

# Purchasing behavior pattern model of an e-customer

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## Abstracts

It is expected that the e-business market size will be gradually grown in the future. However, it doesn't seem to consider the difference of environmental gaps between offline and online in the current e-marketing strategy. As a result, we can sure that there is no marketing strategy to be carried out effectively in online.

To get profitable sales in e-business market, it is needed to build up an e-marketing strategy for retaining e-customers. But, there is a very significant problem which the customer behavior is not visible on online. Therefore, it is necessary to figure out the e-customer behavior clearly. Consequently, the visualization of e-customer behavior becomes the prerequisite for effectively carrying out the strategy of customer retention in online.

There are various ways to visualize an e-customer behavior. We consider that it is more important than anything to understand the e-customer behavior process and to catch up the purchase pattern.

In our paper, we pick up factors concerned with an e-customer's purchasing behavior based on the seven steps behavior process model which is proposed by Ko et al. as a customer behavior process in online. And then, we carry out the segmentation by the purchase frequency and the profitable sales. With these results, we propose the e-customer purchasing behavior pattern model which can visualize the purchasing behavior of an e-customer.

situations, the e-business has been beginning to get noticed, and at the same time, the e-marketing strategy has also been considered widely.

However, as Haruhito Tsuchiya et al. [5] stated, the current e-marketing strategy is oriented to put IT concepts into the existing offline marketing strategy, such as the use of website for advertising, the use of e-mail for performing DM etc. Anything else, it is hard to say that the environmental differences between offline and online, which must be considered in e-marketing strategy, are based on. As a result, we can sure that so far, a marketing strategy which is effectively carried out in online is nonexistent.

To get profitable sales in the fast-growing e-business market, companies have to build up e-marketing strategy suitable for online environment. Especially, as Bryan P. Bergeron [6] insisted, the strategy of e-customer retention for getting profitable sales must be needed.

However, to build up the marketing strategy concerned with retaining an e-customer, it is necessary to figure out an e-customer behavior clearly. Hiroki Maegawa [7] pointed out that there is a very significant problem which a customer behavior is not visible on online. That is, it is almost impossible to catch up a behavior of e-customer because an e-customer cannot be seen. Consequently, the visualization of e-customer behavior becomes the prerequisite for effectively carrying out the strategy of customer retention on online.

Generally, there are various ways to visualize an e-customer behavior. Hao and Ladisch [8] said that in many cases, visualizing ways are focused to put the individual information and purchase history of an e-customer in a database, and then to convert these data to a graph or a chart by using the data mining technology. However, such ways have only visualized the result of an e-customer's purchase behavior, and did not clarify the process factor of purchasing behavior. Therefore, we consider that such method is not one that shows how to carry out the strategy of e-customer retention.

We understand that in order to draw up the effective strategy of e-customer retention, it is very important to make the

## Introduction

According to the research survey of Nomura Research Institute [1], we can prospect that the e-business market size will be gradually grown in the future. Moreover, the surveys of IT Strategic Headquarters of Japan [2] and National and Regional Planning Bureau of Japan [3], and the report of Tanaka [4] show that each country around the world make plans of IT strategies, and try to improve the information communication infrastructure and legislation system around 2000. Under these

e-customer purchasing behavior pattern visualize in the first place. It requires the behavior process to visualize an e-customer purchasing behavior pattern.

According to Lindquist and Sirgy [9], until today, the EKB model is the most popular model of purchasing behavior process in offline environment. In this model, the purchasing behavior is made up of five factors such as recognition, search, alternative evaluation, purchase and post-purchase evaluation. However, as Kazuyo Sato [10] or Philip Kotler and Kevin L. Keller [11] stated, the customer satisfaction is necessary for retaining a customer, and the customer satisfaction is an attitude or an emotion formed by the purchasing experience.

In other words, since the behavior of post-purchase is important in the customer retention, we must highly regard it as the visualizing target. Also, it is necessary to enable to figure out the degree of retention. Therefore, for visualizing the purchasing behavior pattern of an e-customer, we need the behavior process which can understand gradually the relationship strength between an e-customer and a company by the post-purchase behavior. However, in the EKB model, we cannot evaluate the relation strength between an e-customer and a company because the post-purchase behaviors are together into one factor.

That is, the reason why we focus our attentions upon the seven steps behavior process model in online which is proposed by Ko et al. [12] in 2009. They insisted that the most valuable e-customer who must be retained experience the seven steps behavior process. We pick up factors concerned with purchasing behavior of an e-customer based on the seven steps behavior process model, and then carry out the segmentation by the purchase frequency and the profitable sales. With these results, we propose the e-customer purchasing behavior pattern model which can visualize the purchasing behavior of a customer in online.

Accordingly, we analyze the e-customer purchasing behavior with taking account into the environmental difference between online and offline. And we consider that the most valuable e-customer takes what kind of behavior process.

And then, we will draw out the purchasing behavior pattern of an e-customer based on the behavior process considered previously.

Consequently, by the portfolio analysis, we develop a purchasing behavior pattern model which makes it possible to find out the most valuable e-customer, and then propose this as the effective model which can be developed in online.

## Consideration of the e-customer purchasing behavior

John J. Kundi et al. [13] stated that there are social factors, psychological factors and personal factors etc. in factors which influence the purchasing behavior or the purchasing process of a customer. We think that these factors affect the customer's purchasing behavior with becoming complicated in offline environment or online environment. However, since there is environmental difference between the online and offline, the customer's purchasing behavior on online is different from the behavior of offline situation by the factor which does not exist in offline.

Especially, since there are not time fence and space fence which are the internet characteristics, the e-customer can visit and purchase goods through the shopping sites around the world by one click at anytime. Moreover, it is very difficult to figure out the e-customer behavior compared to the offline customer's behavior, because the e-customer purchasing behavior is not visible. Accordingly, it is also difficult that a company finds out who is the most valuable e-customer.

That is to say, making clear the e-customer behavior process by understanding the purchasing behavior is indispensable for retaining the most valuable e-customer who brings profits to the company.

Therefore, we first consider the e-customer purchasing behavior based on models of customer purchasing behavior proposed. Then, we consider the purchasing behavior process and the most valuable e-customer. Consequently, we pick up the purchasing behavior process of the most valuable e-customer as the segmentation base of portfolio analysis.

### Precedent models in purchasing behavior

For considering the e-customer purchasing behavior, we review typical previous models such as Howard-Sheth model, Bettman model, elaboration likelihood model, and EKB model.

The model of consumers' purchasing behavior can be classified roughly into two streams. One is called an S-O-R (Stimulus-Organism-Response) model, and another is an information processing model.

In the former, a consumers' behavior is explained by a stimulus from the outside and a consumers' organism which receive a stimulus, and a response to a stimulus. The characteristic of this model is to assume the passive consumer who put into action by a stimulus received. As the typical case, we can pick up the Howard-Sheth model.

The Howard-Sheth model is the comprehensive purchase decision making model of consumer suggested by J. A. Howard and J. Sheth [14] in 1969. This model is made up of four parts such as inputs, perceptual constructs, learning constructs and outputs. Hiroshi Tanaka and Akira Shimizu [15] reconstructed this model based on four main parts for being easily understandable (See Fig. 1).

In this model, a consumer receives a stimulus of goods by an advertisement and a buzz etc. Information of a stimulus is forwarded to perceptual constructs, and then is processed. The processed information is forwarded to learning constructs, and decision making is carried out there. In this case, commonly we can consider that perceptual constructs process the information, and learning constructs make a decision based on the processed information. As a result of decision making, a purchase is made. The result of whether to satisfy or not about the purchased goods is also fed back, and the perception of the related brand is enhanced or changed [16]. Thus, we can consider that this model explains the response process in the inner side of a consumer.

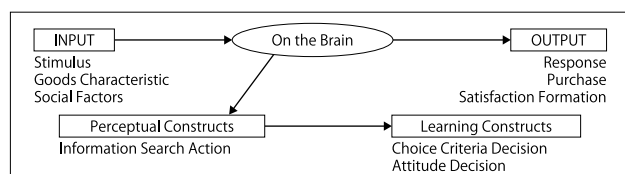


Figure 1 Howard-Sheth Model

However, this processing simply reflects only the response to a stimulus of a consumer, and a consumer is just considered from the view of the passive stance. Moreover, as Ichiro Inoue [17] stated, only the process which result in purchase after observing a product or a service is mainly discussed. Also, it does not explain about building up the loyalty to a product/service, or a company/brand.

For this reason, we think that this model is not directly applicable to keep the customer retention. Also, we can say that this model cannot be also directly applied in the online environment because it is too difficult to catch up what is the real stimulus which an e-customer actually receives. Consequently, we judge that this model is not suitable as the model which can figure out an e-customer purchasing behavior clearly.

Next, we review another type called the information processing model which has been proposed in the mid-1970s. According to Hiroshi Tanaka and Akira Shimizu [15], and Mitsuo Wada [18], the information processing model has the different characteristics compared to the S-O-R model in which the passive consumer responds to a stimulus. In the information processing model, there is the characteristics to assume a

consumer as the existence who set up oneself a purpose and search for information actively. Moreover, it turns out that one of most distinguished features in this model is to explain a diversity of consumer's decision making process under various situations by discrepancy in the information processing ability of a consumer.

Furthermore, Seiji Shindo and Naoki Nagashima [19] explained that consumers search for approaching the self-goal by bringing back one's memory. But, since there is a limit to the capability of information processing, the new information processing is not carried out when faced with the past experiences. Instead, it is sometimes substituted by experiences. Moreover, since the goal is also set up oneself, sometimes it does not carry out a far-searching by considering the limit of processing capability.

Generally, the model suggested by James R. Bettman [20] in 1979 can be picked up as the typical case of the information processing model. We think that in this model, a consumer is regarded as one of an information processing system which carries out a comprehensive purchasing decision making.

Minoru Uchida [16] explained that a consumer collects information through the sensory register represented by the five senses to achieve a consumer's own goal. And then, the consumer integrates the external information with the internal memory in which the past purchase experience etc. were accumulated. Based on the result from the integration, the consumer takes a purchasing behavior. And the information acquired as a result is accumulated into the long-term memory. As you can see from Fig. 2, it is the characteristic of this model that the information processing capability of a consumer controls the whole decision making process.

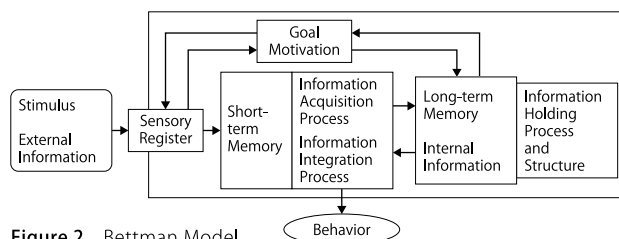
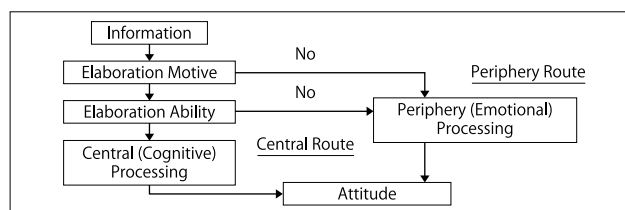


Figure 2 Bettman Model

About characteristics of the information processing model and the S-O-R model, Tanaka and Shimizu described as follows in [15]. While the S-O-R model explains the difference of a consumer's decision making process based on goods, the information processing model explains the information processing capability of a consumer based on the consumers themselves. However, as Akira Fukushima [21] pointed out, consumers judge intuitively without processing information

precisely in many cases. That is to say, we think that generally, there are not many situations where a consumer makes a decision logically as much as assumed in the Bettman model. Furthermore, since the information processing model is focusing on the psychological decision making process of individual consumer, it has not refer to a relation with the external factor around the consumer [16]. Therefore, we think that it is too hard to understand from the real data that which consumer actually takes any purchasing behavior. Of course, since such a situation is also the same in understanding of an e-customer's purchasing behavior, we do not think that this model can be applied to online environment as it is. For these reasons, we can sure that this model is not suitable to figure out the purchasing behavior of an e-customer clearly.

Next, we review the Elaboration Likelihood Model (ELM) proposed by Cacioppo and Petty [22]. The ELM is the one which improve the Bettman's information processing approach, and it most influence to the subsequent research of customer behavior. This model is made up of the central route which decide consumer's attitude formation logically and the periphery route which decide it emotionally (See Fig. 3) [16].



**Figure 3** ELM Conceptual Figure

To explain with considering the details mentioned by Tanaka and Shimizu, Wada, and Uchida, in this model, it is dependent on the motivation's level and ability of the relevant consumer that the attitude is decided by which routes. Accordingly, we can consider that the attitude is decided uniquely and it makes up for faults of Bettman model. Since a consumer has a high motivation's level in this model, the consumer with high involvement and high knowledge takes the central route. That is, the consumer decides the attitude by evaluating quite logically a product's attribute etc. included in a message.

On the other hand, the consumer with low motivation, low involvement, and low knowledge takes the periphery route. That is to say, the consumer evaluates a message and goods by emotional factors such as image of a talent and a music etc., and decides the attitude. Furthermore, there are not only two routes in this model. When the weighted value of a central route is high, the formed attitude is strong, and is easy to link to the choice. However, the attitude formed by the periphery route is weak, and

if other information is added, the attitude is easy to change.

It is overwhelming that consumers decide their attitudes by considering both of the central route and the periphery route. Therefore, it becomes important to decide the attitude by depending upon putting more weighted value on which route. Even when the same brand is preferred, if to decide the attitude by putting more weighted value on which route is able to figure out, the subsequent choice behavior becomes possible to foresee. However, since the existence of repeater is not considered in this model, it is too hard to say that this model enable to judge that the customer who must be retained takes any purchasing behavior. Moreover, since affecting factors are also changed in the online situation greatly different from conventional offline environment, it cannot be said that this model enables to figure out the purchasing behavior even if we apply it in online as it is. By these reasons, we conclude that this model is not a suitable model to figure out the e-customer purchasing behavior clearly.

Finally, we consider about the EKB model proposed by Engel, Kollat and Blackwell [23] in 1968. The EKB model is the comprehensive purchasing decision making model of a consumer based on the S-O-R model, and has also a complex flowchart which involves factors of information processing model. This model is made up of five factors relating to the purchase decision making such as recognition, search, alternative evaluation, purchase and post-purchase evaluation. Also, this model has a characteristic of considering the different decision making by the intensity of involvement [18, 19].

However, this model also does not consider the existence of a repeater. Thus, it is difficult to figure out that the customer who must be retained takes what kind of purchasing behavior. We cannot say that even if this model is applied in online situation as it is, it is a suitable model for figuring out the e-customer purchasing behavior clearly. But, it is common knowledge that this model is mainly picked up as the most suitable process in precedent models when considering the purchasing behavior.

Consequently, any model reviewed does not consider the customer's behavior with clearing up the difference between the online and the offline environment. Generally, in many previous studies, since the customer purchasing behavior is considered under the offline environment, we can judge that it is very difficult to apply this model directly to the online situation. Therefore, we consider in detail the e-customer purchasing behavior based on the difference between the online and offline environment.

## Review on the e-customer purchasing behavior

When considering the purchasing behavior, it is often mentioned as the customer behavior. The customer behavior has a wide range than the purchasing behavior, since it includes a consuming behavior of the purchased product or service, and a disposal behavior as well as a pre-purchase behavior, a purchasing behavior and post-purchase behavior. Moreover, it becomes very complicate and difficult to judge that any aspect should be evaluated by understanding each of customer behaviors. Thus, we judge that to get profits by retaining customers in e-marketing strategy, a company should focus on the purchasing behavior itself in customer behaviors.

As Nakato Hirakubo [24] and Toshihiko Iwamoto et al. [25] stated, generally the purchasing behavior is that a customer takes a purchase behavior met with lifestyle or social position etc., and also a customer feels his/her needs and wants by being affected from several factors such as external factors which are cultural and social, internal factors which are psychological, and then makes a purchase.

Moreover, becoming important when you understand the purchasing behavior of e-customer is to clearly figure out the environmental difference between the online and the offline. Maegawa mentioned seven factors as the characteristics of internet shopping, such as no time limit, open space, non-appearance, not real product, easy information gathering, cross-check of goods and service, and payment ways [7]. In these characteristics, there are factors which clearly show the environmental difference between the online and the offline. That is, since we couldn't care less about business hours, physical space, and place in where shops and customers exist in online environment, it can be judged that two aspects on time and space are greatly different from the offline situation.

Also, Maegawa explained customers and salesclerks who are not seen as the characteristic of non-appearance. We can consider as the environmental difference that a company cannot see a customer's behavior, and a customer cannot see a company's response on the spot. Therefore, we can judge that it is very difficult to draw up the corresponding marketing strategy by figuring out the purchasing behavior of a customer in online environment. Namely, as previously stated, to get profits by drawing up e-marketing strategy and developing it effectively, it is needed to figure out the purchasing behavior of an e-customer. To conclude, we can consider that the main environmental difference from the viewpoint of e-marketing strategy is non-appearance.

Due to such environmental difference, we can understand that

there is a difference also in the elements which made up of a factor influencing the purchasing behavior. In other words, it is needed to figure out elements which trigger the purchase in online situation. In offline situation, it is possible to somewhat guess about a factor which triggers a purchase because of seeing a customer and talking with him or her directly. But, in online environment, customers not only are invisible but also visit a shopping site by one click. Moreover, since invisible customers go away by one click, only the information are left, such as what the customer bought or which goods he/she has an interest in. In current e-marketing strategy, a company tries to understand the purchasing behavior of e-customer by visualizing it from this information.

As Hao and Ladisch mentioned, generally, the visualization is focused on the ways to graph and chart using data mining technology by putting a customer's personal information and purchase history etc. into a database [8]. However, since such ways cannot figure out details that an e-customer makes a purchase, it is unable to make a purchasing cause clear. Anything else, it is necessary to figure out the purchasing behavior process of an e-customer. Especially, the purchasing behavior process included e-customer's purchasing details and post-purchase behavior is required. If the purchasing behavior process of an e-customer is figured out clearly, the purchasing behavior can be patterning according to a customer's type based on the purchasing behavior process. Also, it is possible to visualize the purchasing behavior. It is because it becomes possible to express some purchasing behavior pattern by using one purchasing behavior process, and to figure out the factor of influencing purchasing behavior.

We will consider the purchasing behavior process of an e-customer in detail in the next. Above all, it is necessary to consider the behavior peculiar to e-customer. In previous researches reviewed until now, we cannot find out any research which has considered a customer's behavior by distinguishing between offline environment and online environment clearly. Most researchers basically stated the purchasing behavior or its process considered under the offline situation. That is to say, there is no explanation which can be understood about the purchasing behavior of an e-customer.

As what focused on e-customer's behavior itself as far as we know, there is the research performed by Ko et al. in [12]. In their research, they have largely divided e-customer's behavior into three parts in connection with a purchase, such as the building up relation stage, the purchase stage, and building up partnership stage.

In the building up relation stage, an e-customer takes a behavior which first visits to a site, and takes a behavior which revisits for getting more the information about a site or goods and service. The purchase stage is the one in which an e-customer repeats a purchase or communicates with a company repeatedly. In the building up partnership stage, an e-customer forwards his/her needs and wants to a site, and takes behaviors like an advice, business promotion, and word of mouth etc.

We consider that these behaviors have the deep relation with an e-customer's purchasing behavior. Moreover, results of these behaviors are connected to a purchase.

### The purchasing behavior process of an e-customer

As already stated, it is need to understand the purchasing behavior process of an e-customer for carrying out a customer retention marketing strategy effectively in online environment. In here, the e-customer who purchase repeatedly and takes the aggressive communication with a company, and brings a new customer by the word of mouth is considered as the target of retention. That is to say, we think that such e-customer is just the most valuable e-customer. In Pareto's law, it is said that such e-customers bring in 80 percent of overall sales, and occupy 20 percent of all e-customers. Accordingly, it is needed to pick up 20 percent e-customers as the target of strategic retention. As a result, we consider that it is possible to develop the retention strategy effectively by clearing up the purchasing behavior process of the most valuable e-customer.

As reviewed earlier, the existing purchasing behavior has been considered in offline environment. Also, since a repurchase is not considered in the existing purchasing behavior, it is not suitable as the review target to the purchasing behavior of the most valuable e-customer. In a word, it is because it did not consider focusing on the unique purchasing behavior of an e-customer. On the other hand, in Ko et al. model, they expressed the behavior process of the most valuable e-customer by seven steps according to the certainty degree of purchasing behavior (See Fig. 4).

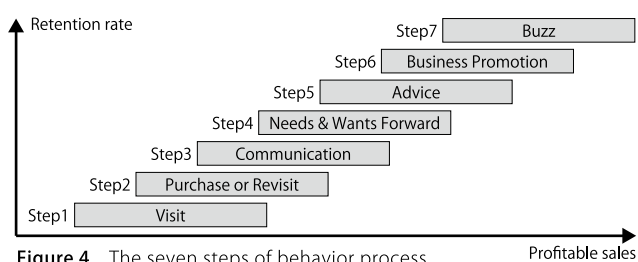


Figure 4 The seven steps of behavior process

As shown in Fig. 4, the seven steps of behavior process is to

start from step 1 in which an e-customer visits a shopping site. And then he/she goes to step 2 for purchasing or revisiting by satisfying the site's contents. By repeating the purchase frequently, the e-customer goes to step 3 in which he/she often communicates with a company. And then, by improving the relationship with frequent communication, the e-customer goes to step 4 in which his/her needs and wants forwards to a company.

When a company responds the e-customer's needs and wants, the relation with a company is more strengthened, and it becomes to develop into partnership, and the step progresses to step 5. The further improvement of partnership triggers to progress to step 6. Finally, the most valuable e-customer goes to step 7.

In this seven steps behavior process, it is supposed that as step progress, the most valuable e-customer brings high profits to a company. Also, this behavior process is based upon the assumption that a purchase is repeated and factors of each step are closely linked with a purchase. Accordingly, we judge that this seven steps behavior process becomes a valid standard for picking up the most valuable e-customer.

Next, we consider a purchasing behavior pattern to find out the most valuable e-customer.

### Purchasing behavior pattern of the most valuable e-customer

As stated above, we consider that it is necessary to visualize a purchasing behavior pattern of an e-customer for drawing up the effective marketing strategy of e-customer retention. In other words, by visualizing the purchasing behavior pattern, it becomes easy to figure out a purchasing behavior. Thus, we can build up a feasible retention marketing strategy suited to an e-customer. Especially, the focus target which must be retained is the most valuable e-customer who brings bigger profits to a company. We consider that to figure out purchasing behavior pattern of the most valuable e-customer is the extremely important challenge.

We attempt to make purchasing behavior pattern of the most valuable e-customer clear. To make it clear, above all, we must review the existing purchasing behavior pattern, and check whether it is practically feasible or not. First, we draw out four types of e-customer by referring to the relationship marketing ladder of loyalty of Christopher et al. [26] and the relationship ladder of Egan [27], based on the EKB model. As described earlier, the EKB model is currently the most suitable purchasing behavior process model when considering the purchasing



behavior pattern. Then, we analyze about the visualization of behavior pattern of each e-customer with considering the purchasing behavior pattern every four types of e-customer.

Judging from the considered results so far, we think that it is needed to analyze the purchasing behavior pattern based on the seven steps behavior process for visualizing a behavior pattern of an e-customer.

### Purchasing behavior pattern

In current purchasing behavior pattern models, we cannot find out the proper model developed with considering e-business environment. In the case that the online environment is a prerequisite, we must first select the model in which the purchasing behavior pattern can be analyzed. Therefore, we think that two models proposed by Henry Assael [28], and Paul F. Nunes and Frank V. Cespedes [29] are the suitable model as the analysis target.

First, we check that whether these two models are applicable as a purchasing behavior pattern model in online environment. Then, we classify e-customer type into four by referring to the above-mentioned existing researches. And we examine whether a behavior pattern of an e-customer can be figured out by using the purchasing behavior process of EKB model.

### Review Assael model of the purchasing behavior pattern

According to Naoto Onzo [30], Assael classified a purchasing behavior pattern into four parts according to the high/low level of involvement and the difference between the complexities of decision making level. The level of involvement indicates the relativeness degree of a consumer and a product. That is to say, the highs and lows of involvement level are determined by the favorite status. For example, when a consumer realizes the importance of a product, he/she bears it in his/her mind. Also, the decision making level indicates the influence magnitude which the process factor of purchasing behavior has on product purchase, such as consumers' attitude formation toward brand and brand evaluation.

Assael's purchasing behavior pattern model based on these two levels is made up of four aspects such as complex decision-making, brand loyalty, limited decision-making, and inertia (See Fig. 5). Assael explained the purchasing behavior process with three factors such as belief, evaluation, and action. These factors express the difference in each purchasing behavior pattern by each occurring turn and existence of occurrence. The explanation of each purchasing behavior pattern is as follows.

	HIGH INVOLVEMENT	LOW INVOLVEMENT
DECISION MAKING	DECISION PROCESS Complex Decision Making HIERARCHY OF EFFECTS Beliefs Evaluation Behavior THEORY Cognitive Learning	DECISION PROCESS Limited Decision Making HIERARCHY OF EFFECTS Beliefs Behavior Evaluation THEORY Passive Learning
HABIT	DECISION PROCESS Brand Loyalty HIERARCHY OF EFFECTS (Beliefs) (Evaluation) Behavior THEORY Instrumental Conditioning	DECISION PROCESS Inertia HIERARCHY OF EFFECTS Beliefs Behavior (Evaluation) THEORY Classical Conditioning

Figure 5 Four types of consumer behavior

In Fig. 5, the upper left complex decision-making is the purchasing behavior that the level of involvement is high, and each process factor of purchasing behavior seriously affects a purchase. Therefore, the purchasing behavior process becomes the turn of belief, evaluation and action (See Table 1). In other words, a consumer decides the attitude toward brand before making a purchasing behavior, and then evaluates a brand option in detail.

The lower left brand loyalty is the purchasing behavior that although the level of involvement is high, some of purchasing behavior process factors is simplified. The purchasing behavior process is the order of belief, evaluation and action. But the process of belief and evaluation are hardly carried out. It is because that a consumer buys brand goods mostly without full deliberation by the experience of satisfaction with the product purchased in the past, or the strong fascination to the product.

The upper right limited decision-making is the purchasing behavior that although the level of involvement is low, each process factor of purchasing behavior has any influence on a purchase. Since most products of low involvement are ordinary and common, a consumer may often take action which tries to buy various brands away from plain and common purchase. At this time, the consumer buys a product after forming the attitude toward a brand, and he/she carries out brand evaluation based on experience of the first-tried product. Namely, the purchasing behavior process is the order of belief, action and evaluation. Assael explained that the main type of limited decision-making is variety seeking. Also, he explained that although a consumer makes a decision with information processing, it is more nearly passive than complex decision-making.

The lower right inertia is the purchasing behavior that although the level of involvement is low, a process factor of purchasing behavior is also simplified. A relevant purchasing behavior process is the order of belief, action and evaluation, but an evaluation is hardly carried out. When purchasing the first product, after forming the attitude toward a brand passively, a consumer carries out brand evaluation after purchase without

nearly doing the information processing for decision-making. However, the consumer does not carry out the brand evaluation for purchasing the same brand repeatedly.

Assael applied the purchasing behavior process to each pattern, after classifying the purchasing behavior pattern as mentioned above. The purchasing behavior process of each pattern is shown in Table 1. Masahito Fujii [31] described that a patterning by behavior characteristic of such consumer is effective to pick out the difference of decision-making process at the consumer's product purchase.

**Table 1** Purchasing behavior pattern and process

Level of involvement	Purchasing behavior pattern	Purchasing behavior process
High involvement	Complex decision-making	Belief→Evaluation→Action
	Brand loyalty	(Belief)→(Evaluation)→ Action
Low involvement	Limited decision-making	Belief→Action→Evaluation
	Inertia	Belief→Action→(Evaluation)

The difference of purchasing behavior process in each purchasing behavior pattern suggested by Assael is in the occurring turn of action and evaluation. In purchase of high involvement product, since it takes time and effort to check a purchasing product, the purchasing behavior process becomes the order of evaluation and action. In the purchase of low involvement product, since it does not nearly take time and effort to decision-making, the purchasing behavior process becomes the order of action and evaluation. However, in any case, it is supposed that a belief is occurred first.

A belief is to mean the attitude formation toward a brand. However, even if it is possible to figure out a belief through a direct visiting customer in offline environment, it is rather difficult to find out it because a customer cannot be seen in online environment. Therefore, it is not appropriated as a process factor which visualizes a purchasing behavior pattern of an e-customer. Moreover, since the relativeness degree between a consumer and a product, which is called the level of involvement, is considered as one of bases, there is the problem that even if a buyer is the same person, the purchasing behavior pattern is not the same by a purchasing product. Accordingly, it cannot specify the purchasing behavior pattern of an e-customer. Consequently, we judge that Assael's model is not suitable as the model which can figure out an e-customer's behavior pattern clearly.

### Review on Nunes and Cespedes model of the purchasing behavior pattern

Nunes and Cespedes built up their own model after referring to Assael model in [29]. That is to say, they developed the purchasing behavior pattern model by setting the purchasing behavior process as five steps with putting an online purchase

into the view. They explained that as the online transaction comes on, a customer does not only make a purchase through using only a specific channel also picks up a channel which should be used in every stage of purchasing behavior process.

They also explained that most customers behave according to the five steps of purchasing behavior process such as awareness, consideration, preference, purchase and post-sale service. Furthermore, they draw out four types of shopper by using the type which Assael have suggested such as a habitual shopper, a high-value deal seeker, a variety-loving shopper and a high-involvement shopper (See Table 2).

**Table 2** Four types of shopper

Shopper Type	Awareness	Consideration	Preference	Purchase	Post-Sale Service
Habitual Shopper	Action1-1	Action2-1	Action3-1	Action4-1	Action5-1
High-Value Deal Seeker	Action1-2	Action2-2	Action3-2	Action4-2	Action5-2
Variety-Loving Shopper	Action1-3	Action2-3	Action3-3	Action4-3	Action5-3
High-Involvement Seeker	Action1-4	Action2-4	Action3-4	Action4-4	Action5-4

They considered the example of behavior that the shopper of each type takes in each step of purchasing behavior process (See [29]). And they proposed that when you research a customer behavior, you must try to consider these as one hypothesis. However, although the shopper is classified into four types, they described that all customers are not into these four types. Moreover, we expect that if a shopper's type changes for every purchasing behavior process, since 1024 kinds of combination can be considered, it cannot be said that their model is effective for judging the e-customer's purchasing behavior pattern. Especially, there is the problem that one e-customer has two or more purchasing behavior pattern because the purchasing behavior pattern is different by a purchasing product, as well as the problem which came up in Assael model. Accordingly, we decide that this is not suitable as a model which figure out a purchasing pattern of e-customer clearly.

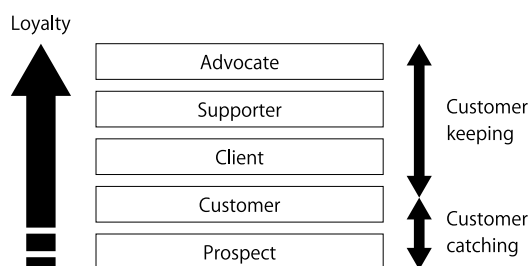
### Review on the purchasing behavior pattern model based on EKB model

More than all, it is very important to visualize the e-customer's purchasing behavior pattern for retaining. Thus, we consider the purchasing behavior pattern by classifying consumers into some e-customer types. And then, we try to visualize the e-customer's purchasing behavior pattern by considering the purchasing behavior pattern based on EKB model which is the most proper purchasing behavior process model now.

We consider the e-customer's type by referring models of Christopher et al. and Egan in [27] and [26] respectively. First,



we examine the purchasing behavior pattern based on EKB process model for categorizing the e-customer's type. Christopher et al. classified customers into five types by the level of loyalty (See Fig. 6). And Egan classified the customer's evolution process into eight types (See Fig. 7).



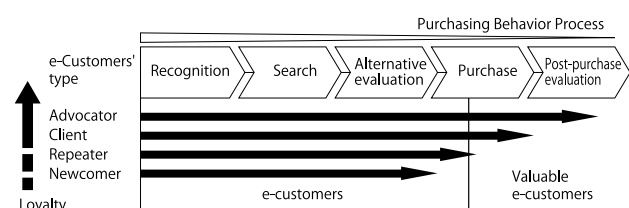
**Figure 6** The relationship marketing ladder of loyalty



**Figure 7** The relationship ladder

To compare these classifications, we can see one of differences. That is, the suspect is set up ahead of the prospect in the Egan's model. However, since the strategic retention target is an e-customer who buys a product, the customer type before prospect is not the target for consideration. In the Egan's model, he distinguished between those who make the first purchase and those who purchase repeatedly, and the type of marketing is also different according to this distinction. But, we consider that those who make the first purchase are the consumer, and those who come to purchase repeatedly become the customer for the first time. Accordingly, we define that those who make the first purchase are the newcomer and those who purchase repeatedly are the repeater.

The client is set up as the next type of customer in the both models. We consider that e-customer's levels differ by whether a repeat e-customer is a regular in a favorite site. Therefore, we define the client as the regular. In the higher rank than the client, although the classification respectively is carry out in a different way in both models, we judge that the most valuable e-customer is a best advocate. Thus, we define that a higher rank than the client is all advocator. Consequently, we categorize each type of e-customer into newcomer, repeater, client, and advocator according to the high order of the loyalty which a company gives, based on the Christopher et al.'s model.



**Figure 8** The purchasing behavior pattern model based on EKB model

Then, we try to build up a purchasing behavior pattern model by considering a purchasing behavior pattern of these e-customers' type based on the purchasing behavior process of EKB model. EKB model is adopted as the most suitable purchasing behavior process in many literatures [32, 33]. Also, the same process is used in the model of Nunes and Cespedes. In Fig. 8, we suggest the purchasing behavior pattern model analyzed by using the purchasing behavior process of EKB model. Also, we arrange the purchasing behavior pattern of each e-customer's type.

First, the newcomer is the e-customer who makes the first-time purchase at a shopping site. When the newcomer visits the site, he/she already determines the purchasing product and service in many cases. And it results in the purchase with hardly evaluating a choice alternative, and also there is high possibility that the newcomer almost does not carry out the post-purchase evaluation.

Next, the repeater is the e-customer who purchase again at the same shopping site. However, since the repeater nearly does not carry out after-purchase evaluation, we cannot say that the repeater is the regular who use the same site after getting the satisfaction of purchase in the site. Thus, the simple repeater is not the target of retention.

The client is the regular e-customer who purchases at a favorite site repeatedly. After purchase, the client evaluates whether a purchase at the chosen site was satisfactory. Even if there is a site which provides products and services in the same quality, the client always purchases at the favorite site. Therefore, the client is the e-customer who becomes the target of retention.

At the last, the advocator is the e-customer who is willing to spread the buzz. If the advocator finds out the site's defect and dissatisfaction, he/she gives an advice to improve it. Furthermore, the advocator recommends the using site to others, and supports the purchase in the site. The advocator is the e-customer who most should be retained. Judging from e-customer type, we can say that a customer more than client is a valuable e-customer, and the most valuable e-customer is an advocator.

However, it is difficult to distinguish clearly the difference of e-customer type's purchasing behavior only by the purchasing process. It is because that the standard such as purchase frequency is required to distinguish newcomer from repeater. And also to classify clearly into repeater, client and advocator as the target of retention, the specific standard such as profitable sales or word of mouth is needed, by which a company can

figure out the valuable customer. In other words, since there are differences in each post-purchase behavior of repeater, client and advocator, it is difficult to judge the purchasing behavior pattern of each e-customer type in the purchasing behavior process of having only one process factor called the post-purchase evaluation.

So as to clear up the purchasing behavior pattern of e-customer, it requires the purchasing behavior process which can explicitly show how a post-purchase behavior is different by e-customer type. Furthermore, to figure out how the difference of purchasing behavior process is related to the company's profits, the specific standard is also needed. Therefore, we consider the e-customer's purchasing behavior pattern which meets these conditions, and develop the related model.

Next, we draw a purchasing behavior pattern model to find out the most valuable e-customer based on the purchase frequency, the profitable sales and the seven steps behavior process. And we propose this pattern model as the model which the marketing strategy for retaining the most valuable e-customer can be run effectively.

## Purchasing behavior pattern model of an e-customer

In here, to visualize the purchasing behavior pattern, we carry out the portfolio analysis for facilitating the decision of purchasing behavior process and judgment of the valuable customer for a company. First, we consider the purchasing behavior process. As Ikegami and Suzuki stated [34], it becomes further important to figure out the process model used as the standard which shows a typical behavior pattern. They also explained that by comparing the standard process model, it can make to understand better about picking up another behavior pattern and an influencing factor on the purchasing behavior.

As considered earlier, we already explained the seven steps of e-customer's behavior process model as the proper behavior process model in online. Since the seven steps of e-customer's behavior process model reflects the behavior process of most valuable e-customer, it is considered that each process factor of this model cause a purchase. Thus, we judge that this process model shows the purchasing behavior pattern of the most valuable e-customer. If we consider the behavior pattern of most valuable e-customer as the standard process, it is possible to show clearly the difference of another e-customer's behavior pattern by comparing the standard process.

Then, we make up clear the difference of behavior pattern

which each e-customer takes by the portfolio analysis. As stated previously, we considered that it is pertinent to set up purchase frequency and profitable sales as the reference point for distinguishing the difference of purchasing behavior pattern on the basis of an e-customer's seven steps behavior process with focusing on the customer value for a company.

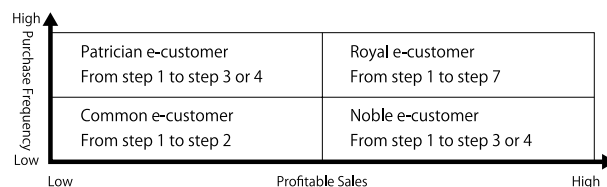


Figure 9 Purchasing behavior pattern model of an e-customer

As Ko et al. explained in [12], whenever a customer forwards a step, purchase frequency and purchase amount are increased. In this case, the frequency includes an interactive communication frequency and forwarding frequency of needs and wants etc. as well as the purchase frequency. These behaviors become the factor which connected to the purchase, and if the number of each frequency is increased, the purchase frequency is also increased. That is to say, frequencies in the seven steps behavior process can be indicated as the purchase frequency. Furthermore, since the purchase amount includes cost and profits, we must consider profitable sales as important factor to make up more clearly a company's profits. Therefore, it is appropriated to base on purchase frequency and profitable sales for judging a valuable customer for a company.

According to the segmentation based on these three standards, we classify the e-customer's purchasing behavior into four patterns such as royal e-customer, noble e-customer, patrician e-customer and common e-customer (See Fig. 9).

Royal e-customer becomes the target of retention because this e-customer is the most valuable e-customer who brings about 80 percent of whole sales or profits to a company. Since the royal e-customer carried out all step's behaviors in seven steps behavior process, this e-customer not only makes a high purchase frequency and profitable sales but bring along a new e-customer to a company by words of mouth. In reality, it is thought that mainly 30's to 40's housewife are belonging to this type.

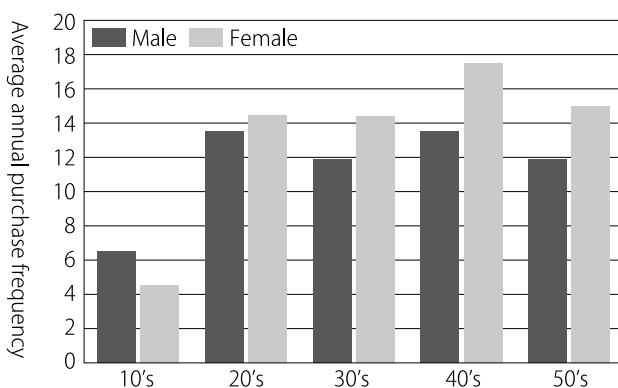
Noble e-customer is the customer who makes high profitable sales per once purchase, but makes not a high purchase frequency. Generally, it is expected that this pattern's customer goes through step 3 or 4 from step 1. We can consider that this type's e-customer may be mainly 20's to 40's male office worker.

Although patrician e-customer makes a purchase frequently, this e-customer seldom brings a high profitable sales because

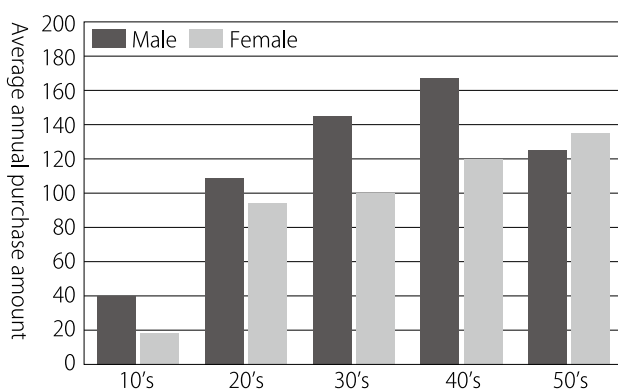
purchase amount per once is not large. This type's customer goes through step 3 or 4 from step 1 like noble e-customer. We think that this type may be mainly 20's to 40's female office worker.

Common e-customer is a beginner in the online shopping or an e-customer who makes low both purchase frequency and profitable sales. It is thought that this e-customer takes step 1's or step 2's behavior at most. It is expected that the e-customer who takes this behavior may be mainly 10's or early 20's student.

About the age and gender met with each purchasing behavior pattern, it can be confirmed from data of Internet shopping research report published by Fujitsu Research Institute [35] in 2009. According to the research report, we can see that both teenage males/females who most are expected to be a student are lower than other ages in purchase frequency and profitable sales. In 40's from 30's that can be judged to work at a company, the tendency is different in male and female. That is, we can get the outcome from the report data that average yearly purchase frequency of female is higher than male (See Fig. 10), and average yearly purchase amount of male is higher than female (See Fig. 11).



**Figure 10** Annual mean purchasing frequency



**Figure 11** Annual mean purchase amount

We consider that the behavior pattern in e-customer's purchase is able to be visualized by developing a purchasing behavior pattern model based on purchase frequency, profitable sales and the seven steps behavior process. Moreover, we can judge that it is possible to specify purchasing behavior pattern of

the most valuable e-customer, and to draw up the marketing strategy for retaining the most valuable e-customer. In other words, we expect that it is great help for a company to develop e-customer retention strategy effectively by using this e-customer purchasing behavior pattern model.

## Conclusion

In the e-business market, a customer retention strategy suitable for online environment is needed in order for a company to get the profitable sales continuously. Moreover, for retaining a customer in online, it is necessary to visualize a customer's behavior above everything else. Thus, we analyzed the e-customer purchasing behavior based on the difference between the environment of offline and online, and considered that the most valuable customer in online takes what kind of behavior process.

And we judge that there is a strong connection between the seven steps of e-customer behavior process and purchase. Therefore, we draw out the e-customer's purchasing behavior pattern by three standards of having added profitable sales and purchase frequency to this seven steps process, and propose the purchasing behavior pattern model which can figure out the most valuable e-customer.

Consequently, we expect that as unexplicit purchasing behavior of an e-customer becomes easy to figure out, and visualize by this model, it is useful for a strategic planning of effective e-customer retention, and is connected with the profits of a company.

However, to clear up the effectiveness of this proposed model, there is work to be done. That is, it is needed to verify the validity of this model through some analytical method.

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