RISK MANAGEMENT ORGANIZATIONAL INFRASTRUCTURE

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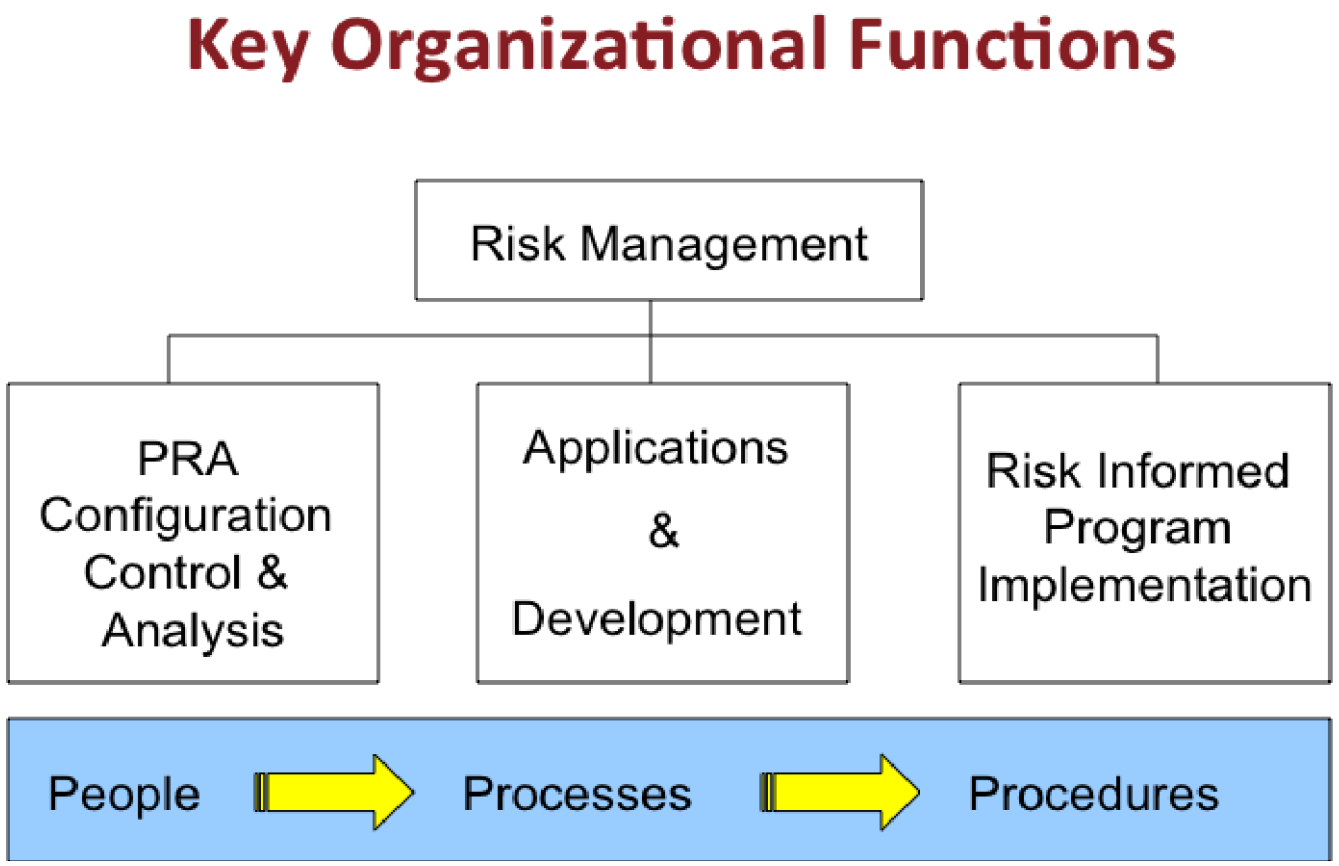
Organizational Infrastructure Overview

- ❑Presentation - 50 min
- ❑Q&A - 20 min
- ❑Summary of:
  - Organizational Considerations
    - Mission/Charter
    - Objectives
  - Section 3.13: Safety Culture;
  - Section 3.15: Communicating Risk Insights;

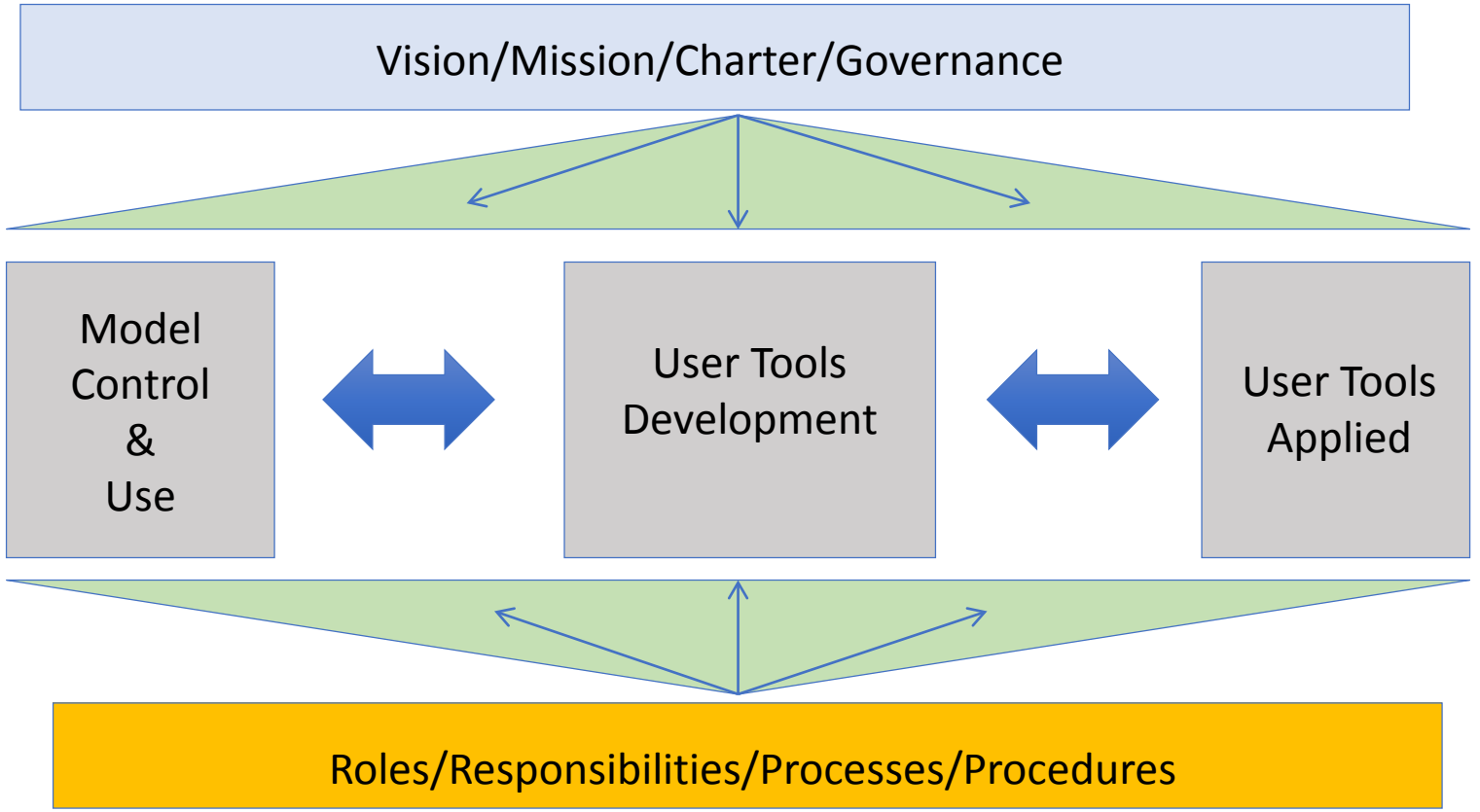
Important Organizational Considerations for Risk Management

- ❑Risk Management Organizational Scope
  - Identification of Risk Hazards (What hazards will be managed?)
  - Type of Risk Management (Deterministic, Technical/Analytical, Probabilistic, Historical, Qualitative, Expert Opinion, Combinations)
  - Span of Control (Broad/Narrow Application across Company)
  - Span of Influence (Broad/Narrow communication across Company)
- ❑Risk Management Methods & Processes
  - Scope of Analyses
  - Analysis Methods (Qualitative Only, Quantitative, Both)
- ❑Objectives
  - Use for Improving safety and efficiencies
  - Use for regulatory purposes
  - Use for communicating risks
    - Internal to the Company
    - External to the Company

Key Risk Management Organizational Functions



Key Risk Management Functions



Vision/Mission/Charter/Governance

- ❑Documented and communicated Company Vision/Mission Statement
  - Similar to NRC PRA Policy Statement
- ❑Governing Procedure or Manual defining how the Vision/Mission will be accomplished
  - Defined Goals and Objectives (e.g., Performance Indicators)
  - Defined reporting structure
  - Defined implementing procedures, processes, guidelines
    - Establishes Who, What, When, Where, Why, and How (5W1H)
- ❑Establish necessary organizational changes (Roles & Responsibilities)
- ❑Establish Company wide Communication and Training Plan

Key Risk Management Organizational Skill Sets

Model Control & Use

Knowledgeable on:

- PRA analytical methods
- PRA Data Collection Processes
- PRA Standard Technical Elements & Requirements
- Plant Design
- Operations & Maintenance Processes
- PRA software codes
- Quality Assurance requirements
- Providing review/oversight of specialized areas (e.g., External Events)
- Configuration Control Process Requirements
- Performing analyses (i.e., quantifying) with respect to actual or postulated plant conditions
- Communicating risk insights

User Tools Development

Knowledgeable on:

- Model Control & Use Skill Sets
- Interface between PRA inputs and plant processes, procedures, and activities (INPUTS)
- Interface between PRA outputs and plant processes, procedures, and activities
- Software codes and tools used for applications
- Quality Assurance requirements
- Building organization-specific user tools and aids for non-PRA practitioners
- Maintaining Configuration Control of deployed applications
- Updating deployed applications in accordance with configuration control requirements
- Communicating risk insights

User Tools Applied

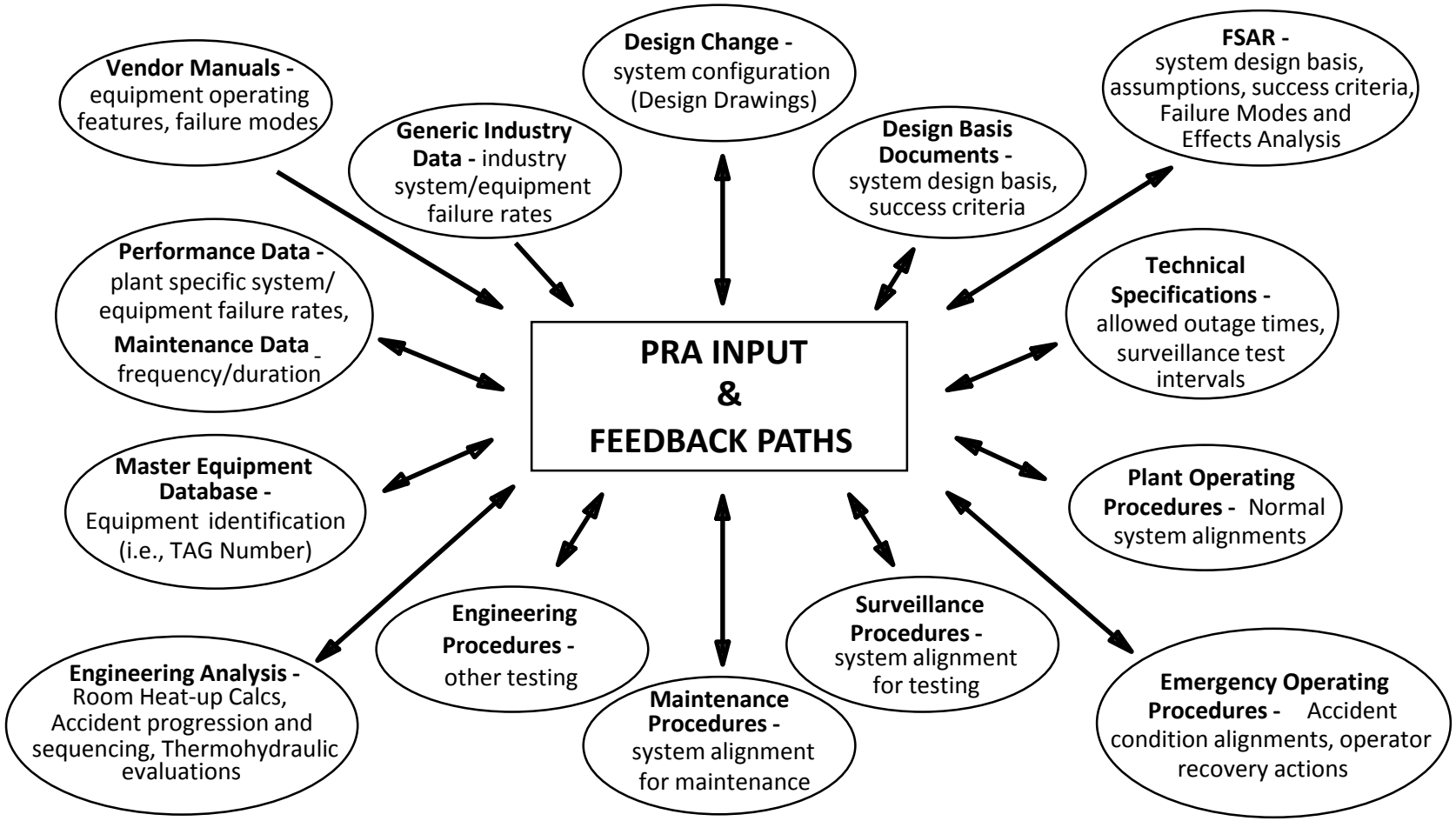
Knowledgeable on:

- Plant processes, procedures, and guidelines to a deep level of detail and knowledge
- Specific organizational points-of-contacts
- Writing organization specific training packages
- Training organizations on risk applications
- Writing requirements for plant processes, procedures, and guidelines while incorporating risk informed applications and insights
- Administering organizational interfaces relative to risk informed applications
- Communicating risk insights and information to company organizations

The Model Control & Use

- ❑Establish configuration control of PRA Models, Operational Models, Reliability Models, etc.
- ❑Goal: Reflect as reasonably as practical the “as-built, as-operated” station
- ❑Define requirements for performing risk analyses (trained, qualified practitioner, trained qualified technical reviewer, management or supervisory approver)
- ❑Configuration control of the model(s)
- ❑Configuration control of the risk quantifying software
- ❑Capable of quantifying risk models and performing risk analyses

PRA Input & Feedback Paths



PRA Technical Adequacy

- For PRA, compliance with PRA Standards with an independent peer review is necessary for technical credibility
  - ASME/ANS PRA Standard, RA-Sa-2013 at Capability Category II
- ASME Joint Committee on Nuclear Risk Management responsible for PRA Standards
  - Standards define requirements; not how the requirements are performed
  - Standards help ensure consistency in technical adequacy
- JCNRM newly formed Japan International Working Group in conjunction with AESJ
- For supporting PRA activities (e.g., performance database, thermohydraulic analyses, other engineering analyses):
  - Meet requirements for quality calculations (Preparer, Reviewer, Approver)
  - Supporting software codes and tools meet Software quality assurance requirements
- Plant Specific PRA is intended to be realistic and reflect the actual plant design and operating characteristics
- There should be high confidence that the PRA accurately reflects plant design and performance by the utility and the regulator

User Tools Development (Applications)

- User tools defined by specific organizational needs
  - What risk information and insights are useful for Operations, Work Control, Engineering, Management, Outage organizations?
  - How can risk insights be used to help support organizations to achieve their responsibilities, objectives, and goals?
  - What insights can improve safety and effectiveness?
  - PRA may or may not be applicable, but Risk Management is always applicable!
  - Tools structured to enable decision making at various organizational levels as appropriate for organizational responsibilities and personnel job requirements
  - Management oversight and applicable performance indicators provide notification of potentially risk significance conditions

User Tools Applied (Implementation)

- Implementation is associated with organizational communication of risk insights and information as well as deploying risk informed applications (i.e. user tools) to company organizations
  - Individuals responsible for risk informed application implementation are not intended to be PRA experts. They are intended to be experts in company and plant processes and procedures as well as knowing key organizational points-of-contact for revising processes and monitoring results
  - This means: Writing/revising organizational Procedures and Training for properly using risk application tools
  - This means: Revising some organizational job functions and some individual job descriptions to properly integrate risk applications into an organization
  - Administering risk informed applications relative to integrated working groups or other expert panel groups using risk insights and information for decision making
  - This means: Providing feedback and lessons learned to improve station performance, correct problems, and improve risk and safety knowledge

Risk Management Organizational Location and Logistics

- Crucial organizational decision is working location of risk management functions and skill sets
- Current utility arrangements for Risk Management functions are mixed
  - Corporate location only
  - Corporate and site location
  - Site location only
- Experience shows that risk management organizational effectiveness can be significantly impacted

Location & Logistics Pros and Cons

PROS

❑Corporate only

- Better supports enterprise level risk management
- Can establish high level risk management expectations and executive management interfaces more readily
- Can make broad based decisions more readily due to access to executive decision makers
- Can better ensure consistency across multiple sites
- Risk management skill sets at corporate perform plant to plant risk analyses

❑Corporate & Site

- Improved communication between site and corporate relative to expectations, requirements and issue resolution
- Establishes more continuous and improved communication between site and corporate on risk management issues
- Demonstrates importance of risk management to sites by having a continuous organizational site presence
- Potential to incorporate risk management personnel into station decision making processes and integrate directly into plant support functions
- Risk Management functions and skill sets can be divided up between corporate and site
- Better supports the development and deployment of risk insights and applications

CONS

❑Corporate only

- Typically does not establish risk management controls to equipment and organizational process levels
- More of an “us and them” relationship between site and corporate instead of a team relationship
- More displaced from plant issues that can impact risk
- Effectiveness of site risk management programs is greatly reduced (reduced insights, user tools, knowledge of PRA)
- No site risk management skill sets

❑Corporate & Site

- More difficult change management challenge to establish organizational and risk management process ties between corporate and site
- Must determine organizational responsibility (Does Risk Management work for the site or work for corporate?)
- Site to site variability in budgets allotments, level of responsibility, span of control, span of influence
- Work load increase due to more direct and more frequent communication and procedural interfaces between site and corporate
- Some skill sets at the site to improve communications and knowledge (user tools and implementation, maybe some quantification capabilities)

Location & Logistics Pros and Cons

❑Site only

PROS

- Establishes direct responsibility of risk to site management
- Directly establishes organizational responsibility to site organizations (i.e., a risk management group at the site)
- All skill sets are at the site to support continued safe operations and resolve issues
- Increase likelihood that a deeper knowledge of as-built, as-operated station will be incorporated into PRA
- Direct and constant communication with site personnel and organizations
- Increased feedback into risk programs

❑Site only

CONS

- Requires additional effort for corporate to provide oversight and monitoring to ensure expectations and objectives are being met
- Requires additional effort for the site organizations to communicate risk management issues and insights
- Significantly increased likelihood of site to site variability in objectives, scope, purpose, and support for risk management

Summary

- ❑Full maturity of organizational risk management takes time (need organization and risk assessment processes)
- ❑Important to develop a change management plan that builds risk management capabilities over a reasonable time period (5-year plan, 10-year plan)
- ❑Identify individuals with required skill sets or “grow” them
- ❑Establish career path for individuals with risk management and analysis skills
- ❑The closer the risk functions are to the sources of risk, the better the likelihood that risk insights and analysis will be understood and used