Connected Car Miscellany
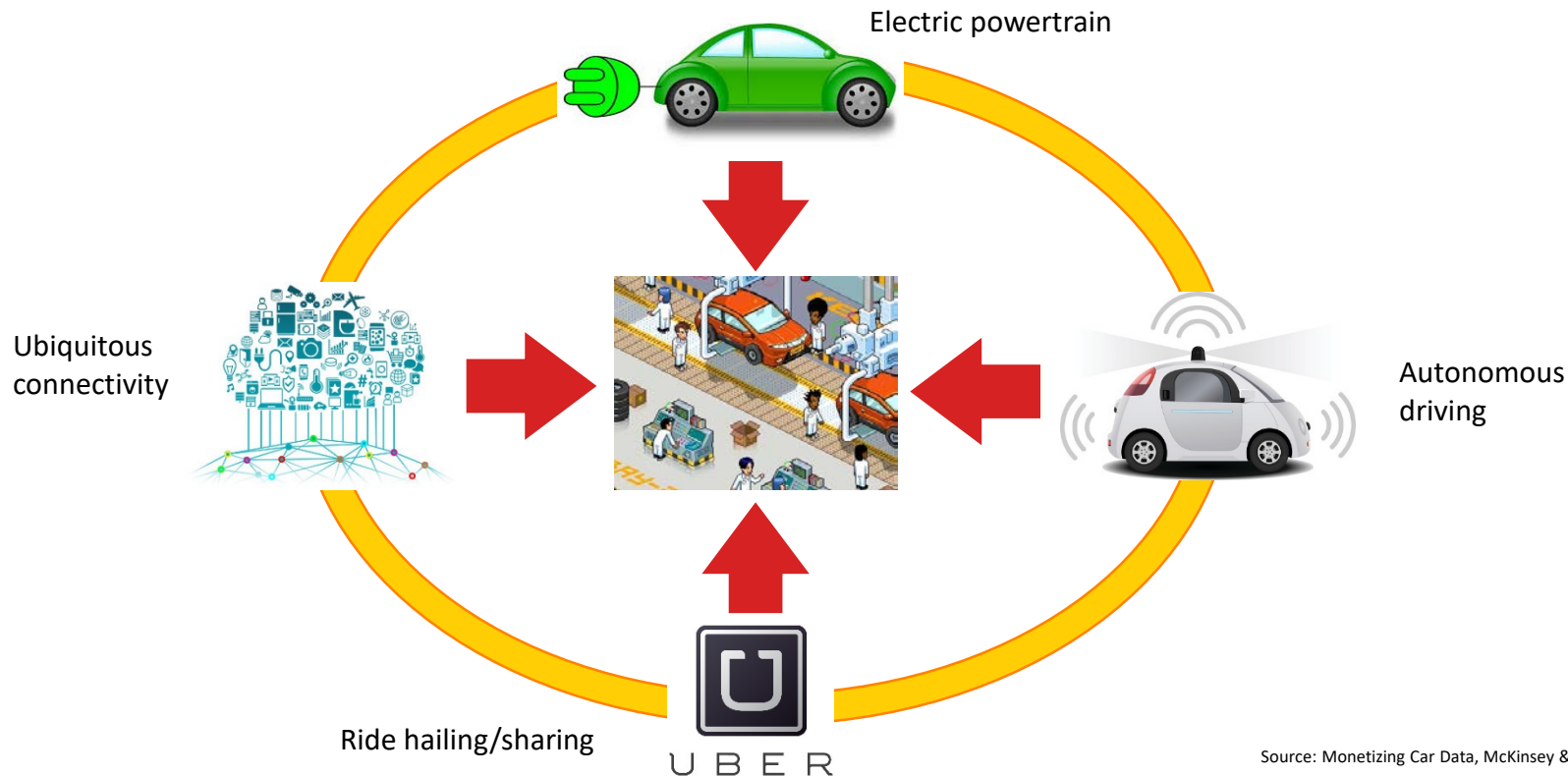
Ian Kendall – Feb 9, 2017

Forces pushing on the incumbent automakers

Disruptive Factors

Electric powertrain

Ubiquitous connectivity

Autonomous driving

Ride hailing/sharing

U B E R

Source: Monetizing Car Data, McKinsey & Co, Sept 2016

So, what is the "connected car" ??

Mobile wireless communications
+
Location / position
+
Sensors/actuators

Installed in a car

Linking other devices inc. other cars

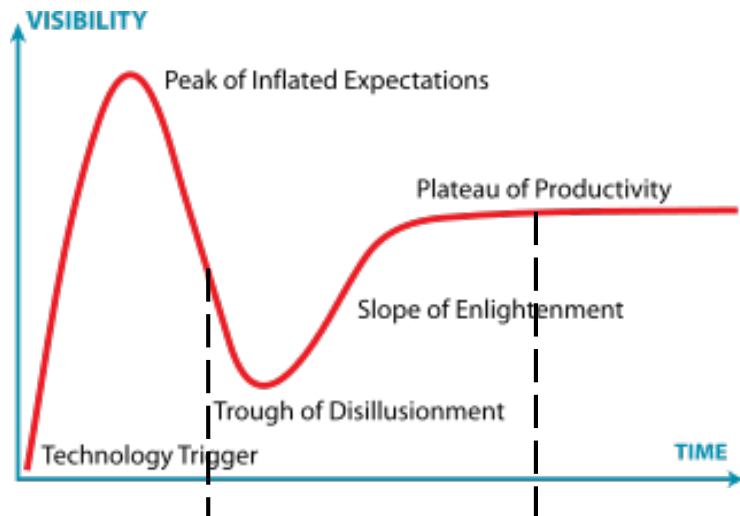Supported by a data/call center
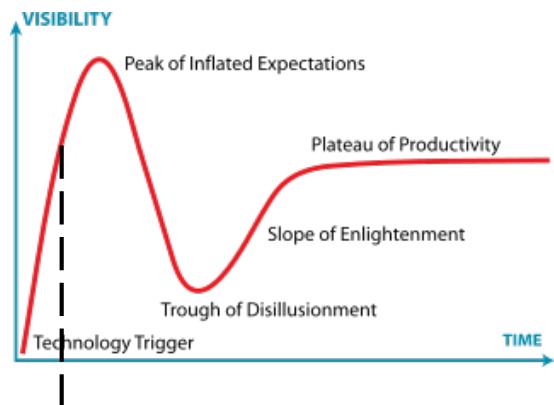
Telematics = Connected Car?

Telematics followed the Hype curve from mid 90s (GPS and GSM converged together)

VISIBILITY

Peak of Inflated Expectations

Plateau of Productivity

Slope of Enlightenment

Trough of Disillusionment

Technology Trigger

TIME

c. 2004 Realization that the revenues promised were unrealistic

By 2010s we had reached some sensible/stable commercialization … GM OnStar lives on, Stolen Vehicle Tracking etc

Has "Connected car" reset the hype curve?

VISIBILITY

Peak of Inflated Expectations

Plateau of Productivity

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Trough of Disillusionment

Technology Trigger

TIME

Today?

If so ,why?
What is different?

"We're a car maker" …

The situation today

- We make great, stylish cars
- They have great engines
- They are fun to drive
- They have great features
- We test them thoroughly
- We sell a lot of them
- We make good profits
- We improve our products every year

And …

- We've been doing it for 100 years
  - Striving to build better and sell more cars

"We're a car maker" …

The future

- The hardware is commoditized
- Engines replaced by simpler electric drives
- People don't drive themselves any more
- Everything I want is on my phone
- 3 years to market is too long
- Our customers are getting older
- Margins are increasingly squeezed
- Customers expect upgrades every month

Unfortunately …

- We've got 10 years left
  - Unless we change … adapt, react and innovate!

Traditional sources of revenue for Auto OEM

- New car sales
- Pre-owned cars
- Leasing
- Insurance
- Financial services
- Spare parts
- Accessories
- Branded goods

- Dealer networks:
  - Servicing
  - Maintenance
  - Repairs (warranty is a COST for the OEM!)

For example 2015 Annual Report

VOLKSWAGEN
AKTIENGESELLSCHAFT

€ million	2015	
Vehicles	139,990	... 66%
Genuine parts	14,625	... 7%
Used vehicles and third-party products	11,106	... 5%
Engines, powertrains and parts deliveries	8,763	... 4%
Power Engineering	3,769	... 2%
Motorcycles	564	... 0%
Leasing business	20,085	... 9%
Interest and similar income	6,755	... 3%
Other sales revenue	7,635	... 4%
	213,292	

Financial Services

Dealer and customer financing
Leasing
Direct bank
Insurance
Fleet management
Mobility offerings

UBER

2015, 1st half only ... gross revenue $3.63 billion

↳ Valuation estimate: $60-70 billion vs VOLKSWAGEN market cap $73 billion!

Possible sources of revenue

- New car sales
- Pre-owned cars
- Leasing
- Insurance
- Financial services
- Spare parts
- Accessories
- Branded goods
- Servicing
- Maintenance
- Repairs (warranty is a COST!)

- Fuel
- Advertising
- Rental
- Ride sharing
- Car sharing
- Trip planning / optimization
- Selling software functions
- Upgrades
- Profit share of referrals (retail, food)
- Media content
- Licensing
- Health/wellbeing

- Parking
- Last mile transportation
- Experiences
- Transportation tailored to need (vehicle type)
- Car washing / detailing
- Towing and rescue
- Driving skills
- **Selling data**
- Package pickup/delivery
- Personalization/customization

+ Many more …

# The space in which we play: "Smart Infrastructure"
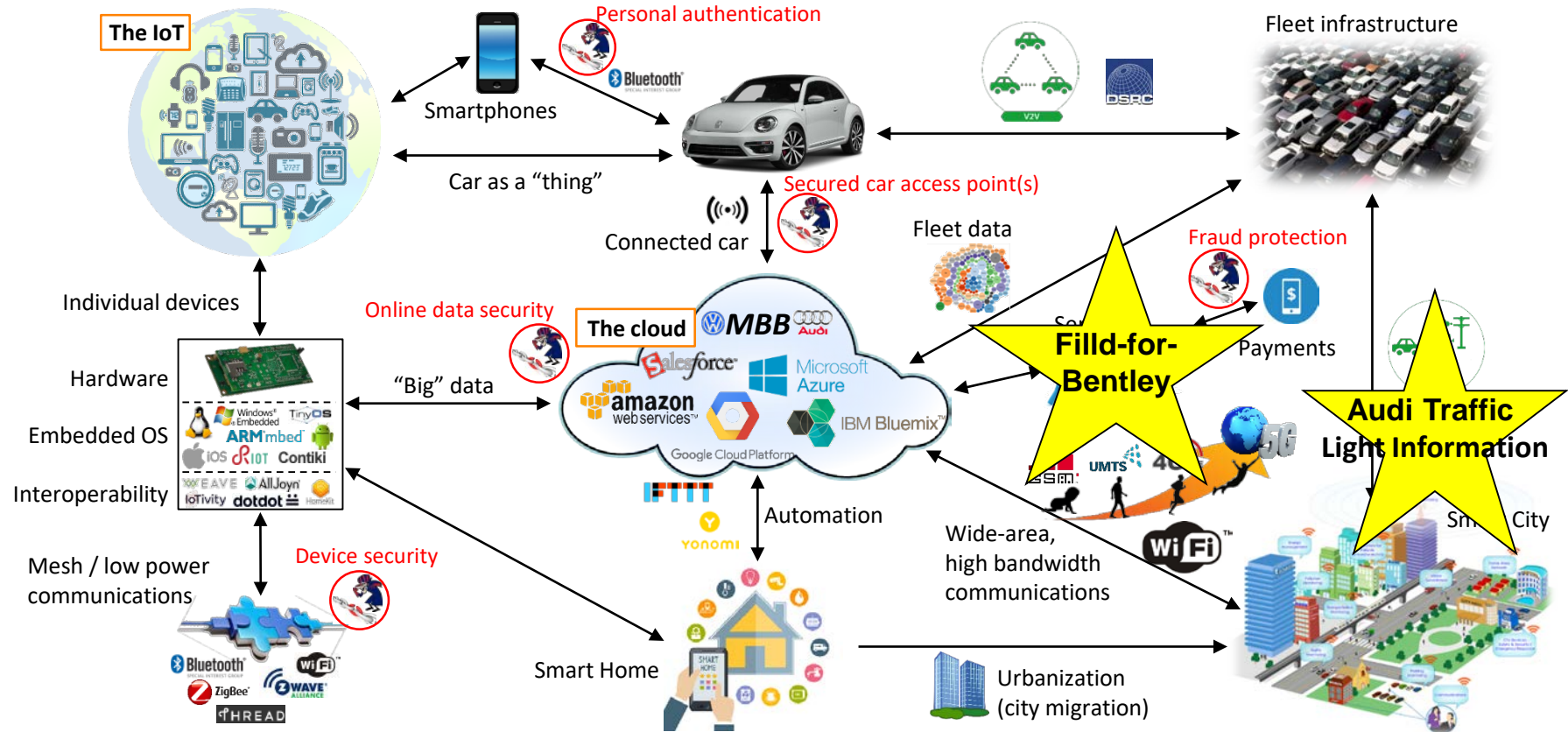
Making the business case is difficult

- It costs a lot to set up and run the infrastructure for connected car.

- Each service, feature or data package in itself will not generate much revenue

- But take a lot together, and we could infer a positive result is possible.

- However, we cannot implement all at once, but we have to start somewhere
  - Starting with one is hard to justify
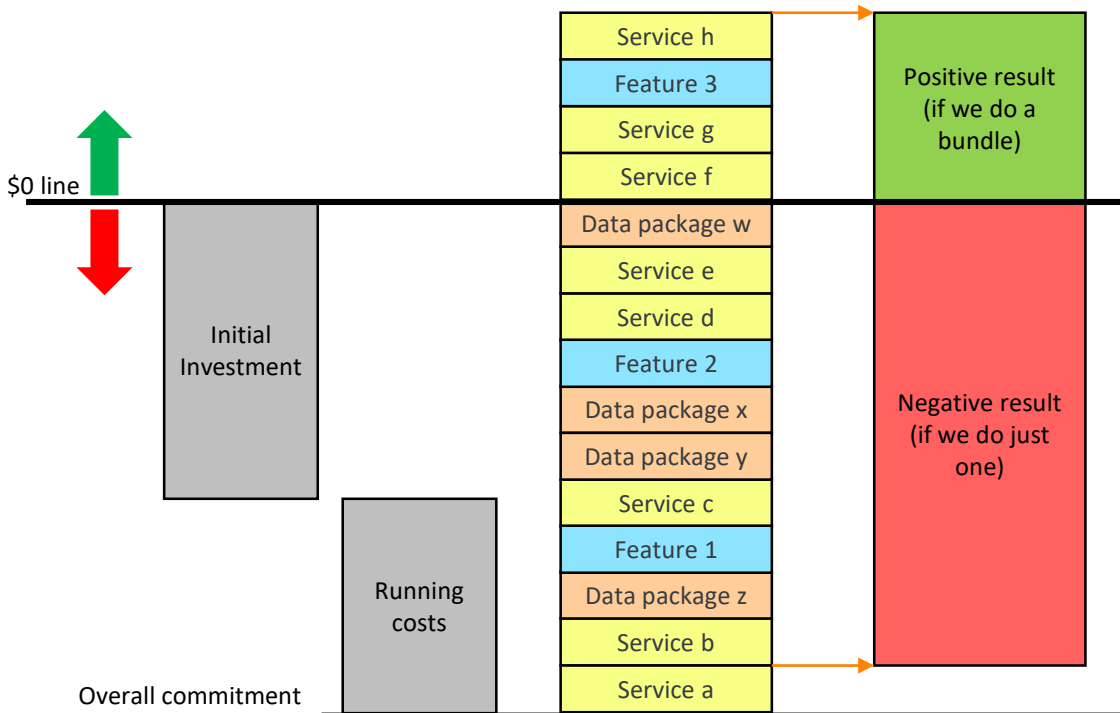
Organizational challenges
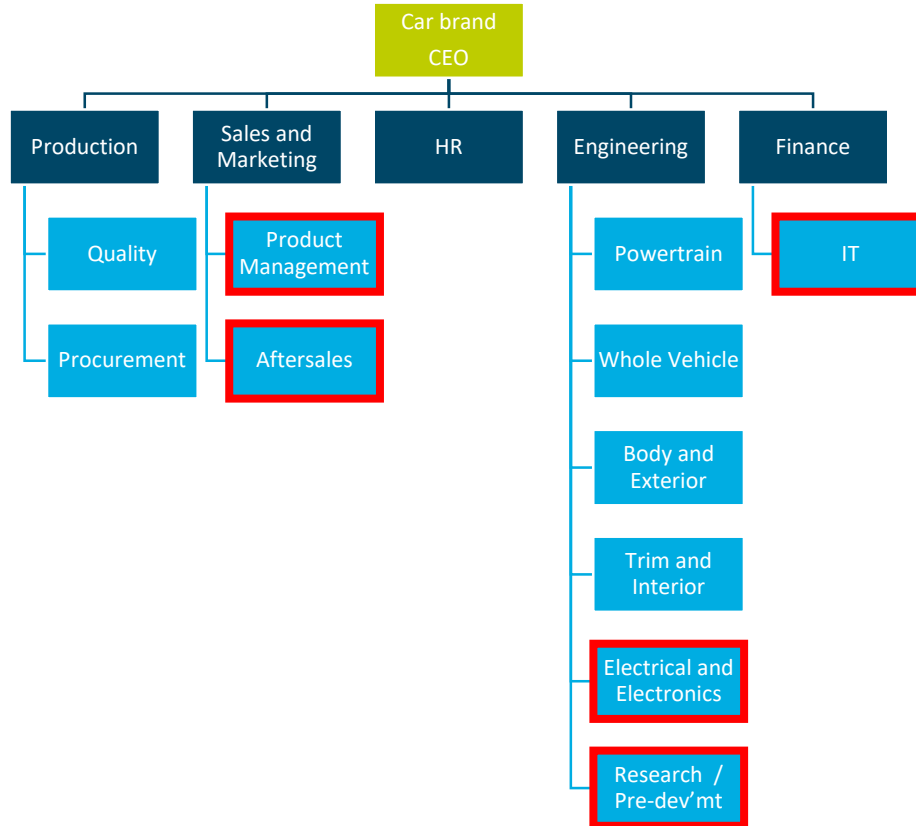
- Connected car has to at least combine the talents of :
  - Electrical/Electronics Engineering
  - IT
  - Aftersales
  - Product Management
  - Research / Pre-development

- Silos!

Like a jigsaw

Normally, when you do a jigsaw you have the box to help guide you to the picture you are building ... its satisfying, but easy!

This problem is like a who bunch of pieces where you can't see the full picture.

But if we find two pieces that fit together, that's a start

 ... but which two pieces?

> **The hardest thing is figuring out what the problems are with sufficient clarity to be able to see a solution.**

Pointers …

- Use helpful tool/methods:
  - Design led thinking
    - Open up the problem space: "**How might we ….?**"
    - If really stuck: "**What can we do in the next two weeks which might give us more information?**"
  - Behavior based design
    - Write User Stories: "**As a** …, **I can** …, **so that** …."
- Start small
- Try things out
- Have the right mindset
  - Focus on what we **CAN** do, rather than why we **CAN'T**!
- Be prepared to work around what's there
  - Find a way to sidestep existing systems or processes which are blocking progress
- Find willing partners, and work with them as equals

Recent successes @ ERL

- Audi TLI: first commercial V2I service
  - Time to Red (now)
    - Initially Las Vegas, but many other cities to come
  - Traffic flow data acquisition at intersections
  - Speed recommendation for green (to come)
  - Red light violation warning/prevention (wip)
  - Dynamic traffic flow optimization (wip)
    - → Piloted driving

- Filld-for-Bentley: first "luxury" connected service
  - "Imagine never having to fill your Bentley again"
  - Car position, fuel level and remote open of gas flap
  - 10 car live customer trial during Q3 2016

Thank you!

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