



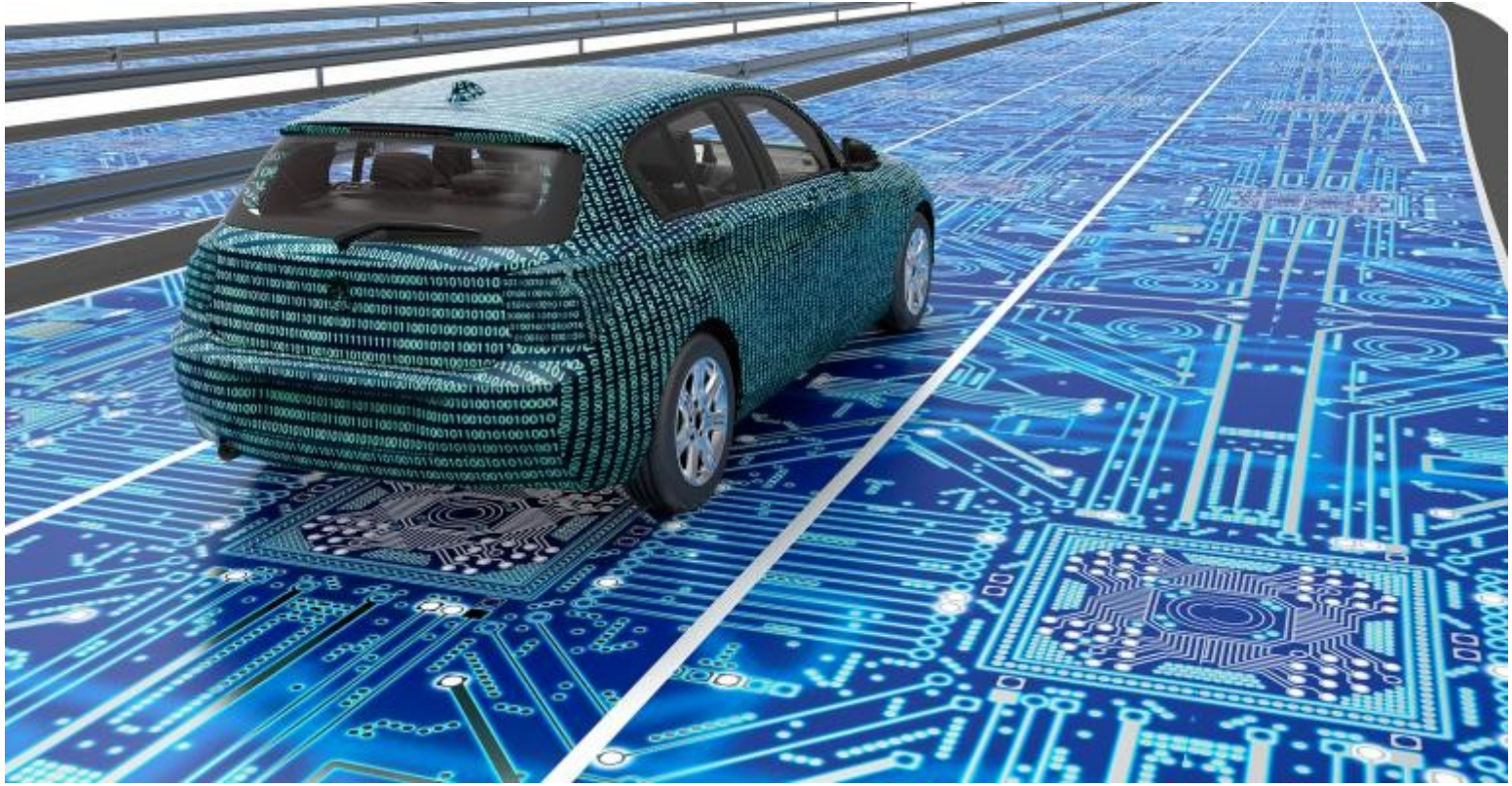
Cars are becoming Software on Wheels

Dominig ar Foll
Intel Open Source

Intel and Open Source



Cars are becoming Software on Wheels



Car purchase motivation

Legacy

- Traveling tool at a reasonable cost
- Carry people and goods
- Independence
- Body shape and colour
- Brand

Confort

- Silence, seats, aircon, ...
- Hi-Fi audio, video on-back seats

Driving help

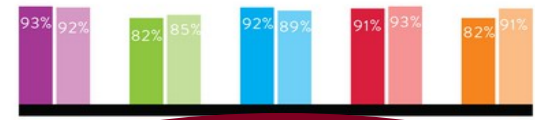
- Auto wipers
- Park assist
- Self driving
- ...

PERCENT WHO INTEND TO BUY A NEW OR USED CAR IN THE NEXT TWO YEARS

ASIA-PACIFIC EUROPE LATIN AMERICA MIDDLE EAST/ AFRICA NORTH AMERICA

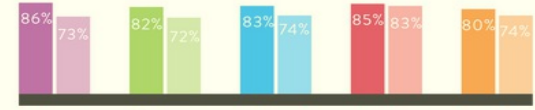
FINANCE MOTIVATORS

I INTEND TO UPGRADE WHEN I AM FINANCIALLY ABLE (EXISTING OWNERS)
I WOULD HAVE A CAR IF I COULD AFFORD ONE (FIRST-TIME BUYERS)



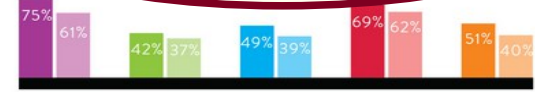
EMOTION MOTIVATORS

I LOVE DRIVING



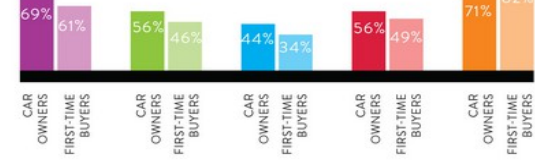
STATUS MOTIVATORS

A CAR IS A SYMBOL OF MY SUCCESS



UTILITY MOTIVATORS

ACCESS TO A CAR IS WHAT MATTERS MOST



Source: Nielsen Global Survey of Automotive Demand, Q3 2013

Software is becoming critical

Connected car

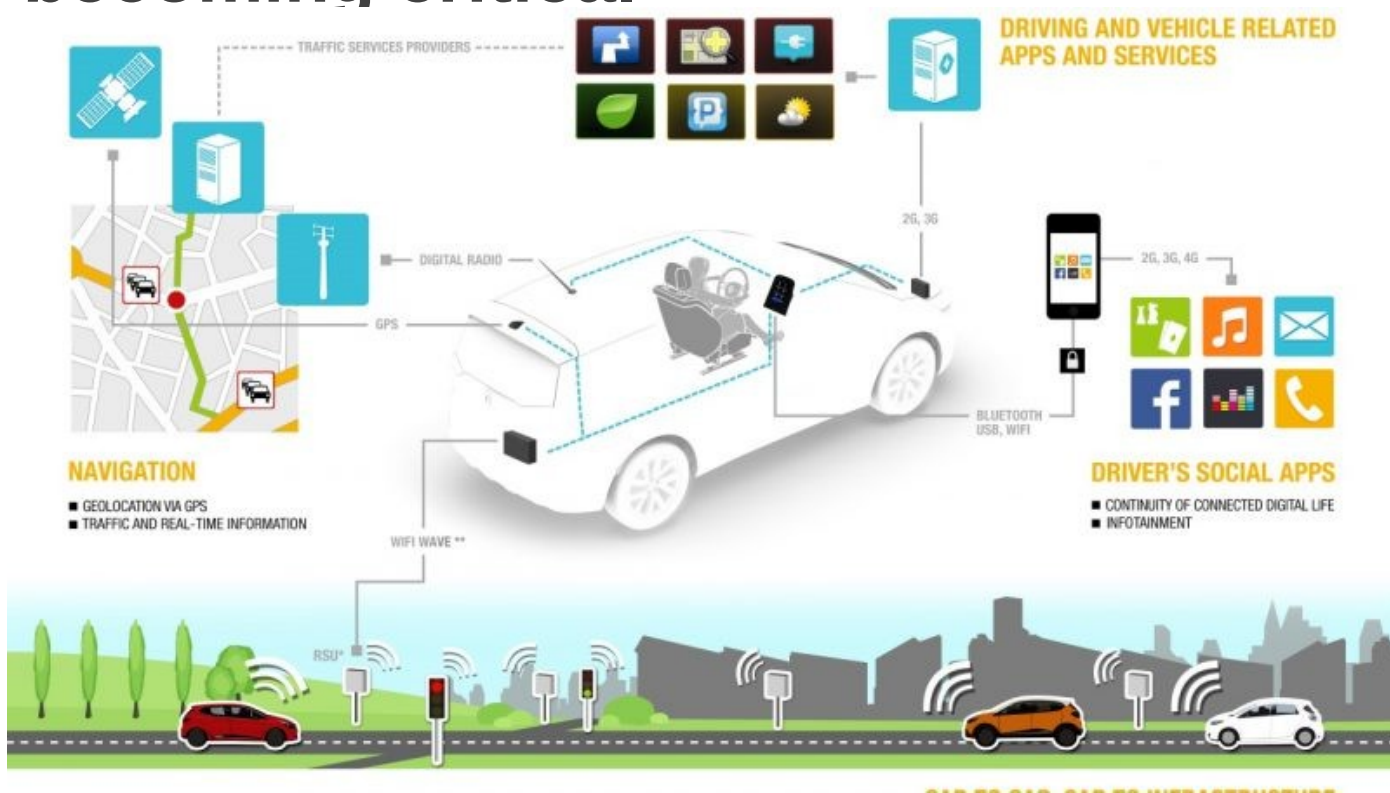
- Complex A/V
- Remote maintenance
- Real time navigation

Connected user

- Streaming music
- Social network
- Payment

Driving help

- Self park
- Self driving
- ...



One of the high value component

Raising cost

- 2015 ~ 35%
- 2020 ~ 50%

SW vs HW

- HW is a one off
- SW is an open complexity
- SW maintenance ~70-80% of cost

Connectivity side effect

- Cyber security
- Mandatory SW maintenance
- ...



What about other businesses

Telecom

- 2000 the big move
- Today virtualisation
 - standard HW
 - standard SW modules

Consumer electronics

- Stop micro saving
- Favour reuse to extreme optimisation
- SW ~80% of R&D product cost.

SW value

- SW needs to become part of Cost of Good.
- Maintenance cannot be ignored

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Contents

March, 2003

Editorial	5
Open Source Software in Telcos, a gentle Tsunami Dominique Le Foll , Fulup Ar Foll	7
The Creation and Implementation of BT's Test Automation Centre Marta Zarraga	12
Reduced Transmission Time Interval: Enhancement For Edge Networks Spiros Louvros	17
Technology and Commerce colliding in the IP enabled Call Centre Ed Smith	23
Convergence – Service Management Trust Implications Roger Cotter	30
Where does functional separation lead to? The case of a BT Group business Fernando Herrera González, Luis Castejón Martín	35
Multichannel Contact Strategy helps Outpatient Healthcare Access Olli Martikainen, Antti Alasalmi	43
FITCE 2008 Congress – Why You Should Be There	48
100 Years of The Journal	53

Key asset requires ownership

Value perception

- Car SW is becoming a key asset
- Associated to the car manufacturer
- Not dissimilar to the engine

Value and cost

- SW cost prediction is like black magic
- Easy to minimise at start
- Out of control at delivery

SW Industrialisation is required

- Less bespoke solution
- Loose coupling HW/SW
- Reuse – Reuse - Reuse

RENAULT INNOVATION BRINGS IN INTEL'S FRENCH R&D ACTIVITY SPECIALIZING IN EMBEDDED SOFTWARE

innovation



Groupe Renault



The acquisition project, set to go through by the end of the second quarter of 2017, is the latest move in Groupe Renault's strategy on development of connected and autonomous vehicles. Intel's French R&D teams, which number more than 400 IT experts, hold extensive international experience in the development of embedded software.

TECH

BMW, Daimler and Audi Clinch Purchase of Nokia Business

German car makers to acquire Nokia Here in deal worth \$3.1 billion

By *Friedrich Geiger*

Updated Aug. 3, 2015 11:12 a.m. ET

Germany's biggest auto makers have clinched a deal to buy Nokia Corp.'s digital mapping business, beating out rival bidders for some of the vital technology for self-driving cars in a €2.8 billion (\$3.1 billion) acquisition.

Q & A