Next Generation Infotainment Systems

John Absmeier
Director, Silicon Valley Innovation Center
Digital gadgets more important for car buyers

Smartphones in the Driver’s Seat

“Never before has the relationship between the car and the smartphone been so vital – and on display – as at the Consumer Electronics Show”
Consumers always connected

Global smartphone growth

- 0.9B units sold in 2012
- 1.5B forecast for 2015

In car smartphone use

- 89% Calls
- 68% Navigation
- 39% Texting
- 31% Internet, email, and apps

70% of new car buyers now have smartphones
Here comes the internet of cars

The era of smart mobility is going to change everything

“This isn’t just an evolution of technology-enabled, connected vehicles. This goes beyond self-driving cars.”

Distracted driving to remain post-LaHood NHTSA focus

“...very, very close to finalizing voluntary in-vehicle guidelines to help automakers prevent distracted driving…”
Democratization of active safety continues

Yesterday…

Frontal crash sensor
Side impact sensor
Airbag control unit
Democratization of active safety continues

Yesterday...

Today...

Frontal crash sensor
Side impact sensor
Airbag control unit
Intelligent forward view
Electronically scanned radar
Rear & side detection
Rear view camera
Democratization of active safety continues

Yesterday…
Today…
Tomorrow

Frontal crash sensor
Side impact sensor
Electronically scanned radar
Intelligent forward view
Airbag control unit
RACam
Vehicle-to-X communication
Rear view camera
Rear & side detection
Active safety – key to connecting safely

An extra ½ second of warning can mitigate 60% of crashes

Source: NHTSA
Tipping point for active safety

EuroNCAP
Vehicles sold in Europe will need automatic emergency braking by 2014 to earn a five-star safety rating

NHTSA
Forward collision warning systems have the potential to reduce nearly 15% of the estimated 1.7M rear-end crashes on U.S. highways

10x increase in active safety market by 2020

Source: iSuppli and Delphi estimate January 2013
The connected safety eco-system

V2V
Vehicle to Vehicle

V2I
Vehicle to Infrastructure

U.S. DOT launches largest ever road test of Connected Vehicle Crash Avoidance Technology

3,000 vehicles

73 lane miles of roadway

Curve speed warning

Cooperative Intersection Collision Avoidance System

DOT to determine next steps on connected vehicles in 2013
Accelerating technology trends

Electronics Complexity

1940's
AM

1980's
AM/FM
Power Locks
Power Windows
Rear Seat Entertainment
Engine Controls

2020's
Digital

Driverless Vehicle
V2X
Digital Displays
Active Safety
Mobile Devices
Smart Phones
Navigation

Exponential Infotainment Growth in the Last 10 years
The next generation systems will need to adapt to multiple life-cycle demands

Vehicle Development

Vehicle Ownership Experience

Mobile Device

Mobile Device

Mobile Device

Mobile Device

Mobile Device

Mobile Device

Mobile Device

Mobile Device

Mobile Device

Flexible & Upgradeable Platform
Exponential infotainment growth is driving the need for flexible and adaptable solutions

Cloud
- Off Board Voice Rec
- Navigation
- Customer Portal
- Off Board Apps / Internet

Mobile
- Smart Phone
- Tablets
- Laptops

Embedded
- Satellite Radio
- AM / FM / HD Radio
- On Board Apps
- On Board Navigation

Content Explosion

Next Generation User Experience
Shift to higher graphic and processing capability begins by 2015CY for next generation platforms

Global OEM Headunits by Segment ($M)

- Feature upgrades
- HMI upgrades
- Mobile device compatibility
- "Future Proof"

Source: Strategy Analytics January 2013
Why high end graphics are critical for next generation systems

Consumer expectations due to mobile device growth
- Speed…Instant On
- Smooth, fluid graphics
- Simultaneous capability

Natural looking interface and user experience
- Ease – of – Use
- No interpretation of content
- Minimize “eyes off road”

Showroom appearance of vehicle
- Establishes instant perception of high quality
- Differentiation from entry level systems
- Differentiation from competition
What are the current trade-offs for these next generation systems?

**“The Good”**
- Voice – of – the – Customer
- Ease – of – Use
- Future proof system
- System flexibility

**“The Concern”**
- Cost competitiveness
- Validation requirements
- JD Powers / Quality
- Ubiquitous/instant social media
- Driver Distraction
Delphi’s solution
Always connected – always safe

Electronically scanning radar
Intelligent forward view
Rear & side detection system
RACam – integrated radar & camera

Workload manager
Driver state sensor
MyFi

Reconfigurable display
Mobile device connectivity
In-vehicle wireless network
Computing platform cloud connectivity

Cloud connectivity
Mobile device connectivity
In-vehicle wireless network
Driver state sensor
Workload manager
Rear & side detection system
RACam – integrated radar & camera
Intelligent forward view
Electronically scanning radar
Delphi *is enabling* consumers’ digital lifestyle in their connected car, safely and seamlessly.

**AT THE CENTER OF EVOLUTION AND INNOVATION**