



NHTSA
July 18, 2000

Brian Gratch



MOTOROLA

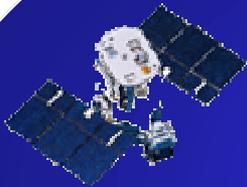


“Connected Society”

Changing communications environment



Global



Auto



Office



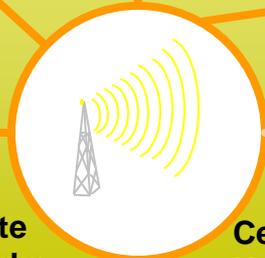
Home



Personal



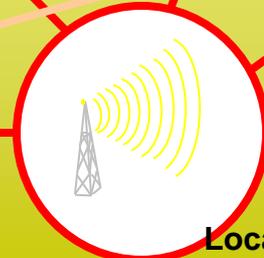
Satellite Networks



Cellular Networks



Telco Networks



Local Area Networks



Cable Networks



Internet

The Telematics Proposition

Telematics is emerging as a safety-connectivity feature.



On the Road

"Jaguar Assist"
option MY2000
S-TYPE



Renault, France Telecom
option all 1998 models

Mercedes "TeleAid"
standard MY2000 S-
Class



Opel and Vaukhall option
all models on continent



Cadillac "OnStar"
standard MY1999
Escalade.



Ford 1996 Lincoln Rescu:
1st Production Telematics
worldwide



Nissan "Infiniti Communicator"
1998 Q45 and I30



**BMW "Mayday
Phone" all models**



GM "Onstar": from 1998,
over 40 vehicle platforms

Market Interests

Entertainment

*On Demand Music
Back seat video*

Information

*Admin Assistance
E-Mail, V-Mail
Concierge Services*

Navigation

*Directions
Traffic*

Safety & Security

*Automatic E-call
Distress Call
Roadside Assistance
Vehicle Tracking*

Vehicle Systems



Driver Information System

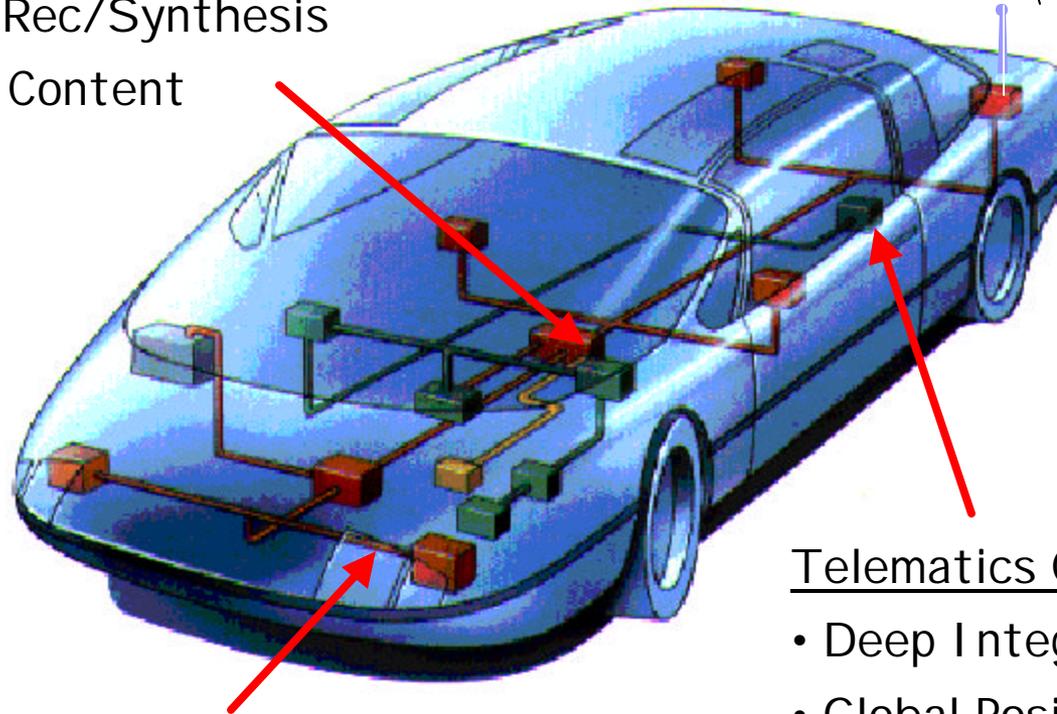
- Navigation/Traffic
- Voice Rec/Synthesis
- Audio Content

Network Services

- Telematics Portal
- Shaping Data

Over-the-Air Protocols

- WAP
- GATS
- ACP



Connectivity

- ITS Data Bus
- Bluetooth

Telematics Communications Unit

- Deep Integration
- Global Positioning

Driver Advocate ... Integrating technology with safety



During times of high driver workload, the advocate will put a caller on hold until the driver workload is low enough to safely take a phone call

You've reached Don's car phone. I'm driving the car right now, please hold and I'll pick up in a minute.



Human Factors Issues



How do we read maps & navigate ?

Information Presentation

Consequences of human errors

What functions available while driving ?

Service Provision

Safety Issues

What functions will users value in the vehicle ?

What functions available when in Park ?

What functions will users pay for in the vehicle ?

What are the physical & psychological issues of different hardware locations ?

Input/Control processes

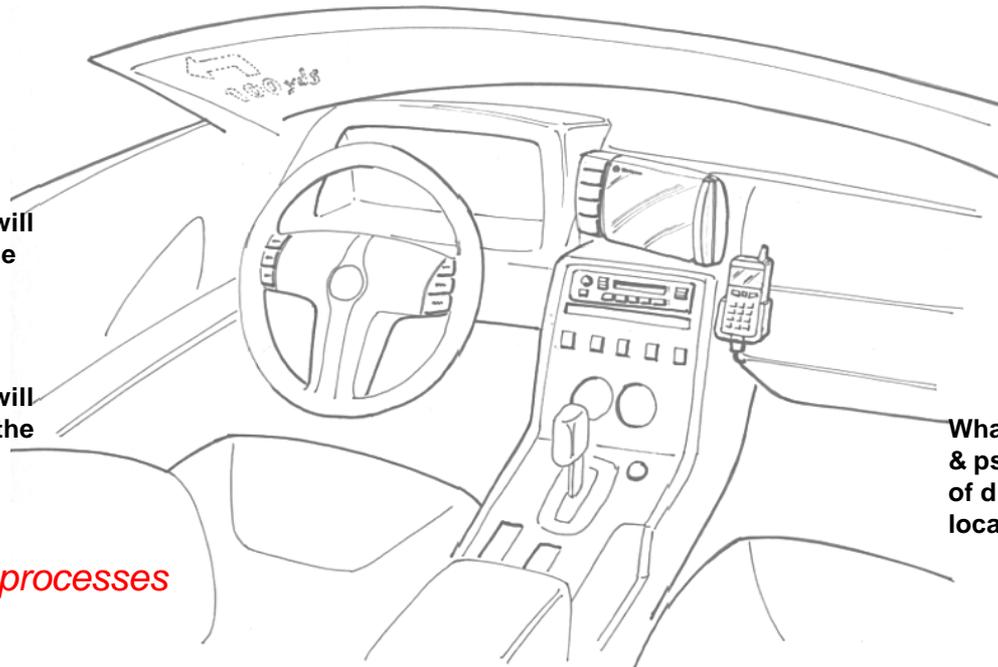
Usability Issues

How would a user input data and control functions etc ?

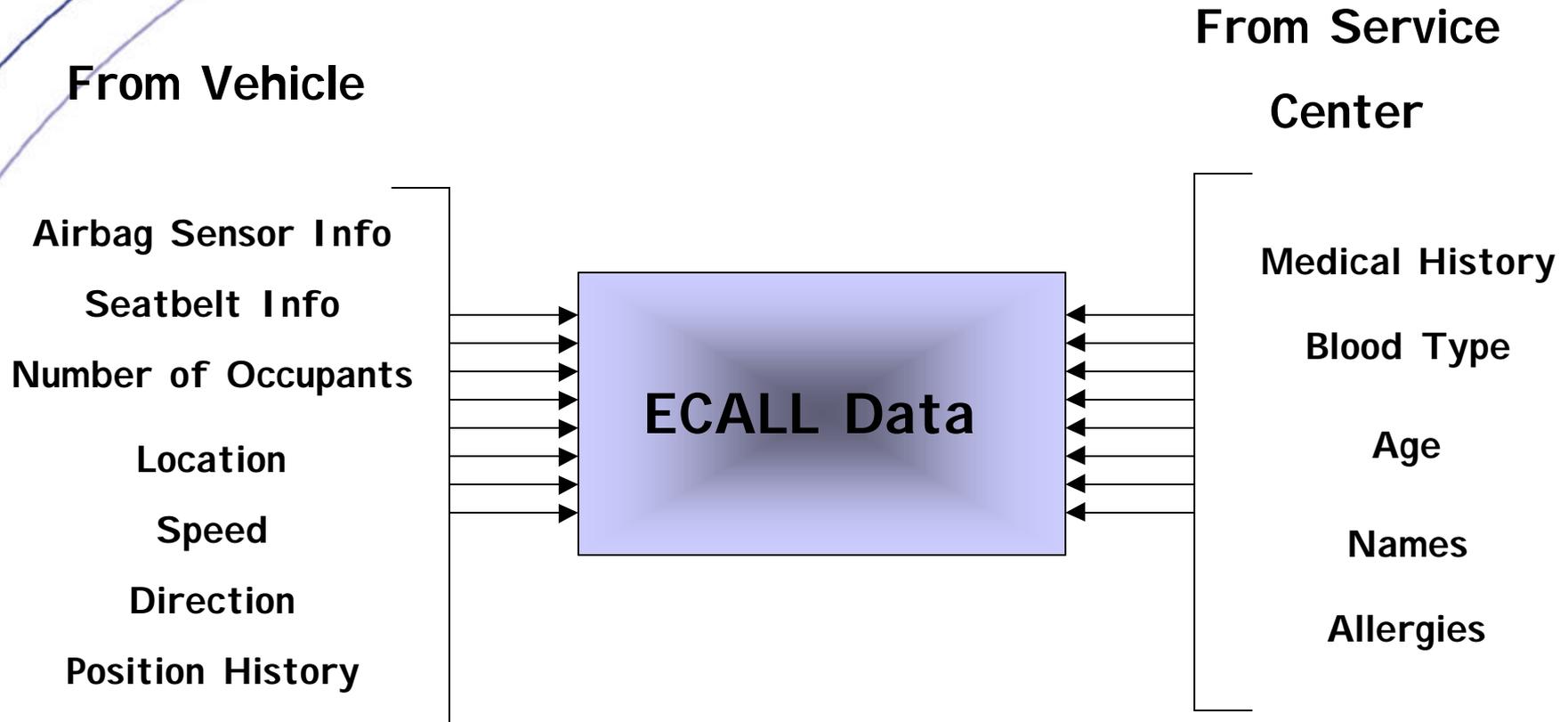
User expectations

How would a system integrate with cellphone car stereo etc ?

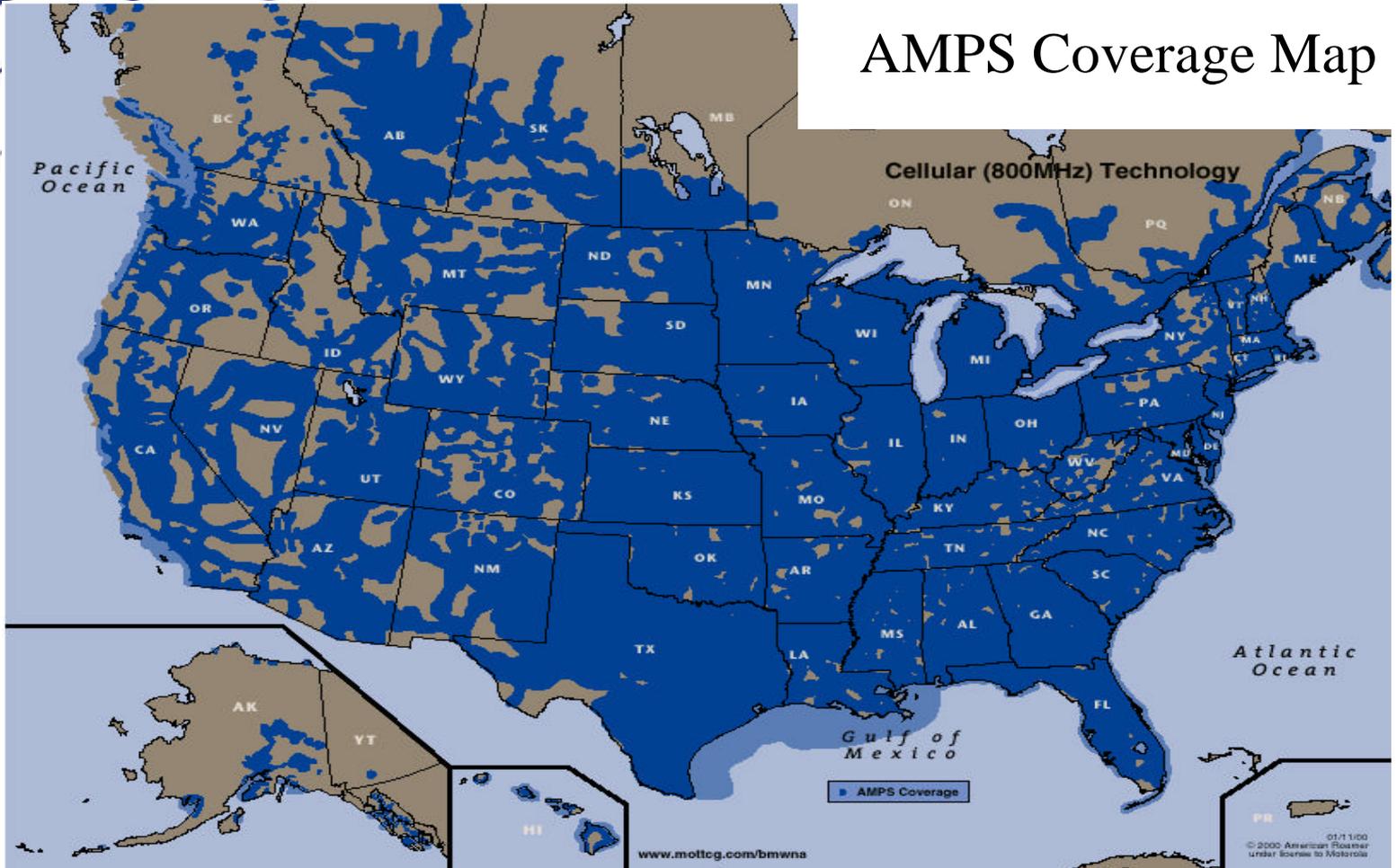
Product perception



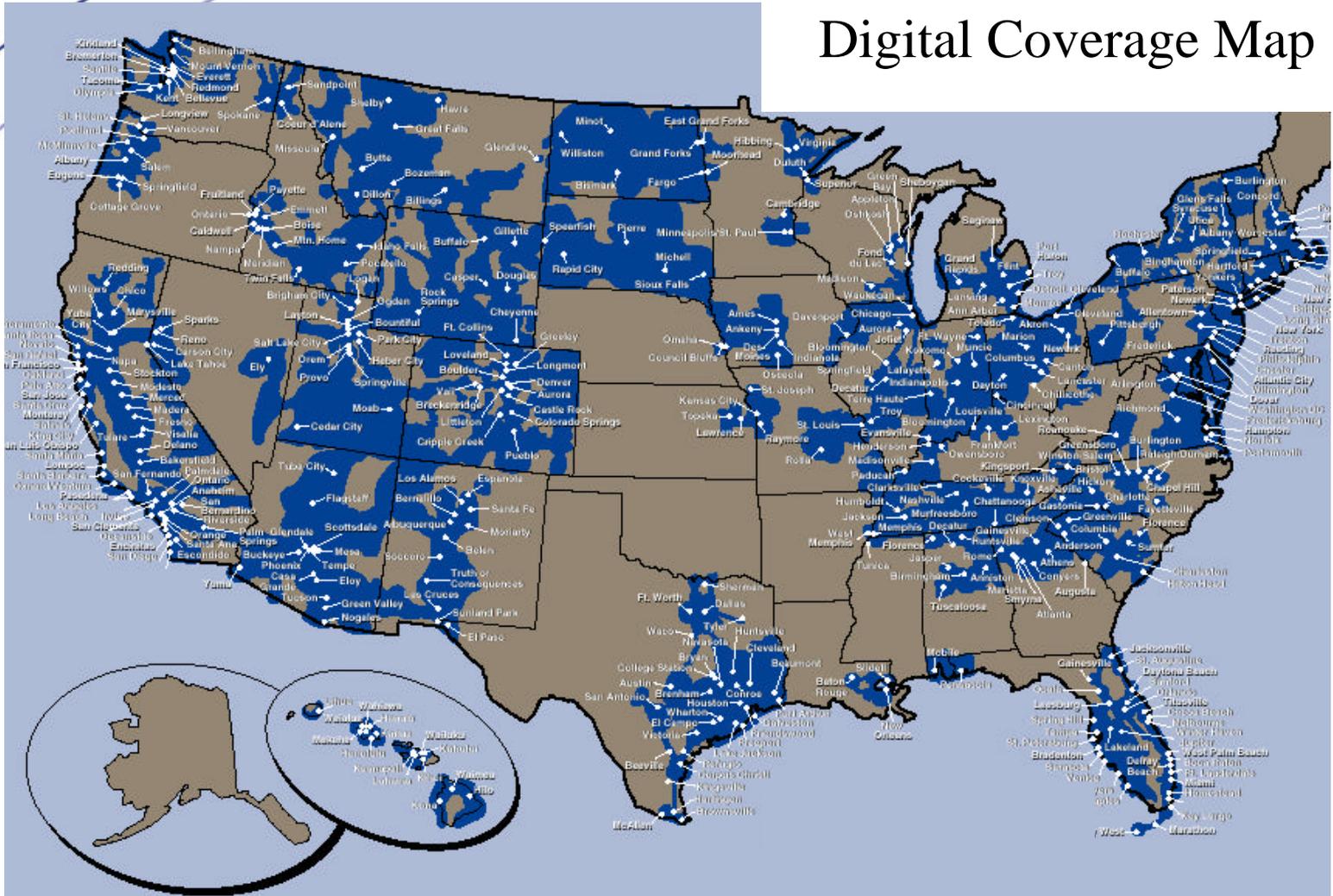
Captured Information



AMPS Coverage Map



Digital Coverage Map



Hands on the wheel, eyes on the
road, ears on the world TM





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