Original Paper

A New Automobile Sales Marketing Model for Innovating Auto-dealer's Sales

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Abstract

This study describes a "New Automobile Sales Marketing Model" (NA-SMM) using "4 core elements" based on a "dual corporate marketing strategy" for the innovation of auto-dealers' sales. To realize this, the author develops both of the "Customer Science principle (CSp)" and "Science SQC, new quality control principle". Specifically, foundation of NA-SMM consists of the "Scientific Customer Creative Model (SCCM), Networking of Customer Science principle Application System (NCSp-AM), Video Unites Customer Behavior & Maker's Designing Intentions (VUCMIN) and Scientific Mixed Media Model (SMMM)". The validity of NA-SMM is then verified through each model of actual applications to customer creation in Toyota.

Keywords

New Automobile Sales Marketing Model, innovation of auto-dealers' sales, 4 core elements, a dual corporate marketing strategy, actual applications, Toyota

1. Introduction

In today's rapidly changing Japanese corporate management environment, one of the first management technology issues that place the "customer first, is the creation of new marketing system that breaks away from the conventional systems in an effort to strengthen ties with the customers (Amasaka, et al.,1998, 2005; Amasaka, 2001b, 2005, 2007a, 2007b).

This new understanding should form the basis of business and sales innovation for "customer value creation". Therefore, a marketing management model needs to be established so that *Business / Sales /Service* divisions, which are also in the closest position to customers, can organizationally learn customers' tastes and desires by means of the continued application of objective data and scientific

methodology (James & Mona, 2004; Amasaka, 2005).

However, at present, the organizational system has not yet been fully established in these divisions; in some cases, even the importance of this system has not been commonly realized (Gary & Arvind, 2003; Amasaka, 2005).

The above research suggests that it is necessary to promote scientific activities involving sales and sales-related departments. In particular, the author believes that a better quantitative understanding of the effect of publicity and advertising in automobile sales will enable more effective sales activities (Amasaka, 2001a, 2009a, 2009b; Amasaka, Ed., 2007).

Considering recent changes in the marketing environment, it is now necessary to implement innovation of business and sales activities to accurately grasp the characteristics and changes of customer preferences independently of convention by employing Figure 1 (See to Appendix A).

Then, in this study, the author describes a "New Automobile Sales Marketing Model" (NA-SMM) using "4 core elements" based on a "dual corporate marketing strategy" for the innovation of auto-dealers' sales. To realize this, the author develops both of the "Customer Science principle (CSp)" and "Science SQC, new quality control principle" (Amasaka, 2003, 2004, 2005).

Specifically, to strengthen "customer value creation", the foundation of NA-SMM consists of the 4 core elements: "Scientific Customer Creative Model (SCCM) for innovating auto-office / shop appearance and operation, Networking of Customer Science principle Application System (NCSp-AS) for realizing customer's "Wants", Video Unites Customer Behavior & Maker's Designing Intentions (VUCMIN) for innovating auto-dealer's sales and Scientific Mixed Media Model (SMMM) for CS and CL to boosting marketing effectiveness in CR activities" (Amasaka, Ed., 2012; Amasaka, 2015, 2022a,b, 2023).

Concretely, in NA-SMM strategy, the author develops each of 4 sub-core elements: (1) New Sales Office Image Model (NSOIM), Intelligent Customer Information Marketing Model (ICIMM) and Intelligent Automobile Sales Marketing Model (IASMM)" in SCCM, (2) Customer Information Analysis and Navigation System (CSp-CIANS) in NCSp-AS, (3) Customer's Standard Behavioral Movements Model in choosing a vehicle (CSBMM) in VUCMIN, and (4) Scientific Mass-media Advertising Model (SMa-AM), Scientific Direct Advertising Model (SD-AM) and Scientific Multi-media Advertising Model (SMu-AM) in SMMM.

The validity of NA-SMM is then verified through the actual applications to automobile customer creation in Toyota (Amasaka, Ed., 2012; Amasaka, 2015, 2022a, 2022b, 2023).

2. Importance of Auto-market Creation Developing a New Marketing Model

2.1 Need for a Marketing Strategy which Considers Market Trends

After the collapse of the bubble economy, the competitive environment in the market has drastically changed. Since then, companies that have implemented strategic marketing quickly and aggressively

have been the only ones enjoying continued growth (Okada et al., 2001).

Therefore, a marketing management model needs to be established so that business / sales / service divisions, which are carrying out development and design for appealing products projects, and which are also in the closest position to customers, can organizationally learn customers' tastes and desires by means of the continued application of objective data and scientific methodology (James & Mona, 2004; Amasaka, 2005).

However, at present, the organizational system has not yet been fully established in these divisions; in some cases, even the importance of this system has not been commonly realized (Gary & Arvind, 2003; Amasaka, 2005).

That is, close observation of recent changes in the field of marketing by the author and other researchers has led us to the conclusion that it is necessary to place more emphasis on communicating with customers in order to gain an adequate understanding of their changing characteristics, unbiased by established concepts (Niiya & Matsuoka, 2001; Okada et al., 2001; Amasaka, 2001a, 2001b, 2007a, 2007b).

2.2 Importance of a Marketing Management Model Innovating Auto-dealers' Sales Activities

Therefore, to realize the above-mentioned subjects in subsection 2.1, considering recent changes in the marketing environment, it is now necessary to implement innovation of business and sales activities to accurately grasp the characteristics and changes of customer preferences independently of convention.

Then, a marketing management model needs to be established so that business, sales, and service divisions, which are developing and designing appealing products and are also closest to customers, can organizationally learn customer tastes and desires (Amasaka et al., 2005; Amasaka, 2008).

Specifically, pursuing improvements in product quality by the continued application of objective data and scientific methodology is increasingly important (Amasaka et al., 1998; James & Mona, 2004: Amasaka, 2003a, 2003b, 2004, 2005).

At present, the organizational system and rational methodology that allows them to analyze data on each customer using a scientific analysis approach has not yet been fully established in these divisions; in some cases, the importance of this system has not even been widely recognized (Niiya & Matsuoka, 2001; Gray & Arvind, 2003; Ikeo, 2006; Amasaka, 2007c, 2011; Amasaka, Ed., 2012).

2.3 Significance of Strategic Marketing Development Model Based on Total Marketing System

Recently, in light of recent changes in the auto-marketing environment "customer orientation and quality assurance", the author believes it is now necessary to develop innovative business and sales activities that adequately take into account the changing characteristics of customers who are seeking to break free from convention (Amasaka, 2011; Amasaka et al., 2005).

Then, to strengthen the "customer orientation and quality assurance" in marketing of automobile, the author has adapted the "Total Marketing System" (TMS) with 4 core elements "(a)-(d)" as the key of

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"New Automobile Global Manufacturing System (NAGMS)" based on the "New JIT, new management technology principle" naned "New Japan Model (NJM) as shown in Figure 2 (Amasaka, 2002, 2004, 2007, 2008, 2009, 2010, 2014, 2022a,b, 2023) as follows;

(a) market creating activities through collection and utilization of customer information, (b) improvement of product value based on the understanding that products are supposed to retain their value in product design, (c) establishment of marketing system from the viewpoint of building ties (bonds) with customers, and (d) realization of the customer focus using customer information network for the CS (customer satisfaction), CD (customer delight) and CR (customer retention) elements needed for the corporate attitude (behavior norm) to enhance customer focus.
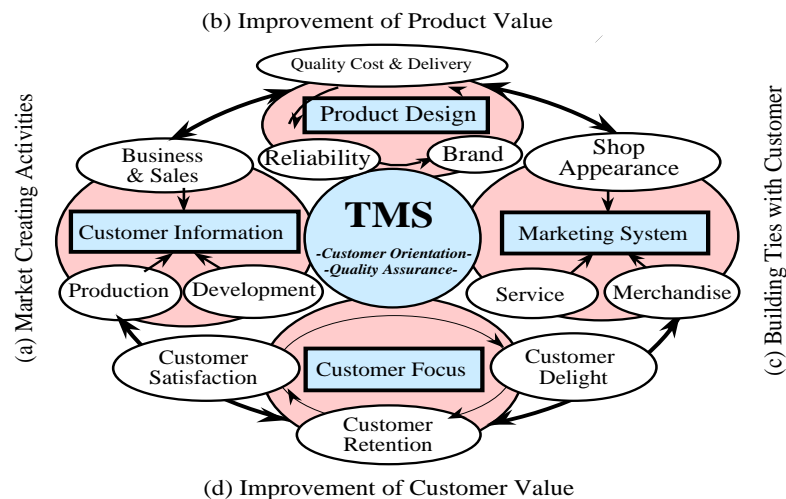

Figure 2. Total Marketing System (TMS)

Particularly, therefore, to realize market creation with an emphasis on the customer by developing CL (Customer Royalty) to boost marketing effectiveness, the significance of the "Strategic Marketing Development Model" (SMDM) named "Advanced TMS, strategic customer creative system" based on TMS is to promote market creation and to realize quality management through scientific marketing and sales, not by sticking to conventional concepts by using organized "4 sub-core elements (i)-(iv)" as described in Figure 3 (Amasaka, 2007a,b,c; Yamaji & Amasaka, 2009; Amasaka Ed. 2012; Okutomi & Amasaka, 2013).

Aim of SMDM is strengthen of "high quality assurance and innovating dealers' sales activity" in "global marketing strategy: "Same quality worldwide, development design and production at optimum locations". Specifically, the author has created the (i) "New Sales Office Image Model (NSOIM)" is important to achieve a high cycle rate for market creation activities by "innovation for building bonds
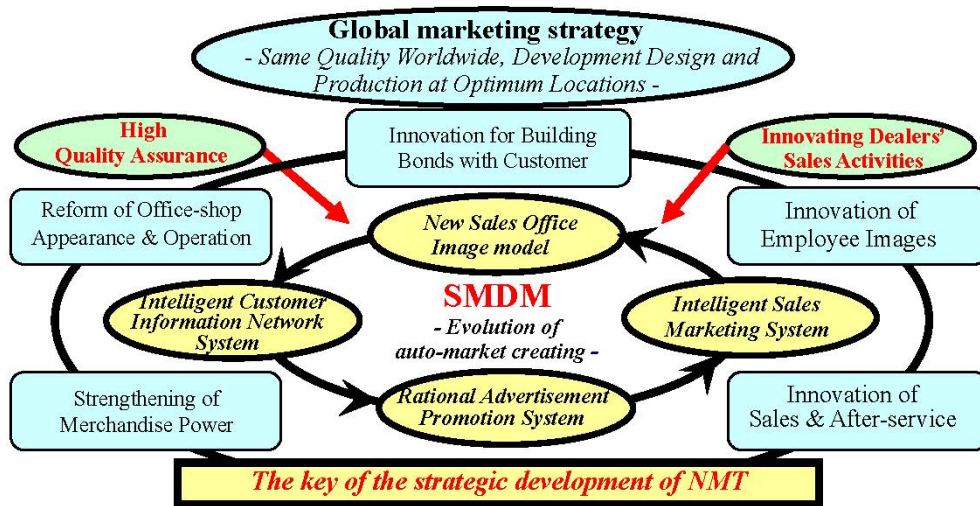
Figure 3. Strategic Marketing Development Model" (SMDM)

with customer" and "reform of shop appearance & operation".

In the practice stage, it is more important to develop the (ii) "Intelligent Customer Information Network Model (ICINM)" by "strengthening of merchandise power", (iii) "Rational Advertisement Promotion System (RAPS)" and (iv) "Intelligent Sales Marketing System (ISMS)" by "innovation of sales and after-service" and "innovation of employee images".

By these elements, SMDM innovates for bonding with the customer and reforms office-shop appearance and operation (Amasaka, 2015, 2017, 2022a, 2022b, 2023).

3. Establishment of a New Automobile Sales Marketing Model" for Innovating Auto-dealers' Sales

To develop SMDM in TMS strategy, the author has established a "New Automobile Sales Marketing Model (NA-SMM)" for innovating auto-dealers' sales using a "dual corporate marketing strategy" as shown in Figure 4.

Figure 4. New Automobile Sales Marketing Model (NA-SMM) for Innovating Auto-dealers' Sales

To realize this, the author develops both of the "Customer Science principle (CSp) and Science SQC, new quality control principle" in order to strengthen CS, CL & CR activities" for evolution of marketing process management (Amasaka, 2002, 2004, 2005, 2010, 2011, 2014, 2017). This is to convert "customer's opinion (implicit knowledge)" scientifically in "engineering language (explicit knowledge)" by partnering in marketing sections described in Figure 4 (See to Appendix A and B).

Specifically, to strengthen "customer value creation", the foundation of NA-SMM consists of the 4 core elements: "Scientific Customer Creative Model (SCCM) for innovating auto-office/shop appearance and operation, Networking of Customer Science principle Application System (NCSp-AS) for realizing customer's "Wants", Video Unites Customer Behavior & Maker's Designing Intentions (VUCMIN) for innovating auto-dealer's sales" and Scientific Mixed Media Model (SMMM) to boosting marketing effectiveness in CS, CL and CR" (Amasaka, 2005, Amasaka et al., 2005; Amasaka, Ed. 2007, 2012; Yamaji et al, 2010).

Concretely, the author develops each of 4 sub-core elements: (1) New Sales Office Image Model (NSOIM), Intelligent Automobile Sales Marketing Model (IASMM) and Intelligent Customer Information Marketing Model (ICIMM) in SCCM, (2) Customer Information Analysis and Navigation System (CSp-CIANS) called Toyota's Intellectual Customer Data Collection/Analysis Integrated Model in NCSp-AS, (3) Customer's Standard Behavioral Movements Model in choosing a vehicle (CSBMM) in VUCKMIN and (4) Scientific Mass-media Advertising Model (SMa-AM), Scientific Direct Advertising Model (SD-AM) and Scientific Multi-media Advertising Model (SMu-AM) in SMMM (Amasaka et al., 1998; Amasaka, K. 2003b, 2005, 2007d, 2009, 2010a,b, 2018; Amasaka, Ed.,

2007; Yamaji and Amasaka, 2009; Yamaji et al., 2010; Kojima et al., 2010; Koyama et al., 2019; Ishiguro et al., 2010, 2012; Ishiguro and Amasaka, 2013; Ogura et al., 2013a,b; Amasaka et al., 2013).

3.1 Scientific Customer Creative Model to Strengthen Auto-products Plan and Marketing Strategy

The author presents a "Scientific Customer Creative Model" (SCCM) which takes the form of strategic marketing using above sub-core elements "NSOIM, IASMM & ICIMM" as shown in Figure 5.
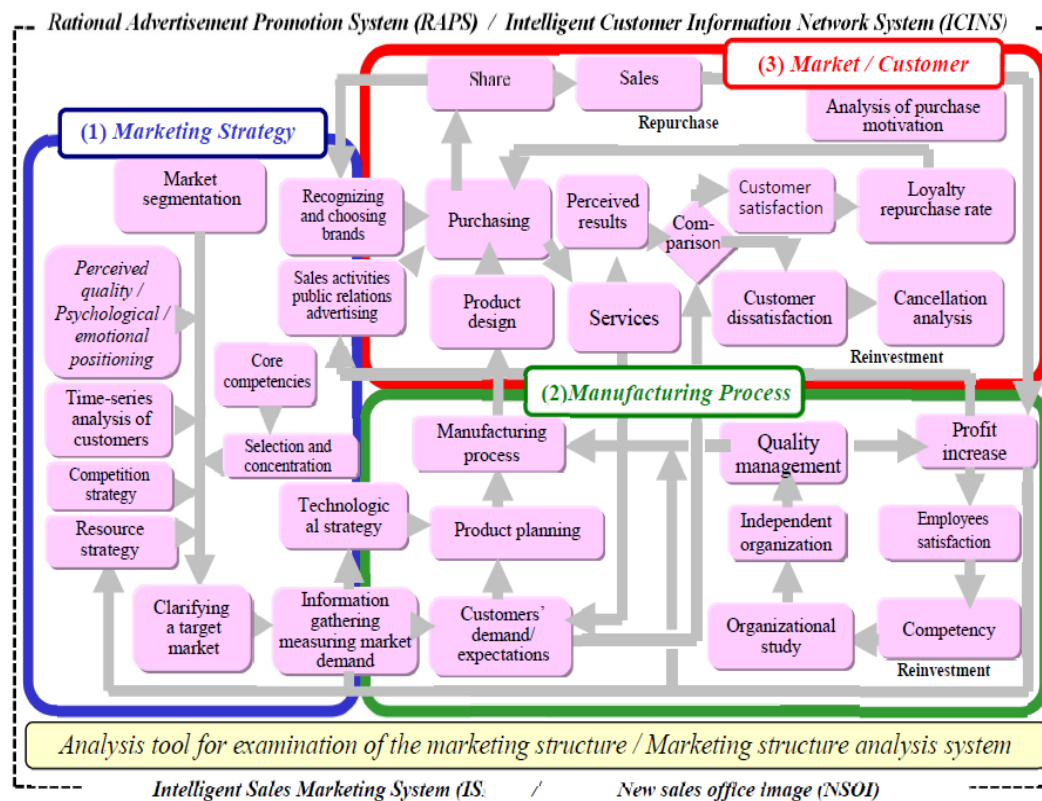

Figure 5. Scientific Customer Creative Model (SCCM)

In Figure 5, the entire structure consists of 3 domains as the *Open marketing activities* that can be performed through steady linkage with all other divisions in a company-wide framework; (1) *Marketing Strategy*, (2) *Manufacturing Process* and (3) *Market and Customers*. In each domain, the key marketing items are linked by paths to show how they are associated (Amasaka, et al., 2005: Shimakawa et al., 2006).

First of all, in the (1) *Marketing Strategy* domain, the key point is how the market segment and the target market are determined. In general, the target market is determined based on the company's core competencies, competition strategy, and resource strategy over the medium and long-term basis. By

introducing a scientific analysis approach that uses IT, it clarifies a potential target market from the changing market or the customer structure analysis.

Secondly, in the (2) *Manufacturing Process* domain, the key point is to collect/analyze customers' demands and expectations precisely. At this time, it is important to consider what value the customers want. When implementing information collection/analysis, customer value is described in numerical form from many different viewpoints, and a new product which is aimed at enhancing customer value is implemented through the flow of planning→ development→ production.

Thirdly, in the (3) *Market/Customer* domain, the key point is to learn the structure of the customer's motivation to buy products, CS and CL. Then, it is necessary to extract the elements for CR from this data and utilize it for specific kaizen activities such as reflecting it in future products.

It is important to develop an "analysis tool for close examination of the marketing structure" and a "marketing structure analysis system" that will support marketing activities in these three domains stated above from a strategic marketing viewpoint.

(I) New Sales Office Image Model (NSOIM)—In 1st sub-core element, to evolute the auto-business and sales, NSOIM develops the innovation of office/shop appearance and operation: (a) Innovation for building ties with customer, (b) Innovation of business negotiation, (c) Innovation of after-sales service, and (d) Innovation of employee images as shown in Figure 6 (Amasaka et al., 1998: Amasaka, 2011).
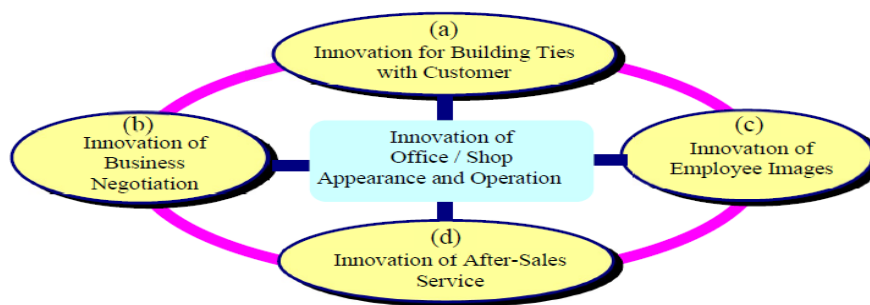

Figure 6. New Sales Office Image Model (NSOIM)

(II) Intelligent Automobile Sales Marketing Model (IASMM)—In 2nd sub-core element, to increase the rate of dealer visits and vehicle purchases by current loyal users, IASMM develops based on customer type by classifying high-probability customers (HPCs), medium-probability customers (MPCs) and low-probability customers (LPCs) into those who visit the shop and those who must be visited by our staff, taking characteristics at new car purchase into account as shown in Figure 7.

Further, IASMM adapts the various advertisements and telephone calls for customers, and can also be made use of when visiting customers, and to help acquire new customers at the time they visit a dealer. Now, IASMM is being developed as the "Toyota Sales Marketing System" (TSMS) (Amasaka, 2001, 2003b, 2011).
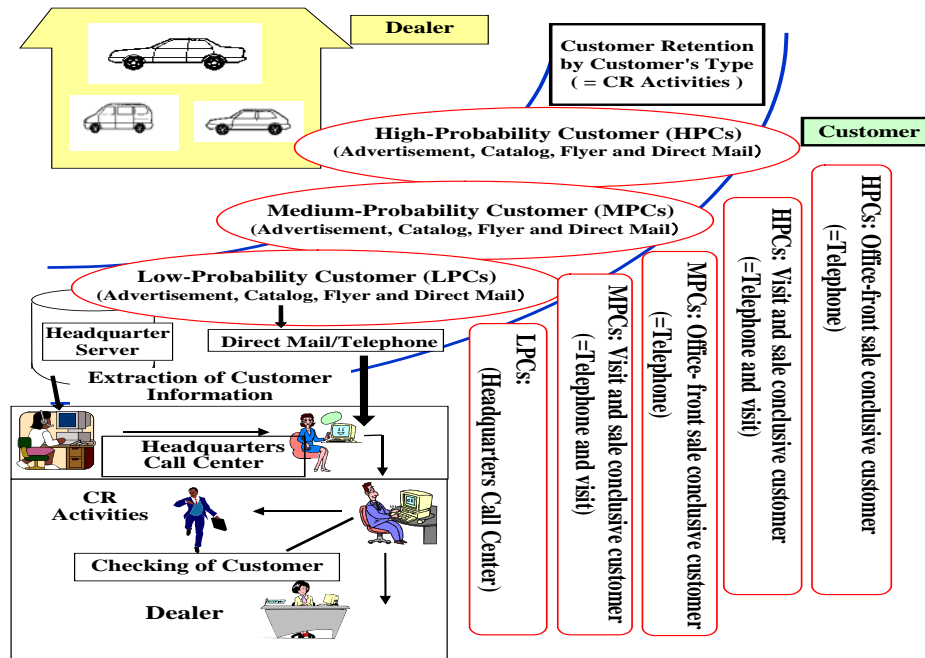
Figure 7. Intelligent Automobile Sales Marketing Model (IASMM)

(III) Intelligent Customer Information Marketing Model (ICIMM)– In 3rd core element, to strengthen auto-marketing, ICIMM develops to create customer's "Wants" as part of the market creation activity and also to establish a structure for development and production that is capable of offering new products as shown in Figure 8 (Amasaka, Ed., 2007; Amasaka, 2008).
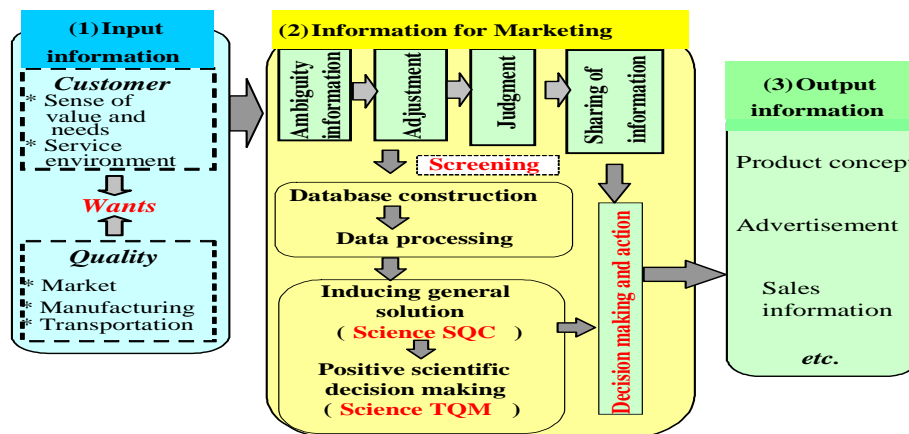

Figure 8. Intelligent Customer Information Marketing Model (ICIMM)

This is done in order to effectively carry out by each step of the (1) Input information, (2) Information for marketing and (3) Output information for evolution of the business process of "auto-shop, products

development design and manufacturing.

3.2 Networking of Customer Science Application System for Creating Customers' Demands

To strengthen SCCM development, the author introduces a "Customer Science Application System (NCSp-AS)" in order to evolve customer information-sharing through the collection / analysis of customer information.

Specifically, the author develops a typical sub-core element "Customer Information Analysis and Navigation System (CSp-CIANS)" as shown in Figure 9. This system enables the networking of the (1) Merchandise planning, (2) Product planning and design, (3) domestic and overseas dealers, (4) Consulting spaces, (5) Marketing research company via (6) Exclusive company WEB, (7) Data base D/B, (8) Science SQC, (9) Analytical case D/B, and (10) Quality assurance (Amasaka, 2005, 2018).
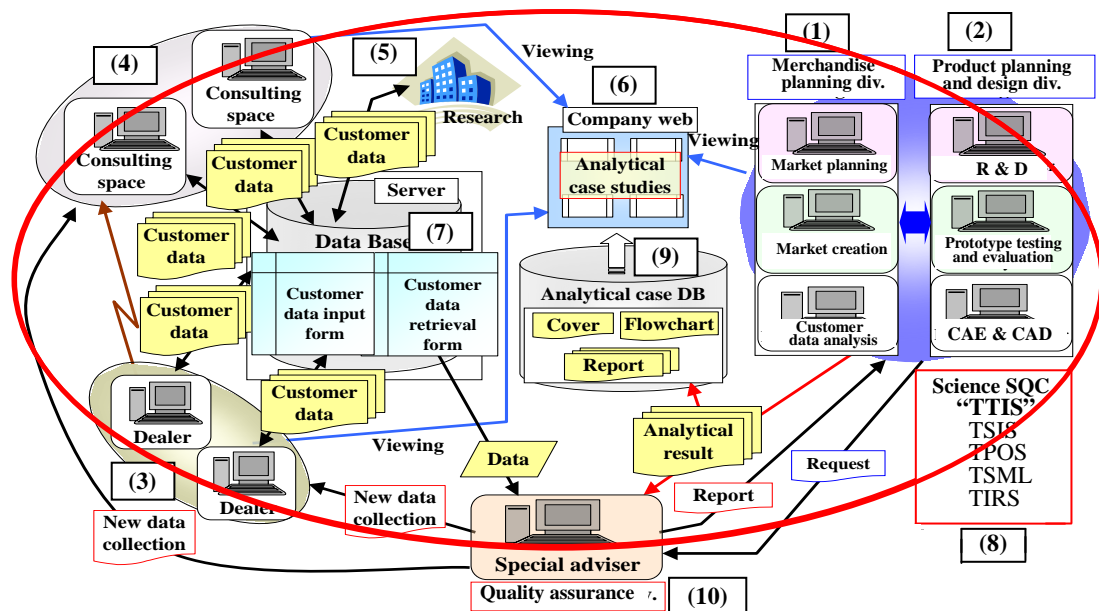

Figure 9. Customer Information Analysis and Navigation System (CSp-CIANS)

3.3 Video Unites Customer Behavior & Maker's Designing Intentions for Investigating Customers' Preferences to the Exhibition Vehicles

To realize SCCM development, the author illustrates a "Video Unites Customer Behavior & Maker's Designing Intentions (VUCMIN)" that focuses on the standard behavioral movements of customers who visit dealers.

Specifically, the author develops a typical sub-core element "Customer's Standard Behavioral Movements Model (CSBMM) in choosing a vehicle". As a concrete instance, the author conducted the following survey in order to investigate customer behaviors as shown in Figure 10. Figure 10(a) shows the enlargement of and the target car (vehicle) model is 1, gender 2, age 3, standing positions 4, and vehicle part focused on is 5. Among those items, standing positions are categorized as in Figure 10(b).

As a result, front is 1, front fender (driver seat) 2, rear fender (driver seat side) 3, trunk is 4, rear fender (passenger seat side) 5, front fender (passenger seat) 6, handle 7, shift lever 8, near passenger seat is 9. In total, all customer behaviors (standing positions, getting in and out, operation, walking time, etc.) are categorized into 85 distinct types of behaviors (Yamaji et al., 2010; Amasaka et al., 2013).
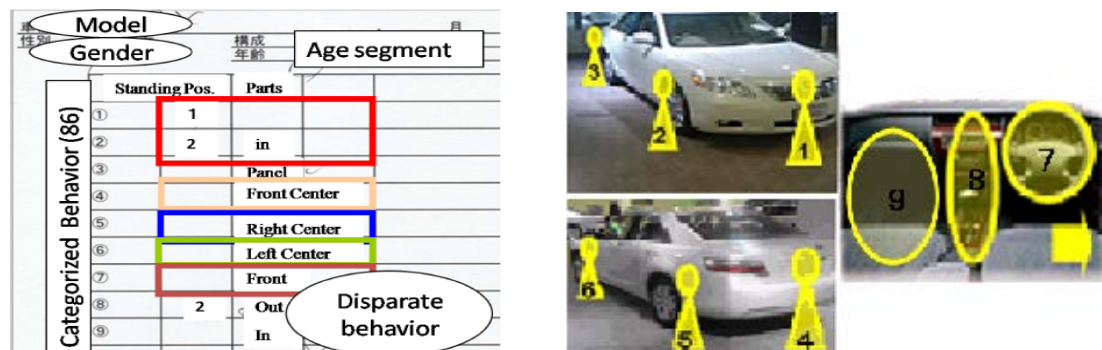
    (a) Survey sample (The enlargement of Sample 1)   (b) Sample 1 of Customer standing positions

Figure 10. Video Unites Customer Behavior & Maker's Designing Intentions (VUCKMIN)

3.4 Scientific Mixed Media Model to Realize the Automobile Market Creation

Recently, to strengthen SMMM strategy, the author develops a "Scientific Mixed Media Model (SMMM)" named "New Mixed Media Model" which takes the form of auto-marketing creation using 3 sub-core elements "SMa-AM, SD-AM & SMu-AM" that each of the "mass-media ads. and direct ads. and multi-media ads." were optimized rationally due to "CSp and Science SQC" (Yamaji et al., 2010; Koyama et al., 2010; Ishiguro and Amasaka, 2012; Amasaka et al., 2013; Ogura et al., (2013a, 2013b).

Specifically, Figure 11(a) illustrates a graphical representation of customer motives for visiting auto-dealers using a typical mixed media with the various advertising. Area A: Mass-media advertising (: Television (TV), radio broadcasting, flyers, public transportation (train cars), newspapers, magazines, etc.), Area B; Direct advertising (: catalogs, Direct Mail (DM), handbills (directly handed (DH) to customers), telephone calls, etc.) and Area C: Multi-media advertising (internet, CD-ROMs, etc.).

Figure 11(b) shows the verification results from application of "New Mixed Media" by SMMM for raising the percentage of people affected, and use as the new strategic advertisement in nine media elements (TV, radio, newspapers, internet, train cars, flyers, magazines, DM and DH) designed.

A field survey on vehicle advertising was conducted to identify 3 sub-core elements of each media type to visualize the relationship between those elements and the media as well as the causal relationships between each media type and (i) vehicle attention, (ii) vehicle interest, and (iii) desire to visit dealers. A total of 318 valid responses (197 male and 121 female, generally uniform age balance) were collected. The investigation period was the five months leading up to the release of the "new Q model" by an advanced manufacturer: Toyota.

In Figure 11(b), the author shows the result of a follow-up survey using SMMM, where 16 people (percentage of people affected: 11.8%) actually visited the dealer, while 8 people signed a sales contract. Comparative verification was done by looking at the results of the usual experience of mixed media" when the dealer in the figure announced the old model Q car (: 4 years ago in a survey of similar size). In this case, the percentage of people affected was just 1.1%, thus validating the effectiveness of SMMM (Amasaka, 2015, 2022a, 2022b, 2023).
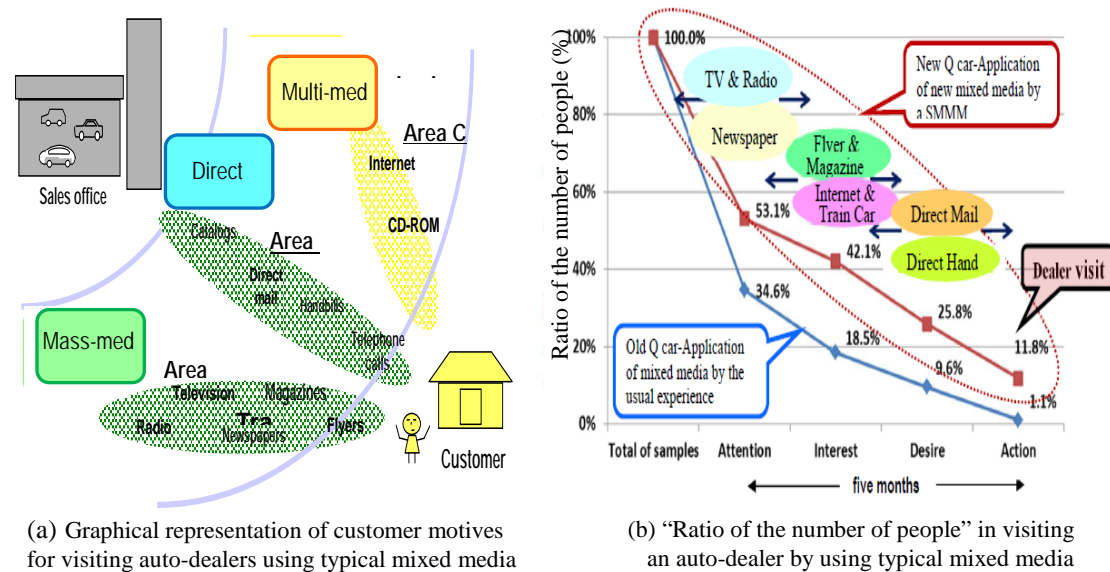

| (a) Graphical representation of customer motives for visiting auto-dealers using typical mixed media | (b) "Ratio of the number of people" in visiting an auto-dealer by using typical mixed media |

Figure 11. An Effectiveness of Scientific Mixed Media Model (SMMM)

4. Actual Applications

In this section, the author describes the effectiveness of NA-SMM for innovation of the mode of business and sales operation through the actual cases in Toyota.

4.1 Establishment of the "Toyota Sales Marketing Model" (TSMM)

As typical example, the author has established the "Toyota Sales Marketing Model" (TSMM) to improve the repeat customer ratio for Toyota vehicles as the scientific CS, CL and CR activities (Amasaka. Ed., 2012; Amasaka, 2015, 2022a, 2022b, 2023).

(1) Trial for increasing sales through CR based on customer type

The achievements of the present study are currently being applied at Netz Chiba and other Toyota dealers using CSp and Science SQC below. Then, the author solves problems by using scientific approaches such as "Mountain climbing for problem-solving" (development of specific models for customers of high replacement probability) following the steps from (i) to (ix) shown in Figure 12.

In steps (i) and (ii) shown in the figure, consideration was given to the development of specific models for "high replacement probability customers" as shown in Figure 13, an "Application type" association diagram (Step (i)-(iii)). Then, in step (iii), a scenario of implementation plans for about a year was

established (Amasaka et al., 1998; Amasaka, 2001, 2007, 2009, 2010).

In steps (iv) through (vi), the graphical "Categorical Automatic Interaction Detector" (CAID) analytical method was implemented (Murayama, 1998; Amasaka, 2001). In CAID, the author has been developed as the new multivariate analysis, and was necessary for the qualitative and categorical data analysis
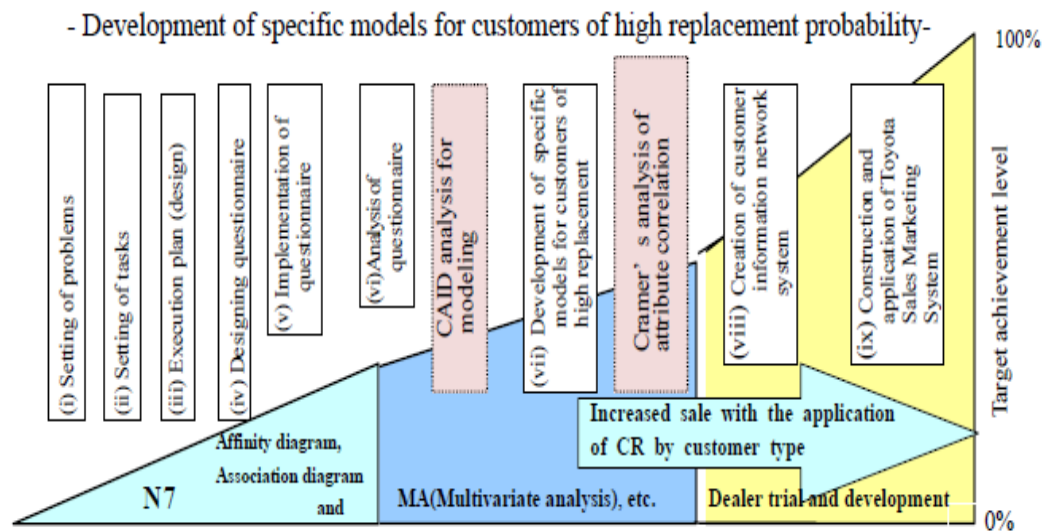

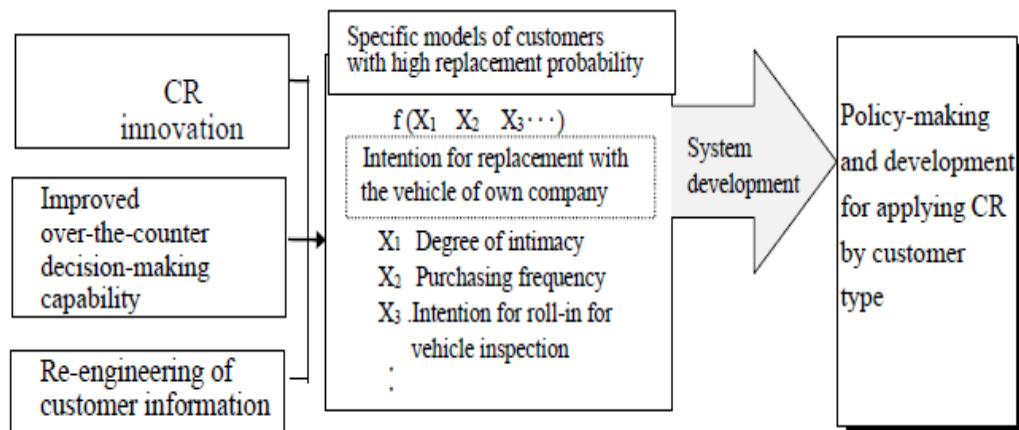**Figure 12. Mountain climbing for problem-solving using SQC Technical Methods**

Figure 13. "Application Type" Association Diagram (Step (i)-(iii))

required for questionnaire design, implementation and analysis.

In the next step (vii), the sales method capable of deploying CR based on customer type was obtained using the Cramer's analysis of attribute correlation as the base for developing the customer information network system in step (viii).

In the final step (ix), the scenario at Toyota "Netz Chiba" was examined as the basis for deployment to all Toyota dealers in Japan for the establishment of TSMM.

(2) Development of specific models for high replacement probability customers

(2-1) Objective and explanatory variable for the planned questionnaire form

1) Objective variable: Intention to replace with Toyota vehicle: (Yes, No)

2) Explanatory variable: Records of roll-in (oil change, inspection and maintenance, fault repair, accident repair, vehicle inspection), number of new cars purchased, referral for new car purchase, voluntary insurance contract, degree of intimacy, degree of Toyota card usage, sex, age, etc. (categories 3 to 6).

(2-2) 4 measures to achieve design and implementation of effective questionnaire

Prior telephone notification was given to 4,000 customers who bought new Toyota vehicles within the five years on the planned questionnaire. To improve the recovery rate of the questionnaire, a simply-designed questionnaire was adopted with one section of questions laid out on one page as shown in Table A (Case-1) (See to Appendix C).

(2-3) Questionnaire analysis with CAID & Cramer's analysis of attribute correlation

After analysis of the questionnaire data, the results of analysis of causal relations were indicated graphically to accurately show the proposed measures and decision-making process that led to increased sales through the application of CR based on customer type. Then, CAID analysis and Cramer's analysis of attribute correlation was applied to enable collation using empirical rules to form "Analysis I and Analysis II" as follows.

"Analysis I" involves arranging customers having a high-probability of replacement with Toyota vehicles into a model using intelligent CAID analysis. Factors affecting replacement by high-probability customers are rearranged in the same manner as the variable designation method of multi regression analysis. This is conducted repeatedly based on empirical techniques of the staff and managers of business/sales divisions (so as to match their experience). Then, the characteristics and changes in the customers' orientation are ascertained on the basis of actual contact with customers. Customers are stratified into customer types (customers of high, medium and low repeat business probabilities) from the customer CR point of view.

"Analysis II" involves conducting factorial analysis using "creation of ties with customers" as the key point to map out our business and sales policies (Cramer's analysis of attribute correlation, etc.). In practice, correlation among influential factors is extracted by the intelligent CAID, including the degree of intimacy and roll-in for vehicle inspection and all other question items using the Cramer's analysis of attribute correlation. For example, factors which improve the degree of intimacy with customers are identified from the sales activity and after-service activity viewpoints, aimed at deployment for sales policies.

(2-4) Analytical result with CAID (Analysis I; from Step vi to step vii)

Figure 14 shows the legends of the analytical results. Analysis a in the figure indicates that 62% of

1,610 users who answered the questionnaire intend to replace their vehicles with a Toyota vehicle, while 38% do not. Next, analysis b is the division by the primary influential factor of the "degree of intimacy". The upper setting of having "intimacy" (customers having good acquaintance with sales staff) indicates that 75% intend to buy Toyota for replacement, and the lower setting of having "no intimacy" (customers not having good acquaintance with the sales staff) indicates that 48% intend to buy Toyota.

The difference between them is as much as 27%. Thereafter, c indicates the analytical result for users who bought Toyota for the first time and those for two times and over (no significant difference among 2nd to 5th time purchasers). Similarly, analysis d stratifies the users by the "intention for roll-in for vehicle inspection service".

From Figure 14, it is known that 90% of customers of level 1 (regular customers) indicated in the top position of d intend to buy a Toyota vehicle for replacement. The figure combines customer types of

Figure 14. CAID*[1] Analysis (Step (vi))
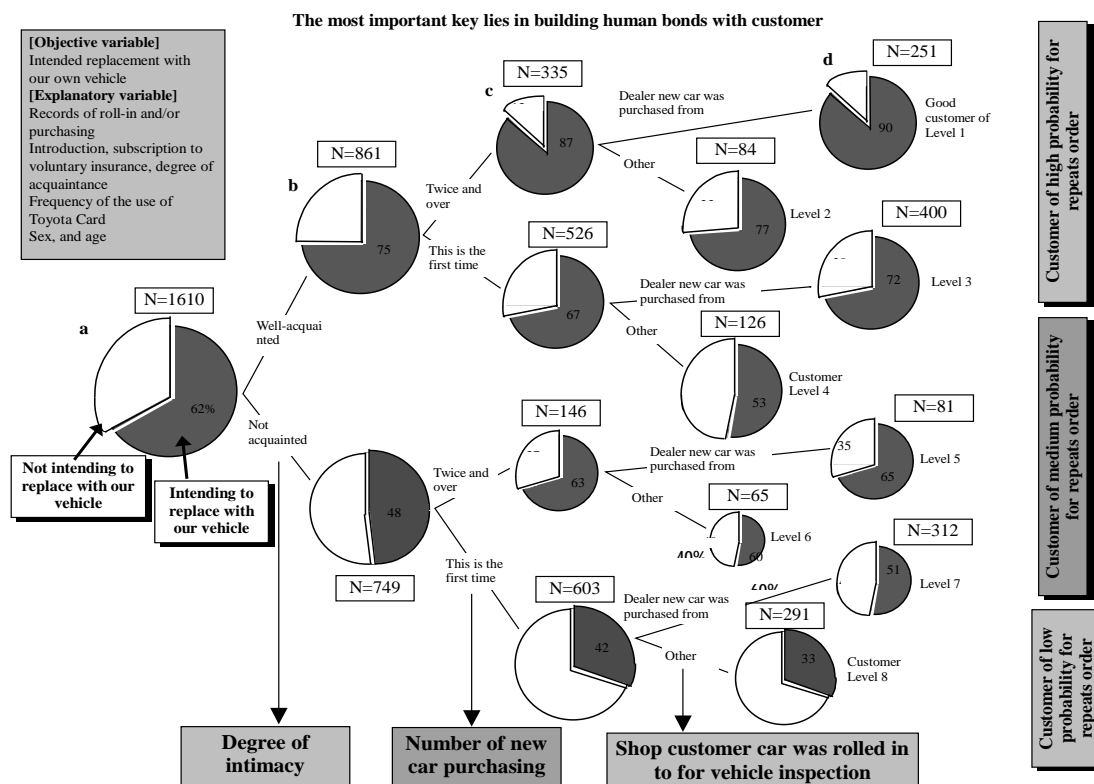*[1]: Multiple Cross-section Analysis (Categorical Automatic Interaction Detector)

whom 70% intend to buy Toyota (b, c and d) on customer levels 1 through 3 (regular customers), and classifies them as customers of high probability. Likewise, customer types of whom 50% intend to buy Toyota on the customer levels 4 through 7 are classified as customers of medium probability.

Customers on level 8 are classified as customers of low probability since they fail to hold a majority. The author does not discuss other influential factors (such as **e**: introduction, **f**: sex, and so forth) where difference is noted between two dealers (: Toyota "Netz Chiba and Netz Ehime").

(2-5) Analytical result with Cramer's analysis of attribute correlation (Analysis II: Step vii-step viii)

Practical and detailed analysis is conducted from the sales policy standpoint aimed at increasing the frequency of contact with customers. Here, the correlation between the degree of intimacy extracted in step (vi) and all other questions is explained using a factor and result diagram based on the Cramer's analysis of attribute correlation as shown in Figure 15.

Area 1 in the figure contains factors a through i influential to the degree of intimacy and area 2, factors j through w affecting the roll-in destination for vehicle inspection. "Index" in the figure represents the customer information numerically.

For example, the 0.14 of "sincere action against failure or accident" is an index when the Cramer's factor correlation coefficient is assumed to be 100. It is technically possible to correlate all factors in area 1 with the 6 key data shown in the figure. Based on the information obtained as a result of these
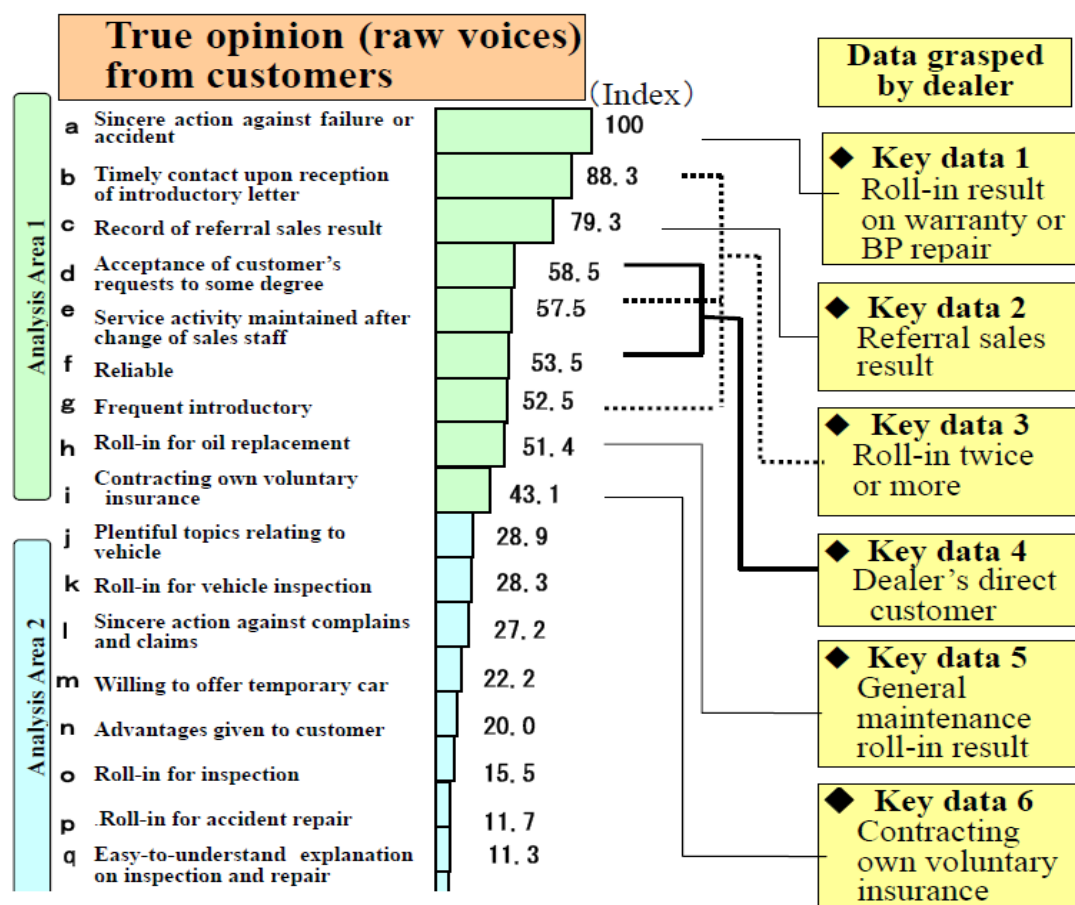

Figure 15. Factor Analysis of Cramer's Analysis of Attribute Correlation
(An example of Degree of Intimacy)

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analyses, practical policies can be established for promoting sales and after-service activities capable of improving the degree of intimacy with customers who can be handled by a dealer.

(3) Construction and application of Toyota Sales Marketing System (TSMS)

The information can also be used for simulation for sales expansion, which is the basis of innovation for creating strong contact between the dealer and its customers.

As a result, in step (ix), the author has constructed the "Toyota Sales Marketing System (TSMS)" as shown in Figure 7 above. For practical application, the questionnaire in step (vi) is reanalyzed at trial stages of the system in steps (vii) and (viii) of Figure 13 in order to ensure replacement by Toyota vehicles by adding the following strategies.

The CR activities based on customer type are adopted by classifying high- and middle-probability customers into those who visit the shop and those who must be visited by our staff, taking characteristics at new car purchase into account.

1) A system is established so that the shop manager directly receives "Medium-Probability Customers (MPCs)" upon their visit to the shop without fail in order to promote visits to the shop by "High-Probability Customers (HPCs)".

Thus, the frequency of contact with customers is increased. Further, sales and service activities focus on telephone calls for customers who visit the shop, and telephone calls and home visits for those who require visits by our staff, as shown in the figure.

2) As for "Low-probability customers (LPCs)" who have less contact with the sales staff, a telephone call center is established within the dealer as shown in the figure to accumulate know-how related to the effective use of customer information software.

The two-step approach is adopted as the practical sales policy where telephone calls are used to follow up on the effect of publications, advertisements, catalogs, fliers and direct mail.

As expected, excellent results have been reported at "Netz Chiba" and other Toyota dealers who introduced this system by applying the Toyota Sales Marketing System constructed as above.

Recently, in parallel to this study, the author studied so called "Database Marketing" where the effects of publications, advertisements, catalogs, fliers and direct mail are quantitatively analyzed to enable effective support for this system (Amasaka, 2001, 2007: Kojima, et al., 2010: Ishiguro, et al., 2010, 2012).

Then, the application of TSMS has recently contributed to an increase in the sales share of Toyota vehicles in Japan (40% in1998 to 46% to 2008) (Nikkei Institute, 1999).

4.2 Similar Cases

With its effectiveness verified, the author has developed the similar cases employing NA-SMM based on the SMDM as follows;

(1) "Application to scientific automobile sales innovation developing dynamics of the effect of publicity and advertising"－As part of an organization's market creation activities, it is important to gain a quantitative understanding of the effect of publicity and advertising, which contributes to the above "Toyota Sales Marketing System" (TSMS).

In this case, the author demonstrates the effectiveness of the "flyer advertising effect", "day of the week effect", and "new car effect"

(Amasaka et al., 1998: Amasaka. 2001, 2003b, 2007a, 2009).

(2) "Change in automobile marketing for improving business and sales using Science SQC approach for focusing on CS as a way of boosting marketing effectiveness"－At a stage of execution, the key factors comprising CS and CL among core customers at the 6 target dealerships, each of whom represent major automakers in Japan: 4 Japanese (Toyota, Nissan, Honda and Mitsubishi) and 2 foreign (Mercedes-Benz and Volkswagen) were identified in order to determine the level of impact each of carries.

Specifically, the author has analyzed sales information from core customers to identify the four key factors of CS and CL among them using "covariance structure analysis". These results point to a customer mindset whereby those looking to replace an existing vehicle have a desire to go back to the dealership where they purchased their old car because they have a lasting impression of the courteous manner with which a salesperson treated them before. (Okutomi and Amasaka, 2013).

(3)"Development of Automobile Exterior Design Model (AEDM) to strengthen the auto- products plan in auto-market value creation"－As customer values become increasingly diverse, the auto-exterior design is becoming one of the most critical elements influencing customer purchase behavior for automakers.

To address this issue, the author has developed the "Intelligence Design Concept Method (CS-IDCM)" using above "CSp-CIANS and Science SQC", and has verified the validity of AEDM through the development of the typical New model cars (: *Lexus* and others) (Motor Fun, 1997, 2000; Amasaka, 2005, 2007d, 2018).

5. Conclusion

In this study, to strengthen "customer value creation", the author has created a NA-SMM (New Automobile Sales Marketing Model) using 4 core elements: "SCCM, NCSp-AS, VUCMIN and SMMM" for innovating "auto-office / shop appearance and operation".

To realize NA-SMM strategy, moreover, the author has developed the SMDM based on the TMS adapting a Dual Methodology "CSp and Science SQC". In order to boosting marketing effectiveness in CS, CL and CR activities".

Concretely, the author has developed each of 4 sub-core elements as the formation of NA-SMM: (1) "NSOIM, ICIMM and IASMM" in SCCM, (2) "CSp-CIANS in NCSp-AS, (3)"CSBMM" in VUCMIN, and (4) "SMa-AM, SD-AM and SMu-AM" in SMMM. The validity of NA-SMM is then verified through the actual applications to automobile customer creation in Toyota.

6. Acknowledgements

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Appendixes

Appendix A: Customer Science principle (CSp)

This is intended to indicate the desirable state of new business processes for creating "customer's wants" indispensable to the development of attractive products in various marketing activities.

In Figure A, the image of customer's words (implicit knowledge) is translated first into common language (lingual knowledge) and then into engineering language (design drawings as explicit knowledge) by means of appropriate correlation.

This refers to the conceptual diagram that rationally objectifies subjective information (y) and subjectifies objective information ($\hat{y}$).An approach based on CSp will make product planning and uncertain business processes more accurate, possibly increasing success rates and decreasing failure rates (Amaska, 2002, 2005; Amasaka, Ed., 2012; Amasaka, 2015).
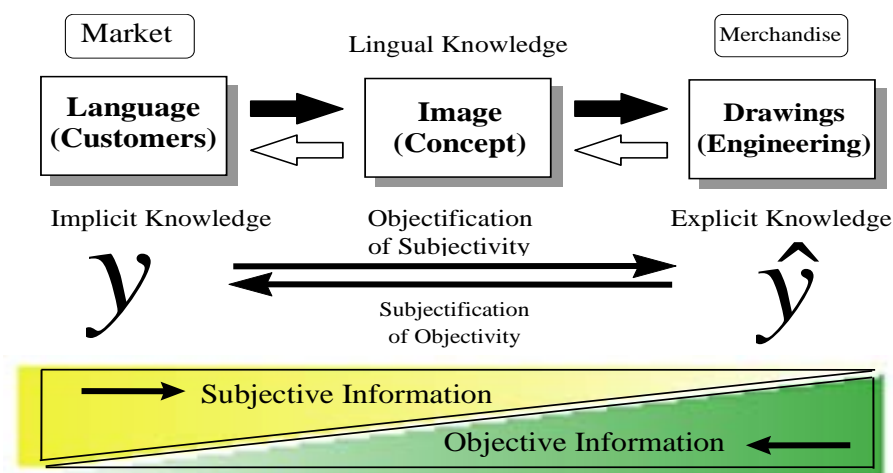

Figure A. Schematic drawing of "Customer Science principle"

Appendix B: Science SQC, new quality control principle

This principle is utilized systematically and organically under a new concept and procedures so as to allow the four core elements described in Figure B to mutually build on one another (Amasaka, 2004).

(1) "Scientific SQC" refers to scientific approaches at every stage of the process ranging from determination of problem to accomplishment of objectives.

(2) "SQC Technical Methods", which use the seven tools (N7), multivariate analysis (MA), design of experiment (DE), reliability analysis (RA) and others, refers to the mountain- climbing methodology for solving problems.

(3) "Integrated SQC network "TTIS (Total SQC Technical Intelligence System)" represents the networking of SQC software application by using four sub-core elements: TSIS (Total SQC intelligence System), TPOS (Total SQC Promotional Original Soft), TSML (Total SQC Manual library), and TIRS (Total Information Integrated System)

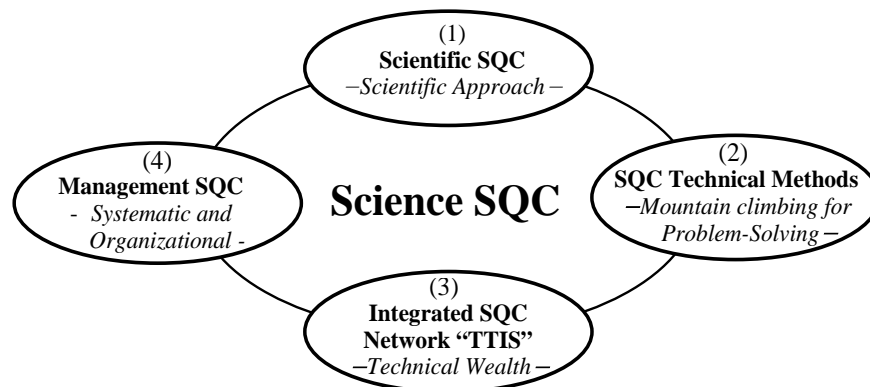(4) "Management SQC" is to support prompt solution of deep-rooted engineering problems.

Figure B. Schematic drawing of "Science SQC, new quality control principle"

Appendix C. 4 measures to achieve design & implementation of effective questionnaire

The subjects were required to answer methodically within about 15 minutes. Furthermore, introduction of a Questionnaire Information Box helped raise the recovery rate to over 40% (normally 20%) and the valid reply ratio to 98% (normally 70%) (Amasaka et al., 1998; Amasaka, 2001, 2007, 2009, 2010).

Table A. Typical example of questionnaire form

—— We like to inquire on the after-sales services of your dealer. ——

Q1: Please let us know the present state of the maintenance, fault, repair and other your vehicle-related after-sales service (please give us an answer for each item from ① to ④).

	①Dealer used	②Reason for using	③Method of payment	④Method of roll-in
1. Oil change (please name a principal shop / station you use)	1. Dealer you purchased a new vehicle from 2. Other dealer 3. Vehicle maintenance service shop 4. Car shop 5. Gas station 6. Other ( )	1.Because of acquaintance 2. High level of technique 3. Low price 4. Privilege offered 5. Nearness of location 6. Other ( )	1. Cash 2. TOYOTA CARD 3. Other cards 4. Other ( )	1. Drive to the shop 2. Have the vehicle picked up 3. Other ( )
2. Inspection and maintenance service of your vehicle (Please name a principal shop you use)	1. Dealer you purchased a new vehicle from 2. Other dealer 3.Vehicle maintenance service shop 4. Car shop 5. Gas station 6. Other ( )	1.Because of acquaintance 2. High level of technique 3. Low price 4. Because of guidance 5. Nearness of location 6. Other ( )	1. Cash 2. TOYOTA CARD 3. Other cards 4. Other ( )	1. Drive to the shop 2. Have the vehicle picked up 3. Other ( )
3. Repair service of fault of your vehicle (please name a principal shop you use)	1. Dealer you purchased a new vehicle from 2. Other dealer 3.Vehicle maintenance service shop 4. Car shop 5. Gas station 6. Other ( )	1. Because of acquaintance 2. High level of technique 3. Low price 4. Good attending attitude 5. Nearness of location 6. Other ( )	1. Cash 2. TOYOTA CARD 3. Other cards 4. Guarantee 5. Other ( )	1. Drive to the shop 2. Have the vehicle picked up 3. Other ( )
4. Repair service of your vehicle after an accident (please name a principal shop you use)	1. Dealer you purchased a new vehicle from 2. Other dealer 3.Vehicle maintenance service shop 4. Car shop 5. Other ( )	1. Because of acquaintance 2. High level of technique 3. Low price 4. Good attending attitude 5. Nearness of location 6. Other ( )	1. Cash 2. TOYOTA CARD 3. Other cards 4. Guarantee 5. Other ( )	1. Drive to the shop 2. Have the vehicle picked up 3. Other ( )
5. Next vehicle inspection (what type of service shop would you select?)	1. Dealer you purchased a new vehicle from 2. Other dealer 3.Vehicle maintenance service shop 4. Car shop 5. Other ( )	1. Because of acquaintance 2. High level of technique 3. Low price 4. Because of guidance 5. Nearness of location 6. Other ( )	1. Cash 2. TOYOTA CARD 3. Other cards 4. Other ( )	1. Drive to the shop 2. Have the vehicle picked up 3. Other ( )
6. Purchase of a new vehicle (what type of shop would you select to purchase from?)	1. A shop you purchased your present car from 2. A shop other than one you purchased your present car from 3. Other ( )	1. Because of acquaintance 2. Sales staff is enthusiastic 3. Good attending attitude 4. Using the shop for the check-up and maintenance service of your vehicle 5. Good purchasing condition 6. Other ( )	1. Cash 2. Installment 3. Lease 4. Other ( )	1. Drive to the shop 2. Have a sales staff come to see me 3. Other ( )