March 15, 2016 Presentation

SE Approach to Human Capital Management Issues in the Shipbuilding Industry

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Introduction

- What you have to offer as a Systems Engineer
  - What makes you special
  - What drives the need for Systems Engineering
  - Where can you apply Systems Engineering methodologies
- Example of “Drawing” the Line
  - Thesis Approach
  - Human Capital Management (HCM) Description
  - Stakeholder Analysis
  - Gap Analysis
  - Functional Analysis
  - Overall Measure of Effectiveness Model (OMOE)
- Your part in your career path
- Questions & Answers
What makes you special

Systems Engineering is an interdisciplinary approach and means to enable the realization of successful systems. - INCOSE
What drives the need for Systems Engineering

People

Complexity

Integration
Where can you apply Systems Engineering methodologies - You draw the Line

“Example of Drawing the Line”

A Systems Engineering Approach to Address Human Capital Management Issues in the Shipbuilding Industry

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24 September 2008
PD-21 Thesis Presentation
Thesis Approach

- **Systems Engineering Approach**
  - Define the Problem
    - Decrease in Engineering/Science Talent in Department of Defense (DoD) Shipbuilding industry
    - No means to stop the “brain drain”
  - Identify current DoD/Shipbuilding HCM strategies
  - Identify and Classify Stakeholders
  - Determine Gaps in HCM strategies
  - Close Gaps using Functional Analysis
  - Develop tool to evaluate effectiveness of proposed DoD/Shipbuilding HCM architectures
Define the Problem

Figure 1. U.S. University Trends in Defense-Related Science and Engineering (From OUSD AT&L, 2006)
HCM Description

What is Human Capital?
- Critical Knowledge, Skills, and Abilities (KSAs)
- ROI of Investment for human capital is greater than for conventional capital

What is Human Capital Management?
- People are assets to develop, not costs to be minimized
- HCM structures should be tied to strategic goals of the organization
- Effective HCM gives organizations competitive advantage
Stakeholder Analysis

- Process steps
  - Identify Potential Stakeholders
    - Brainstorming and Scenarios
  - Classify Potential Stakeholders
    - Set boundaries
  - Determine Stakeholder Relationships
    - Worth Activation Function
  - Determine Key System Stakeholders
    - Primary, Secondary & Tertiary
  - Define Stakeholders Needs and Requirements

DoD Shipbuilding-Specific Human Capital Management Strategy for Technical Expertise
Gap Analysis

- Gaps are a perception of the difference between what we have and what we desire.
- Gap Analysis is viewed through an Enterprise Framework:
  - Defines gaps in terms of threats, vulnerabilities, risk, and worth.
  - Changes in threat, vulnerability, and worth determine difference between states, and thus the gap.

- Shipbuilding Industry Threats:
  - Military Transformation
  - Inconsistent Work Flow

- Shipbuilding Industry Vulnerabilities:
  - Difficulty attracting talent
  - Developing/Retaining Critical Skills
Functional Analysis

- Notional architecture based on input from:
  - Stakeholder Analysis
  - Gap Analysis
- Defined global functions
  - Close Gaps
  - Meets Stakeholder Needs and Requirements
- Can be used as a baseline to develop organization specific functions
Overall Measure of Effectiveness (OMOE) Model

- Used to determine effectiveness of proposed system configuration based on stakeholder preferences
  - Value Hierarchy
  - Analytic Hierarchy Process
  - Quality Function Deployment

- Created notional model as tool for assessment of alternate tailored HCM architectures
Your part in your career path

- Follow your Passion
- Home your “Brand”
- Build Trust
Questions?