

# Integrating Mobile, Virtual, Simulation and Hands-On Training

TO IMPROVE OPERATIONS WORKFORCE DEVELOPMENT

# Simtronics Overview

- Headquarters in Little Silver, NJ
  - Started in 1992; Celebrating 25+ Years
- DSS-100 , Dynamic Simulator System
- PSU-100, Performance Scoring Utility
- SPM Series, Standard Process Models
- CPM Series, Custom Process Models
- VFO Series, Virtual Field Operator



# Systran Overview

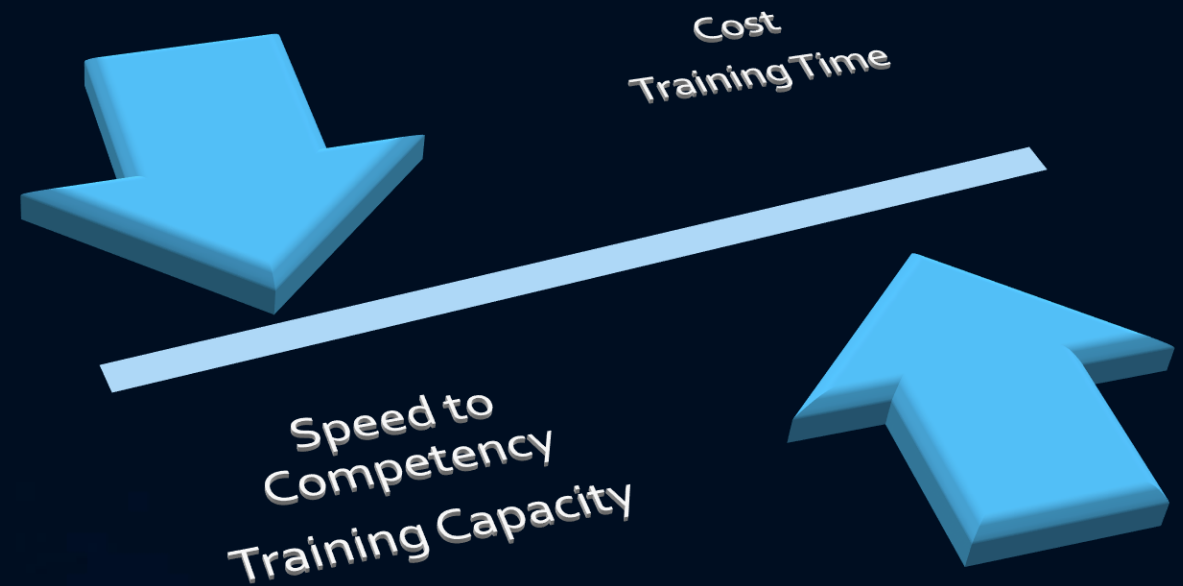
- Headquarters in Houston, TX
  - Established in 1978
- Digital transformation of procedures and training to deliver improved competency, safety and efficiency
- Experienced team of operations, maintenance, process safety, instructional design, technical writing, digital media and project management professionals
- Focus on energy and hydrocarbon processing industries





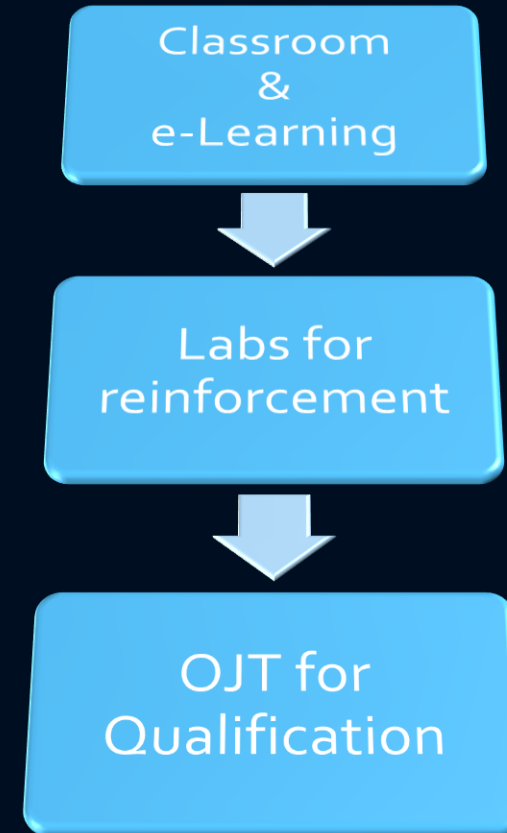
# Workforce Development Challenges

- Skilled workforce shortage
  - Retirements/great crew change
  - Petrochemical sector growth
  - Revitalization of upstream
- Insufficient institutional capacity
  - Long spool up for capacity building
  - Need experienced training staff
- Advancement without knowledge and skills
  - Operator progression with minimal experience



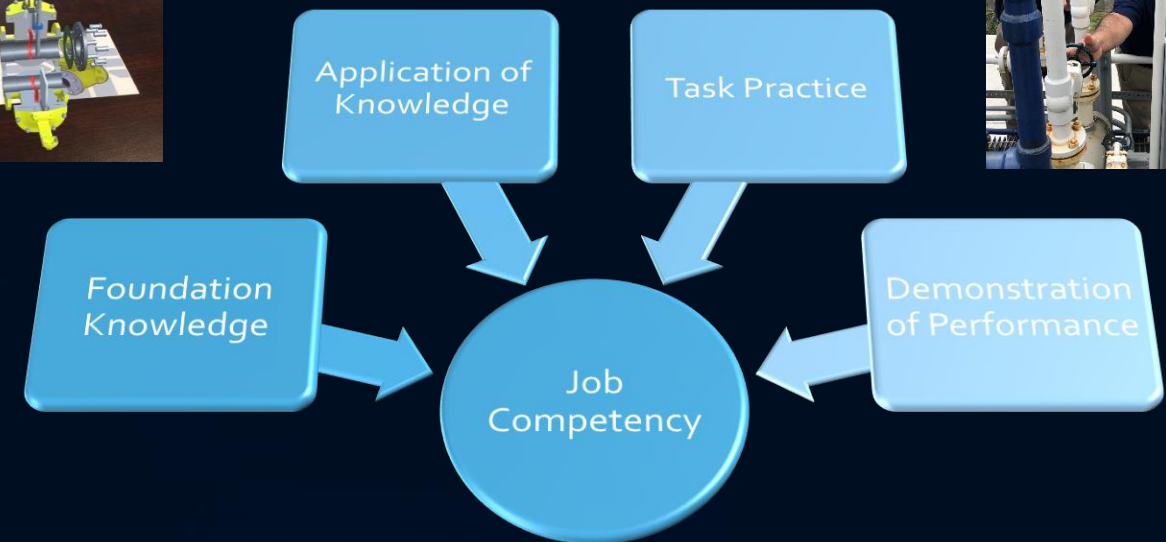
# Traditional Workforce Development Model

- Foundational knowledge
  - Instructor-led training/e-Learning
- Labs reinforce concepts
  - Part/task trainers
  - Miniature equipment
- Structured On-the-Job Training
  - Follows completion of classroom work
  - Limited opportunities to apply concepts
  - Retention loss due to elapsed time





















# Integrated Workforce Development Model

- Focus on specific competencies and/or work tasks
  - Immediate application of knowledge and skill
  - Rapid assimilation of learning
  - Relate to critical concepts (safety)
- Incorporate real-world experiences
  - Practice
  - Troubleshooting
  - Performance Demonstration
- Early task qualification

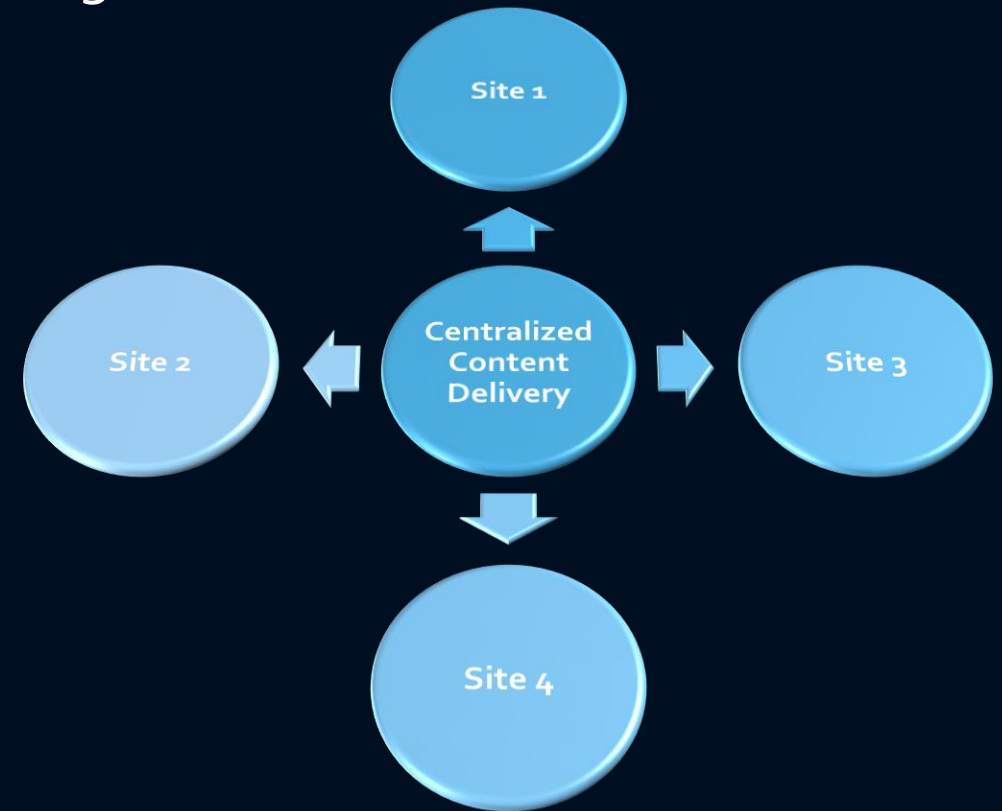


# Technology Aids Knowledge and Skill Acquisition

	Identify/ Locate	Explain/ Relate	Operate/ Maintain	Troubleshoot	Communicate/ Teamwork
AR/VR					
Simulation					
Hands-On					
Mobile					

# Building Learning Experiences

- Visualization of Equipment and Processes in 3D
- Cloud-based Simulation
  - Extend reach
  - Maximize SME resources
- Integrated, Realistic Field Operations
  - Immersive Virtual Reality
  - Simulated Hands-On Before OJT
- Simple and complex problems
- Measurement of performance, feedback
- Long term retention of knowledge and skill





# Integrated Experience-Based Training

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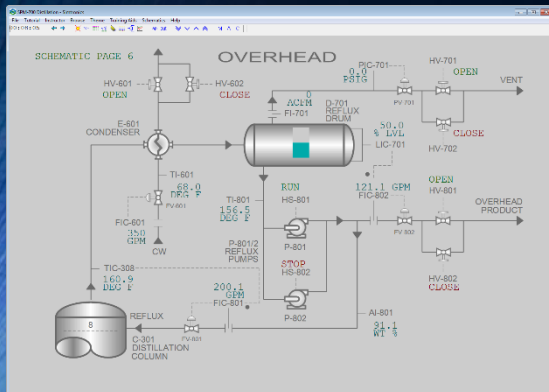


## Engage with Content

- Relate theory to physical world
- Interact with equipment
- Visualize operation
- Use in the classroom, lab or field
- Interact between simulator and virtual plant to learn procedures, scenarios, troubleshooting

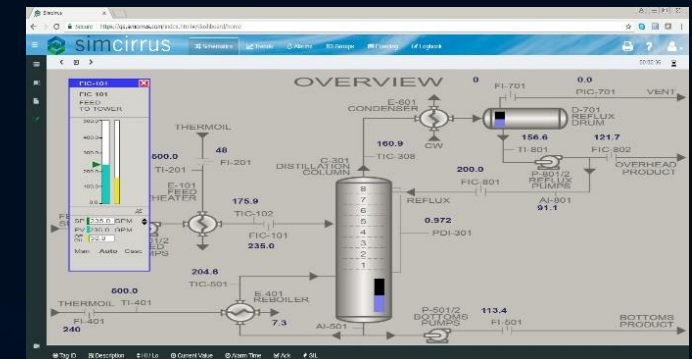


# Integrated Experience-Based Training



## Simulation in the Cloud

- Understanding cause and effect
- Procedure practice
- Troubleshooting scenarios
- Classroom, Lab
- Individual, group and team
- Dispersed workforce



# Integrated Experience-Based Training



## Industrial Equipment

- Simulates industrial environment/actual equipment
- Requires motor skills and use of tools
- Task practice/demonstration of performance
- Classroom/Lab
- Basic Operator Training
- Life Critical Skills Training



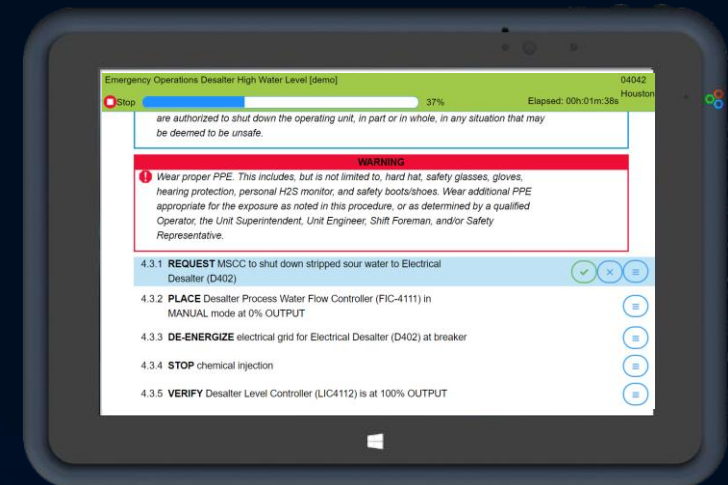


# Integrated Experience-Based Training



## Real-time Information

- Information at the moment of need
- Job aids, technical information, procedures
- Reference, refresher
- Just-in-Time Learning
- Micro-Learning



# Integrated Experience-Based Training

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- Learners lose 70% of learning if not applied or practiced
- Visualization is a critical aspect to building an understanding of the equipment and tasks
- Time-to-competency is reduced when learning is efficient
- Cloud-based simulation and virtual reality allow learners to apply knowledge, practice skills and demonstrate proficiency before arriving at the job-site
- Mobile technology provides anywhere/just-in time access to training, documentation and procedures to support performance on-the-job

# Questions

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