Goals

• In this tutorial you will be exposed to:
  – A new language of leadership combining information processing preferences with leadership preferences within the “Battle Rhythm” context
  – A mechanism to develop yourself and others using this leadership language
  – Examples that focus on leadership within systems engineering and development
Agenda

• Session 1
  – Block A – Systemic Leadership Theory (SLT)
  – Block B – Systemic Leadership Profile (SLP) Components

• Break

• Session 2
  – Block C – Applying the SLP to develop leaders
  – Block D – Interactive SLP Exercise
Leadership Theory

SESSION 1 – BLOCK A
Leadership – A **BAQBOE**

*BAQBOE – Bold Anecdotal Quote Based On Experiences*

“Based on what you can read, study or observe about Leadership you would be hard pressed to conclude that the word Leadership actually addresses something that happens in real life”

Frank Sisti
A Little Historical Perspective on Leadership Theory

• The Great Man (or Trait) Theory
• The Situational Theory
• The Contingency Theory
• The Exchange (or Transactional) Theory
• The Transformational Leadership Theory
The Leadership Theory Spectrum

“Boutique” Leadership Theories

System of systems Leadership Theory
Systemic Leadership Construct

The system in which Leadership exists

Reality is: only what a Leader has to work with

Personal Information Processing Preferences

Personal Leadership Preferences
Systemic Leadership Theory

The “Battle Rhythm” surround

**THIS**
is where the Leader lives from day-to-day

How the Leader processes information

How the Leader prefers to lead

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Systemic Leadership Profile (SLP)

The organization as a “Living System”

Leaders exist and succeed or fail within their own personal Leadership Profile

The Leader’s MBTI

The Leader’s MLQ

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SLP Components

SESSION 1 – BLOCK B
The Myers – Briggs Type Indicator (MBTI)

- I. B. Myers & K. Briggs authored the MBTI
- “Operationalizes” C.G. Jung’s *Psychological Types* Theory
- Used in WW II to “type” pilots & submariners
- Ancillary focus on leadership preferences
- Today is applied from teenagers on up
- Over 10 million records in the professional MBTI database
- Form G is a 125 question instrument
Preferences for Processing Information

### Four MBTI Dichotomies

**Where do we get our energy?**
- **Extraversion**
- **Introversion**

**How do we take in information?**
- **Sensing**
- **Intuition**

**How do we make decisions?**
- **Thinking**
- **Feeling**

**How do we organize our world?**
- **Judging**
- **Perceiving**

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Adapted from Kroeger & Thuesen
Developing Systemic Leaders Version 1
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Frank’s MBTI is ENTP

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<thead>
<tr>
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<th>ISTJ</th>
<th>ISFJ</th>
<th>INFJ</th>
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Adapted from Kroeger & Thuesen
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ENTP & Leadership

“Progress Is the Product”

“For the ENTP the public world is an exciting one (Extraversion). If things aren’t exciting, the ENTP will want to go out there and make it so, because the external world is full of endless possibilities, random abstractions, and theoretical connections (iNtuition). These perceptions are filtered through objective, impersonal decisions (TThinking), none of which are terribly binding because each day brings new options, open-endedness, and spontaneity (PPerception).”

Preferred Leadership Style - MLQ

- The Multifactor Leadership Questionnaire (MLQ)
  - B. Bass & B. Avolio authored the MLQ during the 1980s
  - “Operationalizes” J. McGregor’s Transactional/Transformational Leadership Theory
  - Rigorously designed to identify a leader’s behavior preferences
  - Today is considered the industry standard instrument to differentiate between transactional and transformational leadership behaviors
  - Translated into more than 20 different languages and found reliable
  - MLQ Version 5 is a 45 question instrument
Transformational & Transactional Leadership Behavior Differences - 2

- **Transformational**
  - Builds subordinate capabilities & potential through experiences
  - Builds understanding, morale, & trust
  - Encourages multi-linear capability focusing on maintaining or reducing schedules
  - Fundamentally net-centric aware
  - Enables perception of value to overall mission success and effectiveness
  - Provides capacity for transfer of knowledge
  - Requires trust
  - Requires appropriate training

- **Transactional**
  - Maintains subordinate levels & grows individual experience
  - Focuses on “wait for direction” work ethic
  - Encourages linear actions focusing on extending planned schedules
  - Fosters point-to-point solutions
  - Limits perception of value to overall mission success and effectiveness
  - Provides individual with narrow experience profile
  - Does not encourage trust
  - Does not require much training to maintain competency
Preferred Leadership Behavior

The four I’s:
- Idealized Influence (Charisma)
- Inspirational Motivation
- Intellectual Stimulation
- Individualized Consideration

Contingent Reward
Management-by-Exception - Active
Management-by-Exception - Passive
Laissez-Faire Leadership

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A “Battle Rhythm” is a Living System

• The Living System Theory (LST)
  – J. G. Miller authored the LST in 1978
  – The “Battle Rhythm” component in the Systemic Leadership construct “Operationalizes” Miller’s LST
  – Living Systems focus is broader than an organization’s documented process environment
  – There are 20 functions identified in a living system
  – The LST is translated into more than 11 different languages
The LST Eight-level Model

Adapted from Miller 1978
Developing Systems 10/24/11
Adapted from Miller 1987
Notional Program Office “Battle Rhythm” Diagram

- e.g. CM/DM Internal Transducer
- e.g. Systems Engineering Digest
- e.g. DAG Input & Output
- e.g. Planning element Reproducer
- e.g. Program personnel Producers
- e.g. Process Improvement Associate
- e.g. EXEC Timer
- e.g. DIRECTOR Decider
- e.g. Contracts Memory & Storage

Supporter & Communication Network

Boundary
- e.g. PEM
- HHQ
- Congress
- DoD
- Developer

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Case Studies

• The use of case studies allows us to identify “battle rhythm” components
• In most acquisitions “past performance” is an important selection factor
Hubble Space Telescope – an AFIT Systems Engineering Case Study

Hubble Restored: The Telescope’s Latest Look
Image Credit: NASA, 2002
A FRAMEWORK OF KEY SYSTEMS & SOFTWARE ENGINEERING CONCEPTS

<table>
<thead>
<tr>
<th>CONCEPT AREAS</th>
<th>RESPONSIBILITY DOMAIN</th>
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<tr>
<td></td>
<td>1 - Contractor</td>
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<td>2 - Shared</td>
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<td>3 - Government</td>
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<tr>
<td>A. Requirements Definition and Management</td>
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<td>B. Systems Architecture Development</td>
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<td>C. System, Subsystem Design</td>
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<td>E. Risk Management</td>
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<td>F. Systems Integration &amp; Interfaces</td>
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<tr>
<td>G. Life Cycle Support</td>
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<td>H. Deployment and Post Deployment</td>
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<tr>
<td>I. System and Program Management</td>
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Six of the nine concept areas represent phases in the systems engineering life cycle:
- *Requirements Definition and Management
- *Systems Architecture Development
- *Systems, Subsystem Design
- *Systems Integration and Design
- *Validation and Verification
- *System Deployment and Post Deployment

Three of the nine concept areas represent necessary process and systems management support:
- *Life Cycle Support
- *Risk Management
- *System and Program Management

### A FRAMEWORK OF KEY SYSTEMS & SOFTWARE ENGINEERING CONCEPTS

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<tr>
<td>A. Requirements Definition and Management</td>
<td>Contractors involved the scientific user community in system requirement studies for sizing the telescope, defining the instrument suite, and determining concept of operation.</td>
</tr>
<tr>
<td>B. Systems Architecting and Conceptual Design</td>
<td>Multiple competing contractors were funded over several years for phased concept and architecture development approaches to the mission.</td>
</tr>
<tr>
<td>C. System and Subsystem Detailed Design and Implementation</td>
<td>Contractor (LMSC) responsible for overall system design, telescope assembly, support system module and subsystem/instrument functional interface definition; P-E for optical system and guidance sensors; STScI for most instruments.</td>
</tr>
<tr>
<td>D. Systems and Interface Integration</td>
<td>LMSC responsible overall; P-E responsible for optical system with LMSC oversight. Jointly monitored but largely contractor dominated in execution.</td>
</tr>
<tr>
<td>E. Validation and Verification</td>
<td>Total system vacuum thermal test (LMSC) and rigorous optical system V&amp;V (P-E) a contract requirement; (primary mirror test failure led to system failure).</td>
</tr>
<tr>
<td>F. Deployment and Post Deployment (post launch)</td>
<td>Deployment supported by contractor team (system/subsystem functionality, operations support, problem analysis, etc.).</td>
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A FRAMEWORK OF KEY SYSTEMS & SOFTWARE ENGINEERING CONCEPTS

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<td>G. Life Cycle Support</td>
<td>Program designed for life cycle support (on-orbit servicing); ORU equipment integral to all contractors SE and PM activities. Accelerated disposal mission requirements and program development initiated in February 2004.</td>
</tr>
<tr>
<td>H. Risk Assessment and Management</td>
<td>Contractor integral to all phases of program risk assessment and mitigation; evident from requirements through development and test; primary risk management OPR.</td>
</tr>
<tr>
<td>I. System and Program Management</td>
<td>LMSC, P-E associate contractors with LMSC responsible for overall SE and integration; elected as the best approach for optimum NASA control and leverage.</td>
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Six of the nine concept areas represent phases in the systems engineering life cycle:
* Requirements Definition and Management
* Systems Architecture Development
* Systems, Subsystem Design
* Systems Integration and Design
* Validation and Verification
* System Deployment and Post Deployment

Three of the nine concept areas represent necessary process and systems management support
* Life Cycle Support
* Risk Management
* System and Program Management

Completed Friedman Sage Matrix for HST - 2

Systemic Leadership Profile

The organization as a “Living System”

Leaders exist and succeed or fail within their own personal Leadership Profile

The Leader’s MBTI

The Leader’s MLQ
Session 1 - Review

- Introduced to a new Leadership theory
  - Two personal components of the Leader
  - The impact of “Battle Rhythm” on Leaders and Leadership
  - The use of case studies to assist in crafting own Systemic Leadership reality (AFIT Case Studies discussed on the Systemic Leadership Wiki)
Using the Systemic Leadership Profile (SLP) to develop leadership

SESSION 2 – BLOCK C
Systemic Leadership Profile

The organization as a “Living System”

Leaders exist and succeed or fail within their own personal Leadership Profile

The Leader’s MBTI

The Leader’s MLQ
SLP Workbook

• MBTI Description and Assessment
• MLQ Description and Assessment
• Living Systems Description, Example and Template
• Systemic Leadership Matrix
Using the SLP

• Fill out the MBTI and MLQ from assessments
• DeWitt’s MBTI is INTP
• DeWitt’s MLQ indicates a preference for Intellectual Motivation (Transformational)
Using the SLP – 2

• Using the SPO graphic
• Describe Living System context
• Space Radar Joint Program Office (JPO)
  o (-) Program Element Monitor (PEM) (boundaries)
  o (-) Multiple Directors (decider)
  o (+) Process Improvement (associate)
Using the SLP – 3

• Fill out matrix with key events/functions
  – Channel & Net: System Definition ERB
  – MBTI Preference: xSTJ
  – MLB Preference: Transactional Active
  – Leadership Risk: Natural tendencies (INTP and Intellectual Motivation) have me address issues too broadly for this group; tendency to “academic” or “milk and motherhood” holistic perspectives
  – Mitigation: Develop and vet Software Acquisition Management Plan with program SE staff to capture big motivators in program
  – Residual Risk: ERB representative was still too low in rank & limited resources for software
Using the Systemic Leadership Profile (SLP) to develop leadership

SESSION 2 – BLOCK D
SLP Exercise

• Team A – Government Program Office
• Team B - Development Contractor
Resources: MBTI & Leadership

• Type Talk (Kroeger & Thuesen, 1988)
• Type Talk at Work (Kroeger & Thuesen, 1992)
Resources: MLQ & Leadership

- Leadership (Burns, 1978)
- Transforming Leadership (Burns, 2003)
- Transformational Leadership: Industrial, Military, and Educational Impact (Bass, 1998)
Resources: Battle Rhythm & Leadership

- Living Systems (Miller, 1978)
- Systemic Leadership Wiki provides discussions about case studies in their systemic contexts (Sisti & Latimer, 2011)
- Case Studies (highlight the “battle rhythm”) (AFIT Center for Systems Engineering)
Systemic Leadership Resources

• Wiki: http://systemicleader.wikispaces.com/
• Blog: http://www.systemic-leadership.blogspot.com/
• Twitter: http://twitter.com/systemicleader
• LinkedIn: http://www.linkedin.com/groups?gid=1884022/
SLT Tutorial - Review

• Introduced Systemic Leadership Theory (SLT) including the three components; Information Processing, Leadership Preference & “Battle Rhythm”

• Introduced the Systemic Leadership Profile (SLP) as a mechanism to identify development opportunities in a real context
References – 1: Tutorial

References – 2: Case Studies


Developing Systemic Leaders Version 1
10/24/11
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