Competence for Reliability

- Process
- Systems
- Insights
Competence for Reliability
Building Great Crew Competence Systems
Noble PATH Story – Promotion & Advancement
Linkage to Operations & Maintenance Performance

Training Completion
Competence Assessment
Performance Appraisal
• Normalized Deviance

• Cultural acceptance of wrong behavior
• Situational blindness
• Passed down implicitly—not explicitly
• Rarely aware of what has been normalized
Operational Excellence & Reliability
Strategy Must Include Human Factors

- Technology Investments
- Preventative Maintenance
- KPIs & Analytics
- Competent Workforce
  - Operations
  - Maintenance
  - Leadership
Looking Forward - Human Reliability
Improved Systems for Error Reduction

- Augmented Reality (AR)
- Simulation (VR)
- Digital Competence
Know Your Workforce through Technology

Jai Shah
Hula Partners
Managing Partner Technology Innovation
Transparency at all levels

**Employee**
What are my training and assessment requirements?

**Supervisor**
What is my crew competence?

**Executive**
Where is my organizational risk?
Proactive Management of Human Factors Relative to Safety & Reliability

Policy  Risk  Assurance  Promotion

Management of Change

Effective Push of Training and Information
  Tracking Completion
  Root Cause Analysis
  Remediation
Experience Counts

- Further differentiate Talent
- Integrate with Service/Work Order Completions
- Produce Competency and Experience Based Resumes
- Utilize data in Project Planning
Case Study – Halliburton

Business Results
“with this strong evidence, Management has remained committed to the program, focusing on developing employees and supporting the implementation of fundamental changes”

- SPE-166638
The Successful Implementation of a Competency Program in a Large Global Organization: A Case Study
Jorge Leuro & Todd Kruger, Halliburton

- Halliburton Keys to Success
  - Strong Executive Commitment to Competency Management
  - Global governance
  - Continuous improvement of the competency program
  - Enable Employees to be responsible and hold Supervisors accountable
Science-based linkage analyses: Competency development and operational outcomes

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Professional Development efforts considered costs rather than Reliability & Integrity Contributors.

- **T&D groups**: Viewed as cost driver, effort on impact measurement minimal.
- **Measures**: Heavy reliance on “smiley sheets”.
- **T&D content**: Often driven by vendor proposals, costs and availability, limited emphasis on measurement of skill gaps.
- **Databases**: T&D systems often separate from other IS systems, no integration with outcome databases.
- **Tracking**: Limited tracking of competency development, little emphasis on calculating returns and linking to outcomes.
Sample linkage outcomes for competency development

**Facility/Machinery downtime**
- Operating competencies and non-technical skills key possible predictors

**Specific competency and degree of attainment**
- Can be linked to project success

**Process safety**
- Process safety incidents – related to aggregate crew competency against job profiles

**Likely improved when employees possess competencies to execute tasks, saving time and mental effort needed for routine tasks**

**Welding errors**

**Procedural compliance**
Linking Competency Measurement to Business and HR Outcome Metrics

**Reliability Metrics**
- Individual and Unit level outcomes
  - Progression in compensation and job classification systems
  - Unit level performance metrics (facility downtime, sales, nationalization rates, employee turnover)
  - Example: Welding errors during project phase

**Safety Metrics**
- Leading and lagging metrics
  - Accidents, injuries, near misses as lagging indicators of safety competency development
  - Safety culture, safety behavior (compliance and participation)
  - Process safety indicators

**Motivation Metrics**
- Going beyond what is required
  - Employee engagement
  - Turnover at individual and unit level
  - Improved task and contextual performance outcomes

Nuanced Competency Measurement Systems allow for enhanced linkage analyses