Introduction To Management Theory

- The Manager
  - Central element of management
  - Manager = Man Ager
  - Helps subordinant’s abilities to mature or causes employees to grow old earlier.

- Lecture Topics
  - General human behavior
  - Person to person interchanges
    - ref: Transactional Analysis Text, I’m OK - You’re OK,
      - Thomas A. Harris, 1967.
  - Manager types (X,Y, and Z)
  - Organizational Maturation
Needs Hierarchy-A.H.Maslow

- Primary Needs
  - Innate or basic
  - Which seem to have organic origin.....

- Secondary Needs
  - Psychological
  - Which seem to exist because people live in a society composed of other people.

- The different types of needs are
  - SELF ACTUALIZATION
    - Personal fulfillment - 10%
    - The needs for the realization of individual potential, the liberation of creative talents, the widest possible use of abilities and aptitudes - in short, for personal fulfillment.
Needs Hierarchy-A.H. Maslow

- **EGO**
  - Self esteem - 40%
  - These are the needs for reputation, self respect and self esteem. People need to feel competent and knowledgeable. They need respect, recognition and status.

- **SOCIAL**
  - Love and Affection - 50%
  - These are the needs people have for gregariousness and social interaction. People like to group together for many purposes of life. They need to associate, to belong, to accept and be accepted, to love and be loved.
Needs Hierarchy-A.H.Maslow

➤ SAFETY
- Security - 70%
- These are the needs to be free from fear of deprivation, danger, and threat, on and off the job.

➤ PHYSIOLOGICAL - 85%
- Needs for food, water, air, shelter, rest, exercise and other required to satisfy the biological demands of the human organism.

Note that these needs overlap and are independent. A higher, less tangible need emerges before the lower one is fully satisfied.

Thus, Maslow has estimated that, in our society, the average citizen is 85% satisfied in his physiological needs, 70% in safety, 50% in social, and 40% in ego, but only 10% in self actualization needs.
Transaction Analysis

- A pragmatic approach, interpersonal exchange
- Provides a workable insight - not an absolute answer.
- Formulated by Dr. Eric Berne in 1957
- Permits the discussion of human behavior in a “public” language, decontaminated of technical jargon.
- Widely used, and expanded by professionals and the general public
- Transaction
  - Unit of social interchange consisting of initiating stimulus and a subsequent response.
Project Control

- **Objective**
  - Maintain awareness of the project’s status, analyze any deviations from the project plan, and take timely corrective action when required.

- **Schedule and Cost**
  - Track actual cost and task % completed
  - Compare status with planned values
  - Analyze variance
  - Make necessary Resource Adjustments
Project Control

- Configuration Management
  - USES
    - The baseline / Iteration scheme
    - Well defined procedures, techniques, and responsibilities.
  - TO
    - Review, Authorize / Reject, and Document all proposed system/project changes.
  - FOR MANAGING
    - Project definition (project plan)
    - System requirements (system requirement specs)
    - Design strategy
    - H/W and S/W design (detailed design specs)
    - Qualification and Verification tests (test plans)
    - Documentation.
Project Control

- **Approach**
  - Proposed changes reviewed at project change control meetings.
  - Authorized changes are documented in the Project Log and Change Notices (CNs) placed in the appropriate drawings and documents.
BASELINE / ITERATION TECHNIQUE FOR SYSTEM / PROJECT CONFIGURATION MANAGEMENT

1. Proposed Change
2. Modify proposed change
3. Test results reviews, new information, etc.
4. REVIEW Impact analysis
5. Accepted withMods
6. Accepted
7. REJECTED
8. Change BASELINE & Document
# PRODUCTION SCHEDULE AND PROGRESS CHART

**CONTRACT NO.:** __________

**NAME OF PROJECT:** ________________

**PROJECT NO.:** ________________

<table>
<thead>
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<th>Description Of Work</th>
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**TOTAL 138,000**
The Human Ego

- The mind is a High Fidelity Recorder of ALL Experienced Perceptions.
- The Parent (P)
  - Examples and Pronouncement of Parents or Parent-Figures: Admonitions, Rules, Laws, Prejudices, HOW-TO’s, “TRUTH”, ... CAN BE CRITICAL OR NURTURING.
- The Adult (A)
  - Non-existent until about the 10th month. Discovers ability to self actualize & the ADULT begins to develop. Performs Data Analysis and makes Decisions.
- The Child (C)
  - Early taping of feelings responding to external events. Negative: Clumsy, Inarticulate, Natural Desires are “BAD”, ... Positive: Creativity, Curiosity, Elation of first Discoveries, ... CAN BE ADAPTIVE OR NATURAL.
LIFE POSITIONS

- INDICATED BY ATTITUDES TOWARD SELF AND OTHERS RESULTING FROM NATURE OF OR ABSENCE OF STROKES DURING FIRST YEAR

- I’M NOT OKAY -- YOU’RE OKAY
  - Universal position of EARLY CHILDHOOD when ADULT is very fragile. Negative strokes then can have long lasting affects if not corrected. Insecure, requires constant assurance. (ADAPTIVE CHILD STATE)

- I’M OKAY -- YOU’RE NOT OKAY
  - Does not trust anyone. Spends most of time in the CRITICAL PARENT Ego state. Often puts others down. Happiest when someone’s error is caught and brought to their attention.
I’M NOT OKAY -- YOU’RE NOT OKAY

- A VERY Sad Case -- severe child abuse usually results in this condition. The person has given up and stopped trying. Conditioned to accept and expect negative stroking. Can accept no compliments, since “they are insincere.” Without help this person is on the way to mental illness or jail.

I’M OKAY -- YOU’RE OKAY

- This is the best position of the four, but must be actively pursued. The first three are unconsciously attained - this position is attained only through conscious commitment and effort. It is very much like Maslow’s self-actualization level. You are most productive and happy in this Life Position. Not only is your ADULT functioning well, but you can “let your NATURAL CHILD out” and have fun without guilt, and when appropriate, you can extend a helping hand through your NURTURING PARENT.
COMPLEMENTARY TRANSACTIONS

WHERE RESPONSES ORIGINATE FROM THE EGO STATE TO WHICH THE STIMULUS WAS DIRECTED, AND ARE DIRECTED TO THE EGO STATE FROM WHICH THE STIMULI ORIGINATED

PARENT - PARENT

STIMULUS: “You can never trust one of those people.”

RESPONSE: “Exactly. Their kind are all alike.”

PARENT-CHILD

STIMULUS (Mrs. Smith): “You have a cold, you poor thing. Is there anything I can get you?”

RESPONSE (Mr. Smith): “I don’t know. I just feel so rotten. Maybe you could fluff my pillow.”
WHERE RESPONSES ORIGINATE FROM DIFFERENT EGO STATES THAN THOSE TO WHICH THE STIMULI WAS DIRECTED, AND/OR ARE DIRECTED TO EGO STATES OTHER THAN THOSE FROM WHICH THE STIMULI ORIGINATED. WHEN THIS OCCURS, COMMUNICATION STOPS and “WAR” CAN BEGIN!!

PARENT-CHILD / PARENT-CHILD

STIMULUS (Mother): “Go pick up your room.”

RESPONSE (Daughter): “You can’t tell me what to do. You’re not the boss around here. Dad’s the boss!”

ADULT-ADULT / PARENT-CHILD

STIMULUS (Student in Lab): “This computer doesn’t boot. Can you help me with it?”

RESPONSE (Lab Instructor): “Well, now what did you do to it?”
DEALING WITH TROUBLED TRANSACTIONS

- STAY IN THE ADULT
- ENCOURAGE THE OTHER ONE’S ADULT
- ONE TECHNIQUE TO DO THIS IS ACTIVE LISTENING
  - FEEDBACK HOW YOU INTERPRET HIS BEHAVIOR
    - PERSON A (In the ADAPTIVE CHILD): “I am so upset! No matter what I do, my boss can always find something to criticize me on.”
    - ACTIVE LISTENER: “I can see that you are frustrated.”
  - LISTEN TO ACCEPT AND RELEASE THE “CHILD’S” FEELINGS - THEN ASK QUESTIONS TO ACTIVATE THE ADULT.
    -active listener: “Why do you think she does this?”
    - “Could you be trained for bigger and better things?”
    - “Is there a possibility of transferring to another department?”
- BEWARE OF GAME-PLAYERS
  - REINFORCES HIS NOT OKAY POSITION
  - STAY IN THE ADULT, POINT OUT WHAT YOU PERCEIVE & TERMINATE THE INTERCHANGE

CSE, UTA
## Motivating Subordinates

(Two sets of assumptions about people)

<table>
<thead>
<tr>
<th>TRADITIONAL (X)</th>
<th>POTENTIAL(Y)</th>
</tr>
</thead>
<tbody>
<tr>
<td>People are naturally lazy; they prefer to do nothing.</td>
<td>People are naturally active; they set goals and enjoy striving.</td>
</tr>
<tr>
<td>People work mostly for money and status rewards.</td>
<td>People seek many satisfactions in work; pride in achievement; enjoyment of process; sense of contribution; pleasure in association; stimulation of new challenges, etc.</td>
</tr>
<tr>
<td>The main force keeping people productive in their work is fear of being demoted or fired.</td>
<td>The main force keeping people productive in their work is desire to achieve their personal &amp; social goals.</td>
</tr>
<tr>
<td>People remain children grown larger; they are naturally dependent on leaders.</td>
<td>People normally mature beyond childhood; they aspire to independence, self-fulfillment, responsibility.</td>
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</tbody>
</table>
## Motivating Subordinates

*(Two sets of assumptions about people)*

<table>
<thead>
<tr>
<th>TRADITIONAL  ( (X) )</th>
<th>POTENTIAL  ( (Y) )</th>
</tr>
</thead>
<tbody>
<tr>
<td>People expect &amp; depend on direction from above; they do not want to think for themselves.</td>
<td>People close to the situation see &amp; feel what is needed &amp; are capable of self-direction.</td>
</tr>
<tr>
<td>People need to be told, shown &amp; trained in proper methods of work.</td>
<td>People who understand &amp; care about what they are doing can devise and improve their own methods of work.</td>
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<tr>
<td>People need supervisors who will watch them closely enough to be able to praise good work and reprimand errors.</td>
<td>People need a sense that they are respected as capable of assuming responsibility &amp; self-correction.</td>
</tr>
<tr>
<td>People have little concern beyond their immediate, material interests.</td>
<td>People seek to give meaning to their lives by identifying with nations, communities, churches, unions, and causes.</td>
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</table>
# Motivating Subordinates

(Two sets of assumptions about people)

<table>
<thead>
<tr>
<th>TRADITIONAL (X)</th>
<th>POTENTIAL (Y)</th>
</tr>
</thead>
<tbody>
<tr>
<td>People need specific instruction on what to do and how to do it; larger policy issues are none of their business.</td>
<td>People need ever increasing understanding; they need to grasp the meaning of the activities in which they are engaged; they have cognitive as extensive as the universe.</td>
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<tr>
<td>People appreciate being treated with courtesy.</td>
<td>People crave genuine respect from their fellow men.</td>
</tr>
<tr>
<td>People are naturally compartmentalized; work demands are entirely different from leisure activities.</td>
<td>People are naturally integrated; when work &amp; play are too sharply separated both deteriorate; “The only reason a wise man can give for preferring leisure to work is the better quality of the work he can do during leisure.”</td>
</tr>
</tbody>
</table>
## Motivating Subordinates

(Two sets of assumptions about people)

<table>
<thead>
<tr>
<th>TRADITIONAL (X)</th>
<th>POTENTIAL (Y)</th>
</tr>
</thead>
<tbody>
<tr>
<td>People normally resist change; they prefer to stay in the old ruts.</td>
<td>People naturally tire of monotonous routine &amp; enjoy new experiences; modified and fitted to people.</td>
</tr>
<tr>
<td>Jobs are primary and must be done; people are selected, trained, and fitted to predefined jobs.</td>
<td>People are primary and seek self-realization; jobs must be designed, modified &amp; fitted to people.</td>
</tr>
<tr>
<td>People are formed by heredity, childhood and youth; as adults they remain static; old dogs don’t learn new tricks.</td>
<td>People constantly grow; it is never too late to learn; they enjoy learning &amp; increasing their understanding and capability.</td>
</tr>
<tr>
<td>People need to be “inspired” (pep talk) or pushed or driven.</td>
<td>People need to be released and encouraged and assisted.</td>
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</tbody>
</table>

Maturation Stages In Business Organizations: Management Development

- Applicable to technical staff development also.

- Stage 1: Jungle Approach
  - Based on "survival of the fittest", "sink or swim", and "cream will rise to the top" hypotheses, this approach presumes that there is nothing that a company effectively can or should do to encourage, guide, or explicitly provide for the development of management skills. Necessary management skills will develop without help, planning, or encouragement. Executives will intuitively make "right" judgment regarding managerial assignments and selection.
Stage 2: Educational Approach

- Top management acknowledges that it does have some responsibility for management development. This is limited in the action concept to considerations of "formal" education and training. This responsibility is typically "abdicated" to the staff organization for education/training, with little or no real encouragement or involvement by members of top management in management development processes. This approach typically de-emphasizes the needs and requirements of individual managers.
Stage 3 : Agricultural Approach

- Top management accepts and believes fervently that the attitudes and skills of people (human faculties) are the most important and precious asset of a viable organization. It involves itself in development processes with wholehearted commitment. It knows that all development proceeds in fact from where the individual manager "is", rather than from where it may like him to be or may presume that managers similarly situated typically "are". Thus, it acts positively on the proposition that the most effective development occurs where individual managers actually "are", that this requires sound (professional) appraisal of individuals as a basis for planning balanced programs for development, employing all appropriate means: on-the-job methods, well executed counseling by competent superordinates, and programmed self development, as well as educational programs based on individually identified development needs.
This approach, so successful in many progressive business organizations, is based on practical realization that one does not accrue worthwhile values "for nothing". It is challenging in that its effective application presents certain basic prerequisites. Chief of these are:

- Establish favorable basic management climate
  - Through word, action and example establish that excellence in management practice is desired.
  - Communicate company objectives, values and authority relationships.
  - Establish conditions conducive to positive motivation of the individual manager.
  - Communicate philosophy of management.

Maturation Stages In Business Organizations: Management Development (cont.)
Establish a management climate specifically conducive to management development and organize for management development.

- Line executives must be held individually accountable and receive recognition for developing subordinates. They must intimately involve themselves in development processes, as a consequence of accepting this as a prime responsibility.
- The staff function for management development must be appropriately located in the organization; the required professionally competent skills and facilities (with "psychological distance") must be provided.
- Establish required programs for appraisal, counseling and development; this specifically should include the training of superordinate executives in manager counseling and development processes.
Risk Assessment / Management

■ Purpose
  ➢ Improve chances of project success.

■ Risk Area Defined
  ➢ A part of the system design or implementation approach judged as having a significant probability of failure to result in a successful design and/or implementation.

■ The Process:
  ➢ Identify design and implementation risk areas.
    ➢ Group these into three categories -
      – Minimal Risk: Reasonable development challenge
      – More than Minimal Risk: These become the issues to be resolved by prototype (design issues) and pilot (implementation) testing.
      – Not Acceptable Risk: Design approach should be redefined to avoid these.

  ➢ Take the appropriate Actions -
    – Modify approach to avoid category 3 items
    – Design rapid prototype and pilot model test plans to provide test results aimed at resolving the category 2 risk issues.
    – Track the development of category 1 items and be prepared to take corrective action if and when it appears necessary.
Failure Rate is Also a Function of Temperature

Failure Rate Vs Temperature

Temperature (Centigrade)

Failure rate (%/1000 hours @ 80% confidence)

1970
1975
1968
The failure rate \( fr \) of a system with \( m \) components any of which can cause system failure.

\[
\sum_{i=1}^{m} fr_i = \lambda
\]

- \( R(t) = \text{probability of system operating without failure at time } t. \)
  \[
  R(t) = e^{-\lambda t}
  \]

Some definitions:

\[
MTTF = \int_{0}^{\infty} R(t) dt = \frac{1}{\sum_{i=1}^{m} fr_i} = \frac{1}{\lambda}
\]

\[
MTTR = \frac{1}{\mu} \quad (\mu \text{ is repair rate})
\]

\[
MTBF = MTFF + MTTR \quad \text{AVAIL.} = \frac{MTTF}{MTBF}
\]

Each subsystem \((rm)\) can cause system failure.

Subsystems are redundant.
REDUNDANT SYSTEM COMPONENTS

Both components must fail for the system to fail.

Probability of system failure: \( P = 1 - R \)

\[
p_1 = 1 - r_1 \quad \text{and} \quad p_2 = 1 - r_2
\]

\[
P = p_1 \times p_2 = (1 - r_1) \times (1 - r_2)
= 1 - r_1 - r_2 + r_1 \times r_2
\]

\[
R = 1 - P = r_1 + r_2 - r_1 \times r_2
\]

Example:

\[
r_1 = r_2 = 0.8
\]

\[
R = 0.8 + 0.8 - (0.8 \times 0.8)
= 1.6 - 0.64
= 0.96
\]