Educating Students for ITS Careers: Are Universities Meeting the Challenge?

Transportation Agencies Perspectives

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Overview

- Background
- Congestion Management Focus
- Challenges
- Vision
- Success in Sustaining an ITS Program: MCDOT Perspective
- Creating and Sustaining an ITS Program: ADOT Perspective
- Challenges/Opportunities Towards the AZTech Vision
Mainly Decentralized Architecture

13 Traffic Management Centers
   (State and Local Agencies)

FMS

AMS (Signals Systems)

Regional Camera Sharing

Communications (Fiber, Wireless, RCN)
Seamless traffic management across boundaries and facilities through integrated systems and operations:

- SMART Corridors (arterials)
- Traveler information systems (integrated)
- Data archiving and retrieval (integrated)
- Incident management (integrated)
- Regional Community Network (RCN)
- Integrated Corridor Management (ICM)
Challenges

- Expanded ITS infrastructure
- **Skill development mainly through in-house training**
- Agencies competing for available *limited skilled pool*
- ITS staff needs **multidisciplinary skills**
- Current **job classification**
- HR positions/roles
Vision

2009 AZTech Arizona Operations Action Plan (Phoenix Metropolitan Region)

Top Four Priorities Included:

Vision Statement: We have qualified, well-trained staff and a pipeline of new talent

- **Desired Outcomes:**
  - Clear job descriptions and
  - Certification process
  - Uniform training

- **Action:**
  - AZTech Operations Committee developed ITS Certification White Paper
  - Leverage National agencies/organizations to develop certification programs
Successes in Sustaining an ITS Program

MCDOT Perspective

- Build support with Management
- Respond to ITS needs
- Target Consultant support to very specific needs
- Develop in-house skills
- Develop Manuals, Policies and Procedures
- Educate and build trust with HR

All the above takes time
Creating and Sustaining an ITS Program

ADOT Perspective
Creating and Sustaining an ITS Program

ADOT’s Role in Traffic Management & Operations

- Freeway Management System (FMS)
- Transportation Technology Group (TTG)
- Institutional Structure & Staffing
Creating and Sustaining an ITS Program

ADOT Freeway Management System (FMS)

- 186 Miles of FMS Coverage Statewide
- Highway Condition Reporting System (HCRS)
- Cameleon ITS: Cam Cam
- Cameleon ITS: D Cam
- 511 Call Line for 24/7
- AZ 511 Speed Map
- Regional Archived Data System (RADS)

All Software and Hardware are in-House maintained
### Creating and Sustaining an ITS Program

#### ADOT Statewide ITS Features

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<tr>
<th>Feature</th>
<th>Location</th>
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<tr>
<td></td>
<td>Phoenix</td>
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<tr>
<td>Camera</td>
<td>191</td>
</tr>
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<td>Dynamic Message Signs (DMS)</td>
<td>108</td>
</tr>
<tr>
<td>Ramp Meter</td>
<td>202</td>
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<td>RWIS</td>
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Creating and Sustaining an ITS Program

ADOT Transportation Technology Group (TTG)
Challenges/Opportunities Towards the AZTech Vision

- **ITS Technology Consistently Changing:**
  - We are not alone
  - Identify what is constant or core

- **Training:**
  - ITS principles
  - Include ITS principles in undergraduate curriculum
  - Include advanced ITS principles in graduate curriculum
Challenges/Opportunities Towards the AZTech Vision

- Certification:
  - Identify job requirements/description
  - Identify training needs
  - Establish and fund national certification training program
  - Possible models: Consortium for ITS Training and Education (CITE)

- Develop a guidance document for HR
Creating and Sustaining an ITS Program

Staffing Challenges

Example:

In the absence of ITS Engineers:

- Hired Electrical Engineer who has strong background on ITS communications
- PE was a requirement
- Candidate with ITS knowledge and background
- Agencies spend resources to develop ITS professionals
Creating and Sustaining an ITS Program

What Can Be Done??

- Form a national coalition to approach the Board of Regents
- Undergraduate and graduate level curriculums
- Encourage students
- ITS related presentations
- Develop certification process
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