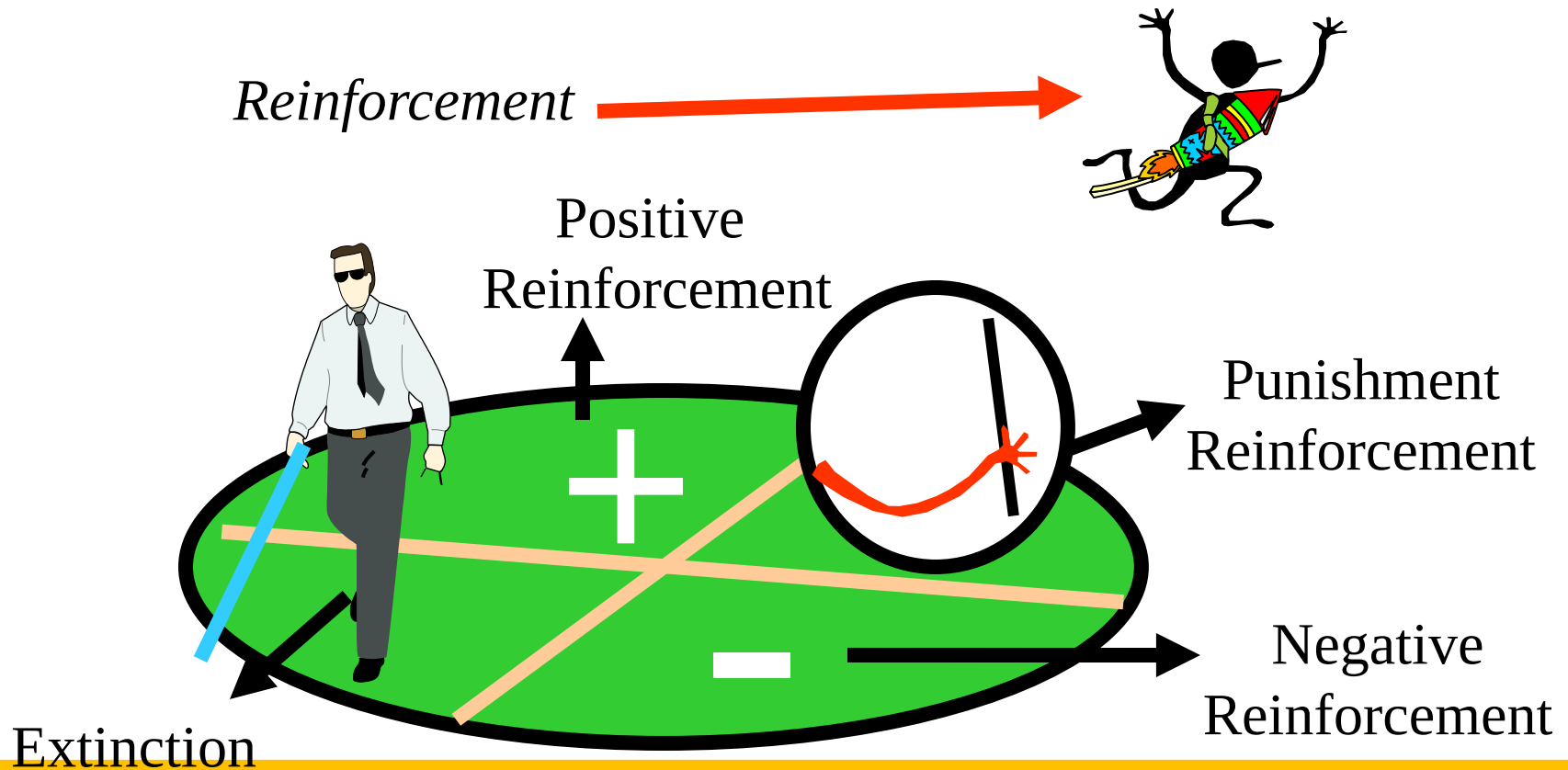
*Reinforcement*



- Positive Reinforcement: Increases the repetition of desired behavior by providing a reward (promotion, recognition etc)
- Negative Reinforcement or Avoidance: Increases the repetition of desired behavior by letting the employee escape from undesired consequences
- Punishment: **Decreases** the repetition of **undesired** behavior by imposing penalties
- Extinction: **Decreases** the repetition of **undesired** behavior by simply ignoring and using positive reinforcement

# Reinforcement Theory

*Behavior Modification (Reinforcement Theory): Motivation (behavior) followed by an event (reinforcement) which affects the repetition of behavior.*





# Process Theories contd...

## Behaviour modification (Reinforcement theory)

- Behaviour followed by an event that affects the probability that the behaviour is repeated
- Four types of reinforcements are available to the manager:
  - Positive reinforcement
    - ❖ Desired behaviour can be repeated by providing reward
  - Negative reinforcement
    - ❖ Letting the employee escape from the undesired consequences
  - Punishment
    - ❖ Decrease the probability of repetition of undesired behaviour by imposing penalty/fine
    - ❖ It leads to poorer performance so use as last resort
  - Extinction
    - Decrease the probability of repetition of undesired behaviour by ignoring it and withholding positive reinforcement

# Motivating and Leading Technical Professionals

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## General Nature of the Technical Professional

- Having a high need for achievement and deriving their motivation primarily from the work itself.
- Desiring autonomy (independence) over the conditions, pace, and content of their work.
- Tending to identify first with their profession and secondarily with their company.
- Seeking to maintain their expertise, gained through long and arduous study, and stave off obsolescence through continuing education.

## Motivating Factors for Engineers

1. Type of work, interesting, diversified (45.0%)
2. Salary (33.9%)
3. Location, good place to live, family (31.2%)
4. Opportunity for advancement (29.8%)
5. Challenge, more responsibility, chance to use creative ability (16.9%)
6. Reputation, prestige of company (13.7%)
7. Working conditions, personnel policies (11.7%)
8. Growing organization, growing field (6.9%)
9. Security, retirement plan, benefits (6.8%)

# Dimensions of technical leadership

- Coach for peak performance – “listen, act, facilitate, integrate, provide administrative support”
- Run organizational interference - obtain resources, support professionals and minimize the bureaucracy
- Orchestrate professional development
- Expand individual productivity through teamwork
- Facilitate self-management

# Leading as Orchestration

Four general areas where the leader can make a difference:

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1. Technical competence - related to scientific productivity and willingness to comply with management directives
2. Controlled freedom - decision making is shared but not given away, autonomy partially preserved
3. Leader as metronome - widen/narrow limits, add/subtract weights, speed up/slow down actions
4. Work challenge - manager measured by extent to which he/she can provide challenging assignments

# Breakpoint Leadership

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- When influencing other parts of the organization is as important, or more important, than influencing a subordinate group, leadership is at a breakpoint
- Effectiveness is not simply measurable by group productivity, but as a function of organizational direction and impact.

# Use of Motivational Theories by Engineers

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- Most familiar with MBO, quality, and Peters/Waterman
- Also Maslow's hierarchy, theory X and Y, Herzberg's two factor theory, managerial grid, leadership continuum