



STRATEGY ANALYTICS



AUTOMOTIVE ETHERNET MARKET GROWTH OUTLOOK

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AGENDA

- What is the Outlook?
- What is Shaping my Thinking?
 - Driving Forces for Ethernet
 - Headwinds Against Ethernet
- So What is the Forecast?
 - What has Changed & Why?
- Conclusions & Recommendations for Growth
- Q&A



WHAT IS THE OUTLOOK?



WHAT IS THE OUTLOOK?

- Automotive Ethernet will grow significantly from its current low base
 - It will be used across different applications
 - The availability of standards-based solutions for both 100Mbps and 1Gbps speeds will help drive adoption (BUT with a caveat)
 - There remains uncertainty over the pace of adoption....
-
- The direction of travel is clear. The speed of travel is less clear



WHAT IS SHAPING MY THINKING?

TWO KEY-WORDS THAT
ARE SHAPING AUTOMOTIVE ETHERNET

STRATEGYANALYTICS

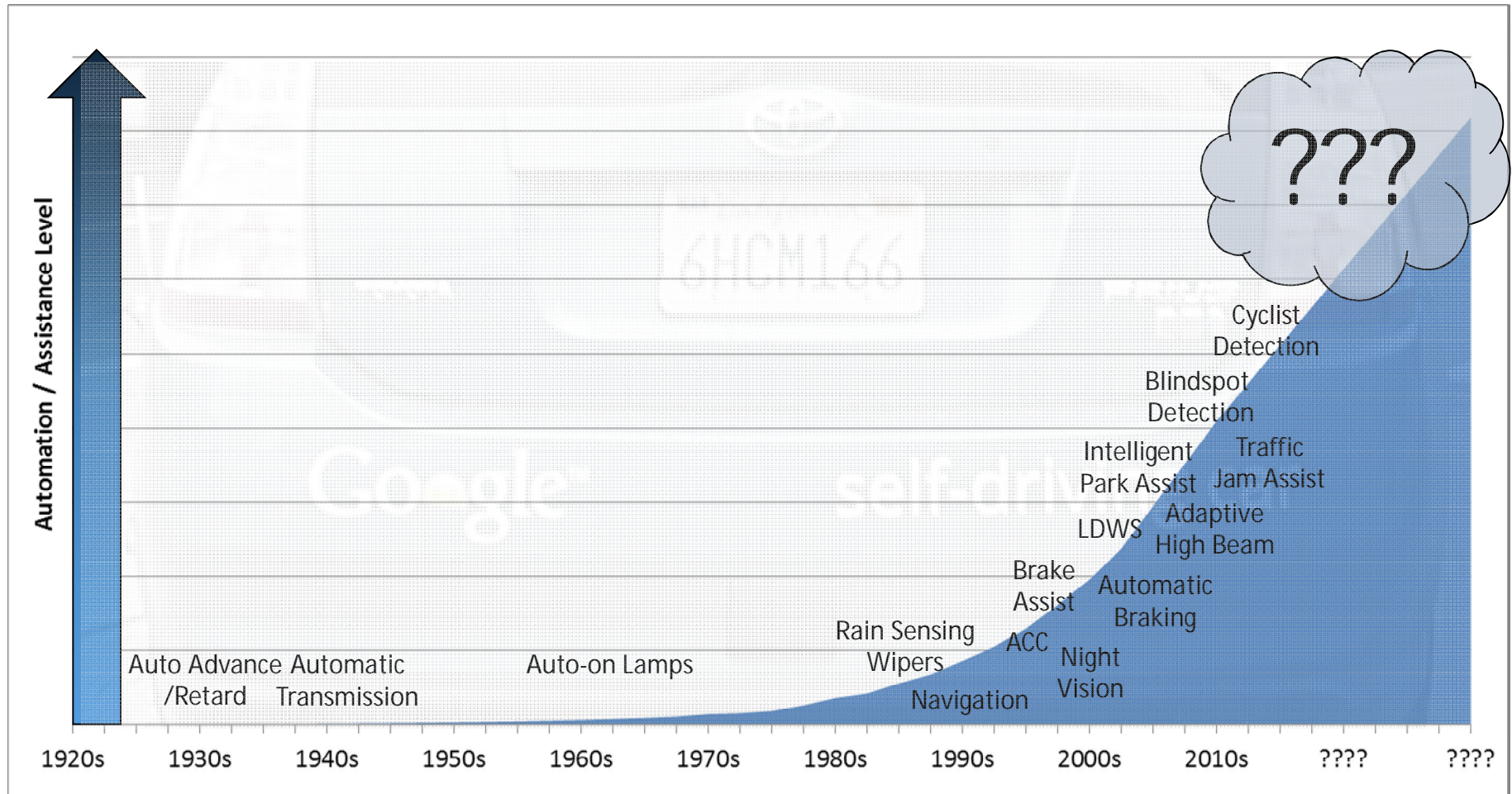


Autonomous

Recalls

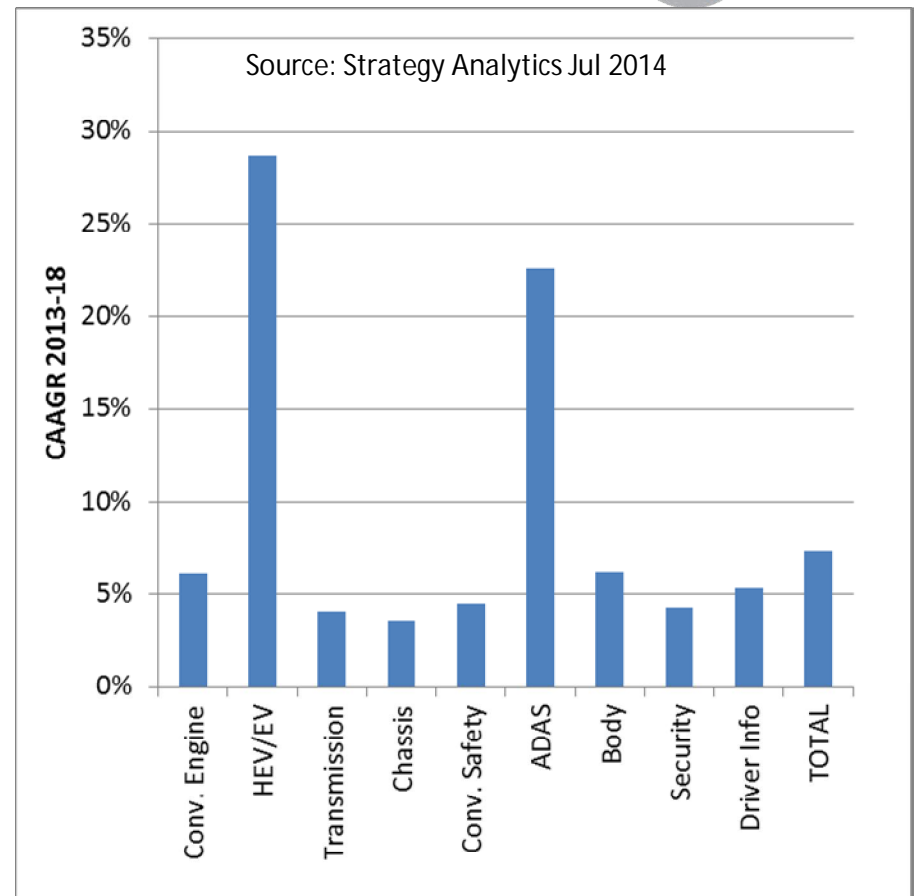
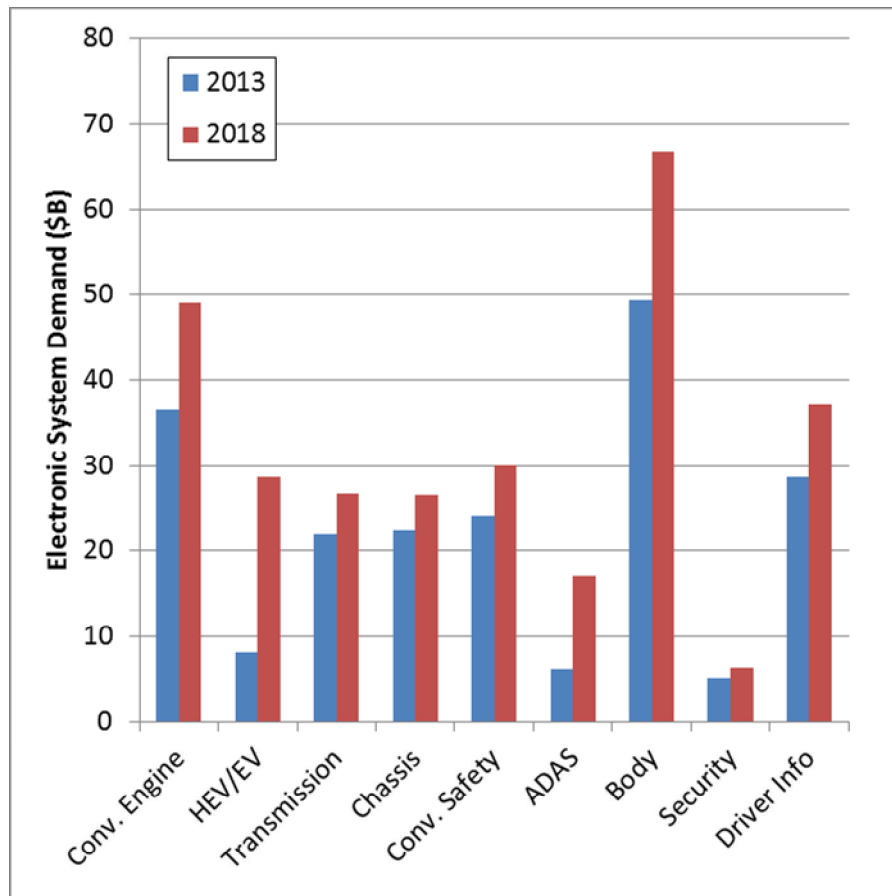


MOVE TO AUTONOMY IS HAPPENING



- Common need of all emerging autonomous vehicle systems is the need for a **reliable, high-speed communications network**

GLOBAL GROWTH AREAS: ADAS AND HEV/EV



- Growth outside of ADAS and HEV/EV is comparatively weak. These two systems areas are the major growth drivers. More risk to HEV/EV forecast than for ADAS. Most ADAS risk is on the upside, in the event of more legislation



RECALLS ARE HURTING!

Automotive News

Home Cars & Concepts OEM/Suppliers Dealers Access F&I Opinion Multimedia Data Center

Home > Search Results for recall or recalls

Showing results 1 - 25 of **1163** for: **recall or recalls**

SORT BY: **Date** | Relevance

FILTER BY: Type Author Category Past year

[Toyota recalls 1.67 million Toyota, Lexus cars for 3 separate defects](#)

Article Wed, 15 Oct 2014
 Author: **Wire reports** | Publication: **Automotive News**
 ... With the lessons learned from past recalls in North America, Toyota keeps showing the attitude to proactively recall and have everything under control fatalities or crashes." Model recalls Toyota is calling back about 802 ...

['No Crown Princes' at FCA \(10/14/14\)](#)
 Video Tue, 14 Oct 2014
 ... the 2014 model year. A possible short circuit and apart could disable airbags and seatbelt pretension Ford issued a similar recall last month involving more than 850000.

[Chrysler recalls 184,000 SUVs for potential airbag, seat belt defect](#)

Article Tue, 14 Oct 2014
 Publication: **Automotive News**
 ... pretensioners, similar to a September recall involving more than 850,000 Ford vehicles or accidents related to the issue. The recall covers 126,772 vehicles in the U.S airbags and seat belt pretensioners. The recall covered the 2013-14 Ford C-Max, Fusion ...

[Acura Mulls Going All AWD \(10/13/14\)](#)
 Video Mon, 13 Oct 2014
 ... to work across the organization. To make sure we don't operate in The program grew out of the company's ignition switch recall crisis. As of today a fund to compensate victims

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Home > Search Results for adas OR autonomous

Showing results 1 - 25 of **1237** for: **adas OR autonomous**

SORT BY: **Date** | Relevance

FILTER BY: Type Author Category Past year

[Nissan commercial fleet to get self-driving tech](#)

Article Mon, 13 Oct 2014
 Author: **Lindsay Chappell**, | Publication: **Automotive News**
 ... systems, and the company plans to offer autonomous driving features to help satisfy the commercial vehicle business unit. "Autonomous driving will be applied to the commercial the technologies and has vowed to have autonomous vehicles in showrooms by 2020. Despite ...

[Demand skyrockets for collision-avoidance sensors](#)

Article Mon, 13 Oct 2014
 Author: **David Sedgwick**, | Publication: **Automotive News**
 Fully autonomous cars may be a decade away, but the sensors they'll need for collision create self-driving vehicles. Some planners also believe that safe autonomous driving also will require vehicle-to-vehicle communication enabled ...

[For Tesla, best offense is strong D](#)

Article Sun, 12 Oct 2014
 Author: **Gabe Nelson**, | Publication: **Automotive News**
 ... starting at \$125,670 with no optional equipment. To keep pace with the German automakers, which are rushing headlong toward autonomous driving, Tesla also unveiled an "autopilot" feature that uses a camera, long-range radar and ultrasonic sensors to control ...

[Tesla's 'D' will be Model S with all-wheel drive, 2 motors](#)

Article Thu, 9 Oct 2014
 Author: **Gabe Nelson**, | Publication: **Automotive News**
 ... most sophisticated driver assistance or autonomous functions of any (production) car sorts of features as a

- Media stories on re-calls are out-pacing those on autonomous driving / ADAS by around **5:1** over the last year on a leading news site!



HEADWINDS FOR ETHERNET

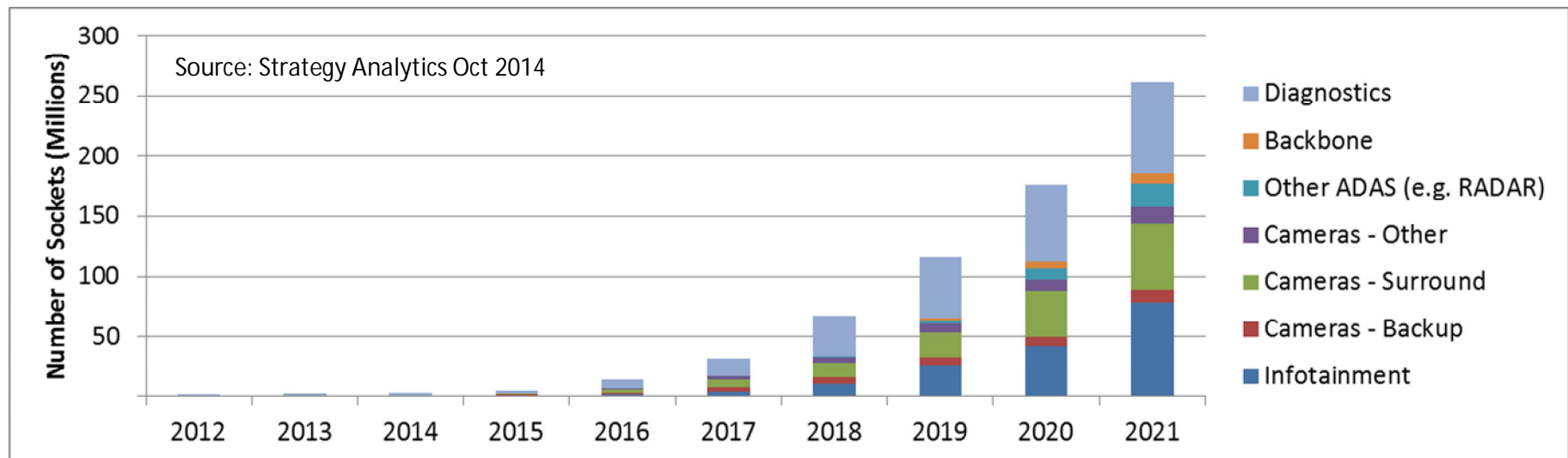
- Conservative industry – **Recalls hurt!**
 - Often prefers to ring the very last out of old technology before making the jump to new technology
 - Continues to “architect around” bandwidth issues
 - Sometimes happy to take certainty of a known solution, even if emerging solutions offer the potential of lower cost or greater functionality
- There have been **reasons/excuses to prevaricate** and not make a firm commitment
 - Concerns over IP licensing issues for existing solutions. Now largely resolved?
 - Some still not convinced over EMC/EMI issues at 100Mbps. Interest in multiple physical layers at Gbps speeds
 - Move to create IEEE-standardized version at 100Mbps is good – but has also given some a reason to delay decision making again
 - Some applications / customers are still waiting to see how the 1Gbps RTP IEEE standardization goes before making any firm commitments
 - **Auto industry is inherently strongly risk averse!**



SO WHAT IS THE FORECAST?



AUTOMOTIVE ETHERNET DEMAND

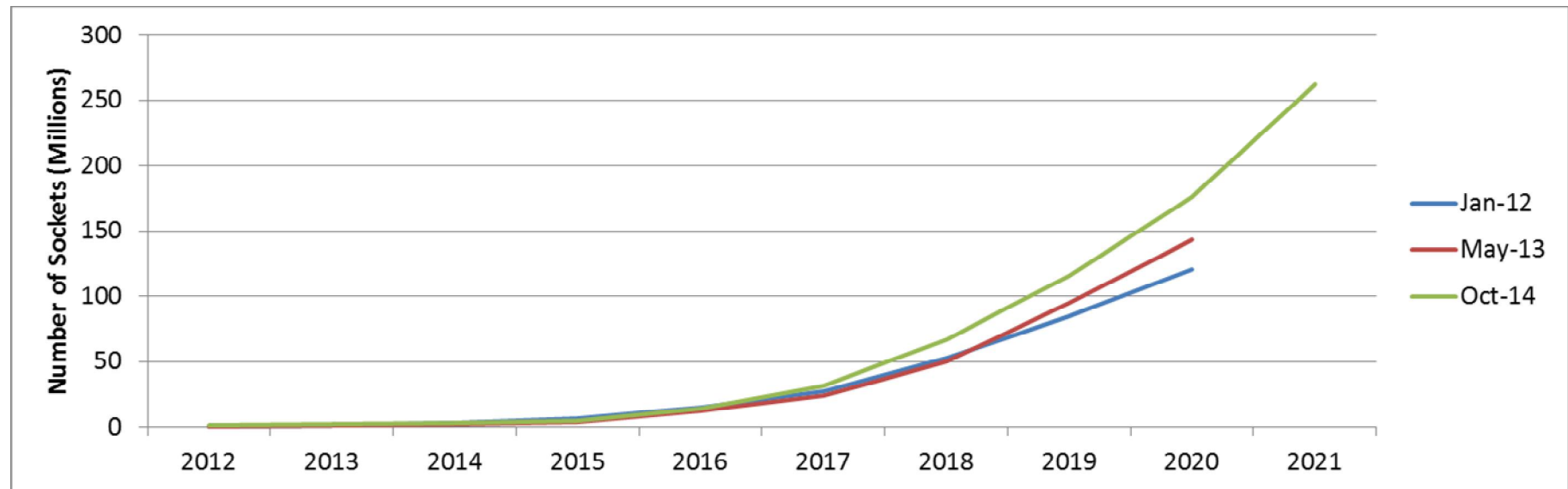


- Assumptions:

- ~60% of global production in 2020 to feature Ethernet Diagnostics Port
- ~10 % of Backup cameras to be Ethernet in 2020
- ~40% of surround view systems to be Ethernet in 2020
- ~25% of other cameras (e.g. front for LDWS etc.) to be Ethernet in 2020
- ~10% of RADARs for be Ethernet in 2020
- ~20% of premium audio & 5% of mid-range audio to be Ethernet in 2020
- BMW plus one other to start using Ethernet as backbone by 2020 – BMW in lead and other only just emerging



WHAT HAS CHANGED & WHY?



- **Short/medium-term** (out to 2016) has typically seen forecast reduced. Assumptions on others joining BMW were **too optimistic**
 - Concerns over IP/licensing and EMC/EMI (regardless of how “real” they were) kept others from rapid adoption
- **Longer term** (2018 onwards) has typically seen **forecast increased**
 - Ethernet only realistically-proposed mass-market solution for high-bandwidth data
 - ADAS/Autonomous becoming FAR more important than in was in 2012. Increasing interest in “Ethernet-enabled architecture” rather than just single-solutions
 - IEE standardization for both 100 Mbps and Gbps will bring benefits



CONCLUSIONS & RECOMMENDATIONS



CONCLUSIONS

- **Automotive Ethernet demand WILL grow**
 - The only realistically proposed solution for high-bandwidth connectivity in vehicles
- Exact timings of mass-market demand **still unclear** with many still “sitting on the fence” as to exactly what they will adopt and when
 - CAAGR of socket demand over 2015 to 2020 is around 100%
 - Means that delay/advance of market by one year could halve/double demand from expected values!
- **Prompt and consensual conclusion to IEEE standardization** efforts highly important to remove uncertainties and increase confidence
- **Wider range of semiconductor solutions is needed...and coming**
 - Integration of PHY into other semiconductor devices will be highly important in achieving mass-market adoption
 - Current silicon prices typically seen as hampering wider-scale adoption – but these are widely expected to fall as more vendors enter market



RECOMMENDATIONS FOR GROWTH

- **Increase openness** as much as possible
 - Automotive Ethernet is essentially a **non-competitive**, enabling technology amongst car makers, yet there are still huge amounts of **secrecy** abounding
 - OPEN Alliance has been a good thing – but could do with **more of the “Open”**, especially in the public domain (only ONE press release in 2014 ?!?)
 - Ultimately it is up to car makers to break the chicken/egg cycle of few suppliers/high prices and low-demand by **publicly committing**. BMW has made a lead. Others should dare to follow. There will be benefits
- **Avoid hype**
 - All proponents want to talk a market up – that is understandable
 - However – overly optimistic forecasts can often back-fire. If you need faster than 100% CAAGR over 2015-2020 to build a business case & support then something is wrong!
- Ensure the **right people, suitably empowered** are working with IEEE
 - These may not always be the strongest technology evangelists
 - IEEE-type processes require strong technical grasp, negotiation and compromise, not dogma & politics. Representing your company’s interests is fine. Doing that to the detriment of the common good is not. It will come back to hurt everyone



ANY QUESTIONS?

