Marketability of In-Car Connected Services

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CONTENTS

Overview of This Paper

This paper discusses the price acceptance of in-car connected services.

Although auto makers are introducing in-car connected services one after another, there are still uncertainties such as service costs, pricing, and the impact on the competitiveness of cars themselves. Meanwhile, telecommunications carriers are considering the introduction of 5G-compatible connected services, aiming to provide added value to customers and recover investment in 5G infrastructure.

Connected services are positioned to meet customer needs in an era where smartphones and Wifi are commonplace, but they can also be regarded as technology-centric services such as communications and 5G.

Under such circumstances, for auto makers, telecommunications carriers, and other service providers, questions such as whether customers really need connected services and how much in fees can be collected are of indisputable importance.

Based on a consumer survey, this paper presents materials for examining the above questions.

I. The State of In-Car Connected Services

1. The state of in-car connected services

Auto makers are already launching and studying a wide variety of connected services. When different services are classified by the value to the car owners, drivers, and passengers, they can be roughly classified into four types as shown in Fig. 1.

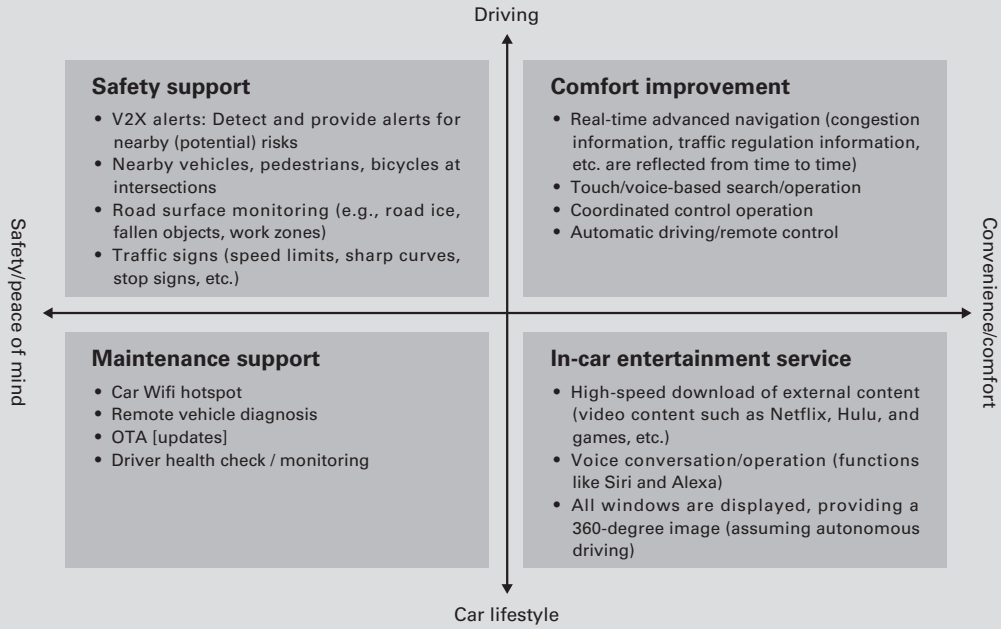
At present, telecommunications carriers are developing in-house Internet environments required for the kinds of services below, in turn enabling auto makers and other service providers to provide individual services, or alternatively, telecommunications carriers are seeking to provide individual services themselves through collaborations with service providers.

Meanwhile, various methods are being considered for fee models, and various approaches are being adopted from the viewpoint of whether to collect fees in the form of a subscription for a service separate from the car, or whether some services will be paid for with a lump sum payment when purchasing a car, and to whom fees are paid.

2. In-car connected services and 5G

According to the GSMA, about 80% of the capital investment of US $1.1 trillion (worldwide, 2020-2025) by telecommunications carriers is for 5G, and recovering this large investment quickly is one of the requirements for the success of 5G business. In this environment, in-car connected

Fig. 1: Classification of In-Car Connected Services



※1 Vehicle to X: common name for a system where all vehicles and other infrastructure systems around them (other vehicles, pedestrians, etc.) are interconnected
※2 Over the Air: sending and receiving data and related software updates wirelessly
Source) based on hearings and other sources

services may become an important source of revenue.

However, among the services shown in Fig. 1, there are many services that can be sufficiently supported by existing 4G and services for which passengers'smartphones are considered to be sufficient. In this environment, if possible, it is necessary to make proposals to encourage consumers to use 5G services, or to transition in-car connected services already provided in 4G to 5G.

3. Conclusion and introduction to the following chapters

As mentioned above, in-car connected services still face many uncertainties in terms of how to optimally provide services to consumers, optimal fee models, what added value really captures customers, and the evolution of services based on the transition to 5G.

In the following chapters, I would like to discuss the above points, especially the services in demand by consumers and their added value and fees, through analysis of consumer survey in the four regions of Japan, the United States, Europe, and China.

Ⅱ. Considering the Marketability of In-Car Connected Services through Consumer Survey

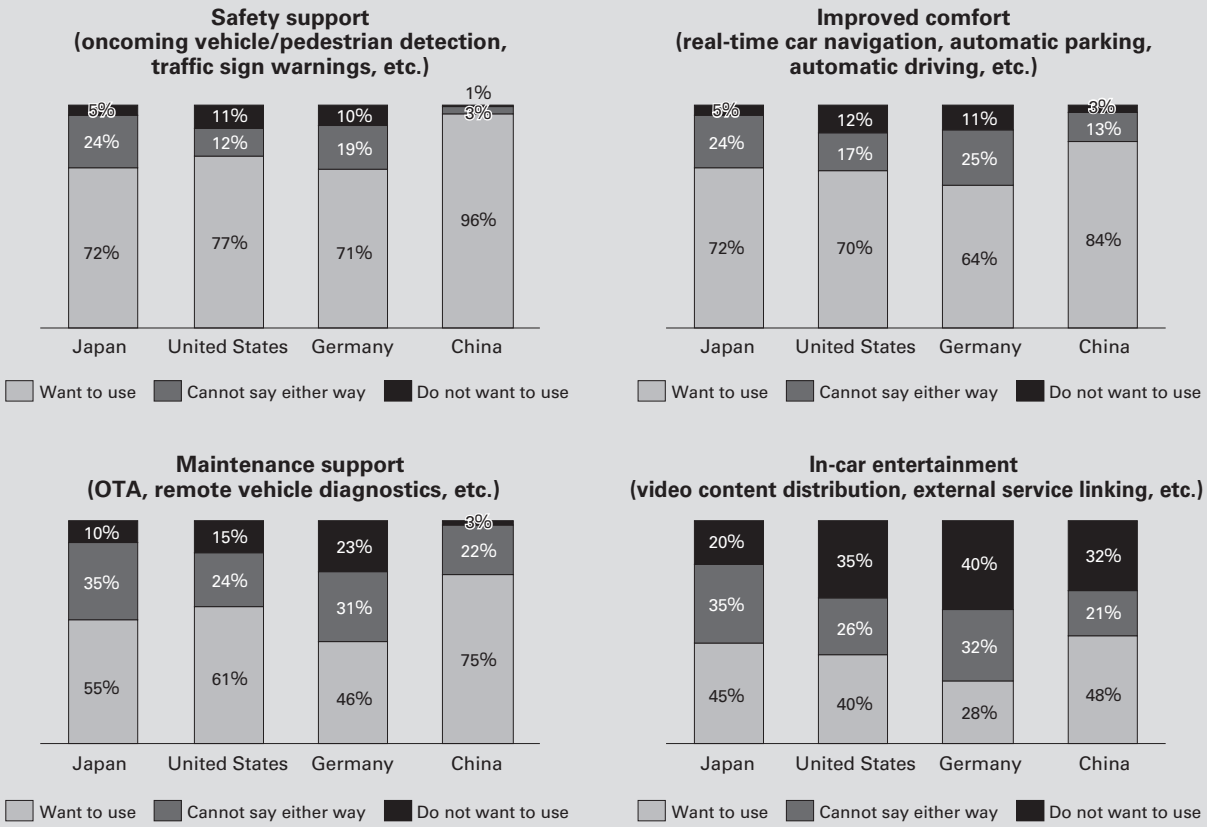
Based on an awareness of the issues mentioned in the previous chapter, NRI conducted a consumer survey in 2019 for in-car connected services using a Internet questionnaire in four countries: Japan, the United States, Germany, and China. We conducted a survey of users who own their own cars in each country, paying attention to three factors: interest in in-car connected services, the impact on buying new cars, and the amount of payment tolerated for services.

1. Interest in in-car connected services

Fig. 2 shows the results of asking users in each country whether they are interested in different categories of in-car connected services. While there tended to be a high level of interest in each country regarding services that support safety and improve comfort, the number of people in each country answered that they are "interested" in maintenance and support services and in-car entertainment services was relatively small.

As for safety support and comfort improvement services, autopilot functions and similar services have already been introduced to the market, so respondents

Fig. 2: Interest in connected services



Note: due to rounding, totals may not always equal 100
Source) Compiled from Nomura Research Institute, Inc. online survey results

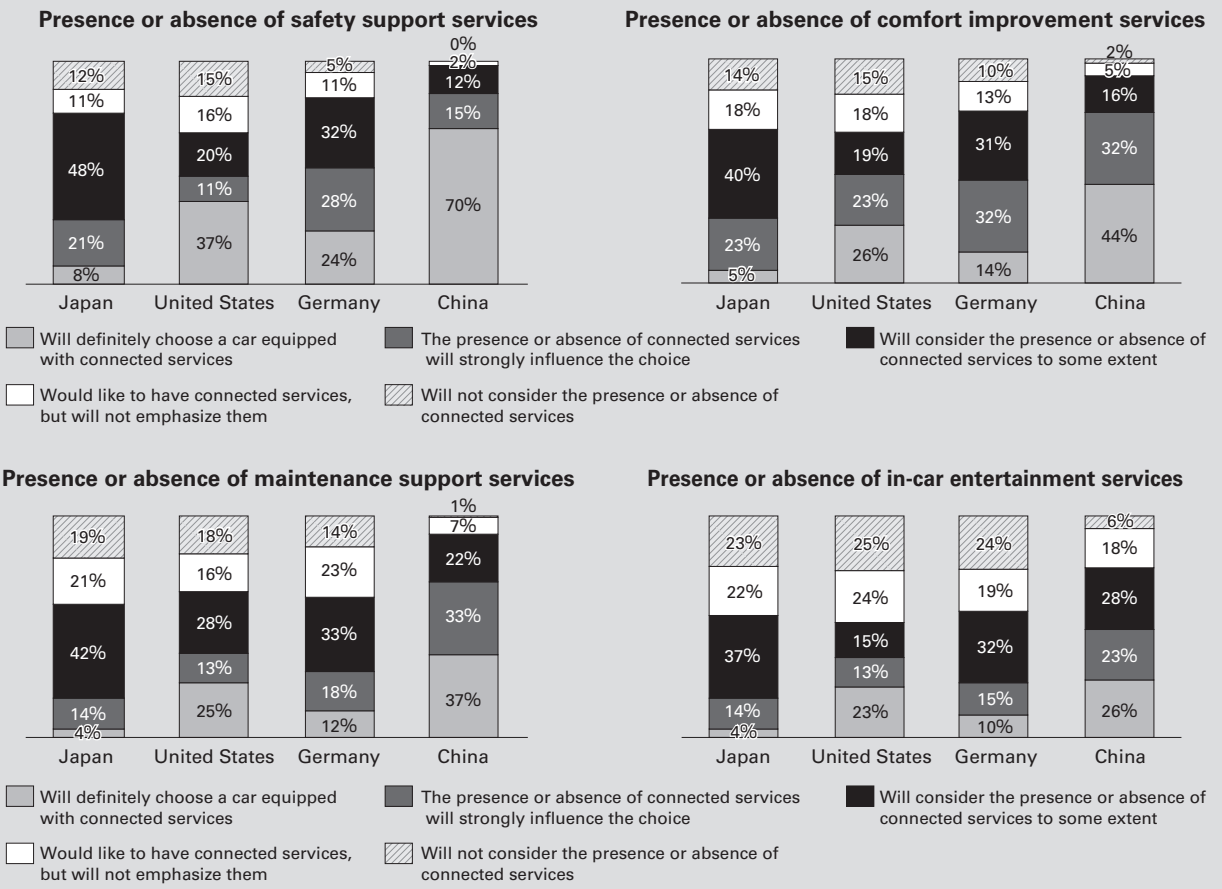
could presumably easily imagine the scenes in which they would use them. Meanwhile, with regard to in-car entertainment services, it is difficult to segregate or differentiate them from existing devices (smartphones, etc.), which may have led to low interest.

2. Impact of in-car connected services on new car buying

If an in-car connected service is sufficiently appealing to users, the degree of service enhancement will conceivably affect new car buying. On this point, Fig. 3 shows the results of asking respondents, for each service type, whether or not the presence or absence of such services would influence the choice of their "next car".

The responses to this question strongly indicate the differences in the thinking of users in each country. Regardless of the service category, Chinese users had a higher ratio of respondents who would strongly take in-car connected services into consideration when purchasing their "next

Fig. 3: Influence of connected services on selection of "next car"



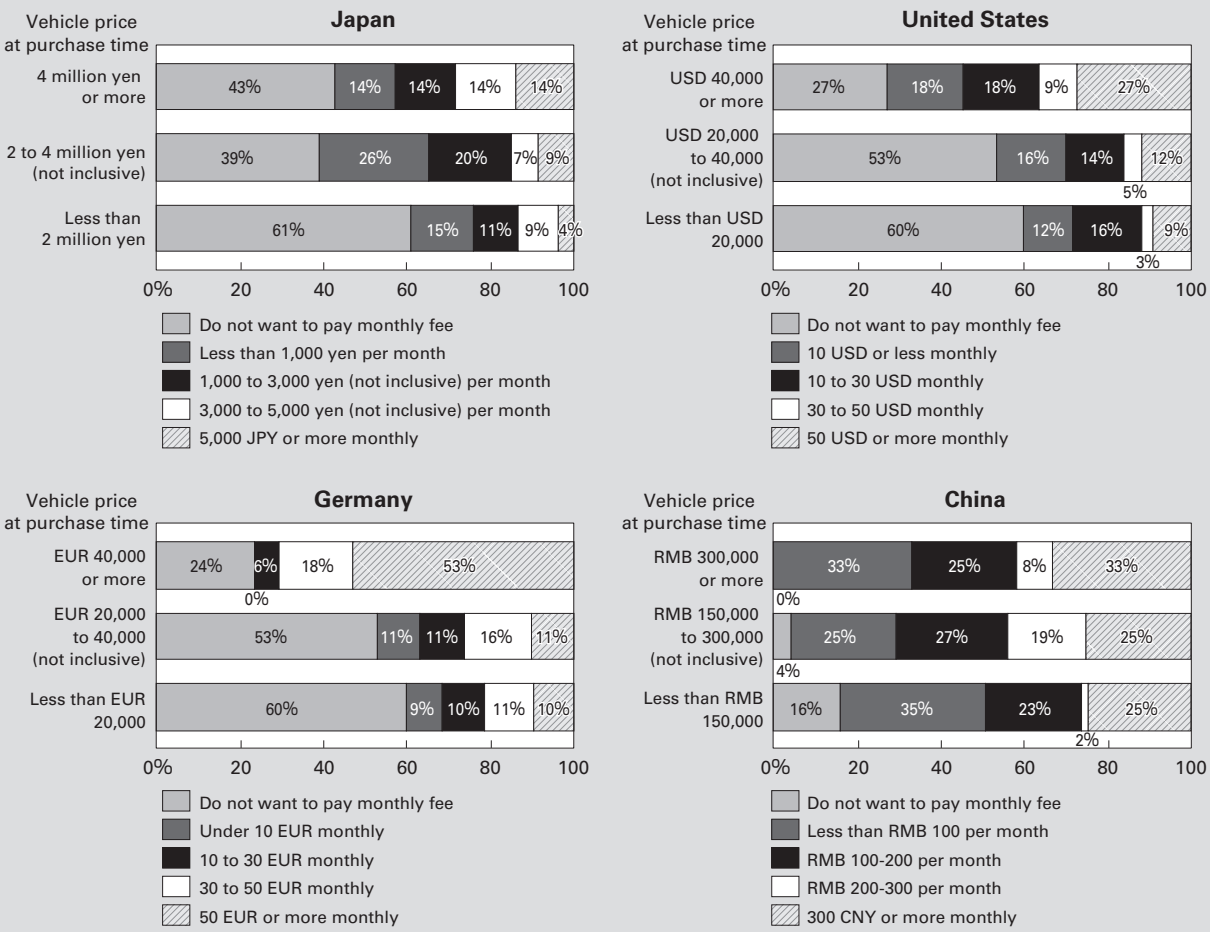
Note: due to rounding, totals may not always equal 100
Source) Compiled from Nomura Research Institute, Inc. online survey results

car" compared to other countries, which reached more than 80% for safety support services, so those are essential services for almost the entire market. Meanwhile, in Japan, even for safety support services only about 20% of the respondents answered that such services would "strongly influence" the choice of their next cars. In addition, in the three countries of Japan, the United States and Germany, about 30 to 40% of users answered that they "will not emphasize" or "will not consider" comfort improvement or maintenance support services when choosing their next cars, which suggests that there are some groups that these services do not appeal to.

3. Acceptable payment amount for in-car connected services

Fig. 4 shows the results of when respondents were asked the amount they could tolerate paying assuming that a connected service can be used for a fixed monthly

Fig. 4: Tolerable Monthly Payment Amount for Connected Services



Note: due to rounding, totals may not always equal 100
Source) Compiled from Nomura Research Institute, Inc. online survey results

fee.

The answer to this question was strongly influenced by the purchase price of the car that the respondent currently owns. Specifically, in the premium group (defined as owning a car with a purchase price of about four million yen or more), the ratio of those who would tolerate higher monthly payments is higher than others: in the premium group, slightly under 20% in Japan, slightly under 30% in the United States, and more than 50% in Germany answered that they could tolerate monthly payments of around 5,000 yen or more for in-car connected services.

Meanwhile, among the entry-level group (defined as owning a car with a purchase price of less than two million yen), 60% of respondents in the three countries excluding China said that they "have no desire to pay a monthly fee for connected services", while less than 10%

of respondents would tolerate monthly payments of about 5,000 yen or more. Regarding this difference, in addition to the financial resources of the respondents, many of the cars owned by the premium group already have some kind of connected service, and it is possible that high user satisfaction leads to high payment tolerance.

4. Considering the market potential of premium in-car connected services

It was found that a certain amount of payment could be tolerated for premium in-car connected services. Based on this result, we made a simple trial calculation of the market potential of premium services.

The portion of cars sold as "connected cars" in the last three years that are classified in the D segment or higher were defined as "premium", and the annual market size for connected services in each country (Fig. 5) was calculated by multiplying the number of such cars by the proportion (potential customer ratio) of the group that could potentially pay monthly user fees of about 5,000 yen or more. As a result, Japan, which has a low

Fig. 5: Trial Calculation of Market Potential of Connected Services (for Premium Group)

	Cumulative sales of connected cars from 2016-2019		Ratio of new car sales in segment with base price of 4 million yen or more in 2016-2019		Connected service annual potential customer ratio for around 50,000 yen or more		Market potential of connected services for premium group
	11,880,000 cars	×	21.5%	×	14.3% (5,000 yen or more per month)	=	18,257 million yen/ year
	27,531,000 cars	×	57.5%	×	27.3% (US $50 or more per month)	=	215,699 million yen/ year
	5,645,000 cars	×	32.1%	×	52.9% (EUR €50 or more per month)	=	48,040 million yen/ year
	16,290,000 cars	×	31.9%	×	33.3% (RMB 300 or more per month)	=	86,530 million yen/ year
	Fuji Keizai (forecast for 2019) The figures for the United States and Germany are calculated by multiplying the forecasts for North America and Europe by the ratio of new car sales in both countries to the region (Source: IHS).		New car price of 4 million yen or more = upper middle class or higher, using the ratio of the D-F segments to the number of new cars sold		Ratio of respondents who answered that the purchase price of the car they are currently driving is 4 million yen or more and answered that they would pay about 5,000 yen or more per month		Market potential only for D-F segment users who would pay around 50,000 yen or more annually

Source) Compiled from Nomura Research Institute, Inc. online survey results, IHS Markit, Fuji Keizai Group "Connected Car Market Environment and Telematics Strategy 2019"

potential customer ratio and low potential, is about 18 billion yen per year, and the United States, which has a large number of connected cars and the largest potential, is about 200 billion yen per year, so a certain market size can probably be expected for in-car connected services for just the premium group alone.

Ⅲ. Proposals Regarding Development of Services Going Forward

This survey shows that the amount consumers are willing to pay for in-car connected services in the premium group is at a relatively high level, and a certain market potential can be expected. As mentioned at the beginning, proper pricing for in-car connected services is considered to be very important not only for increasing sales for auto makers but also for telecommunications carriers that provide infrastructure to recover their investments. However, at the moment, the prices of common in-car connected services generally range between 10,000 to 20,000 yen per year, and there is conceivably still room to get users to pay more through appropriate pricing.

Based on this result, it is important to design services that appeal to those who will pay higher prices in the future development of connected services. In this survey, we focused on the base car prices, but it is necessary to include other factors to develop services that embody user image (persona) and offer different options for target groups and general users.

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