Telematics – From an Auto-OEM's Point of View

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WOCC 2008

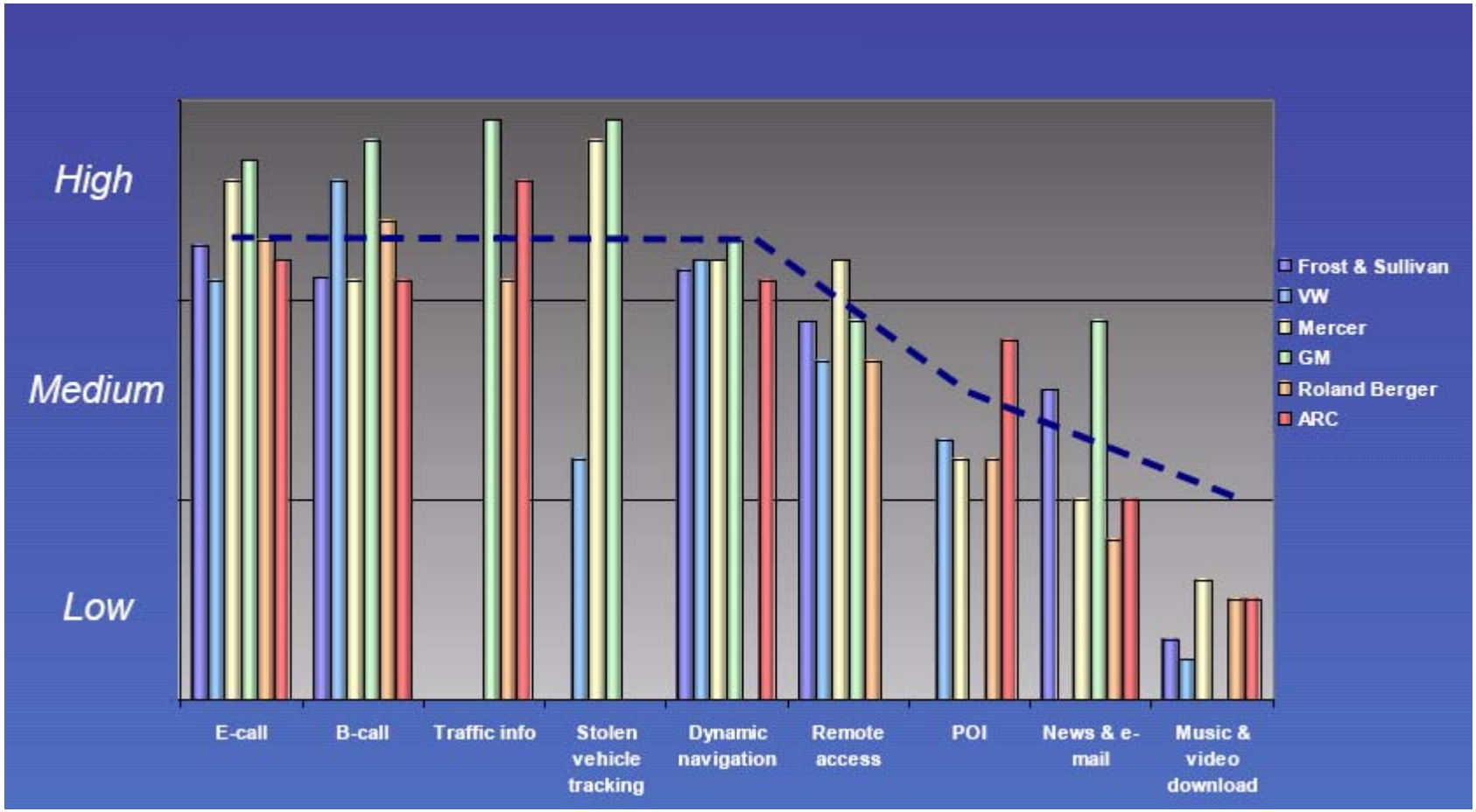
Taichung Taiwan

2008/04/23

Evolution of Automobile Telematics

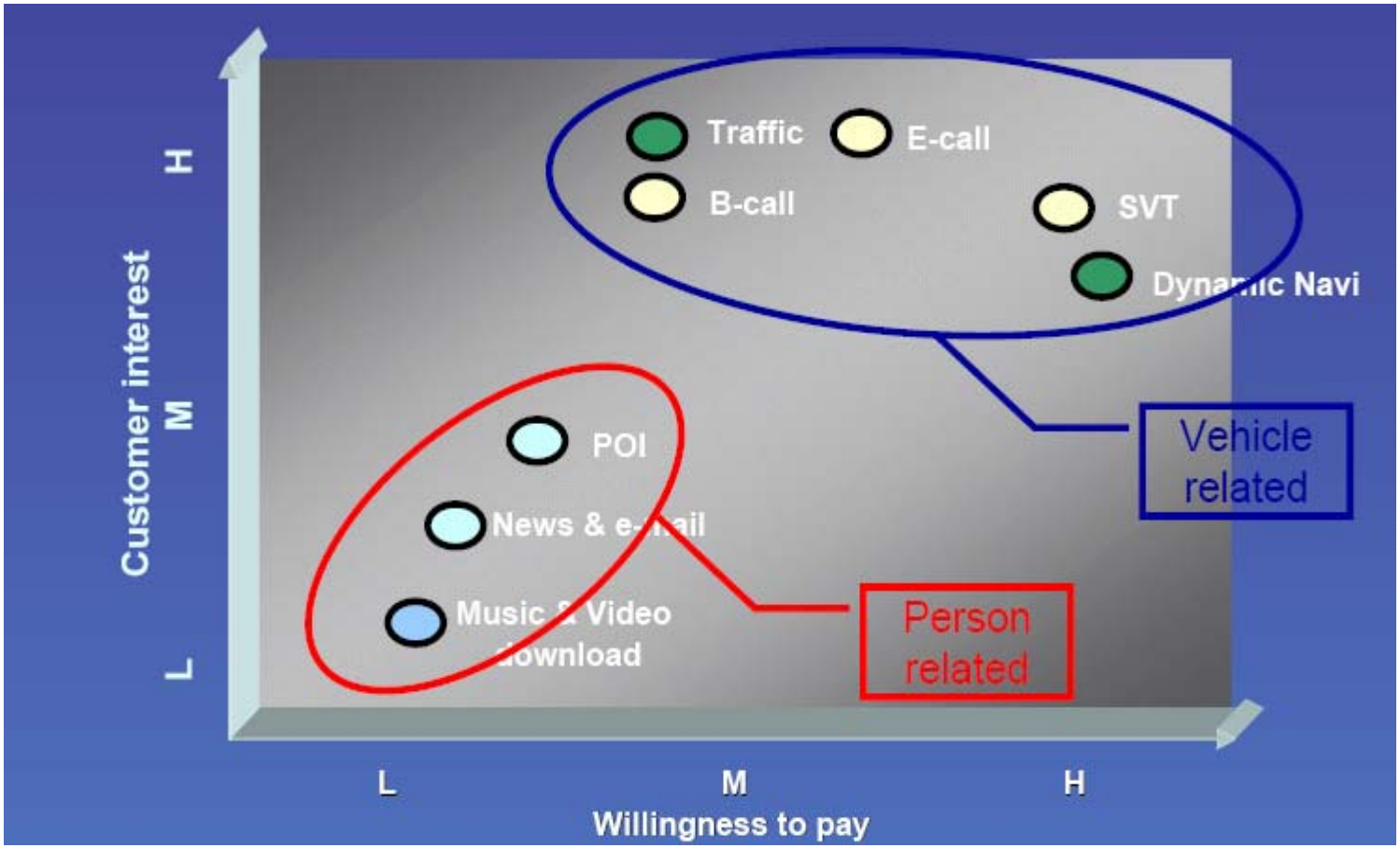
- Before 1980: Radio (AM/FM), 8-Track Cartridge, Compact Cassette
- 1980’s: Compact Disk, Satellite Phone, CB Radio, Radar Detector
- 1990’s: GPS, OnStar, HUD, Night Vision
- After 2000: Intelligent Navigation System, Internet, Traffic Information, Multimedia (Digital Audio, Digital TV), Driver/Remote Monitoring System, ETC, etc.

Understanding Customers' Needs



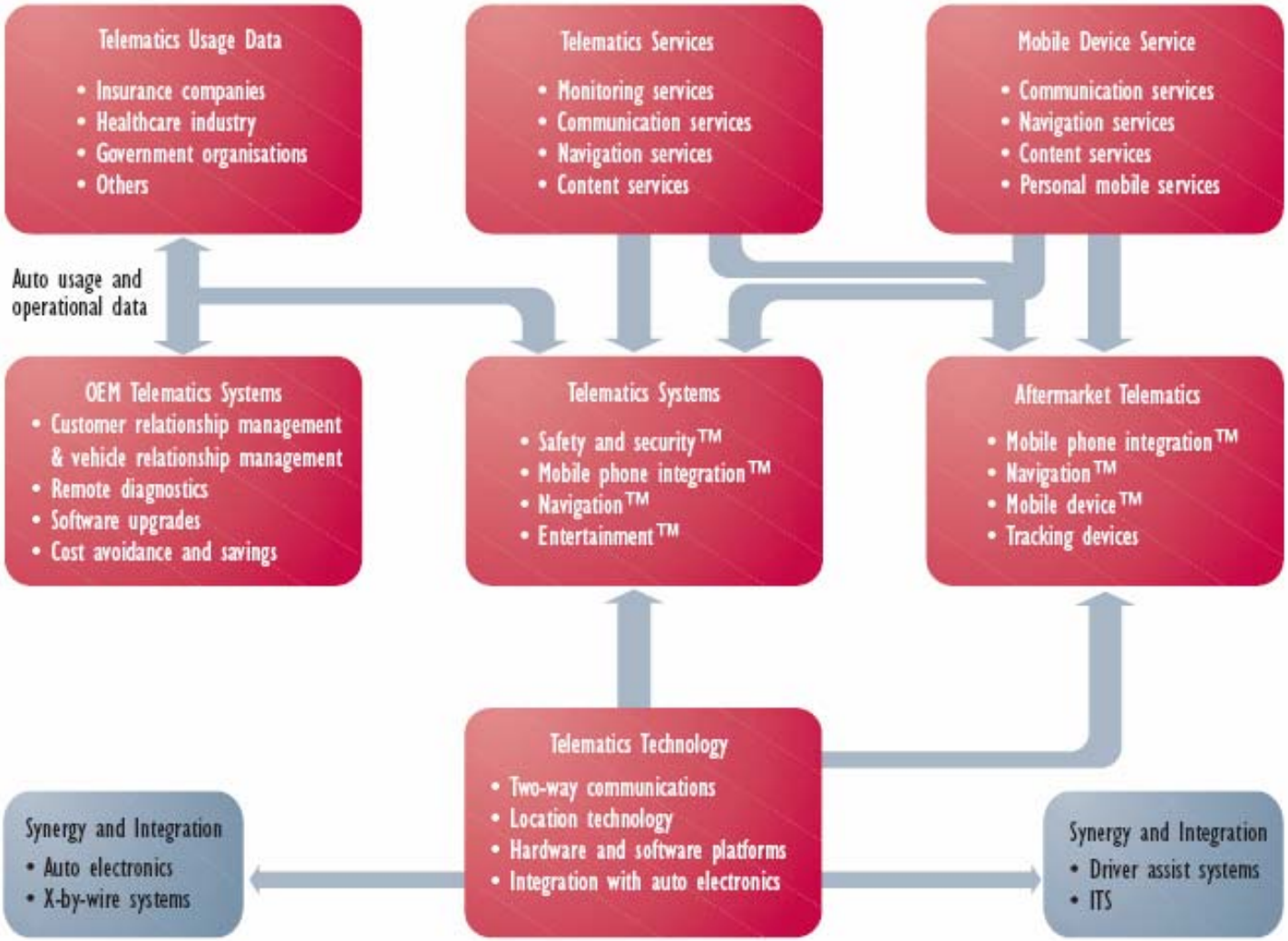
Source: SBD Ltd.

Vehicular vs. Personal



Source: SBD Ltd.

Telematics Market Segments

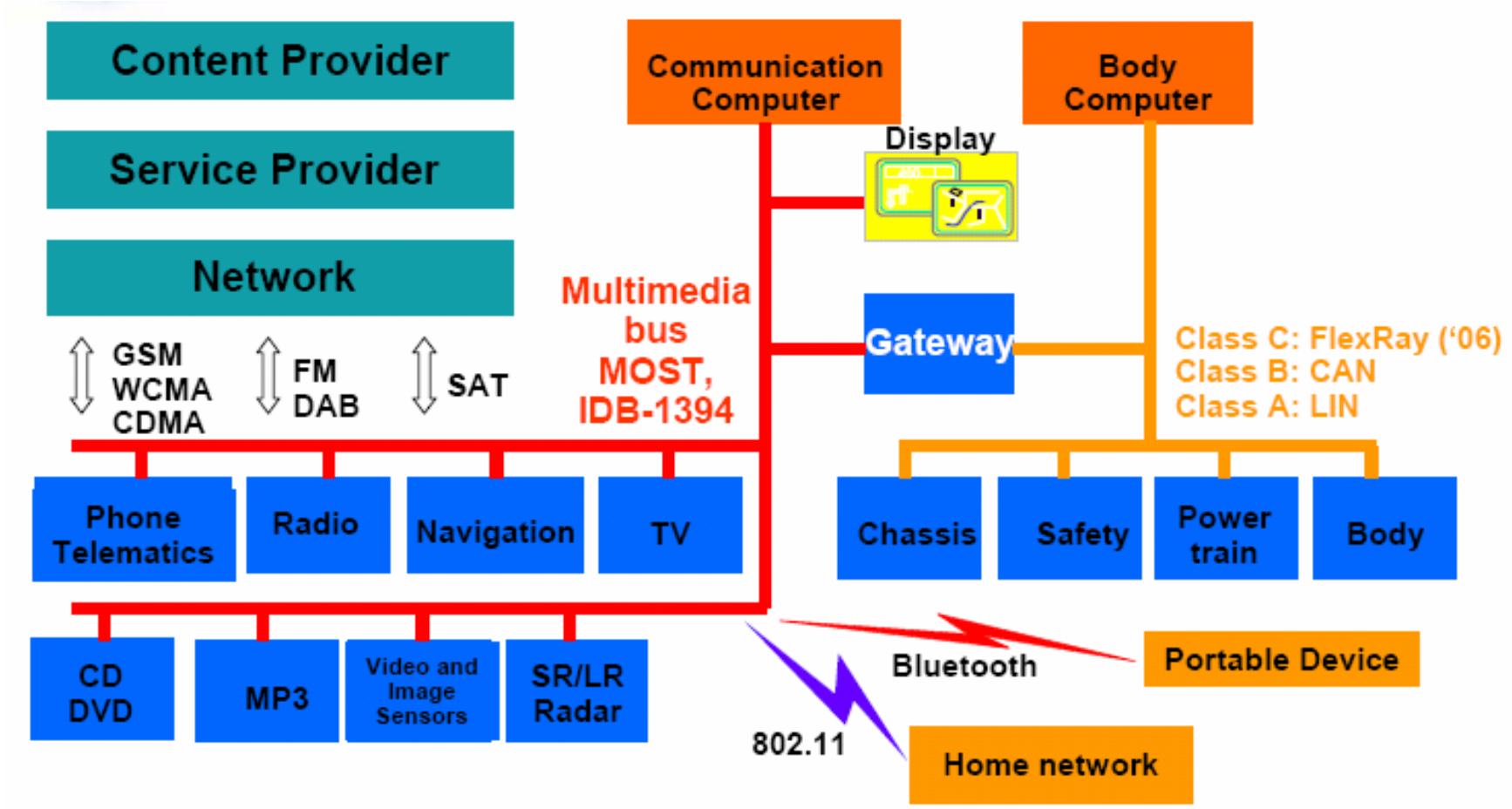


Source: Telematics Research Group

Functional Requirements

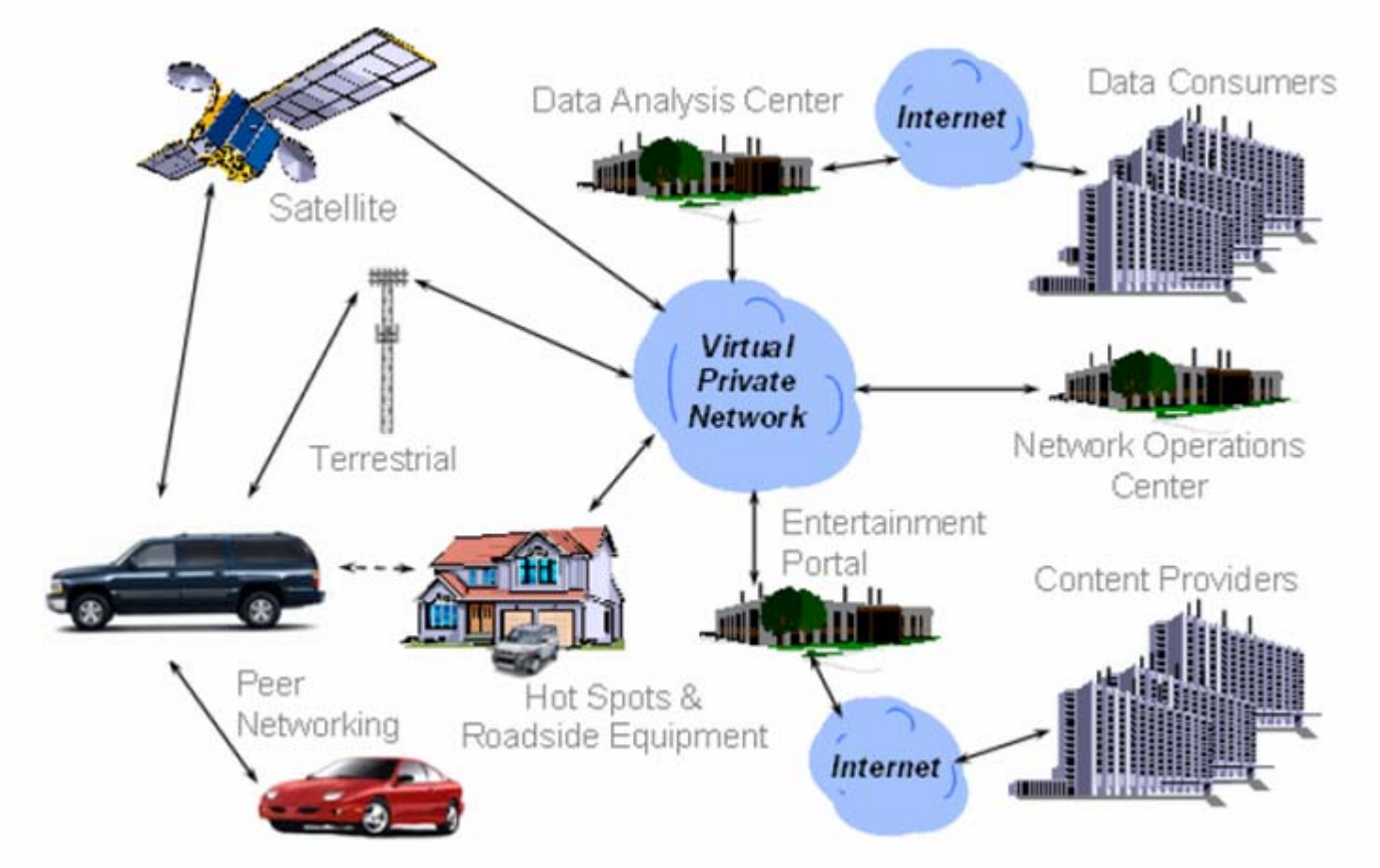
- Communication:
  - Wireless: phone, traffic information, information service, electronic toll station
  - Wired: inter-ECU information sharing, distributed control systems
- Informatics:
  - Information Providing: call center (OnStar model), backbone to public information centers
  - Information Presentation: LCD/LED Display, HUD, Audio/Video

A Typical Configuration



Source: National Semiconductor

A Typical Use Scenario



Source: Delphi

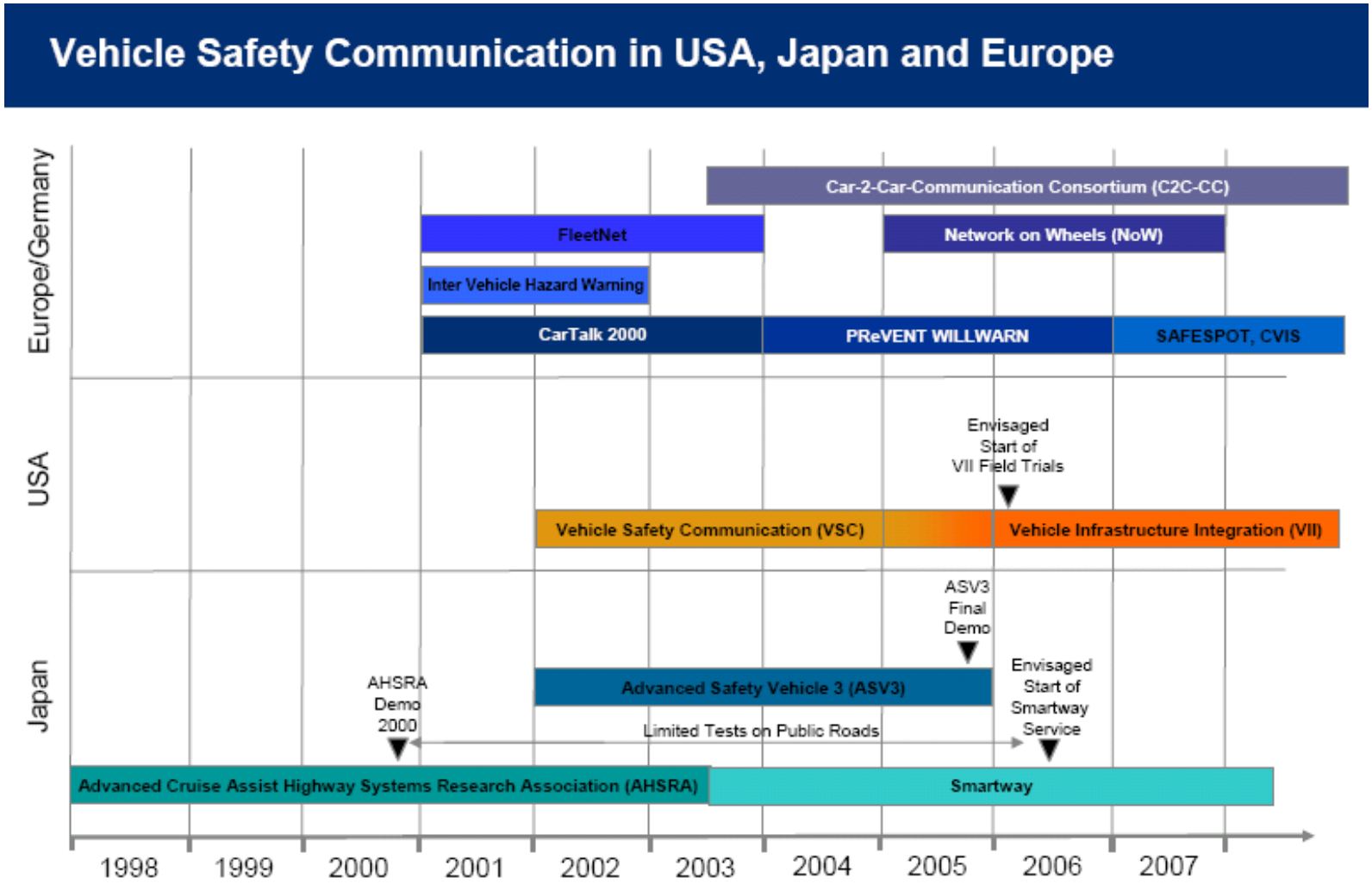
Understanding Participants' Roles

- Auto Manufacturers: information services, in-vehicle systems design and integration, applications provider
- IT Industry: devices design and implementation, subsystems provider, telematics platforms design (HW/SW)
- Government: infrastructure, standards of communication protocols, traffic information sources, law enforcement

Key Technology Enabler

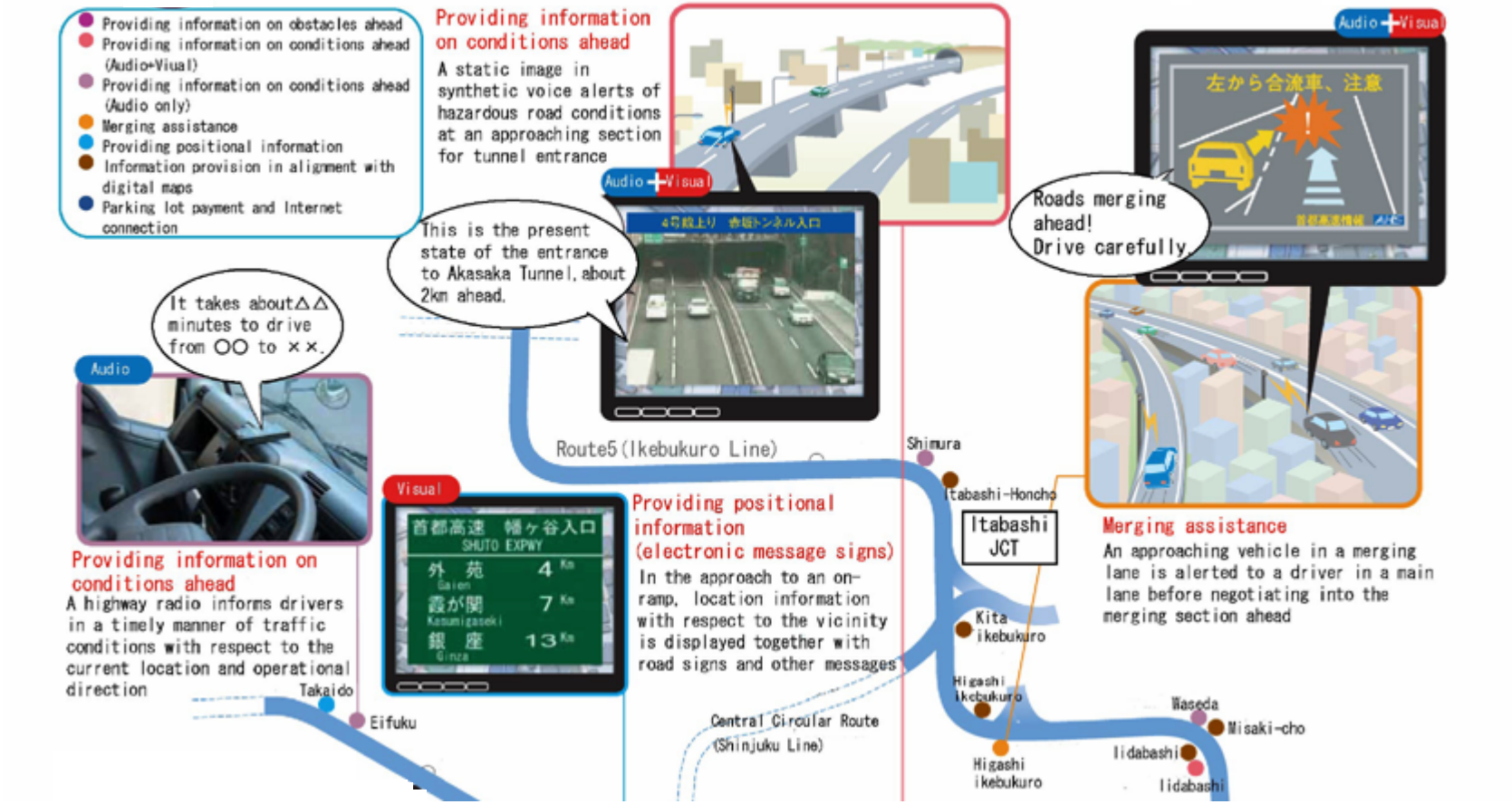
- Telecommunication
  - Phone Service:
    - GSM/GPRS or … (Gov/IT)
    - Multimedia Applications (IT/Auto)
  - Information Services:
    - WiMax or …. (Gov/IT)
    - OBU, RSU (Gov/IT)
  - Standards:
    - Protocols: Data Link Layer to Application layer (IT/Gov)
    - HW/SW Standard Platforms (IT/Auto)

ITS Initiatives in US/Japan/Europe



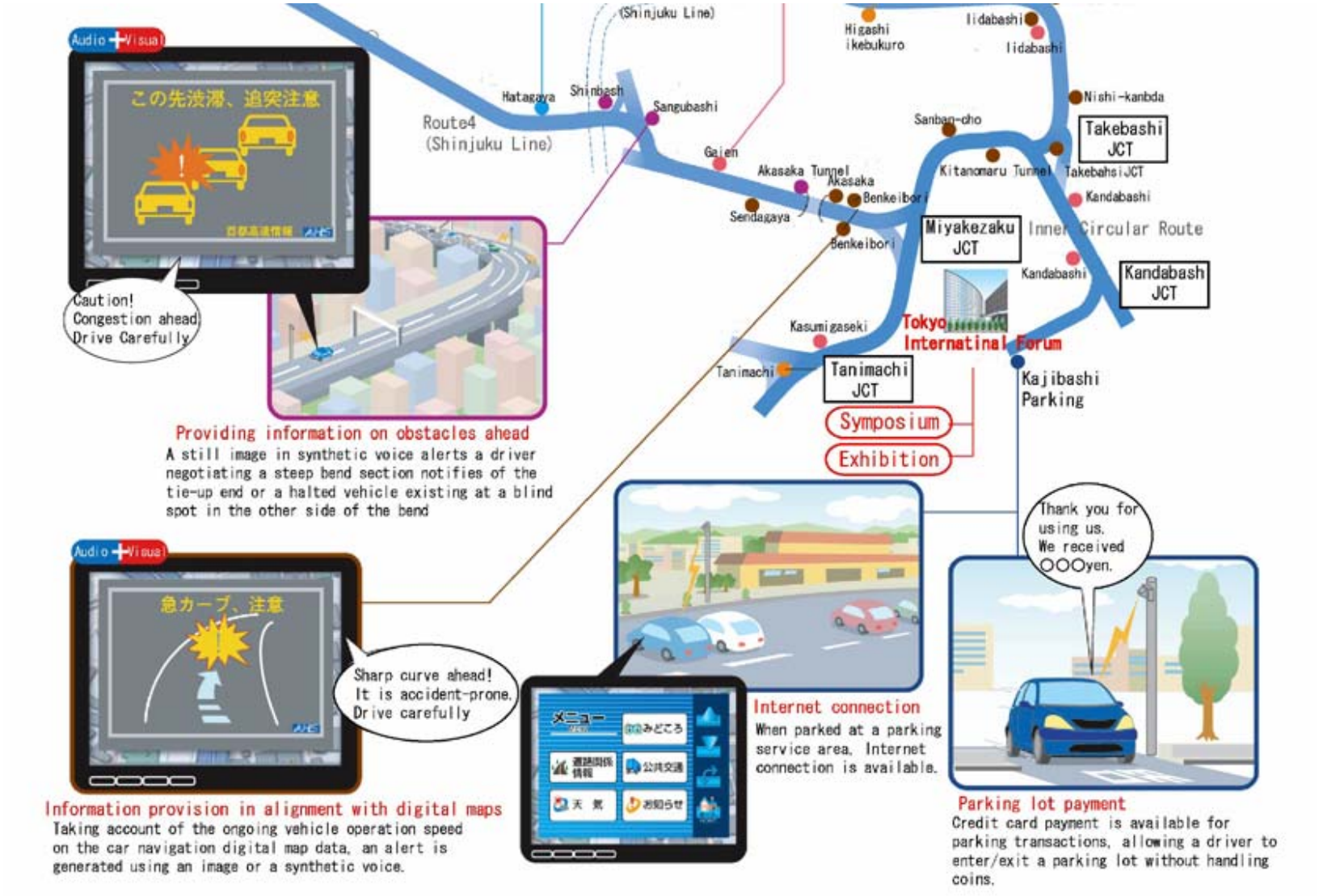
Source: DaimlerChrysler

Japan Story: Smartway Demo 1/2



Source: Smartway 2007

Japan Story: Smartway Demo 2/2



Europe Story: eSafety Working Groups

- Accident Causation Data
- Communications
- Digital Maps
- eCall Driving Group
- Heavy Duty Vehicles
- Human-Machine Interaction (HMI)
- ICT for Clean and Efficient Mobility
- Implementation Road Maps
- International Co-operation
- Real-time Traffic and Travel Information (RTTI)
- Research and Development
- eSecurity
- Service Oriented Architectures
- Steering Group
- User Outreach

Source: eSafety

US DOT ROI 4/4/2008

- DOT's RITA issued an ROI on potential business models for achieving the VII vision
- The VII vision is predicated on the existence of ubiquitous, vehicle-to-infrastructure and vehicle-to-vehicle data communication capabilities, which will enable public and private user services to
  - improve roadway safety
  - enhance mobility, traffic operations
  - relieve congestion
  - lessen the environmental impacts of transportation
  - promote energy conservation
  - enable electronic payment of transportation-related fares, tolls, and parking fees
  - allow for user access to the Internet from motor vehicles.

Source: US DOT RITA

Summary

- A successful telematics solution is not possible without all parties' (Gov/IT/Auto) full support
- Communication is one of the key enablers
- A solid plan with realistic application scenarios can expedite the journey to the target
- Hardware, software and applications are equally important in the development of a robust telematics environment
- Telematics has drawn global attentions