Simulation and Simulators

Specification for a Generic Training System

(Generic Approach)

Definition

Simulation

The technique of representing the real world by a computer program.

Generic

Applicable or referring to a whole class or group.

Training Objective

- Skills Practice
- Procedures Practice
- Scenario Practice
- Atypical Operating Demonstration
- Abnormal Operation Recognition
- Skills Testing
- Procedures Testing
- Scenario Testing

Requirements

Simulation (Generic Referent)

Key issues in simulation include acquisition of valid source information about the referent, selection of key characteristics and behaviors, the use of simplifying approximations, assumptions within the simulation, control the fidelity or validity of the simulation outcomes.

Pipeline Generic Characteristics

- Hydraulic (generic or specific)
- SCADA Presentation (generic or specific)
- Operating Scenarios (generic or specific)
- Procedures (generic or specific)
- Atypical Events (generic or specific)
- Abnormal Events (generic or specific)

Economic Considerations

Number of Training Objectives Achieved

We have identified 8 training objectives. We need to build simulator capability for each training objective for each pipeline. For 3 different pipelines you will need 24 different simulator capabilities to meet the training objectives.

This results in higher development hours and higher support hours.

Economic Considerations

Ratio of Support Hours to Training Hours

This is the ratio of total support and development hours to the total number of training hours.

Lowering the number of total simulator capability requirements will improve this ratio.

The options are: reduce the number of pipelines modeled or reduce the training objectives.

Conclusions


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