Agenda

• What problem are we solving?

• What is Competency Management?

• How does it work?

• What is different about Competency Management?

• What is the Competency Management Scope?
Mega trends in the Industrial Automation Industry

Prevalent trends in industry

- Retirements
- Shorter employment periods
- Nationalization push
- Increasing tech complexity
- Rapid obsolescence threat
- Evolving training methods
- Globalization & talent mobility

- Experienced staff set to retire in next 5 years: 50%
- Millennials plan on leaving their job by 2020: 66%
- More nationals to be recruited in companies: 20%
- Typical months when technology upgrade occurs: 12

Millennial job survey by Deloitte 2016

Employee skills and competency are a growing concern!
Uncovering Competency Gaps Reveal Hidden Cost

Competency Gaps are a real concern and are measurable

Iceberg Principle

Visible cost

- Hardware
- Software
- Startup
- Spares
- Staff, competency
- Downtime

Hidden cost

- Spares
- Staff, competency
- Downtime

- 70% of all Cyber assessments show critical vulnerabilities
- 50% of all “illness” calls are initially misrepresented
- 40% of all GTAC calls are “training calls”
- 30% of the time system behavior is not well understood
- 30% of the time skills needed to operate open system is underestimated
What is Competency Management

• The Goals and Objectives of an Enterprise define “what” an employee is to accomplish

• Competency Management defines “how” an employee will achieve the objective
Competency Management enables developing competent workforce for Connected Plant Operations

Competency Management

Fundamental foundation for Honeywell’s Connected Plant vision

Convergence of data analytics, innovative technology, delivery methods, & frameworks
Role Based HPS Core Training, Practice, and Certification

Offering for three disciplines

Board Operator

Process Control Engineer

Maintenance Technician

Expand & Scalable

Automated & Analytical

Key Differentiator

HPS – Honeywell Process Solution
Performance Standardization via Plant Wide Certification Process

1. Training: Courses selected based on gaps assessment
2. Practice: Apply learnings in controlled atmosphere
3. Demo: Show flawless execution of tasks
4. Evaluation: Expert evaluation of demo step
5. Assessment: Pass certification step

Benefits:
- Accuracy of knowledge
- Adherence to standards
- Up-to-date state of knowledge
- Transparency of training & certification process
- Uniformance of role knowledge across enterprise
Skill Gap Analysis

Core Training
Only

Competency Management

Outcome Based Service
Stand alone or part of
A360 Offering

Competency Gaps are a real concern and are measurable
Competency Management – Continuous Cycle

- **Study / Comp. Map Agreements**
  (soft skills & tech skills)

- **Skill Gap Assessments**
  Manpower, self-assessment, surveys

- **Ongoing Operational Analysis**
  Performance Analyzers,
  Predictive Analytics, Honeywell tools (Trace, Dynamo, PHD, etc.)

- **Develop Individual Training Plan & Delivery**
  Learning Management System
  Competency Management System

- **Continuous Improvement**

- **Qualification**

- **Demonstration / Test**
  Proctored testing
  AR/VR simulations
  Baseline qualification established
  Certification

- **Practice**
  Virtual labs, local labs
  Virtual Reality / Mixed Reality

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How do we Uncover Competency Gaps? – From Traditional Insights to Digital Insights

**Traditional**

- **Product Based**
  - Competency Assessment Platform - Online
  - Discover Gaps via Self / Online assessment
  - Competency Gap Report Individual level
  - Validate/compare Competency gap
  - Competency Dev. Plan

---

**Digital**

- **Continuous Based**
  - Competency Assessment Platform – DCS Plant Sys.
  - Discover Gaps via On Job assessment
  - Competency Gap Report Job / Role level
  - Validate/compare Competency gap
  - Competency Dev. Plan

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**Competency Development System**

- Competency Needs Aggregator
- Courses (online/class)
- Simulations (Sys/Ops.)
- Coaching/Certification
- VR/AR utilization

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**Proof Points**

- Sys. perf. metrics ++
- ROI justification++
- Staff perf. Tracker++
Competency Management Philosophy

System Performance

<table>
<thead>
<tr>
<th>APC</th>
<th>Profits ($)</th>
<th>Drop in competency</th>
<th>Lost profits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alarm Mgmt.</td>
<td># Alarms/Day</td>
<td>More alarms</td>
<td>Time</td>
</tr>
<tr>
<td>OTS UniSim</td>
<td>OTS Value</td>
<td>Lost value/credibility</td>
<td>Time</td>
</tr>
<tr>
<td>DCS</td>
<td>Overall Perf.</td>
<td>Lower reliability/functionality</td>
<td>Time</td>
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</tbody>
</table>

Potential Impact

Competency drop leads to:

- Increased safety risks
- Higher human errors
- Lower productivity
- Abnormal Situations
- Higher Cost of Ownership
- Compliance issues

Solution Approach

Need Analysis

Assessment/Certification

Training/Evaluation

- IIoT tools
- Predictive Analytics

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How is Honeywell Competency Management offering different?

<table>
<thead>
<tr>
<th>Automation Industry Training Offering Today</th>
<th>HON Comprehensive Offering (Outcome Based)</th>
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</thead>
<tbody>
<tr>
<td><strong>Comprehensive</strong></td>
<td><strong>No Outcome KPI's</strong></td>
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<tr>
<td><strong>Immersive</strong></td>
<td><strong>Outcome Assured</strong></td>
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<tr>
<td><strong>Product</strong></td>
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<td>DCS</td>
<td>Role Based</td>
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<td>SM</td>
<td>Risk Mitigation</td>
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<tr>
<td>FI</td>
<td>Certify Staff</td>
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<tr>
<td>OTS</td>
<td>AR/VR Tools</td>
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<td>AR/VR</td>
<td>Product Training</td>
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<td>CM</td>
<td>Fast Track Competency</td>
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<td></td>
<td>Product Training</td>
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<td><strong>Automation OEM</strong></td>
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<td>✓ ✔</td>
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<td><strong>ISP</strong></td>
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<tr>
<td><strong>3D VR Co./EPC</strong></td>
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<tr>
<td><strong>Honeywell</strong></td>
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<tr>
<td>✓ ✔</td>
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</tbody>
</table>

ISP - Independent Service Providers
SM – Safety Manager  FI – Field Instruments  CM- Competency management
AR/VR- Augmented/Virtual reality

- Improved productivity
- Compliance assurance
- Cost effective interventions
- Consistent job level performance

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Organizations can pursue different interventions to suite their needs, however impact will be varying.

- Classroom
- Online Training + Lab works
- Certificate of Attendance
- Optional Knowledge test

Business Results

Outcome

Product Awareness

Product Certification & Competency Assurance

Sustain competency driven by data analytics

Guarantees organizational readiness

High

Low

Attendance

Competency Management (CM) Spectrum

Traditional

Digital

1

2

3

4

Training Mgmt. Contr.

Competency Assurance

CM (Traditional Insight)

CM (Digital Insight)

Data Analytics Tool
Service Node (Cloud)
OTS Management
Training & Development
Competency Map & Metrics
Competency Assurance
Monitoring & Certification
CMS+LMS Implementation
Program Manager

Full Training Mgmt. Contract
Data Analytics Tool
Service Node (Cloud)
OTS Management
Training & Development
Competency Map & Metrics
Competency Assurance
Monitoring & Certification
CMS+LMS Implementation
Program Manager

High

Low

Business Results

Outcome
What is Competency Management scope?

1. Training Plan
   - Determined based on Hon IB + Self Assessment feedback
   - Modifiable based on input

2. LMS
   - Personalized LMS
   - Personalized learning module
   - Competency level tracker

3. Training Delivery
   - E-Learning
   - Classroom or on-site
   - Existing OTS (Add scenarios)

4. Assessment Delivery
   - Testing /skills demo
   - Lab / Simulation exercise
   - System performance audits

5. System Performance
   - Monitor DCS system health
   - Operator response performance
   - Leverage PHD

6. Report Delivery
   - Monthly Training status report
   - Quarterly DCS health, Competency score card et. al

Managed by CM Program Manager

- Overall agreement of scope
- Deliverables are fulfilled
- Single point of contact

LMS – Learning Management System, CM – Competency Management, PHD – Process History Database
Connecting People for Competency Management

Effectively Managing your Staff’s Competency in a Dynamic World