

Automation and Flight Decks

- 1st – 3rd Gen
- NOT a cockpit on the ground – A completely different task
- Move to supervisory control
- Move to “network management”
 - Cognitive Task Analysis
 - Develop interface to support

Flight Deck Generations

1. Steam gauges
2. Glass cockpits
3. FMS/MCP
4. ~~Remote cockpit on the ground~~
 - NOT the same task
 - Not stick and rudder
 - More supervisory than "hands-on" – so HOTAS doesn't make sense
 - Take advantage of space, resources – develop interface to support new task

Supervisory Control

Definition: Supervisory control means the human operator intermittently specifies goals, constraints and procedural information to a computer, monitors synoptic displays of state information, and tasks the computer to execute the instructions automatically.

- (1) Planning
- (2) programming
- (3) monitoring of the automation
- (4) diagnosing of problems if and when they occur
- (5) intervening if necessary
- (6) learning from experience.

M:N Operations: Multi-vehicle control

- Beyond Supervisory Control
- Network Management
 - Trends that will influence multiple a/c control
 - Wx
 - TFRs
 - Lost link
 - Traffic

Human Autonomy Teaming

- HAT principles
 - Transparency
 - Trust
 - Bi-directional communication
 - Pilot(manager) directed interface
 - Meaningful Human Control

Summary

- Moving from manual stick and rudder control through supervisory control to network management
- Human Autonomy Teaming is key to effective, efficient future designs

