

2014 Toyota Advanced Safety Seminar - Seigo Kuzumaki

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As prepared for

Toyota Advanced Safety Seminar

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Good morning everyone. Thank you all for joining us today.

Zero ...traffic fatalities ... on US roads.

Zero.

That's a goal that may sound impossible.

But it is a goal constantly in our sites.

And the pace with which we approach it as an industry is about to accelerate significantly.

With the rapid development of integrated technologies...

- we, as a global society, are entering a *new mobility era*.

Of all the things we do at Toyota, our number-one priority is safety;

- **preventing** crashes from happening in the first place...and
- **protecting** all involved should a crash occur.

We've made good progress since the 1960s.

But still, based on most recent information from NHTSA...

- the National Highway Traffic Safety Administration...
- more than 32,000 lives were lost on US roads and highways in 2013.

Vehicle crashes were again...

- the number-one cause of death among US teens.

And, one-in-ten highway deaths... were attributed to distracted driving.

Every year our industry continues to introduce

- new technologies
- that further help reduce traffic casualties.

Technology is important.

- But technology alone is not the answer
- to zero fatalities.

We see traffic safety as a holistic blend...

- of **vehicles**,
- **people**...

- and the **traffic environment**...
- as individual parts ...of an integrated whole.

Important on their own, but substantially more effective when integrated,

- each element is a critical component.

As the **vehicle** continues to increase its abilities

- to recognize, judge and operate to a situation,
- its **driver** must likewise be smarter,
- ever alert and always in control.

Finally, the **traffic environment** will have an ever-increasing role in this relationship, including;

- the design and condition of the roads,
- the appropriate signage and signals to drivers
- and its ability to assist with communications,
- to and from vehicles and infrastructure,
- and even pedestrians.

With vehicle, people and the traffic environment as the 3 key players ,

- identifying how the *mobility game* is played...
- and how the players interact...
- becomes most important.

Our strategy, especially in the area of advanced safety research and development...considers five mobility scenarios.

They include;

- the initial time the driver and vehicle begin their journey from a **parked position**...
- to the **active safety** systems designed to help avoid a crash...
- to **pre-collision** aimed to prepare for a crash...
- to **passive safety** to help survive a crash...
- to **response** and rescue after a crash has occurred.

We call it, our “Integrated Safety Management Concept.”

Today...and tomorrow,

- we will share with you where we have been,
- and where we will go in these key areas...
- and how they interact
- within what is often called *the internet of things*.

In the near term, how do Intelligent Transportation Systems...

- Vehicle-to-Vehicle and Vehicle-to-Infrastructure communication—
- integrate with automated driving technologies?

What about future mobile devices, smart houses

- and *wearables* that deliver information on the “quantitative self”?
- How will they safely migrate from being novelties or even distractions
- to features consumers learn to trust...and demand?

These are questions that are challenging our fundamental research...as you will see today.

For the last 100 years,

- the automobile has played the role of a functional tool,
- responding to our human needs and input.

That relationship has now... forever changed.

Not only can vehicles see things and react quicker than humans...

- they are becoming intelligent.

In fact, we now find ourselves at a point

- where perhaps the most important focus of all...
- may be on what is often called...
- the *driver-vehicle interface*.

In truth, it should be called... the driver-vehicle ***relationship***.

People relate to electronic devices—such as cellphones— socially.
They build personal bonds with them.

We are now capable

- of creating a true inter-relationship between the driver...
- and an intelligent vehicle.

And it will have a profound effect on highway safety.

Today, I want you to start thinking of the vehicle...

- and the driver...
- as *teammates*;
- sharing the common goal of travelling safely.

The best teammates learn from each other;

- They watch, listen and remember.
- They communicate.
- And they assist, when needed.

Over time, a foundation of trust is built.

And as trust is built,

- more tasks can be shared or re-assigned.

Anti-lock brake system and electronic stability control...

- are early examples of automated....active safety technologies
- that are now commonplace.

Customers have come to understand their function and importance

- and how they step-in
- and step-out of....our driving experience...
- to assist when needed.

They are perceptible in performance ...but physically invisible.

To achieve similar acceptance...

- automated and connected technologies must be integrated;
- their performance significantly improved;
- their size, weight and cost substantially reduced;
- and their presence, for the most part, imperceptible.

As you heard last night from Mr. Bill Fay of Toyota Motor Sales, we have a plan.

Very soon, we will accelerate the introduction

- of all-new multi-feature active safety systems,
- that include pre-collision,
- to the U.S. market,
- well in advance of a government mandate.

In fact our goal, is to be the world's first full-line manufacturer

- to offer such a package on all of its vehicles
- across our entire Toyota lineup,
- driving down costs to customers
- from luxury vehicles, to trucks and SUVs,
- to our most affordable compacts.

We plan to begin the rollout of these technologies in 2015,

- and hope to have them widely available
- across our product line by 2017.

Such high-level driving-assist technologies...

- make driving easier and simpler;
- enhance the driver's **perception in the traffic environment...**
- **his decision-making** process...
- and his overall **safety skills.**

We believe that a more skillful driver...

- is a safer driver.

And that this reliable, added-edge of safety...

- **can** make the driver more confident...
- and the driving process... more enjoyable.
- Even...more fun to drive.

But for all the benefits we see on the horizon,

- we believe that the pace of advancement in these areas
- could be confusing to some customers.

And so, we plan to address this concern

- **with one of our most successful ...products,**
- **which I believe you will find newsworthy.**

Nearly four years ago, Akio Toyota announced at the Detroit Auto Show

- the formation of a new business model to be launched here in the US;
- a concept and a facility unique to the industry
- in its approach to open and shared research
- in the area of automotive safety.

The Toyota Collaborative Safety Research Center, the CSRC,

- was funded with \$50 million dollars
- to conduct research over a five-year period in the areas of
- active safety
- distracted driving
- and at -risk populations,
- such as children, teens,
- seniors and pedestrians.

Currently it is engaged in 34 research projects with 17 universities and research centers.

- **As you already heard from Mr. Simon Nagata at yesterday's reception,**
- **Toyota will extend the CSRC charter for another five years...**
- **and that its focus will shift**
- **to address a simple question, with complex answers:**

Will these trends toward automation and connectivity

- enhance our safety or amp-up our anxiety?

Equally important,

- how can researchers, government agencies, and industry
- work together and across disciplines

- to guide our transition to the future of mobility
- along a path that is truly safer, cleaner and more convenient.

Later this morning, Chuck Gulash, director of the CSRC,

- will offer some answers to these questions from his unique perspective.

Chuck has also assembled a panel

- of diverse credentials...
- and direct experience in these areas
- to offer “other voices”
- beyond our Toyota point of view.

The CSRC is but one of many

- research and development engineering facilities
- we have established globally.

As new automated and connected technologies are developed,

- it is imperative that they are universally applicable
- in the Europe, Asia, Japan and the US. .

For example, traffic environments are distinctly different

- on the very high-speed autobahn in Germany,
- congested roads in Asian cities
- the tight boulevards around the Imperial Palace in Tokyo
- And the back-roads not far from here in Michigan.

Equally important will be the need to work closely

- with city, regional and national governments
- to achieve a collaborative approach to roadway infrastructure
- at the earliest possible timing.

In Japan, Toyota is taking part in the cross-ministerial Strategic Innovation Promotion Program

- started by the government in June 2014.

The program aims to bring technology to

- market from ten research
- and development fields with a total budget of \$500M,
- for work being conducted all over the country.

One of the fields is automated driving technology

- and Hiroyuki Watanabe, Advisor of Toyota Motor Corporation,
- is the program director.

This is being researched in three approaches:

- development and verification of automated driving systems;
- basic technologies to reduce traffic fatalities and congestion
- and International cooperation.

Here in Michigan, our growing R&D facilities

- are a vital part of Toyota's vision for a next generation mobility society.

In fact, Toyota will be a major supporter

- of the University Michigan's Mobility Transformation Project,
- which will help us further accelerate the pace
- with which we bring automated and connected technologies...
- from farm to table,

It is good fortune that last year's Intelligent Transport System...

- ITS World Congress was held in Tokyo and this year in Detroit.

I honestly had nothing to do with that decision,

- but I am happy it occurred.

However, the fact that this safety seminar is being staged

- just prior to the Sunday opening of the ITS World Congress is not a coincidence.

Later this afternoon,

- you will have the opportunity to explore on your own,
- many of the projects we have on-going in North America.

Tomorrow, we will *move our nomadic devices* to downtown Detroit,

- where you will have the opportunity to experience the semi-automated vehicle
- we will showcase at next week's ITS- World Congress

I would like to, at this time

- turn the microphone over to Ms. Kristen Taber
- from Toyota Engineering and Manufacturing North America,
- who will offer insight into our plans for that event next week...
- and why we are so supportive of this organization's efforts.

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