

# Digital Radio in the car in 10 years

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- The first car radio appears in the 20's but evolution is very slow, receiver is a very big and heavy device. After World War 2, automotive industry was restart. New features appears on board and among them the radio receiver becomes a more popular feature but receiver is still a big and heavy device.
- In the 60's two main innovations will occur: first transistor equipped car radio and first cassette tape receiver are available .
- For years, AM radio reception only were available, then in 70's, FM radio is launched...
- Second half of 80's see CD player availability on board...



1948: First Japan car radio and bus PA system



1951: First car radio for Hino Renault in Japan



1968: First cassette car stereo launched in Japan

- In the 90's, RDS system bring an additional interest to FM stereo reception. These years also see the first voice guidance navigation system
- End of 90's first DAB 1 DIN receiver is available and world's first in-vehicle Auto-PC is available (powered with Windows CE)
- Years 2000 see birth of MP3, USB, SD and connected devices , telephone is widely entering into vehicles, satellite radio start to be broadcast early 2000's in US



1992: First Japan voice guidance car navigation system



1998: Clarion AutoPC is launched



2005: Full iPod control car radio

## Product integration

- Until end of 80's, radio receiver was consider as an accessory for the vehicle. Then, gradually, real OEM products start to be installed into car maker factories as an original equipment.
- Installation rate progressed more less quickly according countries markets and car makers
- From 2000's, almost all vehicle are equipped with original equipment



1986: Renault system by Philips



2016: Nissan system by Clarion

# Media evolution in the car

## Connection

- Until end 90's, radio receiver is a stand alone system needing power supply, antenna and speakers only. During second half of 90's, new communication systems appear into vehicles. A communication BUS allow exchanges between different devices into the vehicle
- From 2000's network systems are widely used such as CAN, VAN, MOST, LVDS,...in order to decrease number and weight of cables in the vehicles and to expand inter communication between different devices.
- From 2010's wireless communication is expanded into vehicles with Bluetooth, WiFi connections. Also vehicle can communicate with exterior with GSM.



2015: Clarion Smart access for Subaru








2016: Clarion with WiFi Mirror link for Honda

# Media evolution in the car

- 📺 In the 2010's, connectivity possibilities into vehicle increased with technology evolutions generate a new approach of the automotive vehicles, after autonomous train or subways, now personal vehicle is becoming partially autonomous



First known autonomous vehicle...

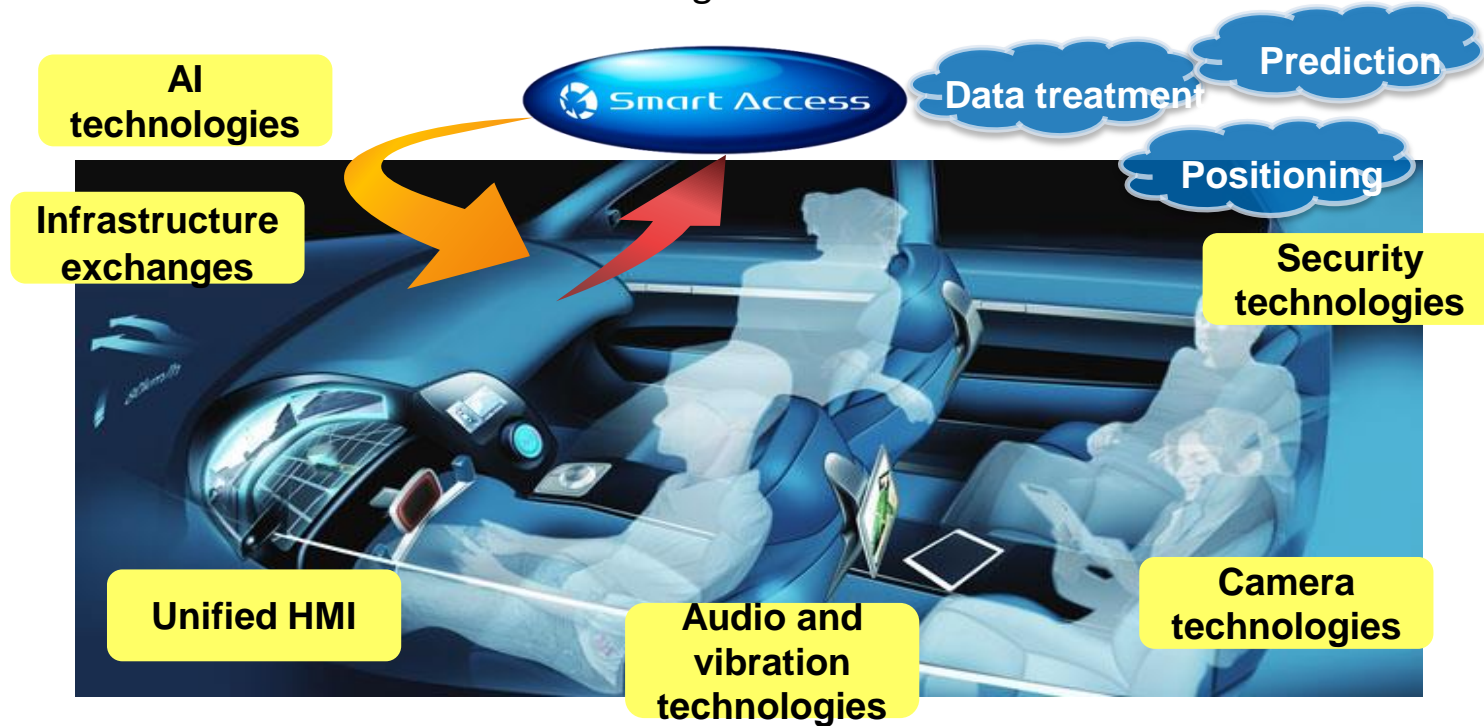
-  In a near future, and almost possible today, driver will no more be obliged to keep hands on steering wheel and eyes on the road ahead. During travelling, all the vehicle occupants will be allowed to have other activities than road survey.
-  Even all possible media available in the car, radio always keep a favourite place into users mind.  
Why?
  -  Because no current media can bring same offer as radio broadcasting. We have same thing with TV: even connected TV becomes the standard and VOD is accessible from different sources, majority of people continue to watch at broadcasted programs.
  -  Because radio broadcasting is free of charge.
  -  Radio is available almost everywhere

# What about the radio in future ?

The future already started !

Current tendencies will be deployed with extension to other new technologies

Radio will be one entertainment source among lot of various vehicle features





# What about the radio in future ?

Previous car radio suppliers are now working on more wide development fields in order to get future real.



Clarion Smart cockpit concept

But radio, under several forms (analogue, digital, broadcasted, connected, hybrid) is still in the charts...

# What about the radio in future ?



If today you can read a book by listening radio ....



Tomorrow you will be able to discuss about last event with other passengers still listening radio ....

# Thank you for your attention