

Practices and Business Models Shaping Customer Lifetime Value: Validation of Structures, Processes, Revenue Models from D2C Business Surveys

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Against the backdrop of recent changes in the market environment, marketing practices that utilise customer data to promote sustainable purchasing and enhance customer lifetime value are expanding in general consumer goods. We investigated the actual situation in the D2C business, which is a representative example of this, and verified the business model for maximizing customer lifetime value. The results of the survey revealed the actual situation of businesses that increase the efficiency of new customer acquisition, improve cumulative customer revenue, and increase profits based on CPO, LTV and other indicators, and feedback from customers. The business operations emphasised the acquisition of customer feedback and interaction appeals, and the value co-creation of products and services through interaction with customers. The importance of the social significance of the business and the importance of the appeal of the company's purpose were common perceptions of the business operators in the sustainable purchase phase. Three models of the basic structure of the double funnel, the cyclical business process and the business revenue were validated against the identified business situation. After applying the business revenue model to purchase history data for evaluation, we concluded that it could inform business planning, revenue forecasting, and policy development and assessment.

Keywords: Customer Lifetime Value, D2C, Engagement, Double Funnel, LTV, CLV

1 Problem awareness and research methods

1.1 Expanding practices that promote customer lifetime value formation

In the marketing of consumer goods, the practice of increasing customer lifetime value by promoting sustained purchase by identified customers has been expanding in recent

years. The sustained purchase of products has been the subject of customer loyalty research that began in the 1950s and relationship marketing research since the 1980s. Customer engagement research, which has been active since around 2000, analyses sustainable relationships with customers, including behaviours other than purchasing. In practice, business-to-business and direct marketing have traditionally developed businesses based on sustained purchasing relationships with customers.

The recent growth in customer lifetime value-oriented practices can be attributed to changes in the market environment, including the development of ICT technologies, the expansion of telecommunications infrastructure, and the spread of smartphones and social networking services. Shopping on e-commerce platforms like Amazon, Rakuten Market, and online supermarkets, as well as subscriptions, have become routine activities for the average consumer. In-store retailers also use electronic payment and loyalty point services that enable them to track customers' purchase history. In addition, social networking services such as LINE, Instagram and Facebook, whose use has expanded to include middle-aged and older consumers, have become the basis for two-way communication between sellers and buyers. With increased opportunities to capture customer data and reduced communication costs, the effectiveness and reach of personalized one-to-one marketing have grown exponentially.

In response to these market conditions, sellers are developing digital marketing to approach customers classified and identified in customer databases through online media. Marketing that utilises customer databases not only grasps the purchase history of each individual customer, but also uses a DMP (Data Management Platform) that accumulates and analyses demographic information and media contact history. Systems for accumulating and analyzing customer data are being enhanced, and CRM/Customer Relationship Management measures are being introduced to approach individual customers based on the results of the analysis and form a sustainable purchasing relationship.

Against the backdrop of these recent trends, the practice of increasing cumulative revenues from customers by encouraging repeat purchases is now widely practiced in general consumer goods businesses. This customer lifetime value-oriented marketing practice is represented by the business known as 'D2C', which has gained widespread

attention since the late 2010s.¹⁾

1.2 Verification of existing models by understanding D2C business

D2C (Direct to Consumer) describes a channel through which manufacturers sell directly to consumers, bypassing retailers, and has been in use since the 2000s, in areas such as direct sales of healthcare products (Cousins, 2009) and community-supported agriculture (CSA) (Schmit et al, 2012). Since around 2020, D2C has been gaining attention as a business that uses the internet to sell consumer goods directly to customers and form lasting purchasing relationships (Nikkei BP, 2019). A straightforward difference from traditional SPA/manufactured retailers and direct marketing businesses can be seen in that, first of all, the use of digital media is assumed from the outset in sales and customer interaction.

Older manufacturers' direct-to-consumer businesses are also classified as D2C businesses, but have been adopted by consumer goods start-ups in recent years and are attracting attention for their growth potential. According to the Nikkei, 106 of the 1,022 global unicorn companies (unlisted companies with a corporate valuation of USD 1 billion or more) in 2022, or about 10%, were D2C companies (Nikkei, 2022).

Representative examples of D2C businesses include Warby Parker (glasses), Casper (bedding), Yumi (baby foods) and Glossier (cosmetics) in the US. In Japan, examples include Scandinavian Living Tool Store for household goods, Etvos for cosmetics, BULK HOMME for men's cosmetics, BOTANIST for hair care, snaq.me for confectionery and FABLIC TOKYO for suits. Based on literature that mentions D2C (Winkler, 2019; Sasaki, 2020; Ikee, 2021; Oki, 2022; Lienhard, 2022), the characteristics of D2C businesses can be organized as follows.

- (i) Sell products of a specific category under their own brand directly to customers through channels such as their own e-commerce, or through a combined sales

¹⁾ Data on the use of 'D2C' or 'Direct to Consumer' within academic articles was obtained from Google Scholar. Until 2009, there were about 8 to 9 mentions each year, mainly in the fields of agriculture and medical research. During the 2010s, the application of D2C in the context of general consumer goods saw an increase, with roughly 10 to 18 papers being published annually up until 2018. The year 2019 witnessed the publication of 29 papers, which surged to 85 in 2020, and by 2021, the count of papers citing D2C climbed to 134. The frequency of D2C mentions in NIKKEI newspaper articles also saw an upward trend, with none in 2018, 8 in 2019, and 108 in 2020.

channel that also includes retail outlets.

- (ii) The company operates a data-driven business using customer information such as purchase history, and has a strong orientation towards sustainable purchasing, including subscriptions models.
- (iii) Emphasise interactive communication with customers using social networking and other means.
- (iv) They often reflect the provider's commitment to their business values, including contributions to society and their customers.

(i) (ii) deals directly with customers and utilises acquired customer information to lead them to repeat purchases and increase cumulative revenues, which has something in common with traditional SPA and direct marketing businesses. While the existing direct marketing business mainly uses offline media such as call centres and postcards in conjunction with the internet, the D2C business uses digital media such as email, product reviews, forms and chatbots as well as social networking from the outset. In addition to SNS.

(iv) D2C is also characterised by the fact that it actively promotes the social significance of its business, or so-called 'purpose', in its communication with customers. Mori, CEO of FABLIC TOKYO, states that "depth" is important for D2C (Yamada, 2021); it is also noted that D2C is a business that gains customer "empathy" by expressing "clear values, philosophy, vision, mission and principles" (Oki, 2022).

D2C businesses, characterized by these features, have only gained attention in recent years, and it is said that "D2C business models have not been sufficiently examined in academia" (Kanazawa et al., 2021).²⁾

In the field of direct marketing, models of business processes based on customer lifetime value have been proposed (Iwanaga, 2018), and some marketing practices and studies have also presented business revenue models (Iwanaga, 2020, Kato, 2021, etc.). However, these only present models and have not been evaluated. It is considered necessary for

²⁾ Kanazawa et al. analyzed the D2C business model through the Warby Parker case study, conceptualizing it as a "value constellation supply chain" within the framework of SD logic and centering on "contextual value," as described by Vargo (2008). This approach contrasts with the one in this paper, which focuses on exchange value and economic value.

these existing models to be examined through surveys to understand the actual situation of the business process and to verify the revenue models using actual data.

In this paper, we conduct a survey targeting experts such as business operation managers of D2C businesses to identify business models that aim to cultivate customer lifetime value. The business revenue model will also be assessed using purchase history data provided by the companies.

1.3 Methodology

In order to understand the characteristics and practices of the D2C business model, the survey was designed in collaboration with five D2C experts, including managers and business operation managers, with the following four survey items. We employed snowball sampling, starting with D2C managers and business operation managers, to recruit participants. The study utilized a combination of web-based surveys and interviews, yielding 36 respondents.

Survey items:

- 1) To ascertain a common understanding of D2C business operations.
- 2) Inquire about the KPIs and key management indicators used in business operations.
- 3) Present multiple policy measures to promote sustainable purchasing and inquire about the level of emphasis.
- 4) Inquire about strategies for attracting new customers and sustaining purchases.

Survey summary:

Surveyed by: 36 participants including D2C business operation managers, entrepreneurs, and D2C business consultants.

Survey method: A combination of self-administered web-based surveys and interviews.

Categories covered: food and health food, cosmetics, clothing and sundries, and other composite categories.

Respondent D2C Business size:	Scale/Revenue (JPY)	Cases	%
>30B		2	6%
10B-		7	19%
3B-		11	31%
1B-		6	17%
0.3B-		2	6%
0.1B-		4	11%
<0.1B /Pre-launch		4	11%
Total		36	100%

2 D2C projects in practice

2.1 Consensus on D2C business operations

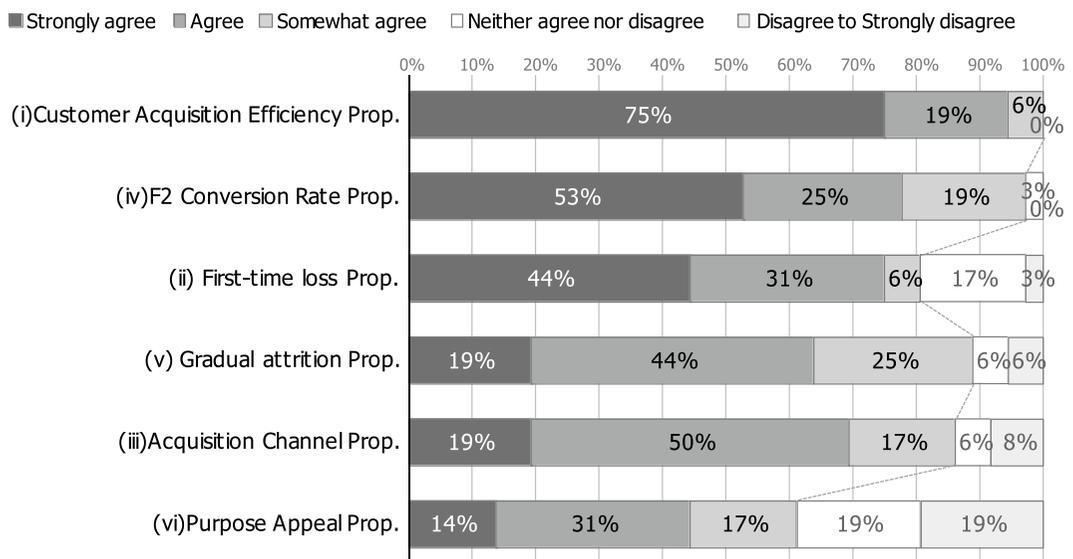
In order to explore the common perceptions of what D2C business actually looks like, we surveyed participants to gauge their agreement or disagreement with the propositions about D2C business that we had formulated. The content of the propositions to ascertain perceptions was discussed with several D2C experts, and the following six were established. The agreement or disagreement with each proposition was obtained on a seven-point scale ranging from 'strongly agree' to 'strongly disagree'.

- (i) Customer acquisition efficiency proposition: the efficiency of new customer acquisition has a significant impact on business profitability.
- (ii) First-time loss proposition: the cost of acquiring each new customer exceeds the sales of the first purchase in most cases.
- (iii) Acquisition channel proposition: customers tend to repeat differently depending on the channel/media through which they are acquired.
- (iv) F2 conversion rate proposition: the second purchase rate and F2 conversion rate are critically important for improving cumulative customer revenue.
- (v) Gradual attrition proposition: the attrition rate of new customers tends to be high from their first purchase to the first few purchases, but then stabilises.
- (vi) Purpose appeal proposition: it is critically important to appeal to the 'provider's thoughts and social significance' of the business in order to attract new customers.

The survey results are summarized in Figure 1. (i) The customer acquisition efficiency proposition was 100% on the affirmative side of 'agree'. McCarthy & Pereda (2020), who reviewed customer value calculation studies, noted that many existing studies did not manipulate the deduction of customer acquisition costs and cautioned that customer acquisition costs should be included in the calculation as they are an important cost that accounts for a large proportion of a business' revenue and expenditure. The importance of new customer acquisition costs and customer acquisition efficiency in business revenues is common knowledge for all of the experts practising D2C businesses surveyed.

In the context of acquiring new customers, 80% of respondents affirmed the first-time loss proposition. In the business of general consumer goods, not just in D2C, it is not uncommon for the promotional costs to acquire trial usage of a new product to exceed the sales from the initial sale. There can be instances where the annual profit and loss of a product unit's business, due to promotional investment in the new launch, may be negative. However, when profitability on a customer-by-customer basis is ascertained, a situation where, for example, a customer spends JPY 10,000 to acquire sales of JPY 3,000 on the first purchase will generally tend to cause discomfort. However, for many D2C experts, losses on the first sale were considered common knowledge. There is a shared

Fig.1. Common perceptions in D2C business



perception that losses occur when the cost per new customer acquisition, as captured by the CPO or CPA³⁾ metric, exceeds the sales of the first purchase.

(iv) Both the F2 conversion rate proposition and the proposition regarding the gradual decrease in customer attrition rate relate to the cumulative cost per customer and the profitability that offsets the new customer acquisition cost. Most D2C experts share a common understanding of the importance of the second purchase rate and F2 conversion rate, with 97% supporting the proposition that these rates are crucial. Additionally, 88% agree with the proposition that the persistence of purchase tends to stabilize after the first few purchases. Regarding the propensity of customers to make repeat purchases after the initial purchase, the comment was made that controlling for F2 to F4 can determine the medium- to long-term retention rate. Reflecting this perception, each D2C business had introduced measures to induce conversion to subscription and regular purchases at the initial stage, including at the time of the first purchase, as well as thick customer approach measures at the point of purchase. On the other hand, from the standpoint of emphasising the medium- to long-term growth potential of the business, some D2C managers said that they would invest in the fan base rather than F2 conversion. The proportion of respondents who agreed or disagreed with the proposition (vi), which asked whether appeals such as "the provider's thoughts and social significance" of the business are important at the stage of acquiring new customers, was approximately 40%, with 62% in the affirmative and 38% neutral or negative. The so-called 'Purpose' appeal is one of the characteristics of the D2C business, as we saw in the previous section, but its effectiveness at the stage of acquiring new customers has not necessarily been recognised as settled. One view was that "consumers are interested in the product, so appealing to the superiority of the product is the top priority; social significance is not a decisive factor in acquiring new customers".

³⁾ CPO is Cost Per Order and is the cost per new customer acquired. It is calculated by dividing the amount invested in new customer acquisition measures by the number of customers acquired. It can be considered the same as CAC/Customer Acquisition Cost, which is used in customer lifetime value research. CPA is Cost Per Action and is used as an index to evaluate actions that are not limited to purchases, such as sample requests.

2.2 What KPIs do D2C businesses use

D2C experts were asked which key performance indicators (KPIs) they use in their business operations. In a free-text multiple response survey, 36 respondents gave 66 different KPIs, with an average of 4.5 indicators in use. Figure 2 shows the utilization rate of the main KPIs. In the figure, it is possible that some indicators are known by different names; however, we did not conduct thorough name verification.

The CPO or CPA indicator was used by many operational managers. Respondents who did not complete both indicators were asked why they did not use the CPO indicator, and they stated that it was because the use of the CPO indicator was self-explanatory. LTV (Lifetime Value), which ranked second in terms of usage, was used in practice mainly in terms of cumulative customer revenue. CPO and LTV can be regarded as two of the evaluation indicators in D2C business operations. The F2 Conversion Rate, representing the second purchase rate of first-time buyers, ranks as the second most frequently used KPI. The main KPIs are categorized into several groups, with CPO, CPA, and CPR being indicators used primarily to evaluate the efficiency of new customer acquisition. LTV, F2 conversion rate, and take-up rate are indicators related to

Fig.2. Key KPIs used in D2C businesses

	Top 3 Responses	Multiple Responses
CPO	44%	53%
LTV (Pitiodic LTV)	33%	50%
CPA	33%	42%
F2 Conversion Rate (Pitiodic F2CVR)	14%	28%
New Customers	14%	25%
CVR	11%	28%
CPR	8%	14%
Sales	8%	8%
Purchase Rate	6%	19%
Repeat Rate	6%	17%
Retention Rate	6%	17%
Average Spending	6%	14%
ROI	6%	11%
ROAS	6%	11%
CTR	3%	8%
Site Traffic	0%	6%
Others	31%	64%

sustained purchasing behavior. Lastly, ROAS, ROI, New Customers, and Sales are indicators related to business profitability and scale. Overall, D2C operators are managing their businesses in a way that enhances the efficiency of new customer acquisition while simultaneously increasing cumulative customer revenue and boosting the profitability of both combined as they grow their business.

Other indicators used by each business included those related to customer spend and customer retention, such as the 'cross rate', 'gift usage rate' and 'churn avoidance rate', as well as KPIs focusing on customer quality, such as the 'assumed target match rate' and 'fan transition rate'. None of the D2C operators reported using the ARPU (Average Revenue Per User) indicator, despite its widespread use in the telecom and smartphone gaming industries.

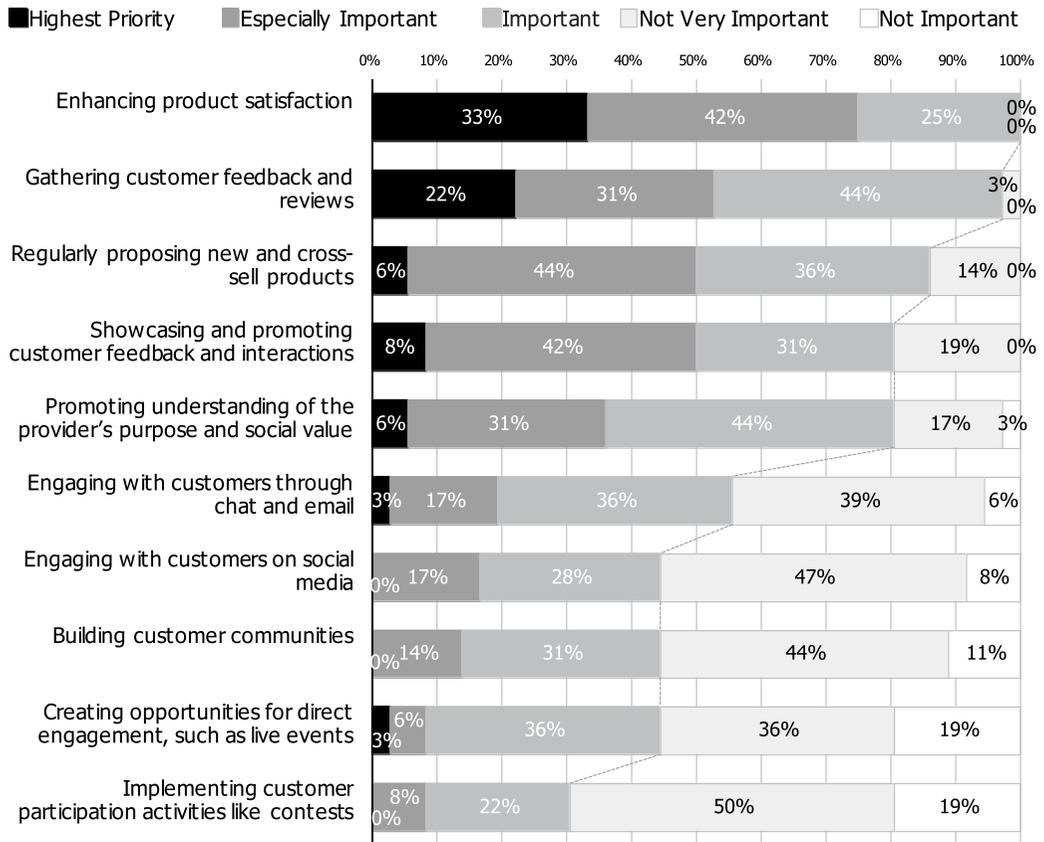
2.3 What is your policy on dealing with customers

Respondents were asked to rate the importance of ten policy measures for engaging existing customers and encouraging repeat purchases on a five-point scale from 'Highest Priority' to 'Not Important', as shown in Figure 3. The policy with the highest degree of importance was 'improving satisfaction with the product itself', which was emphasised by all business operators.

The extent to which satisfaction with a product leads to repeated purchases is debated, but it is considered to be at least one of the major factors (Kumar et al., 2013). Studies on customer satisfaction, such as those by Shimaguchi (1994) and Ono (2010), have explored the relationship between product satisfaction and repeat purchases. Similarly, D2C experts prioritize enhancing the product's evaluation. In this effort, some expressed that their focus would extend beyond the product itself to include enhancing communication, aiming to improve expectations, utilization, and satisfaction across both product and communication dimensions.

Following product satisfaction, 'Gathering customer feedback and reviews' was the second most emphasized policy, with 97% of operators highlighting its importance. Some managers emphasized the necessity for D2C businesses to consistently view products and strategies from the customer's perspective. The information provided by customers is used to improve product satisfaction, which is the most important factor. At the same

Fig.3. Degree of importance of customer response measures



time, it will also be used for communication measures to introduce and appeal to customers' opinions and interactions, a measure with an 81% importance rate. The measure of appealing customer feedback to other customers is emphasised at a similar level to the direct sales promotion measure "Regularly proposing new and cross-sell products", which has an emphasis rate of 86%. The series of processes involving the acquisition of customer feedback, its presentation to other customers, and product improvement based on this feedback is considered a crucial aspect of the D2C business model.

Regarding the importance of the Purpose Appeal, which was also discussed in the section on common perceptions, opinions were divided, with around 40% on the negative side at the new customer acquisition stage. However, when it comes to the retention stage after the first purchase, 81% of the respondents emphasised communication

Fig.4. Importance of customer care measures by growth trend ('Highest' & 'especially' total)

	Total (36)	Low Growth Biz (20)	High Growth Biz (16)	Difference
Enhancing product satisfaction	75%	65%	88%	23%
Gathering customer feedback and reviews	53%	45%	63%	18%
Showcasing and promoting customer feedback and interactions	50%	35%	69%	34%
Regularly proposing new and cross-sell products	50%	50%	50%	0%
Promoting understanding of the provider's purpose and social value	36%	35%	38%	3%
Engaging with customers through chat and email	19%	20%	19%	-1%
Engaging with customers on social media	17%	25%	6%	-19%
Building customer communities	14%	15%	13%	-3%
Implementing customer participation activities like contests	8%	10%	6%	-4%
Creating opportunities for direct engagement, such as live events	8%	5%	13%	8%

measures to promote understanding of the 'provider's purpose and social value'. D2C operators share a common understanding of the importance of pursuing a purpose in their approach to promoting sustained purchase by existing customers after the acquisition stage.

In order to ascertain the degree of emphasis on customer engagement-related measures, which have been the focus of attention in recent years, we set the items of interaction with customers through 'chat and email' and 'social media', and the formation of 'customer communities'. These items were emphasised by around half of the operators, indicating that attitudes are divided as to whether these engagement measures are important or not. Some operators stated that they wanted to increase the exchange of opinions with loyal customers, including through real contact, while others said that communities were ineffective despite the time and effort involved. Others reported utilizing text analysis of product-related posts on social media and review sites to inform their policy decisions.

There is a common understanding among D2C experts of the importance of 'Gathering customer feedback and reviews' and its 'Showcasing and promoting' measures among

engagement measures. However, it can be said that the evaluation of the costs and effectiveness of two-way communication measures using social networking and other media is not always settled.

In this survey, respondents were asked about the growth trends of the businesses they were responsible for over the last three years or so. There were 16 high-growth businesses that answered 'growing significantly' or 'growing', and 20 low-growth businesses that answered 'growing slightly', 'flat' or 'regressing'. A comparison of the policy measures emphasized by these two groups is presented in Figure 4. Although no significant differences emerged due to the limited sample size, it was observed that high-growth businesses tended to emphasise 'Gathering customer feedback' and its 'Showcasing and promoting' and 'Enhancing product satisfaction'.

2.4 How to consider when acquisition efficiency is not good

The key responses from D2C experts are summarised below. The main focus was on the development of policies regarding a) acquisition channels and media leading to first-time purchases, and b) the content and appeal of expressions.

Many responses indicated that CPO targets are set based on the cumulative customer revenue over a period of time. One expert commented, 'Generally, there is a conflict between customer acquisition efficiency and LTV, leading us to seek the CPO that yields the maximum ROI.' With regard to acquisition efficiency, one respondent commented that, "Since the CPO of the business will decline in the medium term, rather than aiming to improve acquisition efficiency through unreasonable offers and strong creative, it is better to make money through repeats and cross-sales".

[Policy for consideration in the event of poor new customer acquisition]

a) Consideration of acquisition channels and media.

- Clarification, redefinition and allocation of media roles.
- Review of allocation based on profitability of each sales point.
- Analysis of transition bottlenecks between and within media in the customer acquisition funnel.
- Scrutiny of and response to timing of submissions.

- Evaluating the extent of overreach or underreach, analyzing media performance, and determining appropriate responses.
- b) Consideration of expressions and appeals.
- Review appeal content and conduct creative testing.
 - Reconfirm the USP and offering value of the product and consider strengthening or changing the wording.
 - Identify new customer profiles and redefine targets.
 - Obtain and analyse evaluations of products and services through social networking and surveys.
 - Target profiles and behavioral insights are gathered through surveys and other methods.
- c) Re-establishment of business credits, targets and systems.
- Review of initial sales price/offer.
 - Review of ROI by product, medium and customer segment.
 - Explore room for LTV improvement, including cross-submission of proposals, and consider target CPO relaxation.
 - Curtail or halt investment in new customer acquisition.

2.5 How to consider when repeat business is not good

Respondents were asked in an open-ended question what their policy is to consider when the customer repeat rate is not good and LTV is not growing. As D2C businesses sell directly to customers, key indicator data can be obtained immediately and quantitatively. It is also possible to directly obtain recurring customer feedback, which most of the operators emphasised in section 2.3. As for retention, "Thoroughly analyse the data. Verify daily and weekly dashboards and review problems on a monthly basis", etc., and a. Some businesses were seen to start their response by analysing data and understanding the current situation. In doing so, not only numerical data such as cumulative customer revenue over a period of time and F2 conversion rates are analysed, but also customer feedback such as product evaluations.

The most important customer response measures, b. Considerations related to the products themselves, were also given a lot of importance. In response to feedback on

customer evaluations, product-related measures were taken, such as improving the products themselves, strengthening the product range and creating a sense of product benefits through communication. The basic policy seems to be to review and improve c. customer response measures and flows for each step and category of customers.

In addition, some businesses were seen to try to promote retention by strengthening d. customer relations outside of sales promotions and forming emotional connections, such as by redeveloping member magazines and provider messages, on the premise that these are not expected to have an immediate effect, but are necessary for medium-term growth.

[Policy for consideration in the event of poor retention]

a) Data analysis and understanding of current situation.

- Understanding the revenue efficiency of each purchased product and acquired media category.
- Understanding the efficiency of ROI and ROAS for each RFM category.
- Analysing customer evaluations for stacking points.
- Analysis of reasons for repeat customers to continue and reasons for disengaged and dormant customers not to buy.
- Understanding the gap between expectations at the time of acquiring a new customer and the evaluation of the customer after they become a customer.

b) Improvement of the product itself.

- Obtaining and responding to customer evaluations of products and services
- Product improvement and new product development through word-of-mouth analysis, etc.
- The introduction of communication measures to increase the benefits of the product, such as usage.
- The number of people who have been affected by the disaster is increasing.
- Review and strengthen cross-product and MD.

c) Improve customer response measures.

- Strengthening measures at the initial stage of purchasing, such as promoting F2 conversion.

- The first time a customer makes a purchase, the company offers a regular subscription offer to the customer to induce continued purchase.
- Re-defining the post-purchase customer journey.
- Understand the relationship between measures put in place and purchase persistence, and strengthen measures that contribute to persistence.
- Review the timing and flow of step mailings, outbound mailings and other measures.
- Subscriptions and subscriptions are introduced and enhanced.
- Strengthening customer incentives for setting, proposing and sustaining purchases of offers at the timing of withdrawal.
- Re-approach dormant customers.

d) Strengthening customer relations.

- Redevelopment of messages to customers in the long term and introduction of penetration measures.
- Investments in developing the brand's fan base.
- Re-examine periodic retention measures such as newsletters and monthly bulletins.
- Strengthening of mutual communication with customers through SNS, emails, etc.

3 Business models that form customer lifetime value

Based on the survey of D2C experts, existing models are confirmed here from the three perspectives of the basic business structure, business processes and business revenues that form customer lifetime value. The models confirmed by the fact-finding survey will be applied to actual purchase history data to assess whether they can be applied to business planning, revenue forecasting and policy evaluation in practice.

3.1 Basic structure of the double funnel

D2C business operators recognize two main phases in their operations. These phases are the new customer acquisition stage—where consumers make their first purchase—and the retention stage, during which converted customers make repeat purchases, thereby increasing their cumulative revenue for the business. The basic structure of a business that forms customer lifetime value can be called a 'double funnel' of two stages,

which is in line with the common understanding of those involved in the business.

The first of the two funnels corresponds to the purchase funnel (Hoban, 2015, Kishimoto, 2012), which is a model that shows the process and path of consumer contact and change in attitude up to purchase. It is traditionally used in marketing practice and has become even more widely used in digital marketing in recent years. Another funnel is the ladder model presented in relationship marketing research (Christopher et al., 1991), illustrating the progression from prospect to customer to advocate (Figure 5).

It is fair to say that businesses that form customer lifetime value can be captured in the basic structure of a double funnel, combining the purchase funnel and ladder model (Figure 6). The main KPI in the new customer acquisition phase corresponds to CPO, while LTV corresponds to the sustained purchase promotion phase.

The understanding of the business structure presented here has been applied in various marketing practices since the 1990s. A similar structure is called a double funnel by transcosmos (2012), and Dentsu (2019) has trademarked the 'Deyuar funnel', which is

Fig.5. Purchase funnel and ladder model

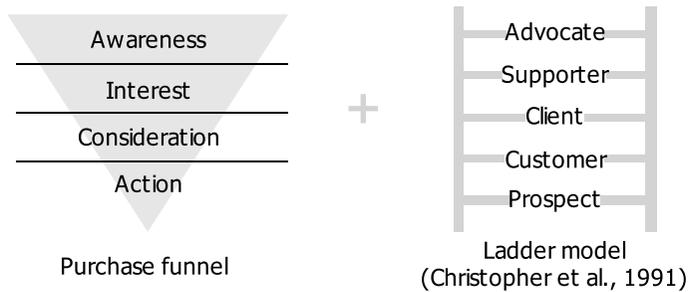
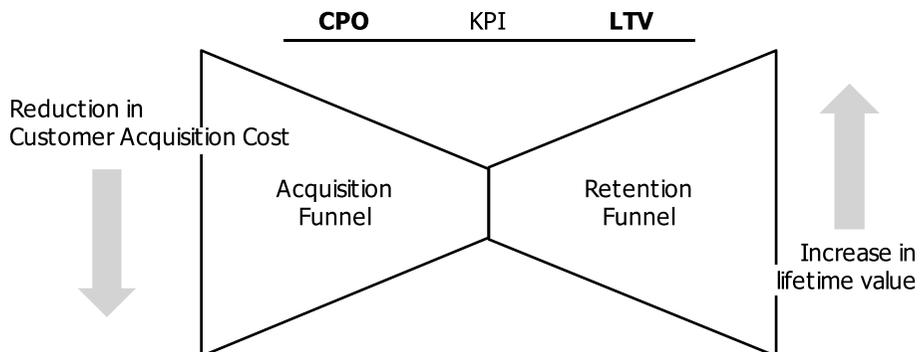


Fig.6. Double funnel model



referred to here as the double funnel.

In principle, the basic structure of the double funnel can be applied to all businesses that sell goods that are purchased repeatedly. Based on this structure, it can be understood that the sales and profits of a business are not made up of the aggregation of one-off purchase behaviour, but are derived from the repeated purchases of customers. It can also be seen that the customers who purchase products are not homogeneous and uniform, but are a unique set of entities that differ in the degree to which they repeatedly buy products, and that customer lifetime value is formed through sustained business relationships with these customers. For businesses that tend to lose sight of these perceptions, the double funnel model can provide business implications. However, applying this model to business processes necessitates means for identifying purchase history and approaching with identified customers.

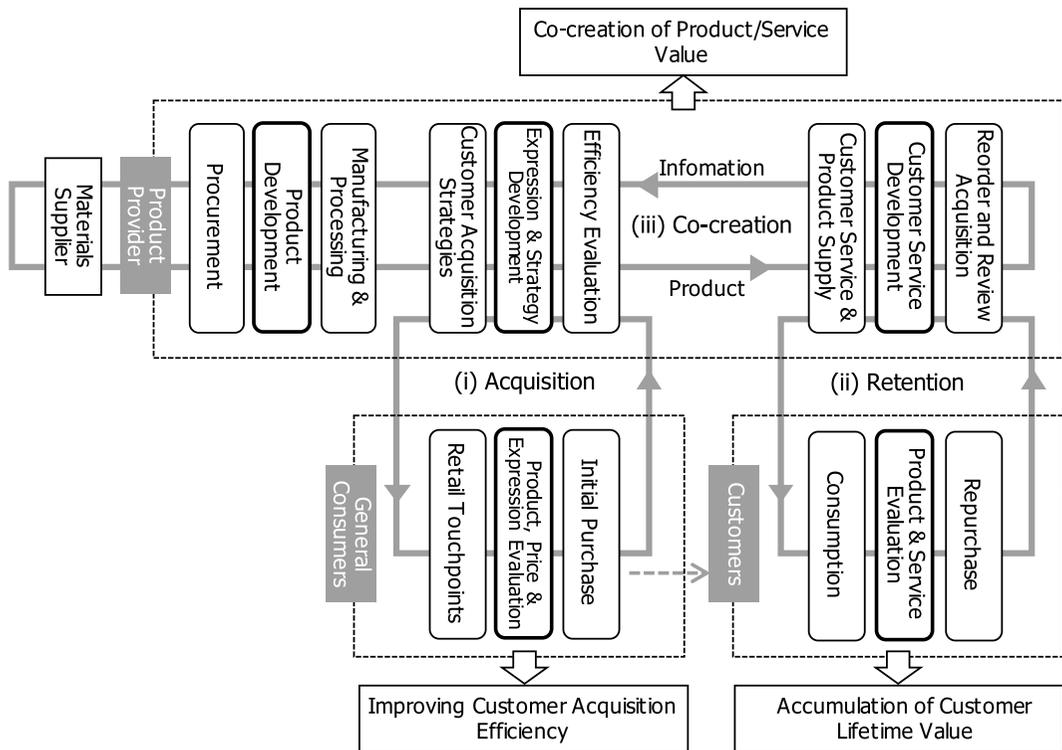
3.2 Customer value formation process model

The goal of both the purchase funnel and the traditional manufacturer's supply chain is to facilitate the consumer's purchase of the product. The basic shape of Porter's value chain/value chain (Porter, 1998) was also shaped as an arrow towards the buyer. In contrast, the business process, which has the basic structure of a double funnel and is oriented towards the creation of customer lifetime value, consists of three cycles of interaction with consumers and customers (Figure 7).

The three cycles that make up the customer value formation process model are the new customer acquisition cycle, the retention cycle and the value co-creation cycle, which creates the value of products and services through interaction with customers. This process model is designed for D2C businesses, as well as businesses that directly interact with customers to create lifetime customer value, including own-brand e-commerce sites, SPAs, subscription services, and direct marketing businesses.

(i) The new customer acquisition cycle is the first funnel of the basic structure. The seller develops and launches expressions and acquisition channel measures to acquire new customers, and the consumer comes into contact with the measures, evaluates the product, price and contents of the expressions, and makes a first-time purchase decision. Based on the results, the seller evaluates the efficiency of each expression, measure and

Fig.7. Customer value formation process model (Iwanaga, 2018)



stage in terms of CPO and other indicators, and redevelops the expressions and measures as seen in section 2.4, with the aim of improving customer acquisition efficiency.

After purchasing, customers enter the second funnel— (ii) the retention cycle—which encourages ongoing purchases. If the customers who have consumed the product are sufficiently satisfied with the product and the customer service, they will repeat the purchase. On the provider's side, repeat purchases are measured by the F2 conversion rate for the second purchase and by the cumulative customer value of purchases since the first time, 2.5 data analysis as seen in section a.

In addition, as we saw in section 2.3, the acquisition of customer feedback is important to almost all businesses. Various customer feedback is collected and analysed through channels such as emails, product reviews, forms, chatbots, SNS, inbound and reply postcards. During repeat purchases, sellers not only offer products and cross-product recommendations but also enhance customer engagement by sharing customer feedback

and reactions (as discussed in Section 2.3). Additionally, they communicate the provider's values and the social significance of their offerings, further increasing customer engagement.

(iii) The value co-creation cycle is positioned as the third cycle. Based on the customer evaluation data obtained in the retention cycle and the reactions of new customer acquisition cycle consumers, the most important measures for customer response (Section 2.3), the development of the product itself, which improves the product and increases its reputation, Section 2.5 b. In addition, consumer response measures (Section 2.5 c, d) will also be improved.

These business processes measure the response to measures and listen to the voice of the customer to constantly improve the value of the products and services offered.

Communicating the seller's commitment and interacting with customers help build a lasting relationship that extends beyond transactions to include behaviors and emotional connections beyond the purchase. The seller's thoughts and interactions with customers are communicated to form a lasting purchasing relationship that goes beyond the transactional relationship and includes extra-purchase behaviour and feeling connections. The circular process of complex customer interaction in the business increases customer lifetime value.

3.3 Customer value revenue model

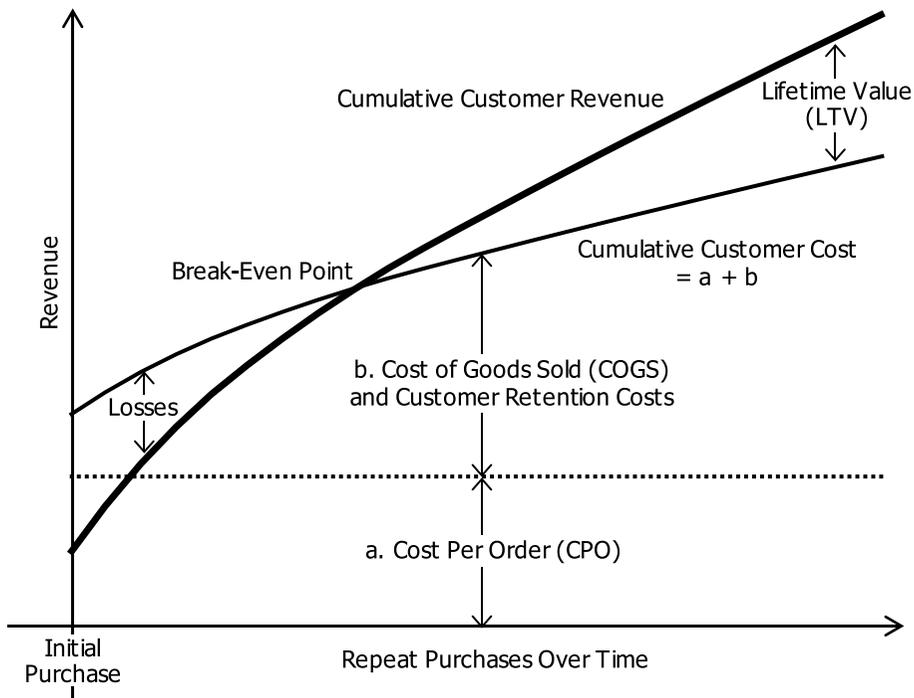
Research on calculating LTV and CLV has been conducted since the 1990s in fields like informatics, accounting, and relationship marketing (Berger & Nasr, 1998, Nakamura et al., 2011). It is used to predict revenue and classify customers, and is calculated by combining variables such as cost per customer, profit margin, customer retention costs, purchase duration and discount rates with purchasing behaviours such as time since last purchase, purchase frequency, products purchased and purchase channels (Blattberg et al, 2009). LTV is defined by Pfeifer et al. (2005) as "the present value of future cash flows resulting from customer relationships." Emphasizing its significance, Rust (2010) asserts that the future of the business depends on shifting the focus from short-term profit assessment to management based on customer lifetime value assessment.

Combining (ii) the first-time loss and (v) gradual attrition propositions from Section 2.1,

which many D2C experts support, the revenue model of a business that forms customer lifetime value is Figure 8 shows the profit model of a business that forms customer lifetime value. This model has also been used in some marketing practices for some time and was shown in the literature (Iwanaga, 2020), but business practices corresponding to each variable were confirmed in the survey. This model is designed to address business revenue comprehension that is variable, irregular, and extends to an indefinite horizon. Customers making their first purchase may potentially make repeat purchases, but there's a significant drop-off by the second or third purchase. After several repetitions, a base of fixed customers remains, which then gradually diminishes. Correspondingly, the cumulative customer price per purchase shows a high curve shape in the initial stage when the repetitive purchase rate is high, and after a certain period of time, it gradually increases after the number of repetitive purchases.

The cost of acquiring new customers, together with the cost of promoting second and subsequent purchases, are both selling costs, but based on the basic structure of the double funnel, the cost of acquiring new customers must be understood separately. In

Fig.8. Customer value revenue model (Iwanaga, 2020).



businesses that sell products directly to customers and have purchase history data, this distinction can be made. The combined cost of acquiring new customers at the time of the first purchase and the cost of goods exceeds the initial sales according to the (ii) initial loss proposition, and the difference between the cumulative customer cost and the cumulative customer revenue is a loss. Over a period of time, customer revenues accumulate, and after the break-even point, profits accumulate. The ROI/Return on Investment can be calculated by dividing the profit after a certain period by the CPO.

If Cost of Goods Sold and Customer Retention Costs are constant, the profitability of the business can be enhanced by measures to lower CPO (section 2.4) and measures to increase LTV (section 2.5). Many experts affirmed (iv) the F2 conversion rate proposition: in order to increase the Cumulative Customer Revenue curve earlier and to increase the ratio of fixed customers remaining in the phase of gradual decline, they emphasised measures to promote repeat purchases in the initial phase, including second purchase. In addition, by promoting understanding of the business purpose and appealing to acquired customer feedback (section 2.3), and by increasing the value of products and services through interaction with customers, Cumulative Customer Revenue has been increased.

In this model, the shape and slope of the Cumulative Customer Revenue curve is defined by the product evaluation, customer response measures and the nature of the acquired customers. At the same time, the nature of the products, measures and acquired customers can be manipulated by the measures that the business puts in place. Therefore, the Cumulative Customer Revenue can be calculated empirically for each business as a consequence of the business practices of each business with different products, measures and customers. If the average Cumulative Customer Revenue is calculated by actual performance, it can be handled even if the business's income is not in the form of fixed or regular amounts, but irregular or irregular income.

An expert's statement indicates that "the medium- to long-term persistence rate can be mostly controlled from F2 to F4." The increase in cumulative customer revenue after repeated purchases up to several times is often reflected by a series of incremental increases following a specific trend. In practical terms, the trend of changes in average customer revenue over a period of about six months of actual business practice can be seen to some extent, and a hypothetical number line can be fitted. After a year or so,

the accuracy of the estimation of the cumulative customer revenue sequence improves. Even on an actual basis, the model can be applied to an infinite, rather than finite, time horizon by assuming an incremental increase with a trend after a certain period of time.

Formula.1. Customer value revenue model (Equation)

$$LTV = \sum_{i=1}^{\infty} MGR_i - \sum_{i=1}^{\infty} (MCG_i + MRC_i) - CPO$$

- i Elapsed unit period since initial purchase
- MGR Monthly Gross Revenue per customer
- MCG Monthly Cost of Goods per customer
- MRC Monthly Retention Cost per customer
- CPO Cost per Order / Acquisition cost per new customer

The graph in Figure 8 can be described by Formula 1. The period i is infinite, and its unit is set on a monthly basis in the practice of D2C business operations. The first term is the cumulative customer revenue, representing the sum of the monthly average customer revenue, MGR_i, after i months. The cumulative costs, as well as the Cost Per Order and acquisition cost per new customer, represented by the second and third terms respectively, are then subtracted to derive the LTV.

LTV calculated from actual data can be used for business planning, revenue forecasting, profitability evaluation and policy formulation. It may also be possible to analyse and evaluate the profitability of each customer segment, such as first-time buyers, acquisition channels and RFM. In the next section, this business profitability model will be tested using actual purchase history data.

3.4 Assessment of the customer value revenue model

CPO, a key performance indicator (KPI) for customer acquisition efficiency, serves as a target metric. In general, reducing investment in new customer acquisition improves efficiency per investment in customer acquisition, but naturally reduces the number of

new customers and sales. Increasing investment increases the number of customers and sales, but decreases the efficiency of customer acquisition and the profitability of the business. Therefore, in order to grow the business efficiently, it is necessary to set an appropriate target CPO. The target CPO is the basis for a business plan that defines the amount of investment in new customer acquisition.

Given that CPO may surpass the revenue from the first purchase (Section 2.1), it is crucial to evaluate if the customer acquisition investment is recoverable through the cumulative profit to be earned in the future. Therefore, the customer value-earnings model is applied to actual purchase history data to assess whether it can be used to assess business planning and profitability.

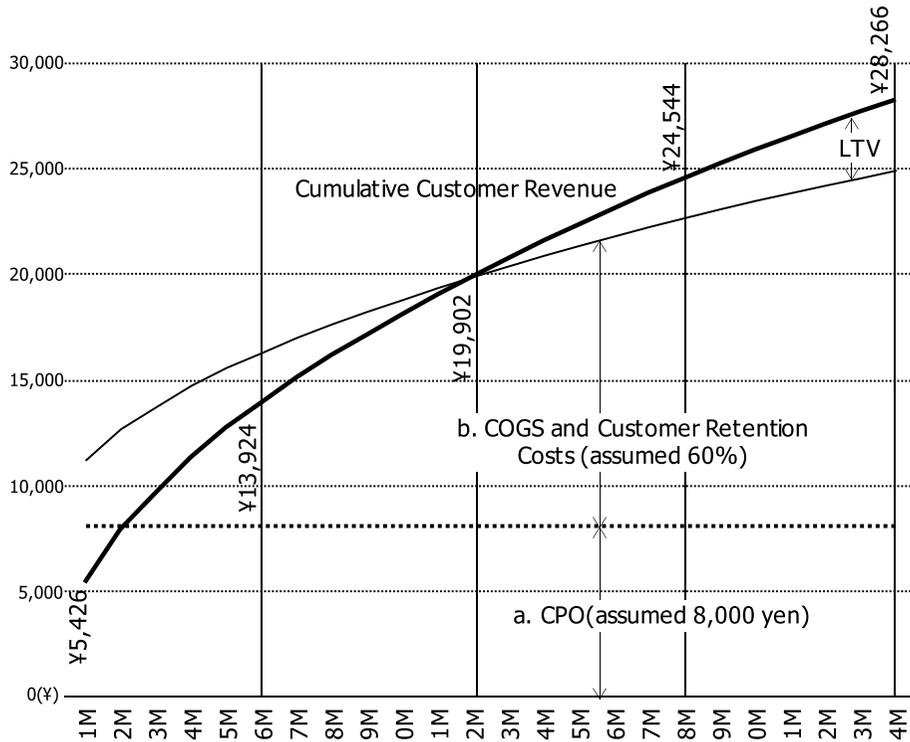
We analyzed four years of purchase history data for approximately 47,000 individuals provided by D2C businesses. The average cumulative customer revenue trends for the business are shown (Table 1, Figure 9). In the first month of acquiring new customers, as shown in 01M at the top of the table, the average sales per customer were 5,426 yen, and after six months it was 13,924 yen, and after 24 months the cumulative customer revenue had built up to 28,266 yen, approximately 5.2 times the first month.

In this case, the increase in cumulative customer revenue was significant up to the sixth month, with a gradual increase thereafter. In this example, the increments from the seventh month onwards were taken to be geometric sequence. The correlation between the estimated and measured values for months 13-24, calculated from the 7-12 month results, was high, with an R-squared value of 0.9997. (v) Gradual attrition proposition seen in Section 2.1 is also fitted in this case. In this case for practical purposes such as

Table.1. Average cumulative customer revenue case and estimates from month 13 onwards

	01M	02M	03M	04M	05M	06M	07M	08M	09M	10M	11M	12M
a. Cumulative Revenue	5,426	7,924	9,658	11,335	12,762	13,924	15,104	16,184	17,141	18,100	19,038	19,902
Cumulative %	100%	146%	178%	209%	235%	257%	278%	298%	316%	334%	351%	367%
	13M	14M	15M	16M	17M	18M	19M	20M	21M	22M	23M	24M
a. Cumulative Revenue	20,762	21,590	22,350	23,104	23,852	24,545	25,232	25,892	26,502	27,108	27,702	28,266
Cumulative %	383%	398%	412%	426%	440%	452%	465%	477%	488%	500%	511%	521%
b. Estimated Value	20,732	21,523	22,277	22,996	23,681	24,334	24,956	25,549	26,114	26,653	27,166	27,655
b/a	100%	100%	100%	100%	99%	99%	99%	99%	99%	98%	98%	98%

Fig.9. Cumulative customer transition case and its application to business planning



business planning and demand forecasting, it is safe to assume that the trial values can be applied from the seventh month onwards.

If the ratio of cost of goods sold plus selling expenses to total revenue for this business is set at 60%(gross profit 40%), and the goal is to reach the break-even point shown in Figure 8 within 12 months to recover the investment, the cumulative gross profit over 12 months should be $19,902 \text{ yen} \times 40\% = 7,960 \text{ yen}$. Therefore, the target cost per acquisition (CPA) for new customers should be set at approximately 8,000 yen. Even if the first month's sales are JPY 5,426 for an investment of JPY 8,000 in customer acquisition, the business can be judged to have secured the desired profitability, thus limiting the risk of over- or under-investment in marketing. The business profitability model can be used for business planning and profitability assessment as shown here.

Next, we will determine if the model can assess profitability at each business process stage and help formulate and evaluate CRM policies. Here the average cumulative

months. This continues to follow a negative trend. In actual figures, the 3-month cumulative customer revenue for January and February 2018 was in the 8,000 yen range, substantially below the period average of 9,658 yen for 3-month cumulative customer revenue as shown in Table.1.

The operators who understood such data seem to have decided to implement measures to address poor retention (Section2.5). As a result of these measures, from April to August 2018, the observed values deviated positively from the trend values. In actual numbers, the cumulative customer revenue for the same period reached the 21,000 yen range, which can be interpreted as the measures having been effective. However, looking at the cumulative customer revenue from 3M to 24M post-September 2018, there is a decreasing trend, suggesting that the effects of the measures are fading. It is now at a stage where it's necessary to take the next steps to enhance the LTV. In reality, by around December 2018 or January 2019, one should be able to notice the signals of a decreasing trend in 3-month cumulative customer revenue. The revenue model that was tested can be used for such strategic policy formulation and evaluation of measures.

4 From research findings

4.1 Synopsis of results

In this study, the practice of D2C businesses, which are businesses that sell products directly to customers and form customer lifetime value, was ascertained through a survey. This revealed the reality of businesses that use various indicators, including CPO and LTV, to increase profitability and actively acquire customer feedback to improve the value of their products and services.

During new customer acquisition, opinions varied on the effectiveness of highlighting the provider's passion and the social significance of their offerings. However, in the stage of sustained purchasing, the importance of purpose-driven appeal had become a common recognition among many business operators. In measures related to customer engagement, strategies that involved capturing the voice of the customer, and promoting interaction with them to other customers, were emphasized in many businesses.

Interactions with customers in business had also become a process of co-creating value for products and services. Opinions were divided on the importance of engagement strategies such as social media interactions and the formation of customer communities. The research examined the fundamental structure of the double-funnel, the business process with three cycles, and the existing models of business revenue for businesses that aspire to create customer lifetime value. The performance-based business revenue model was adaptable to variable amounts and frequencies of business income, as well as to an indefinitely set time horizon. When tested by applying it to actual purchase history data, the business revenue model was deemed useful for business planning, revenue forecasting, and for the formulation and evaluation of policy measures.

4.2 Limitations and significance of the study and future developments

D2C is a business model that has gained significant attention in recent years, making it important to understand the actual situation. The survey results revealed the scope of application of D2C's Purpose Appeal. Contrary to previous assumptions, engagement measures such as SNS are not as important. Additionally, the results showed that customer feedback plays a role not just in acquisition but also in referral.

Even in many of the recent LTV and CLV calculation studies in the US, the deduction of customer acquisition costs has not been manipulated (McCarthy & Pereda, 2020), and there was not always sufficient consensus on customer lifetime value. However, the results of the current study showed that practitioners were in common agreement that customer acquisition costs have a significant impact on business revenues. In addition, there are no existing studies or reports that show the business process of customer lifetime value formation and business profitability based on marketing practices. In this sense, this paper, which attempts to verify the existing model from the understanding of practices corresponding to the recent environment, is considered to be significant in terms of research.

The basic structure of the double funnel, as well as the business process and revenue model observed here, would probably be considered almost self-evident as a result to many of the experts who cooperated with the research. If that is the case, it rather serves as evidence that the model fits businesses that aim to form customer lifetime

value and is applicable in practice. Practically, it can provide implications for business operators aiming to shape customer lifetime value, existing national brands handling D2C businesses, and financial institutions supporting businesses. Especially for players who tend to seek the maximization of accounting profits for a single fiscal year rather than maximizing the present value of future cash flows formed by the sustained support of customers, this model can offer significant insights.

Existing research in relationship marketing and customer engagement has examined the impact of mediating variables such as trust and commitment of customers towards businesses on sustained purchasing (Takeuchi, 2014; Kanda, 2018). While this study has not analyzed how various approaches affect the customer's consciousness and attitudes to enhance LTV, it has clarified a revenue model for businesses that enhance customer lifetime value and a complex business process. Based on this, it will be possible to examine the causal relationships that evoke sustained purchasing intentions and even actions on the customer's side.

In the conceived model of evoking sustained purchasing intentions, the customer's evaluation of products and services, enhanced through co-creation of value with the customer, arouses trust in anticipating future product benefits. Moreover, the expression of the provider's intent and the knowledge gained through interaction with the customer and its observation form a structure that creates attachment by purposefully perceiving the relationship with the provider. Moving forward, research will be advanced through individual business case studies and consciousness surveys of customers, while taking into account existing marketing research and theories of social exchange.

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