UNISIM COMPETENCY SUITE
A Technology Step Change in Operator Training,
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John is the director of Honeywell’s UniSim Simulation and Competency product lines. Located in London Ontario, John leads the Simulation and Competency Suite business teams, focusing on customer needs, product investments and business strategy for the product line.

John has over 25 years experience in dynamic simulation and advanced process control, with 22 years Honeywell project operations experience delivering and leading advanced process control and simulation project and operations teams around the world. John holds a Bachelors of Science degree from University of Waterloo and a Master of Engineering from McMaster University.
Honeywell Connected Plant

Deliver and Sustain Improvements in Our Customers’ Profitability by Increasing Throughput & Yield at Lower Cost via:

- Improved Process Reliability
- Increased Production Efficiency
- Integrated Safety & Cyber Security
- Optimized Supply Chain
- Workforce Competency
Why Focus on Workforce Competency?

Business Context:
Companies combine **people and technology** to achieve their mission.

Gaps in employee competency compromise the mission goals.

A focus on competency establishes competitive advantage for an enterprise.

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Greater than 40% of process upsets caused by **human error**

*ARC Smart Operations, 2015*
Operator Competency Drivers & Trends

- Retirements
- Shorter employment periods
- Nationalization push
- Increasing tech complexity
- Rapid obsolescence threat
- Evolving Operator Role
- Globalization & talent mobility
- New Generation of Trainees
- Evolving training methods

- 50% Experienced staff set to retire in next 5 years
- 66% Millennials plan to leave their job by 2020
- 20% More local nationals to be recruited
- 12 Months between technology upgrades

Millennial job survey by Deloitte 2016
Technology Evolution Demands New Competencies

• Increasing Complexity – Different skills required to repair each vehicle.
• Increasing Automation – Self Driving Car Anyone, Autopilot limits real world experiences
Technology Evolution Demands New Competencies

Control room environment evolves with technology

Control room operator competency requirements changes with technology
Technology Evolution Provides New Tools and Solutions

- Technology has made it practical to extend simulation based learning to Field Operators
- New tools provide effective Operator Competency solutions

- Competency development must evolve with technology
Operator Competency: Training Simulator Paradox

- Training Simulators deployment success requires:
  - Significant capital investment
  - Highly capable, motivated and dedicated local ownership
  - Regular hardware, software and O/S refresh
  - Focused support and maintenance ensures relevance
  - Efficient use and deployment of the tool.

- Training Simulator are physical assets:
  - Capacity constrained – 1 asset → 1 trainee
  - Not portable, need to bring the trainee to the simulator, need to schedule access against other commitments

- Training Simulators still remain one of the **BEST** tools for Operator Competency development
  - Practice – encourages and enables much high student knowledge retention.
  - Experience abnormal and infrequent events, particularly for HIGH CONSEQUENCE units.
  - Target known competency gaps, with training interventions that make the best use of competency development investments.
Technology is Key for Training the Millennial Workforce

- Millennial workforce has high training expectations
- Millennials are quick to adapt new technology
- Millennials grew up multitasking, shifting tasks up to 27 times per hour.
- Millennial workforce learning can benefit from short concentrated learning nuggets, effective use of technology, in an engaging and interesting way with aspects of gaming and competition as motivation.
  - Make Learning Flexible and On-Demand
  - Bite Sized = Right Sized; Learning Nuggets
  - Material, driven by purpose that encourages discovery
  - Continuous Training and Coaching Opportunities
  - Gamification – Immediate rewards, recognition and feedback
  - Engaging, interactive and collaborative content

Millennials.....

- 75% of the global workforce by 2025
do not feel they need to be in a classroom to learn.
- Zero tolerance for outdated training and technology
- 95% work harder with feedback and knowledge of their contributions
- >99% are permanently attached to their smart phones

http://info.shiftelearning.com/blog/training-millennials-elearning
Technology Solutions

Preparation
Improve Accessibility
Learning on Demand
Continuous Learning
Learning Nuggets
Collaboration

Connected Enterprise
Cloud Deployment
Mobility
Reduce Cost of Ownership
Predictive Analytics

Accelerate Innovation
Create New Value
Decision Support
Encourage Collaboration
Deliver Outcomes
Preparation with UniSim Tutor

- Maximize value of simulator deployment.
- Make the best use of simulator asset with a well prepared Trainee
- Prepare trainees with the right blend of process knowledge, and analytical troubleshooting skills.
- UniSim Tutor: Cloud connected, enterprise wide, game based deployment of generic and unit specific knowledge to teach and practice critical process analysis and decision making skills.
- Unit wide or local area focused training interventions.
- Create confident trainees ready to make effective use of simulation based training experiences.

Preparation: Ensures training simulator tools reinforce knowledge, provide practical experiences and develop confident capabilities.
Simplify Access: Virtualization and Cloud Infrastructure

- Virtualization and cloud hosting of a Custom High Fidelity Training Simulator(s) enables centralization of resources
  - Centralized Infrastructure
  - Centralized Instructors and Engineering
  - Centralized Maintenance and Support
- Remote access available from client locations (Control Room, Training Room, etc.)
- Bring targeted simulator training interventions to the trainee.
- Access can expand use to other disciplines and roles.
- Centralized repository for results and other usage data.
- Compatible with ERP wide LMS

Simplify Access: Increase adoption and use of Training Simulator tools.
Learning On Demand – UniSim eLearn

- Virtualization and Cloud Technology enables “Learning on demand”
- Solves the problem of capacity constrained resources. No longer necessary to schedule access to a fixed collection of asset.
- Cloud computing can be deployed to provision resources to meet varying demands and needs.
- Enables 24/7 access to learning on demand.
  - “What-If” direct from control room
  - Instructor-less, instructor-led or instructor-viewed alternatives.

“Learning on Demand”
Take the training when its convenient to the consumer.
Continuous Learning – Using Data and Analytics

Learning on the Job

- Big data analytics applied to operator actions and process performance
- Systematically identify competency gaps and recommend appropriate training interventions
- Provide timely feedback on a task well done or how your performance compares with peers, ‘average’, etc.
- Identify areas of competency strengths, and weakness with recommendations for improvement activities
- Leveraging the connected enterprise to collaborate with other operators and experts globally.

Continuous Learning: Modify behaviours to align with standards and best practices.
Enterprise Wide Learning Nuggets

- Fill the jar with the nuggets of learning; Package training modules that use a combination of tools to deliver targeted training outcome.

- UniSim eLearn: Tools and technology deliver targeted simulation based learning nuggets enterprise wide.
  - Simulation based learning and experiences
  - Cloud based deployment accessibility 24/7
  - Knowledge based preparation teaches critical analysis and decision making skills.
  - Deployed with interactive, engaging training content.
  - Scoring and monitoring for assurance requirement

- Deliver as demand dictates – consistently, regularly via connected enterprise

Learning Nuggets: Significant Enterprise ROI compared to striving for perfection at spot sites
Collaboration – Train as a Team

**Console and Field Operator Team Training**

- New technology including advanced high resolution 360 degree photography and immersive virtual reality models extend simulator training to include field operators.

- High resolution photographs or an immersive 3D model provide a realistic representation of the process plant; enables interaction with equipment and dynamic field measurements connected to the process simulation model.

- Understand and practice importance of communication in stressful situations.

Team Training: New technology for team collaboration training
UniSim Competency Suite – Operator Competency Tools

- **UniSim Operations**
  - Simulation based Operator Training Simulator
  - High fidelity simulation based training

- **UniSim Tutor**
  - Knowledge based training
  - Knowledge capture and propagation
  - Thinking skills development

- **UniSim Curriculum**
  - ASM Competency model maps competency to training activities
  - Track progress towards target proficiency

- **UniSim Field View**
  - Field Operator Training
  - Panoramic high resolution photography for 2 dimensional visualisation of the plant

- **UniSim 3D Connect**
  - Field Operator Training
  - Interface to 3rd party virtual reality training systems
Conclusion

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http://hwll.co/UltimateOperator