The Art of Command Center Design

Presented
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What is A Decision Support System?

- Gathers Information From A Number of Sources
- Processes the Information (Prioritizes, Distills, Combines, Lists, etc.)
- Presents it to a Decision Maker
- Facilitates the Decision
- Disseminates the Results of the Decision
- Checks on the Results of the Decision
Integrated Management System Philosophy

*Normal Operations:*  
Allow Functional and Sub-operating Systems to Operate in a Decentralized Manner as Supported by a Timely and Efficient Flow of Internal and External Information.

*Incident or Crisis:*  
Centralize Control to the Extent Required While Allowing Remainder of System to Operate in a Normal Fashion. This Brings a Sharp Focus on a Problem While Allowing Unaffected Areas to Continue in Normal Operation.
Transportation Management Systems

- **Interface With and Derive Management Information From:**
  - Transportation Infrastructure (Sensors, Toll Booths, Travelers)
  - Official Observers (Highway Helpers, Tow Trucks, Law Enforcement)
  - Traveler Information Providers

- **Provide Information to Transportation Managers/Planners/Users**
  - Safe, Secure, Efficient, Economical and Environmentally Sound
  - Economical and Controlled Growth of the Infrastructure
  - Foster Economic Development

- **Focus Information within the Decision Support System**
  - Coordinate Decision Making (Both Planning and Incident Response)
  - Handle High Stress Events

- **Distribute Information Throughout the Transportation Community (Driver, Rider, Shipper and Enforcement)**
  - Smooth Day-to-Day Communication Between Agencies/Centers
  - Effective Decision Making

- **Tie all elements (user, manager, et. al.) together**
The Big 4!

- What is the Job?
- How Do I Want to Do It?
- What Do I need to Do It
- How Will I Measure Success?
The Vision!!!!

The Vision Describes The Functional Requirements of the System as It Will be 20 to 25 Years in the Future
Benefits of The Vision

- Facilitates Efficient and Economical Budgeting and Development of a System of Systems
- Controls System Expansion
- Enhances Budgetary Programming and Execution
- Enables Establishment of Configuration Management
The Total System Perspective

- External Agencies and Organizations
- Environment
- Uncontrollable Variables
  - Political
  - Fiscal
  - Social
  - Technological
People

Selection
- Criteria
- Turnover Considerations

Training
- Initial
- Sustainment
- Certification
- Growth

Testing
- New-hire
- Annual Proficiency
- Certification
- Growth
Procedures

- Standard Operating Procedures
- Crisis Checklists/Plans
- Emergency Response
- Call Rosters
- Physical/Information Security
**Hardware/Software/Communication**

**Communication Package**
- Landline (dial and ring down)
- Cellular
- Radio (fixed and mobile)
- Beeper
- Radio/Wire Interface
- Recording
- Conferencing
- Message Handling
- Secure/Non-secure
- PDA

**Automation**
- Database Management
- Multilevel Security
- LAN/WAN
- COOP/Disaster Recovery
- Mainframe
- Portable
- Flexible

**Workstations/Consoles**
- Ergonomic Design
- Exportability
- Flexibility
- Adjustability
Decision Aids

- Large Screen TVs
- CRTs
- Preformatted Displays
- Geographic Information System
- Message Traffic (Preformatted and Free Text)
  - Voice
  - Printed
- Automated Briefing Preparation Support
- CCTV
- Alarm Monitors
Facilities

- Operations Center
- Crisis Management Area
- Communication/Computer Room
- Protected/Redundant
- Uninterrupted Power Supply
- Life Support
System Engineering Process Description

Program Formulation (The Concept)

System Definition (Rqmnts.)

System Design

System Acquisition & Development

System Integration & Test

System Development (Start-up)

Life Cycle Support (Tech Refresh)
The Winged “Vee”
Winged Vee – *For Real*
## Strategic Plan Requirements

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Configuration Management

- Should be Applied to All Aspects of the System
  - Software/Hardware
  - Communication
  - Facilities
  - Processes and Procedures

- Facilitates System Expansion and Growth

- Must Be Initiated at Earliest Stages of the Project
  - Top Level System Requirements Down Through Sub-System and Unit Level
  - Software Code
  - Physical Construction and Installation
  - Facility “As Builts”
Overall Lessons Learned

- You Must Have A Long Range Vision
  - “Users” Must Identify Operational Concept as the Baseline for All Future Development
  - “Developers Must Work Closely with “Users” to Validate Operational Requirements

- Jurisdictional Issues are Tougher Than Technical Challenges
- Technology Issues are Primarily Cost and Ease-of-Use
- Adherence to Standards is Critical
- Rigorous Configuration Management Program Will Save Time, Money and Trouble
- “Hot Transitions” Must be Carefully Planned and Executed to Avoid Interruption of Operational Activities
- Security Must Be Addressed From the Beginning
- Design From the Inside Out
Smart Information for a Sustainable World

That's All Folks!!

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