

# Driving Innovation: In-Car Digital Convergence

In-Stat China

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# Agenda

- Automotive electronics category
- Characteristics of Automotive electronics market
- Drivers from demand and supply side
- In-Car convergence overview and opportunities
- Vision of future car
- In-Stat background

# Automotive Electronics Categories

- **Car body**
  - Central Body Module
  - Lighting
  - Wiper
  - CAN / LIN Node
  - Power Window
  - VDC
  - Dashboard
  - Climate control
  - Parking System
- **Power Train**
  - Automatic Cruise Control
  - Engine Control
  - GDI
  - Gear Box
  - Selespeed
  - Injection
  - Charging
- **Safety**
  - Active Suspension
  - Pre Crash
  - Airbag
  - Radar
  - VDC
  - ABS
  - EPS
- **Car Communication-Multimedia and Telematics**
  - telematics
  - GPS Navigation
  - Multimedia Systems
  - Audio Systems
  - Rear-seat Entertainment
  - DVD Players
  - Games Consoles
  - Integrated Mobile Phones
  - Internet Access
  - Digital Radio
  - Display systems

# Characteristics of Automotive Electronics market

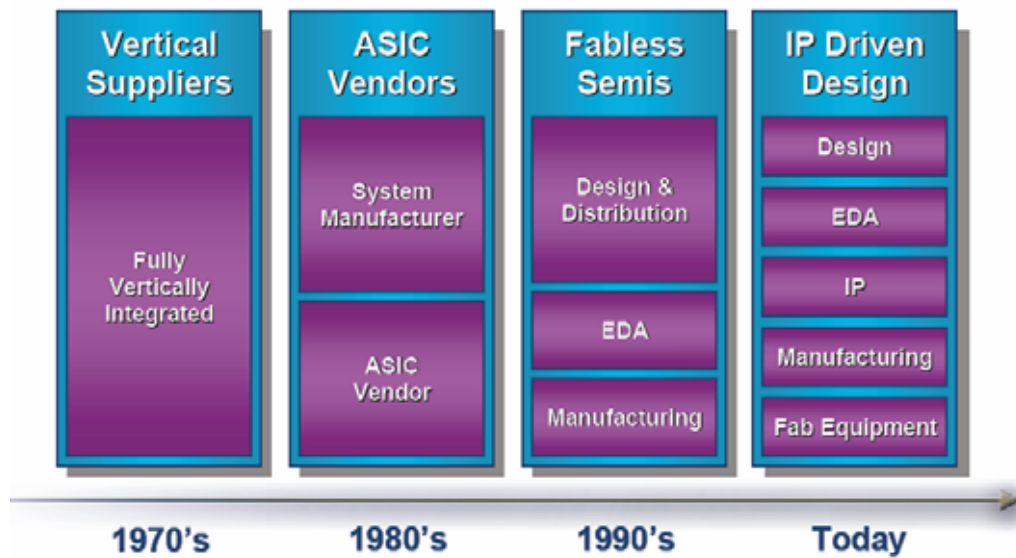
- The automotive sector as a whole is a very demanding one
  - It's an industry where pricing pressures and tight margins make it tough to make money.
  - It's hard to get qualified, and the design-in cycle can often take 2-5 years, although supportive regulations can speed that up.
  - it's hugely competitive; even the top Tier 1 suppliers are facing tough competitive pressures.
  - Usually the customers asks for 10 years of product support
- The key appeal of the automotive market is
  - It's big and it's stable.
  - Supply contracts often run for many years. As such, companies know how many units they need to provide on a monthly basis for a set period of time.
  - This keeps them out of the boombust cycle that markets, such as computers or communications, experience.

## Driver from Demand Side

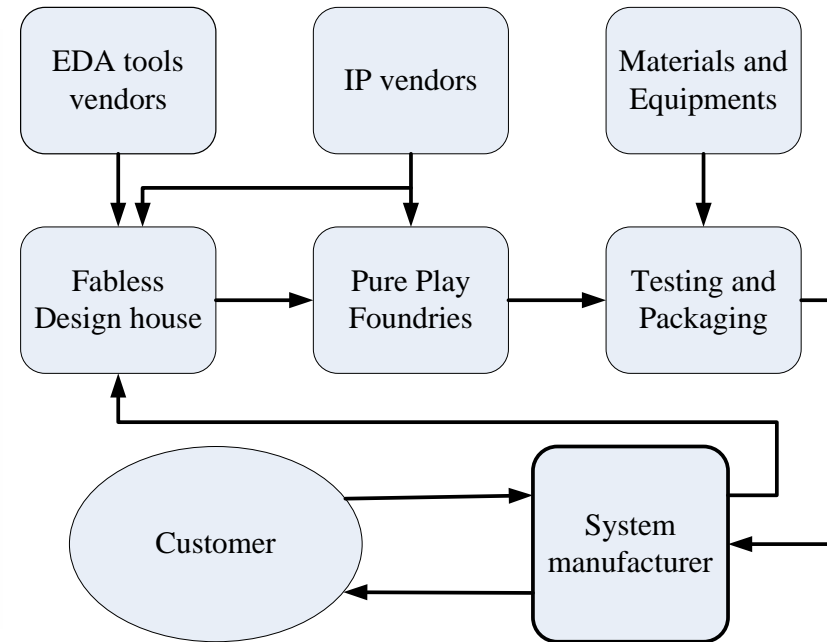
- China automobile Industry
  - 5M products in 2004
  - 6M products in 2005 (forecast)
- At the end of 2009, automotive electronics will reach 50% of the total car cost
- China Automotive electronics gain a proportion of 25-30% of the total car cost, about RMB10,400 per car.
- China automotive electronics revenue is showing on the right:

Year	Revenue In RMB Billion	Growth rate
2004	45	58%
2005 (forecast)	70	56%
2006 (forecast)	100	43%

# Driver from Supply side



**Semiconductor disaggregation**



**China Supply chain molding**

## Convergence Focus: Multimedia & Communication

- Audio/Video camera with storage
- Bluetooth embedded in everything for data transfer
- Phones with Wi-Fi/Wimax connection
- Automotive Electronics: convergence of Telematics and multimedia

# In-Car Digital Convergence Overview

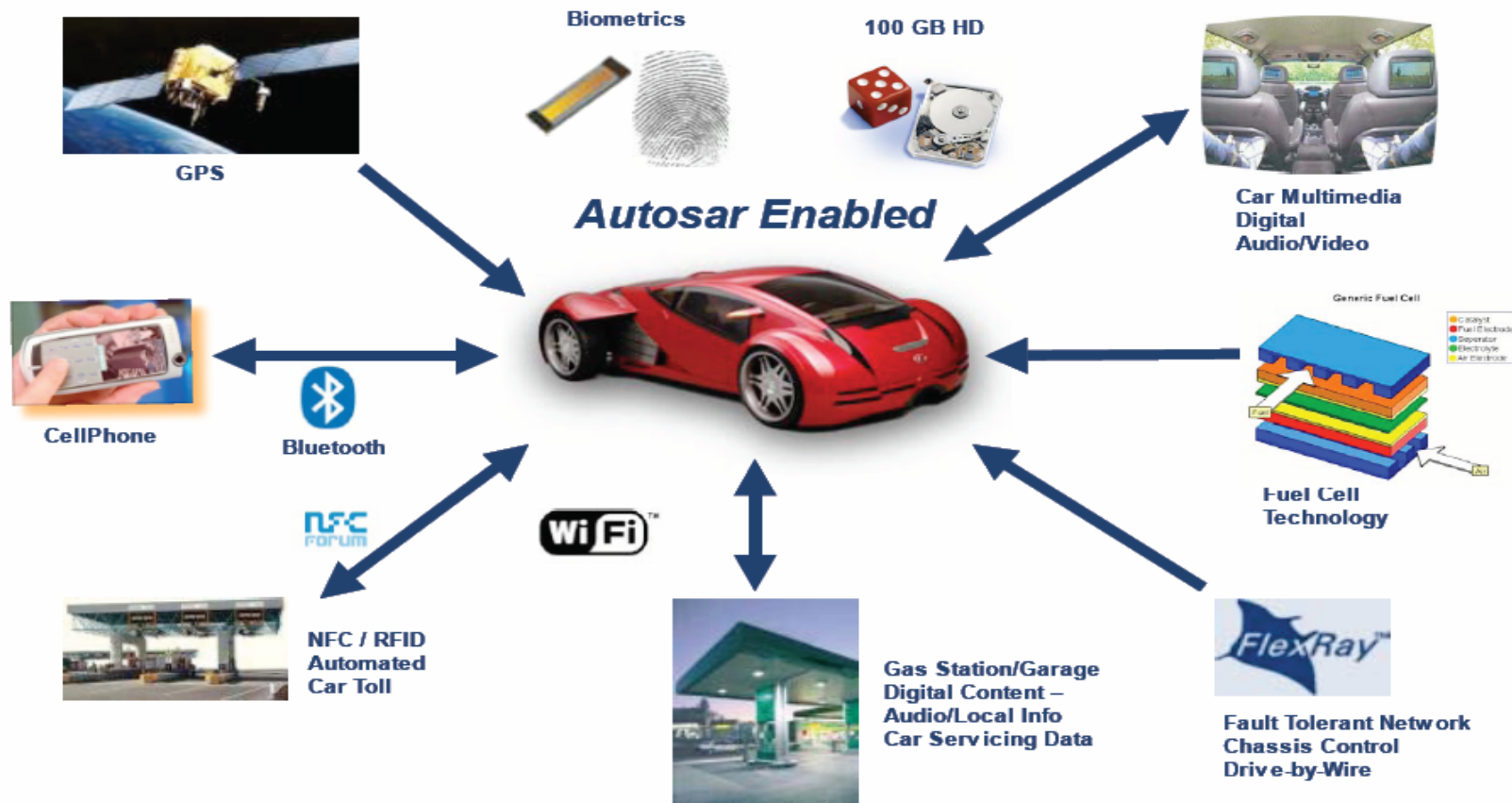
- Requires flexible solution
  - Technologies are based on multiple, new and changing standards
    - Bluetooth, GPS, MOST, CAN, LIN, Audio, Video, ZigBee etc.
  - Integration of multiple complex technologies in auto environment
    - Display, computing, audio, RF, etc.
- Time-to-market pressures as automotive life cycle is shrinking from 6 to 2 years



# In-Car Convergence Opportunities

- In-car Digital Convergence
  - Telematics
  - GPS Navigation
  - Multimedia Systems
  - Audio Systems
  - Rear-seat Entertainment
  - DVD Players
  - Games Consoles
  - Integrated Mobile Phones
  - Internet Access
  - Digital Radio
  - Display systems

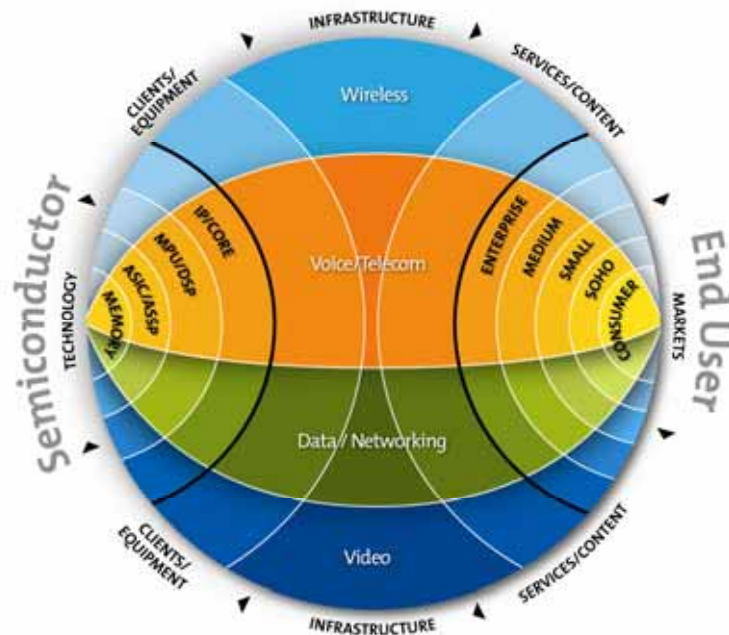
## Vision of Future Car



Source: from ARM

## In-Stat Background

In-Stat's unique research methodology and analyst organization achieves better accuracy and comprehensive market views



- Enables end-to-end perspective of target markets through examination & correlation of each stage of the value chain
- Uniquely integrates end-user surveys (demand side) with vendor-side surveys (supply-side)