

# Customer Value Creation by CRM System in Electronic Device Companies

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**Abstract**—The service industry accounts for about 70% of GDP of Japan, and the importance of the service innovation is pointed out. The importance of the system use and the support service increases in the information system that is one of the service industries. However, because the system is not used enough, the purpose for which it was originally intended cannot often be achieved in the CRM system. To promote the use of the system, the effective service method is needed. It is thought that the service model's making and the clarification of the success factors are necessary to improve the operation service of the CRM system. In this research the model of the operation service in the CRM system is made.

**Keywords**—Information system, Operation service, Service innovation, Solution

## I. INTRODUCTION

THE service industry accounts for about 70% of GDP of Japan, and the importance of the service innovation is pointed out. In the information system service that is one of the service industries, it is thought that the collaboration of a supply company and a customer company is important in order to improve the service in addition to solution of the customer's business challenge. Expectations of SFA (Sales Force Automation) and the customer information management, etc. for the CRM system have risen according to 'Enterprise IT trend investigation 2008'[1]. However, according to investigation[2], in the CRM system, the problem after introduction, such as a maintenance of data (52%) and spread to a person in charge(41%), is pointed out. Thus, since the system is not used enough, the original purpose cannot be achieved in many cases. To promote the use of the system, the effective service method is needed.

## II. PURPOSE OF THE RESEARCH

In order to promote the use of the CRM system, it is required to clarify the model and the success factors of the operation service. The purpose of this research is to make the model of the operation service in the CRM system.

## III. INVESTIGATION OF PREVIOUS WORK AND THE HYPOTHETICAL MODEL'S MAKING

### A. Current problem

IT service companies describe the necessity of the innovation that supports the service innovation to the customer,

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and revolutionizes the productivity of own service to Sasaki in "Client and its own innovation simultaneously realized strategy"[3]. It is thought that clarifying the model and the success factors of the operation service is necessary to achieve this.

### B. Existing model in previous work

James Teboul proposes service triangle[4] that consists of the enterprise, the customer, and the serving staff from the viewpoint of the service management.

### C. Problem of Existing model in operation service of CRM system

In operation service of the CRM system, it checked whether a service triangle could apply with the example of A company. A company is a company that does manufacturing and sales of the device in B2B form. As a result, it turned out that the explanation was difficult in the following points.

- Existence of two kinds of customers, an external customer and an in-house customer,
- Existence of two or more services of fundamental IT service, operating support of a user, etc.
- Necessity of service that agrees with purpose

### D. Making of hypothetical model

#### (1) The viewpoint of hypothetical model

The service triangle that consisted of the enterprise, the customer, and the serving staff was assumed to be a basic framework, and the hypothesis model was made from the following viewpoint. The hypothetical model is shown in Fig 1.

- The customer is classified into the first customer whom the supplier faces and the final customer.
- The service route is classified into the general-purpose service, the system, and the contents.
- The each level is classified into the operation and the operation design.

#### (2) Outline of hypothetical model of operation service in CRM system

The coverage of this model is a communications service that uses IT from the device maker to the set manufacturer. For instance, it is a communications service that uses Web to the set manufacturer and SFA (Sales Force Automation) in device manufacturer service.

For this hypothetical model, the service triangle is shape cooperating as for each service layer.

The general-purpose service layer consists of the general-purpose service owner (supplier) who provides general-purpose service for two or more customers.

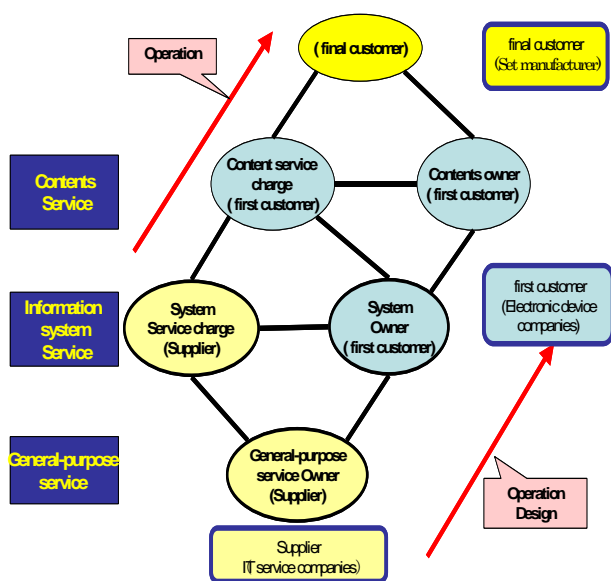


Fig. 1 Model of operation service in CRM system

Next, the system service layer consists of the system owner (first customer) and the system service charge (supplier). The system owner customizes general-purpose service according to the first customer's purpose, and the system service charge performs system support.

The content service layer consists of the contents owner (first customer) and the content service charge (first customer). The contents owner designs contents offered to the final customer, and the contents service charge performs creation of contents, and correspondence to the inquiry from the final customer.

IV. CASE STUDY

A. The procedure of case study

A detailed case is extracted from the operation service of the CRM system of A company, and we apply and analyze the hypothetical model. In this analysis, the relation of six composition elements and the mechanism of service are clarified. After that, the mechanism of service is applied to the general example of the operation service extracted from reference, and the validity of this hypothetical model is checked.

B. Framework of analysis

(1) Definition of success

Using the management system model [5] of Osada as a framework, the case that each element (Output (QCD of service), Outcome (final customer, first customer Supplier))

has improved is defined as the success case. We extract the success case and the failure case according to this definition.

(2) Process to be analyzed

The process where to be analyzed the operation service with the CRM system was defined as the following two kinds.

- 1) Corresponding process: Meeting to actualized customer needs
  - Correspondence to inquiry of the final customer.
  - Improvement of contents to demand.
  - Improvement of system to demand.
- 2) Proposal type process: Customer's potential needs are guessed..
  - Design of new contents.

C. Analysis of environment that support elements.

The environments that support elements that compose the model are analyzed with the following viewpoint of 4M.

- Man: System of promotion, organization, and skill
- Machine: Tool that supports promotion among players
- Material: Knowledge that is basic of promotion
- Method: Player's coordinated process, procedure, and rule

V. DETAILED ANALYSIS

A. Detailed analysis of A company case

The case with the success and the failure has been extracted from a detailed case with the CRM system of a company according to the definition. The list is shown in the Table 1.

TABLE I LIST OF CASE WITH DETAILED ANALYSIS

Classification	NO	Case	Function
Success	S1	The open site of the merchandise information for external customer companies	Registration and correction of merchandise information Acceptance and answer of inquiry of customer
	S2	The information share site during an organization in the company	Sharing and use of information about customer information or merchandise information.
Failure	F1	The open site of the merchandise information for external customer companies	Registration and correction of merchandise information Acceptance and answer of inquiry of customer

B. Result of detailed analysis

(1) Confirmation of validity of element of hypothetical model

In the success case and the failure case, it was verified whether it was able to explain each defined service process by the elements of the hypothetical model. As a result, it was confirmed to explain in all the processes as shown in Table 2.

TABLE II DETAILED ANALYSIS - CONFIRMATION OF VALIDITY OF ELEMENTS OF HYPOTHETICAL MODEL

Classification	Case NO	Case	Process pattern ( 1: Corresponding process 2: Proposal process )			
			1-1. Correspondence to inquiry of the final customer	1-2. Improvement of contents to demand	1-3. Improvement of system to demand	2-1. Design of new contents
Success	S1	The open site of the merchandise information for external customer companies	“Conformity” For inquiry of customer outside the company	“Conformity” Improvement of contents	“Conformity” Improvement of system	“Conformity” Progressing of a success example
	S2	The information share site during an organization in the company	“Conformity” For inquiry of in-house user	“Conformity” Improvement of contents	“Conformity” Improvement of system	“Conformity” Progressing of a success example
Failure	F1	The open site of the merchandise information for external customer companies	“Conformity” For inquiry of customer outside the company	“Conformity” Improvement of contents	“Conformity” Improvement of system	None

*(2) Analysis of environment that support elements*

In the success case, the environment of each pattern of the process that support the elements was analyzed. The result is Table 3. A vertical axis expresses the pattern of a process and a horizontal axis expresses a composition element. Consequently, in the success example, it became clear to support the composition element from the following contents.

- 1) System of promotion, organization, and skill: Clarification of role of system and each charge
- 2) Tool that supports promotion among players: Offer and effective use of tool
- 3) Knowledge that is basic of promotion: Execution of bench mark and progressing of success case
- 4) Player's coordinated process, procedure, and rule: Regular examination between relating elements

TABLE III DETAILED ANALYSIS - ANALYSIS OF ENVIRONMENT THAT SUPPORT ELEMENTS

Success factors		(1)System of promotion, organization, and skill	(2)Tool that supports promotion among players	(3)Knowledge that is basic of promotion	(4)Player's coordinated process, procedure, and rule
Process		The role of the system and each charge is clear.	Tool offer and effective use	Execution of bench mark Progressing of success case	Regular examination between relating elements
1. Correspondence type	1. Correspondence to inquiry of the final customer	The role and the allotment of the content service charge and the system service charge are clear (S1,S2).	Effective use of tool between system service charge from content service charge (S1)	The share and practical use of a history of an inquiry and replies (S1.)	Grasp of an evaluation index, and a systematic improvement (S1.)
	2. Improvement of contents to demand	The organization and the role for improving contents continuously are clear (S1,S2).	Practical use of a tool which grasps the number of accesses to contents (S1,S2)	Bench mark information with competitor (S1)	Regular improvement examination conference (S1)
	3. Improvement of system to demand	Organization and a role are clear in order to make a continuous improvement. (S1,S2).	Grasp of the evaluation index (QCD) of system operation (S1,S2).	Progressing of success case by another service (S1,S2).	Regular improvement examination conference (S1,S2).
2. Proposal type	1 Design of new contents	Contents owner's lead The system and the role are clarified. (S1,S2)		Bench mark of competitor (S1,S2) Progressing of success case (S1,S2)	Regular improvement examination conference (S1,S2)

*(3) Confirmation of application of success factor to failure case*

The success factors extracted from the success example are applied for every process pattern to a failure example, and the effect is verified. The contents are shown in Table 4.

The pattern of a process and the viewpoint of a success factors were taken along the vertical axis, each situation of the failure example was described on the horizontal axis, and the effect when the success factors were applied was written.

As shown in Table 4, when the factors extracted from the success example were applied to a failure example, it checked that it was effective for every pattern of a process.

TABLE IV DETAILED ANALYSIS - APPLICATION OF SUCCESS FACTORS OF ELEMENT TO FAILURE CASE (EXCERPTION)

Process		Success factors	Failure case	
			Situation	Application of a success factors
1. Correspondence type	1. Correspondence to inquiry of the final customer	(1) System of promotion, organization, and skill The role of the system and each charge is clear.	<ul style="list-style-type: none"> <li>The system owner mediates during the content service charge and the system service charge, and a time loss occurs.</li> <li>The person in charge's consideration and skill improvement are necessary.</li> </ul>	<ul style="list-style-type: none"> <li>The answer speed is improved by clarifying the role and the cooperation method, and connecting directly the content service charge and the system service charge.</li> <li>The skill of the system service charge is improved.</li> </ul>
		(2) Tool that supports promotion among players: Tool offer and effective use	There is no tool of the cooperation between the content service charge, the contents owner, and the system service charge.	The cooperation between the person in charge is strengthened by the tool introduction and the answer speed improves.
		(3) Knowledge that is basic of promotion: Execution of benchmark and progressing of success case	There are neither a past content of the inquiry nor an answer history sharing.	The speed and the accuracy of the answer improve by sharing past history.
		(4) Player's coordinated process, procedure, and rule Regular examination between relating elements	There are neither authorized evaluation index nor a rule of measurement.	Setting of evaluation figure, regular grasp, and execution of continuous improvement conference.

## VI. VERIFICATION OF THE HYPOTHETICAL MODEL IN GENERAL CASE

### A. Case to be analyzed

From reference [6], ten examples of CRM system were extracted, and were set as the object of analysis.

### B. Verification result in general case

The check was performed from the following viewpoint about the extracted example like the detail analysis of a company.

- Validity of the composition element.
- Validity of the success factors.

As shown in Table 5, it checked that it could apply also about a general example.

TABLE V APPLICATION TO GENERAL EXAMPLE OF HYPOTHETICAL MODEL (EXCERPTION)

No	Company name	System	Outline	(1) Validity of the composition element		(2) Validity of the success factors
1	GlaxoSmithKline "Pharmaceutical company"	Call center Web site SFA	The satisfaction rating of "In-house customer" is improved by in-house marketing and the competitiveness of the company is strengthened.	"Conformity" Contents service charge is "MR" or a "call center."	The process on the basis of the needs of MR or a call center which are contents service charge.	"Conformity" Especially, the system role is clear.
2	Honeywell Aerospace "aerospace product/render of service"	SFA	Customer information is shared and uniform service to a customer is offered.	"Conformity" Contents service charge is the operating staff and a field service engineer. Contents owner is a CRM manager	Sharing of customer information	"Conformity" The effect of the CRM manager who is contents owner is large.
3	TOTO (house equipment)	Call center	In order to convert an enterprise model, customer needs are analyzed and shared,	"Conformity" Contents owner is a marketing section.	Process of use and improvement of tool (data warehouse) to analyze and to share	"Conformity" Reform of the business for the selling staff and an

		and customer correspondence is improved.		customer needs	agency
.....					

### VII. CONCLUSION

In operation service of CRM system, based on the service triangle, the improvement was added from the following three viewpoints and the new hypothetical model was created.

- Division by class of service.
- Separation of a design and operation.
- Division by class of supply company, first customer, and final customer.

The case with the CRM system of A company was analyzed in detail by using the hypothesis model, and the effectiveness of the model was verified.

- The check of the validity of the composition element of a hypothetical model.
- Analysis of environment that support elements and extraction of a success factors.
- Confirmation of application of success factor to failure case.

Moreover, it analyzed whether it would be applicable in the same viewpoint as detail analysis to the general example of the CRM system extracted from reference, and the validity was checked.

In operation service of the CRM system, it is thought that the new model clarified by this research is effective.

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