Organizational Effectiveness

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Element 3 – Organizational Effectiveness:
Develop knowledge, approaches, and tools to improve the organizational effectiveness of fire management programs.

- Optimal fire management programs
- Human factors in fire management
- Fire management decision-making
Optimizing - Develop models for forecasting and optimizing
- Understand relationships between programs
- How changing allocations affect objectives

Human factors - Evaluate role of individual psychology, group dynamics
- Identify effective tools and approaches to improve science application, decision-making and firefighter safety

Decision-making - Evaluate incentives that influence safety, costs, outcomes
- Provide tools for determining appropriate management response

Econometric - Decision support - WFDSS
Behavioral, Ecological - Econometric
- Decision support - WFDSS
Human factors

- Evaluate role of individual psychology, group dynamics
- Identify effective tools and approaches to improve science application, decision-making and firefighter safety

- Broad overview of work
  (Who we are, what we do)

- Existing capabilities and partnerships
  (How we work, who we work with)

- Identify opportunities for the future
  (capitalizing on strengths, closing gaps)
Research, Development and Applications Unit

Science Producers

Knowledge Synthesis

Knowledge Transfer

Knowledge Acquisition & Development

Science Users

Human Factors and Risk Management
Structure

- Small internal team
- Operational and academic expertise
- Able to identify potentially useful concepts
- Bring expertise into organization short-term to more fully develop – awareness, knowledge, skills
- Project duration teams -inter-agency, inter-functional, cross hierarchical
A Model of Human Performance and Resilience

Impairment

Depression  Anxiety  Fatigue  ‘Normal’  Focused

Elite

[Diagram showing standard deviation with impairment and elite performance regions]
Theoretical Framing: Trans-disciplinary

**Interior**

- **Personal Meaning**
  - Perception Capacity

- **Culture and Shared Values**
  - Culture
  - Teamwork

- **Psychology**
- **Neuroscience**
- **Leadership Development**

**Exterior**

- **Individual Behavior**
  - Performance
  - Skills
  - technical, managerial
  - Training, practice

- **Systems and Processes**
  - Policy, Formal guidelines
  - Learning, operational processes
  - Training/Expectations

**Theory and Framework**

- Trans-disciplinary
- Psychology
- Neuroscience
- Leadership Development
- Communications
- Org. psychology
- Mgmt sciences
- Safety science
- Anthropology
- Sociology
- Policy sciences
- Training/Expectations
Multi-scale Ecological systems perspective

Organization

Team

Individual

Fitness
Condition
Capacity
Human Performance spectrum

Impairment

Depression  Anxiety  Fatigue  ‘Normal’  Focused

Elite
What is the responsibility, opportunity to help prepare, respond, recover?
Performance:
Situational Awareness - What is possible?
Lots of mutually exclusive processes

System 1:
- Automatic
- Intuitive
- Instinctive
- Primary
- Rapid
- Blind
- “WYSIATI”

Social brain
Learning

Fast

System 2:
- Considered
- Effortful
- Focused
- Secondary
- Slower
- Lazy

Analytic brain
Implementing

Slow
Individual and Team interactions

- **Supervisor two-way communication**
  - 0.81
  - Related to Supervisor promote interdep.
  - 0.75
  - Related to Expertise over rank
  - 0.95
  - Relates to Big picture / Shared understanding
  - 0.41
  - Related to Clarity, Comfort

Task implementation
Supervisor

two-way communication

Supervisor promote interdep.

Expertise over rank

Generates complex thinking

Strong Group Culture (ground rules)

Reflection & Integration
Two communication modes

- **Supervisor**
  - Two-way communication
  - Promote interdependency

- **Expertise over rank**
  - Generates complex thinking
  - Strong Group Culture (ground rules)
  - Reflection & Integration
  - Big picture / Shared understanding
  - Clarity, Comfort

- Correlation coefficients:
  - Supervisor to Supervisor: 0.81
  - Supervisor to Expertise: 0.75
  - Expertise to Strong Group Culture: 0.82
  - Expertise to Reflection & Integration: 0.85
  - Reflection & Integration to Clarity, Comfort: 0.64
Performance: What is possible?

Physical
Analytic-empirical-critical reasoning
Task positive (TPN)

Phenomenal
Locus of experience
Moral patient
Default (DMN)

Intentional
Prediction & manipulation of behavior
Co-activation Of TPN & DMN

Brain areas more engaged by social than mechanical reasoning
By position

First level crew (FFT2)  
Quite variable

Dispatch/support  
More isolated

Middle Positions  
(DIVS/TSKF/STRK)  
Less integrated
An Experiment in IM Decisions

- Learning from risk-based management
  - How is risk management being integrated into decision making?
  - How are decisions/outcomes aligned with leader’s intent?
  - What trade-offs are being made?
Common Interests:

- Fire fighter safety
- Financial efficiency/cost
- Political climate
- Community relations
- Public safety
- Values at risk
- Ecological effects
Trade-offs:

- Complexity*
- Duration*
- Values at Risk*
- Financial efficiency/effectiveness
- Operational efficiency/effectiveness
- Internal organizational issues
- Political Climate
- Community Relations
- Ecological effects
- Public safety
- FF Safety

* Data for these three suspect.
Opportunities - individual

- How effective (safe, resilient, high performing) can a human be?
  - Where are we, how can we improve?
  - Engage in new science partnerships to understand limits and potential
  - Develop context-specific benchmark
  - Identify/develop practices to hone capacity to prepare, respond, recover
Opportunities - collective

How effective (safe, resilient, high performing) can a team be?
• What does high performance look like?
• What are our measure of success – multi-faceted
• How does our culture promote/impair strengths
• Where are we strong/weak?
• How are our current systems providing strengths, creating weaknesses and gaps?

Benchmarking
• How do others slice and dice this?
• What do their lenses reveal/conceal that ours do not?

Training
• How might we adjust what we’re doing (training and practice) to improve?
Program of Work

- Build actionable understanding of human performance, resilience, and learning.
- Determine how to enhance resilience, comprehensive fitness
- Integrate effective practices to transform agency culture.
Knowledge Management Training & Employee Development

Office of Learning

Training & Employee Development

Knowledge Transfer

Knowledge Acquisition & Development

Knowledge Synthesis

RD&A

Internal Training, Learning

Fire and Aviation

Internal Functional

Fire Training, Operations

External & Interagency Expertise

Interior

DOD?

FEMA? USFA?

EPA?

NFFF?

University Contractors

OSOH

NLC

EAP?

OWCP?

Internal Leadership

Internal Training, Learning

National Forest Systems

NWCG

Apprentice Academy

NAFRI

NIMO, IMTs

Fire and Aviation

Research & Development
Questions?