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# Standardization and Options

Tom McKendree

980912 Standardization Intro (PPT; McKendree)

14-1

## Agenda



- **Introduction to Standardization and Options**
  - Purpose of Breakout
  - Reasons for Standards and Options
  - Issues with Standards and Options
  - Stakeholder Options
  - Conclusion
  
- **Moderated Discussion Between Stakeholders**
  - Questions About General Approach to Standardization and Options
  - Questions About Examples for Standardization and Options
  - Wrap Up

980912 Standardization Intro (PPT; McKendree)

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## Why Allow Options?



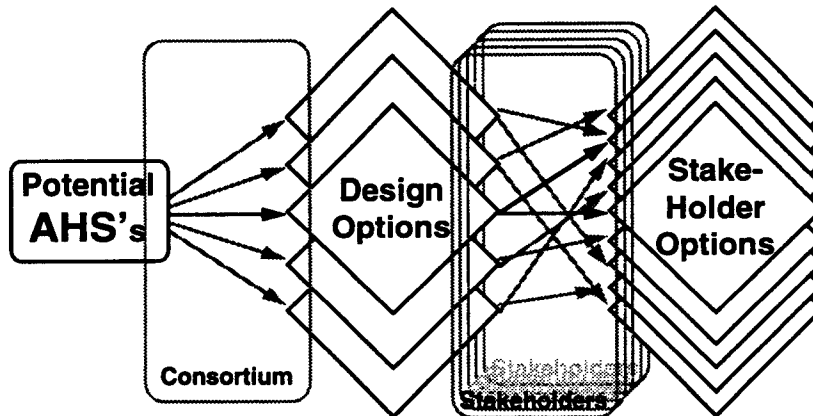
- **Local Tailorability**
  - Urban
  - Suburban
  - Intercity
  - Rural
  - Specific Local Details
- **Wider Applicability and Support**
- **Product Differentiation**
- **Diversity Increases Robustness Against Total System Failure**
- **Flexibility is Necessary for Evolution and Growth**

## Potential Areas for AHS Standards



- **Communications**
  - Vehicle-to-Vehicle
  - Vehicle-to-Infrastructure
  - Infrastructure-to-Infrastructure
- **Vehicle Behavior**
- **Vehicle Equipment**
- **AHS Roadway**
- **Infrastructure Intelligence (“Command and Control”)**

## Design Options and Stakeholder Options



We Want Your Opinion on What *Stakeholder* Options You Prefer

## Options Are Linked Between Stakeholders (Platooning Example)



- **Standardization on Platoons**
  - Transportation Providers Must Support Platooning on All AHS Lanes
  - Vehicle Manufacturers Must Support Platooning on All AHS Vehicles
  - Users Face One Type of AHS Vehicle & One Type of AHS Roadway
- **Standardization on Free Agents**
  - Transportation Providers Have No Option of Allowing Platooning on Their AHS Lanes
  - Vehicle Manufacturers Have No Option of Selling AHS Vehicles That Can Platoon
  - Users Face One Type of AHS Vehicle & One Type of AHS Roadway

## Conclusion



- **Standards are Necessary for Technical Feasibility, Interoperability, and Stability**
- **Options are Necessary for Local Tailorability, Wider Applicability and Support, and Flexible Growth**
- **We Want to Know Where You Want AHS Standardized, Where You Want AHS to Provide Options, and Why**
  - **Different Stakeholders May Have Conflicting Answers**

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## **Instructions for Third Round of Breakouts**

### **AHS Development and Deployment Staging**

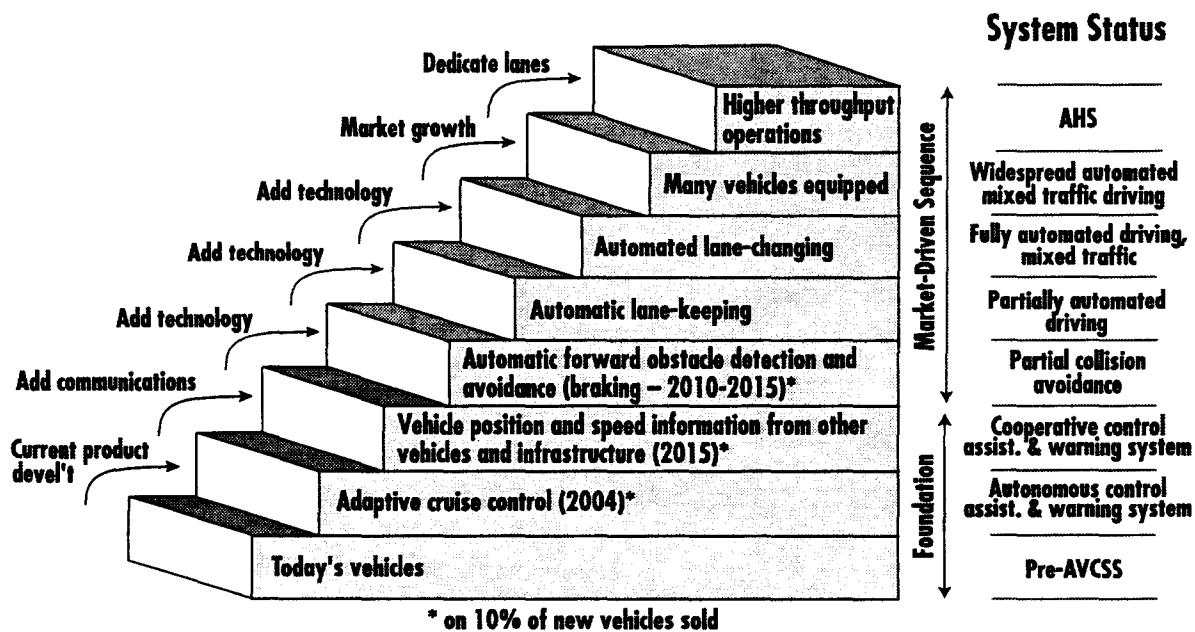
**Steven E. Shladover**

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## **Importance of Development and Deployment Staging Issues**

- **Influence on character of “mature” AHS**
- **Source of some concerns, skepticism about AHS**
- **“Chicken and egg” problems**
- **Requires public/private cooperation/coordination**
- **Motivations of public and private actors must be harmonized**
- **Must match investment/effort steps with compatible benefits steps for each actor**
- **Assessments of risks and challenges vary widely**

# Market-Driven Sequence



WS3BRK3.9/96

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# Issues for Market-Driven Approach



- **Advantages**
  - Avoids need for infrastructure until very late, minimizing
    - public investments
    - planning process delays
- **Disadvantages**
  - Significantly more difficult technical problems
    - Obstacle detection is needed early in sequence
  - Likely to require higher vehicle costs
  - Risks of operations mixed with manual vehicles
  - Very limited congestion relief potential until late in the sequence
  - Human factors problems with partially automated intermediate steps
  - Assumes that market develops in predictable direction
  - Timing is highly uncertain

*Can't ignore for dedicated lanes!*

*Dutch disagree*

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# **“Special” Deployment Cases for Fleet Vehicles**



- **Specially-trained drivers in lead vehicles**
  - **Truck convoys**
  - **Buses on busways/HOV lanes**
  - **Station car platoons**

## **Topics for Breakout Discussion**



- **Additional deployment sequences?**
- **Primary advantages and disadvantages to each kind of deployment sequence?**
  - **Any showstoppers?**
  - **How to mitigate or overcome problems?**
- **Motivations for consumers, vehicle and infrastructure suppliers to take needed steps?**
- **What level of certainty needed to make deployment sequencing decisions?**
- **Ramifications for selecting mature AHS concepts?**
- **How to apply to urban, intercity and rural applications?**
- **What likely timing?**

## **Plans for AHS Architecture Development**

**~ Attendees will receive on-site distribution ~**

