To create new customer value, we should think out how to raise expectations of customers with customer satisfaction level as an indicator for that. It is thus is important that railway services always attract customer's interest. With customers having more diversified preferences, we have to put weight on increasing options of services, and even more weight on design concepts that allow end users to flexibly set the details of services.

J. D. Power IV, author of “Satisfaction” that enjoys much popularity in Japan, has defined customer satisfaction (CS) as “customer findings (CF) minus customers’ expectation (CE)”. That is, (CS) = (CF) - (CE).

Based on this definition, we see that situations with completely different qualities occur even with similar CS values. For example, if CF and CE are both low at 2 and 1 or if both are high at 100 and 99, the resulting CS is 1 in both cases; but the meaning of those is significantly different. In theory, CS can seem to be high if expectations are low; but that can result in the problem of a service provider being complacent with such nominal CS.

If customers have low expectations to start with, CS can be raised with just a little service improvement. But customers get tired of that service if it remains the same since CS is fulfilled through human senses and feelings.

Generally it is said that human senses are not linear, but logarithmically proportional. That situation is called Fechner’s Law. For example, even when a stimulus at 100 is increased to 200, it has not doubled to human senses. You can easily understand that by recalling your own experiences with volume of light or sound.

If this is applied to customer satisfaction, even when a service provider doubles its effort, customers see that as being less than double. In order to have customers actually feel improvement double, probably four times the effort will be required. To achieve that, service providers have to study improvement of service quality and offer that at an even higher level. But, as to be exponential is to be divergent, service providers also have to adjust the balance (saddle point), by continuous communication with customers.

As long as such a process continues, customers will be satisfied with amiable services and will want to use them again. That can be thought of as “the spiral of customer satisfaction improvement”, which even can be said to produce a kind of culture. If a service provider neglects to continue to keep up the effort, customer expectation will drop to a point of resignation, finally only having minimum expectations.
3. “Supriders”: Users Create Customer Satisfaction

3.1 Improving Expectations
In the context of railways, if customers have only low expectations, with a view that “this is just what railway services are”, customer satisfaction too is probably low. There is no progress in such a situation, and customers will regard railways as merely a mode of transport.

For instance, customer expectations grew as JR East introduced new services such as prepaid cards instead of tickets, and then Suica and mobile Suica. Customer needs thus increased with a desire to use Suica for shopping in and around stations as well as for tickets, to charge Suica automatically, to eliminate the need to touch the card to a reader, and to use Suica anywhere in Japan. Meeting such increased needs thus achieves a higher level of customer satisfaction.

3.2 Three Conditions for Raising Customer Satisfaction
Applying this logic, we should consider that customers themselves create improved CS. Three conditions are required for that.

First, JR has to keep customers interested in the company. According to opinion-making logic suggested by socio-psychology, perception is required first of all so customers will know about JR well. That perception then causes interest. Consequently, customers evaluate current railway services and newly introduced services. Customers thus come to an opinion as to whether they will accept or reject those services upon their assessment.

It is important to strategically review of that process of perception, interest, assessment and opinion making and to provide information appropriate to each stage. To stimulate interest, it is essential to make efforts to raise perceptions by making easy-to-understand explanations even for content that tends to be highly specialized.

Secondly, JR has to meet customer expectations. If those cannot be met, JR must make clear the reason for that. Through such service improvement, a relationship of trust will be built between customers and JR.

Thirdly, JR has to constantly maintain a forward-looking stance, research services that customers will need, and proactively proceed with development centering on technical fields. There should be no end of subjects to study. Those include how retired people use railways instead of for commuting, what functions are required for stations when the M-shape curve that indicates female employment rate by age changes to become more like a trapezoid with a flat top without the dip for childrearing, and whether the increasing number of foreign tourists should require signs for railway functions.

3.3 The Important Idea of “Supriders”
Futurist Alvin Toffler advocates in his book “The Third Wave” that the perspective of “prosumers” is important for future manufacturing. That means that producers and consumers should work together to produce new products with value. This is applicable to railways too.

The existence of the “suprider”—service supplier and rider user—will thus be important.

When the above-mentioned three conditions begin to circulate, higher customer satisfaction will thus be achieved.

4. Ubiquitous Marketing
In order to understand customer satisfaction, many periodical marketing surveys have been carried out such as those on movement and consumption in and around stations. When introducing the new E233 series trains to the Chuo line, JR identified the opinions of passengers living and working along the line and other users to make use of those in design.

In addition to such basic surveys, it is necessary to identify opinions of users in a more timely fashion at locations closer to them. For example, it will be useful to build a real-time response system where approx. 100 responders each for a number of attributes can make immediate replies mainly via the Internet to urgent questions and issues that need confirmation.

In case of operational disruption due to a substation failure, such a response system could help in quick identification of users’ reactions to the actions taken so the company can benefit from that lesson the next time such as problem occurs. Such rapid feedback can gained anywhere and anytime as a so-called ubiquitous survey.

Surveys via the Internet are common now, but have been pointed out as lacking reliability. In order to overcome this weakness, it is important to build a relationship of trust in a way where persons involved can recall who the others are even for an Internet survey. That can be done by means such as frequently holding offline meetings. The purpose is not to make a JR fan club, however, but to decrease the distance between users and JR and speed up response.

The idea of being ubiquitous is becoming widely accepted, and that idea is applicable to fields other than telecommunications. We should consider being ubiquitous as being able to meet desires and needs anywhere and anytime. For example, the level of coffee being ubiquitous can be said to be high if when you want coffee there are many easily accessible ways to get it, such as coffee shops and vending machines on the town and instant coffee.

When a railway aims to offer ubiquitous services that meet diversified needs of users anywhere and anytime, new value is created. In this context, JR supports self-fulfillment of needs of railway users.

5. Options for End-Users: Thinking as a Zoom Lens
Railways as a mode of mass-transport constantly face dilemmas on two aspects of customer use.

The first dilemma exists between the “mass” aspect of transit from its volume and the individuality of each user. This is clearly evident in when looking at air-conditioning in a train.

In midsummer, most passengers want more cooling; but some don’t want the train to be too cold. Thus, railways provide weakly air-conditioned cars to meet expectations as much as possible to try to improve customer satisfaction.

Providing services that are seamless without inconsistency between the mass and the individual would be ideal. This can be thought of as how a zoom lens of a camera covers from wide shots to close-up shots.

Specifically, this means giving users as many options as possible in aspects of customer use.
But Internet browsers let users freely set the screens size and type and size of fonts. As end-users become able choose services as they like, their satisfaction should increase.

Exploiting Suica and IT technologies can bring about diversity of options. For example, lunch service on the Shinkansen should be possible where a customer reserves meals he or she likes via the Internet in advance and those are loaded on the way and delivered to the customer's seat. For fresh food that uses ingredients from local regions along the line, some would pay the cost for such a service. In this way overstocking and unsold stock could be reduced, which would also be commendable in terms of the environment.

The second aspect where a dilemma is faced is how to interpret what the median is. Many surveys are carried out to appropriately identify customer needs; but what we need to be most careful of is that fact that the perspective of the average is useless. Employing that perspective could actually lead to incorrect judgment.

Since people have diversified tastes today and the variance is large, the median has little meaning. Customer satisfaction thus will not improve without development of services that suit each cluster of customers.

6. Satisfaction that Improves Through the Five Senses

Although the concept of satisfaction is abstract, observing from the viewpoint of service users clarifies one point. Satisfaction has a close relation to amenity, and eventually that is judged through human senses. Those senses are the five senses of sight, hearing, smell, taste and touch.

Sight applies to design of stations, cars and the wayside, as well as to things such as signs, indicators and posters. Hearing applies to accurate announcements, the sound of a running train and noise in the station. Smell applies to the odor of toilets, cars and the station as a whole. The taste of drinks and food provided in the in-station shopping mall or lunchboxes on the train is an important factor too. Those senses help make a judgment in total and bring form to amenity; thus, a "multimedia" mindset is required. In such context, studying amenity on the train and in the station based on various combinations of human senses is required. An example of that is studying which senses bear more weight on a hot summer day. You could call this "five-sense marketing".

7. Station Users other than just Railway Users

It is often said that European cities developed around churches. At Sunday services, people brought excess vegetables and fruits from outlying villages and such markets developed into towns. Plazas and fairs are extensions of those markets. In Japan, however, many cities after the late 19th century developed around a railway station. The railway station was originally a facility that passengers used, but many other people came to greet or see off those passengers.

Among the stations of the world, such large-scale stations that directly incorporate shopping malls and facilities providing services for day-to-day life probably exist only in Japan. Thus, a station is not just a facility for railway passengers any more. We should consider a station as a facility for day-to-day life. Having a full line of commercial facilities such as shopping malls and restaurants is an obvious need. But other functions for daily life such as local administrative services, medical services, day-care for children and elderly persons, adult education and hobby schools, sports facilities, cinema complexes would be appropriate at a station.

These days a so-called compact city theory of building a city around a base facility is actively advocated taking into consideration efficiency and effectiveness of services for local residents and environmental impact. Stations are thus attracting attention as that base facility. As constraints in terms of energy and the environment require us to review the current automobile-oriented transport system, and with the graying of society, the role of railway stations will become even more important and the coordination with local governments will become tighter.

8. The Station as an Information Base

Since information moves as people move, information facilities will be important. The station itself will become an information base rather than simply improving ease of access for PCs and other information devices. We have to create stations where various seminars and talk shows take place daily and people discover new things.

Since telecommunications and broadcast will merge in near future, information media is expected to diversify. There could even be new kinds of facilities in the station that are different from present broadcast stations and would be a source of information and provide railway-related content.

Customers in the station and on the train need a broad range of information depending on the situation at the time. Mobile terminals are very useful for providing timely information; but we should have an option of using original terminals as Mobile Virtual Network Operators (MVNO) for more effective information provision in a railway environment.

Moreover, the perspective of the station being safe and reliable even in a disaster is particularly important at times of large-scale disasters such as earthquakes (Fig. 1). The station could literally be an information base where people can get the latest news and information and confirm of safety of others.

9. Conclusion

Railway users change over time. But even amidst such change, improvement of customer satisfaction in a way that fits the time and securing safety are inseparable.