

Technology that connects people, their vehicles, and society.



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Dialogue

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What is the technological ability Tokai Rika has cultivated during its 70 years of history? What kind of challenges did Tokai Rika take on when the automobile industry faced a period of change that is said to occur “once in a century?”

We have invited Associate Professor Miwa Takahara of Aichi Shukutoku University who is a researcher of Human Sciences and asked her to speak with our Managing Officer Toshiki Akita, General Manager of the Research & Development Center.

Tokai Rika’s strength is that it has “User-friendly technology.”

Takahara Looking at 70 years of your products history, I can see that you have been working on manufacturing a variety of products, such as switches, seat belts, shift levers, mirrors, steering wheels, and more.

Akita We have been working mainly on “products that connect people and vehicles,” and the products that people see, touch, and operate. For this purpose, we have been pursuing “Ergonomics” as one of our core technologies. For example, we quantified “the feeling of pressing” a switch and used that to make a better press sensation that fit the concept of our vehicles. We

also developed products adopting “universal design” so men and women of all ages can use them without stress. Technologies that care about people is our strength as well as our history. I was told that your field of research is “human science.” May I ask what kind of research themes you have been working on?

Takahara I started my research in measuring the cognitive function of elderly people. After that, I have been working on analyzing elderly drivers’ driving behavior and investigating support for their driving based on the problems found.

Akita That is a recent theme that has been drawing a lot of social attention, isn’t it? Is the field of human science a little different from Ergonomics?

Takahara I think human engineering is a field concerning manufacturing whereas human science includes a wider range of ideas to provide bases for human technology. Human science evaluates and analyzes human behaviors from psychological and physiological aspects.

Akita We have been using human engineering as “a tool to evaluate products,” but from now on, I think it is necessary to consider and use engineering as “a tool to create new products.” If that is achieved, the human science perspective you just mentioned seems like it will become an important factor.

Takahara Is the perspective to “think of people at first as a base and then connect it to manufacturing,” rather than “thinking of manufacturing as a base?”

Akita Exactly. I think it is now important to show our company’s founding spirit, “Do what other people don’t do,” especially in this period of change we are facing now.

We must show our company’s founding spirit, especially now in a period of great change that occurs once a century.

Akita Our company’s history started in 1948, when founder, Yoshio Kato happened to pick up a switch abandoned in a corner of a parts warehouse belong-

ing to Toyota Motor Company (currently Toyota Motor Corporation) when he visited there. He was told that “manufacturing switches took a lot of trouble and nobody wanted to do it.” “Even if nobody wants to do it, somebody has to. This is just the field that we should expand into,” he thought and that led him to the foundation of the company.

Takahara However, even a company that focuses on “doing what nobody wants to do,” cannot survive if the importance of the product is not acknowledged by society. It is not a matter of simply getting into a niche market. I admire the fact that the production has been developed into a robust business.

Akita Although it started from the idea to “Do what other people don’t do,” there were times that we had to improve and develop our products in accordance with the evolution of vehicles. The major evolution of them is represented by the progress of computerization and now we are facing the age of software. Meanwhile, our products have improved, for example, from the mechanical key, the remote key, to the smart entry & start system. Both vehicles and our products have developed in the field of “normal evolution” up to now.

Takahara Does normal evolution mean improving products to a greater degree while inheriting a basic way of thinking?

Akita That is right. However, the automobile industry is now facing a period of change that occurs “once in a century” which cannot be explained in the terms of normal evolution. In order for our company to expand



further while continuously growing amidst such change, we need to challenge ourselves by taking on new product development and recall our company's founding spirit, "Do what other people don't do." Our Research & Development Division is changing their mind and working on that.

Takahara It seems that one of the major points is how to deal with automatic driving, isn't it?

Akita You are right. We have dealt with a variety of products we operate while driving. The most important point for these products was how to make people not look aside or interrupt driving awareness. We think these functions are also important in the future, but entirely new technologies will be used for these functions if driving become easier with automated driving technologies.

So we would like to propose new ideas apart from normal evolution. When that time comes, it will be important to discover people's potential needs from a human science perspective. We are promoting the strength of that plan as we head into the next age.

Even when technologies are developed, our determination never changes.

Takahara The accident rate of elderly drivers is increasing. The spread of automated driving is largely seen as a solution.

Akita But, it will be significantly expensive if automated driving vehicles are running in the city. I think, at first, small mobility vehicles for the elderly will become popular to travel short distances safely.



Takahara If vehicles get smaller, it becomes increasingly important that passenger protection capabilities are secure. Elderly persons tend to get injured even if the impact is weak.

Akita That is right. One of our important themes is to develop products that support "safety." For example, the development of a highly functional seatbelt is now in progress and we have already commercialized a seatbelt with a remote retractor (seatbelt winding device) which controls tightening force electronically. When this product is evolved further, it will automatically optimize tightening force by judging a passenger's body size and age with a camera and sensors inside the vehicle. I think such a time is upon us.

Takahara Everyone takes it as a matter of course to fasten their seatbelt, but sometimes it is difficult to fasten it depending on one's body size, age, or the driver's body condition. For example, some people use a supporting device when pregnant. So it is considerate to have a seatbelt control tightening force in accordance with the conditions of the person.

Akita Even if an automated vehicle can avoid collision, there is a possibility for sudden stops or a sudden operation to occur when someone jumps out into the road. In that situation, passengers will be injured if they do not use a seatbelt. So I think the need for a highly functional seatbelt will increase more in the age of automated driving.

Takahara There is a problem that elderly drivers cannot keep up with evolving vehicles. What do you think

about that? In my survey, there are elderly people who still do not use a navigation system. It is true that many elderly people feel uncomfortable using a new function, even if it is convenient. How can we overcome such difficulties?

Akita We are developing products which can be customized for every user. Specifically, for users who feel uncomfortable operating new functions, the product will only display functions that are often used in a simple and clear way. For users who want to use more functions, the display will quickly switch to one where many functions are easily accessible. We will never change our thought "to be gentle with people and to be easily used." We continue to place great importance on it even when technologies are developed.

From "A company that connects people and vehicles" to "A company that connects people to a mobility society."

Takahara Market characteristics are different by country so product planning directions may change depending on whether the target of the product is overseas or in Japan.

Akita Our policy when making a plan is "incorporate diversity." This year, we have required each overseas technological base to send out their own plans, as well. Even within Japan, there are completely different issues in regions where cars are indispensable for daily life compared to those in central Tokyo, where people are now turning away from driving. To address these differences, we have also established a section to provide ideas for Tokyo. We are telling them to "send out plans specific to the region that are based on real experiences." We are expecting to receive ideas with a variety of perspectives.

Takahara I think it is very important to focus on the problems that each region has. There are arguments such as "People have to return their driver's license when they reach a certain age," but if elderly people living in depopulated areas return their driver's license where cars are indispensable for everyday life, the problem of alternative transportation will arise. Furthermore,

there are personal differences when it comes to driving ability. As a researcher, I've been in settings where I've seen many elderly people drive and I feel that it is unreasonable to put them all together and think of them as "elderly drivers." We have to focus on such a reality and need to discuss how regions' traffic environments should be.

Akita Now we are building safe driving support systems in cooperation with a vehicle operation management company. We are taking on work such as analyzing driving by sending information on what kind of driving operations were made under what setting or providing data to family members "worrying about their grandpa's driving."

Takahara If these kinds of data are used in cooperation with the community, it will lead to the construction of safer traffic environments and can also give feedback for ideas on our product plans.

Akita We have to exceed the mindset "how vehicles must be" and think how mobility society should be and solve problems with technologies. From now on, it will become increasingly important to take on such work. Tokai Rika will evolve from "A Company that connects people and vehicles" to "A Company that connects people to a mobility society." We have many things to learn from you concerning human science research. We ask for your continued guidance and support. Thank you very much.

