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Business Renovation and Its Application to the Introduction of CTI System

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Abstract

In introducing a new computer system, business renovation is inevitable. If it is not executed, the new system becomes complex and old operation system obstructs efficient business performance. Formerly, Takeyasu et al. arranged the viewpoints of business renovation. In this paper, Computer Telephony Integration (CTI) system in a mail order company is introduced with the execution of business renovation and the comparison of these viewpoints is conducted. Efficient CTI system has been built with the aid of business renovation. Such attempt should be performed in various fields in constructing a new system. This study shows the efficiency and difficulties of the CTI implementation based upon the practical consulting activities. The paper covers such themes as viewpoints for the business

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renovation, current problem before the implementation of CTI, new business design and effect of implementation.

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1 Introduction

Business procedure becomes old as time passes therefore business renovation becomes inevitable. In particular, when the new system is going to be introduced, it is a good chance to make business renovation. After examining the problem of current business, the new operation procedure should be built before implementing the new system. The viewpoints for the business renovation was pointed out by Takeyasu et al.[1].

In this paper, Computer Telephony Integration (CTI) system in a mail order company is introduced with the execution of business renovation and the comparison of these viewpoints is conducted.

Reviewing past papers, there are some researches made on this. Anisimov et al.[2] made researches on investigating the impact of feature interaction problems on CTI. Fahmy [3] introduced automated student’s courses registration using CTI. Katz et al. [4] have developed prototype converged applications for voice-actuated

room control and personal “universal in-box” information management. Matsushima et al. [5] have described the service functions and features of two platforms (the CX-CTI/Call Center and the CTNET-Server) where Hitachi Ltd. has developed.

Although there are some related papers as above, we can hardly find the case of implementing computer telephony integration in a mail order companied along with the business renovation.

Computer Telephony Integration systems (CTI) has increasingly been implemented in many companies recently. CTI means a computer system under the environment where computers and telephones, which have been established independently, interact with each other and calls and data are processed integrally. The advantage of introducing CTI is to have more efficient and rapid telephone operation. It enables effective utilization of customer data such as Database marketing.

CTI is introduced in many companies such as credit card companies, cosmetics selling companies, water selling companies, jewelries selling companies etc. These are a sort of mail order companies. Characteristics of mail order companies are as follows.

・Orders received by telephone □ Labor costs for operators are relatively high.

・Direct Mail (DM) oriented promotion □ DM mailing expenses are relatively high.

・ Administration of large amounts of customer data required

Current status of mail order business is as follows.

・Size of business: 1,500 – 1,600 companies

・Size of market: ¥2,200 billion （1.5% of retail business）

・49% growth in 10 years

・Mail order sales growth: 5.3% p.a.

---from the Report on 17th Survey of Mail Order Companies in Japan

Background for the growth of mail order business is as follows.

●Greater diversity in roles for women in society

●Widespread home delivery services

●Entry of smaller enterprises into non-store retailing business

●Increased attractiveness and reliability of mail order system

●Rapid increase in number of elderly people

This study shows the efficiency of the CTI implementation based upon the practical consulting activities. The paper covers such themes as viewpoints for the business renovation, current problem before the implementation of CTI, new business design and effect of implementation. Efficient CTI system has been built with the aid of business renovation. Such attempt should be performed in various fields in constructing a new system.

The rest of the paper is organized as follows. Viewpoints for the business renovation are described in section 2. Implementing CTI system in a mail order company is stated in section 3, which is followed by the remarks of section 4. Section 5 is a summary.

2 Viewpoints for the Business Renovation

Takeyasu et al. [1] has summarized the viewpoints for the business renovation before, based upon the consulting activities. In that book, he discussed that there are the following three big viewpoints for the business renovation.

A. Viewpoint from the total optimization – Value Chain Analysis

It is well known that the sum of the local optimization does not make the total optimization. But the person in charge of something is in a certain department and apt to claim the thing for the advantage of the department he is in, even if it does not make the total optimization. But they have to pursue the total optimization instead of these difficulties. One of the method is to break through the barrier among department and company. ICT (Information and Communication Technology) will help performing this. For example, order entry networking with other companies makes the job work more efficiently. The information will soon arrive at a business connection and that company can receive goods based upon the e-commerce information and they can make incoming–goods check more quickly and smoothly. Thus, ICT will help shortening the lead time and decreasing the man-power for both of the companies.

B. Ideal Viewpoint – Work Design

Work Design Method is developed in Industrial Engineering field. It takes design approach and does not take analytical approach. It does not cope with each

problem item but think over the ideal style of business and then pursue the realizable solution.

They create the system function toward upper level and choose the suitable level of the function and then make system design based on this.

When upgrading the function, question that “What is it for” is always asked and repeated. Many examples are stated in [1].

C. Viewpoint from Customer Satisfaction – Business Process Reengineering

Business process Reengineering (BPR) was proposed by Hammer M. and Champy J. and it was defined as follows.

“Reengineering is the fundamental rethinking and radical redesign of business processes to achieve dramatic improvements in critical, contemporary measures of performance such as cost, quality, service and speed” [6].

There are many researches and applications made on this. It can be said that the important points of BPR are arranged as follows.

a. Re-design the business on the viewpoint from Customer Satisfaction

b. Make thorough renovation including delegation of power

c. Fully utilize ICT (Information and Communication Technology)

In particular, item a. is especially important to achieve BPR.

3 Implementing CTI system in a mail order company

3.1 Outline of the mail order company

The company to which we have introduced a system is ‘A Co.’ located at Kagoshima Prefecture, southernmost part of Japan (Fig.1). A Co. sells mineral water, cosmetics and some indigenous products. Most of sales consist of mineral water with its order taken by telephone. To get order to A Co., a postcard, “Guide to free trial drink”, is mailed directly to potential customers. This is called inbound order entry.

■Profile of The Company

●Business	: Sales of drinkable hot-spring water, cosmetics, specialties
●Sales amount	: Approx. ¥5 billion
●Employees	: Approx. 250 (including part-time employees)
●Orders received	: Inbound orders Approx. 60,000 / month Outbound orders Approx. 20,000 / month
●Sales promotion	: Advertising in local newspapers DM mailing Ave. 75,000 mails / week
●Customers	:Approx. 60,000 membership

■CTI Implementation Project

●Objective	: Business process improvement through information system implementation
●Contents	: Issue/problem analysis, business process improvement, system implementation planning

Figure 1: Profile of The Company and Its Project

Outbound order entry is attempted by making a telephone call to the potential customers who didn’t respond to the postcard sent by the inbound operation.

Inbound and outbound sales departments are located in K city and outbound department in L city. Mainly, women operators engage in this job. A user group called “Tomo no Kai (membership community)” has been organized. Users are invited to a party held by outbound sales department. Located in M city is a factory where mineral water is produced and shipped out. A Co. has been making a great growth for these years with the background of health care boom in Japan. They increased number of operators in order to cope with the tremendous increase of orders, but there is a limit in effect of only increasing manpower. The order entry job must be processed more effectively so as to cope with the increase of order. In order to enhance sales at Kanto district which has the largest population in Japan, the lead time from order entry to delivery of goods must be shortened.

3.2 Problems in Order Entry Operation

(1) Ineffective inbound order entry

Although the number of inbound order entry (getting order by telephone) amounts to almost half of the total orders, the efficiency of this job was low. It took a lot of time to process an order by the reason that operators wrote down customer’s name, telephone number and order content on the order entry sheets. Especially for new customers, they had to ask Chinese characters of the customer’s name and/or address, identify postal codes and so on. Hand written order entry sheets were then

mailed to the data processing department to be punched one by one, which has derived double ineffective works with the risk of making mistakes.

(2) Long lead time

In addition to taking too long time to process an order, such work existed in the shipping yard as collating order entry sheet with shipping label (Fig.2). For these reasons, long lead time had been prevailing with the result that an order entry in the afternoon was obliged to be shipped out in the next day. As it took 3 to 5 days to deliver to a customer in Kanto district from order entry, he/she, instead of buying some goods at A Co., might buy the alternative goods at the nearby shop.

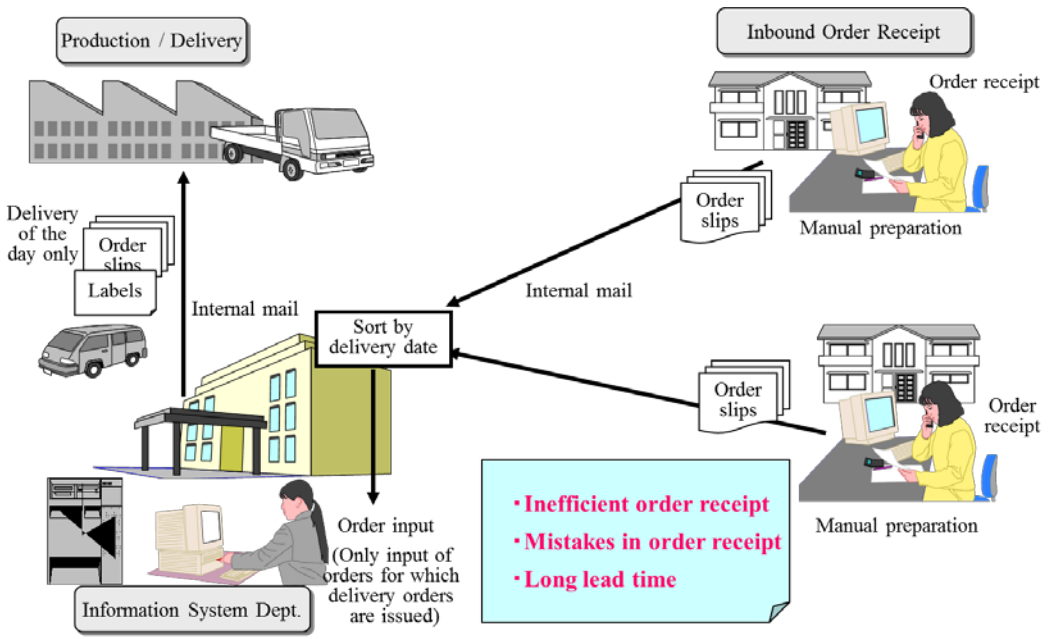

Figure 2: Problem: Long Lead Time before Delivery Due to Inefficient Order Receipt

(3) Insufficient use of a vast volume of customer data

Several ten thousand order entries per month made it important to execute the customer data management. Although even at that time they could review the customer data at the order entry office, there were some deficiencies such that the cumulative sales amount of a customer was unknown or purpose of customer's purchase and/or claim information could not be identified.

Furthermore, though A Co. had organized many good repeaters as "Tomo no Kai", their data were not utilized effectively. Resultantly the outbound sales was an ineffective business with high direct mail cost.

3.3 The New Business Design

The flow of the order entry operation in the A Co. is reviewed after the detail examination. The flow of the inbound order entry processing is depicted as follows (Figure3). It is an example of the new business process using CTI.

1) Free dial phone calls from customers are distributed to operators.

2) The telephone number of the customer allocated to the operator is indicated on the operator's terminal.

3) At the same time, the telephone number is sent to the CTI server and the customer data is retrieved from the database.

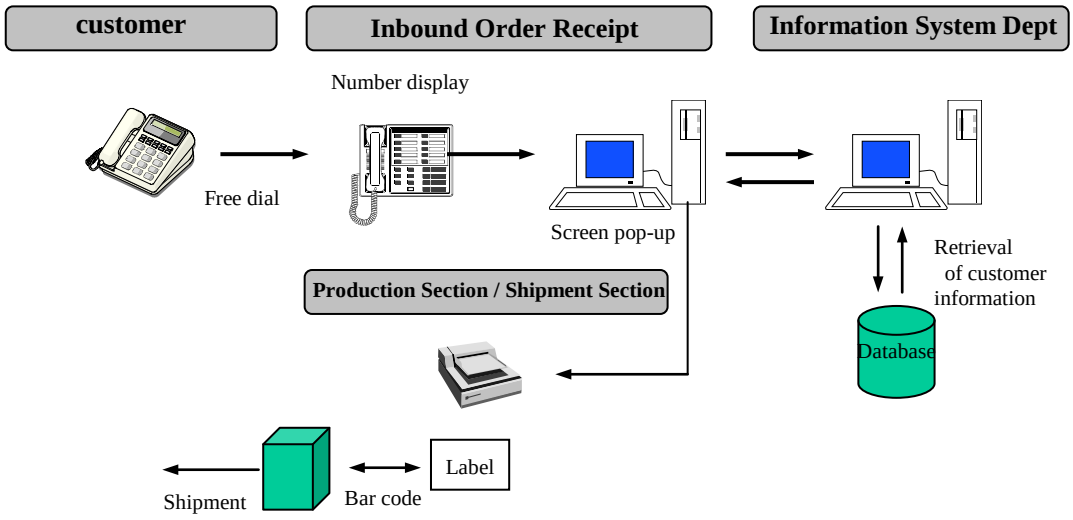

Figure 3: The Flow of Inbound Operation

4) The customer data is displayed on the terminal by screen pop-up function.

5) By seeing the display, operator processes the order entry job and enters the order input.

6) Data for the order to be shipped on the day are sent to the factory every one hour, and labels are issued.

The following three advantages were established as the effects of redesigning the inbound order entry operation.

①Efficiency improved in order entry operation

The time needed for order entry is reduced because the retrieval of customer data with asking telephone number becomes needless. For the new customers, higher efficiency is pursued through enabling to retrieve postal codes and difficult

Chinese characters on the display. No more occurrence of the double input work in the order entry operation and decrease of mistake can be performed. In addition, leveling of the operator's workload is made possible by ACD (Automation Call Distribution system: exchange function which enables leveling the load of using circuit).

② Total lead time reduced

Lead time to shipping is reduced because the writing work and data input work of the order sheet and the collating work of order sheets and labels are eliminated.

③ Improve the customer service

Customers are no more kept waiting owing to immediate indication of the customer data on the display. A high-touch service to the customers becomes possible due to the richer customer database. Good treatment to the big customers, for instance, is easily made possible.

3.4 Implementation of a new system

A Co. investigated the solution to the above difficulties, and they decided to implement the on-line network system featuring CTI. A CTI is an information environment where telephone and computer are integrated, more precisely, the environment where telephone system including PBX (Private Branch exchange) and data processing system including computer and database are integrated on the

same platform. The advantages of CTI are more effective processing of telephone relevant jobs and better use of customer data.

Call-Center CTI is shown in Figure 4. Customer's call is transferred to the telephone by PBX. PBX and CTI server is directly connected by CTI Link and CTI server and client server are connected by LAN (Local Area Network). On receiving a telephone call from a customer, his/her data could readily be retrieved from customer database using CTI.

CTI can accumulate the following customer data:

Name, Telephone number, Address, Purchased amount, Account receivable, Family members, Purchase history, Claims history, etc.

Processing order entry while watching these customer data on a terminal, the job can be processed efficiently with customer satisfaction. These customer data can be analyzed to be used for sales promotion with direct mail.

The CTI system was enabled by the progress of information technology and network service. Information Technology for CTI is shown in Figure 5. Concerning telephone information technology, there are ACD and automatic voice response system. As for network services, the number display service started on February 1998 plays an important role. By using number display function, we can readily know the telephone number of the customer who made a call. With using this function, CTI displays on a terminal of the operator terminal (screen pop up) the customer data retrieved from the database and made it possible to provide with

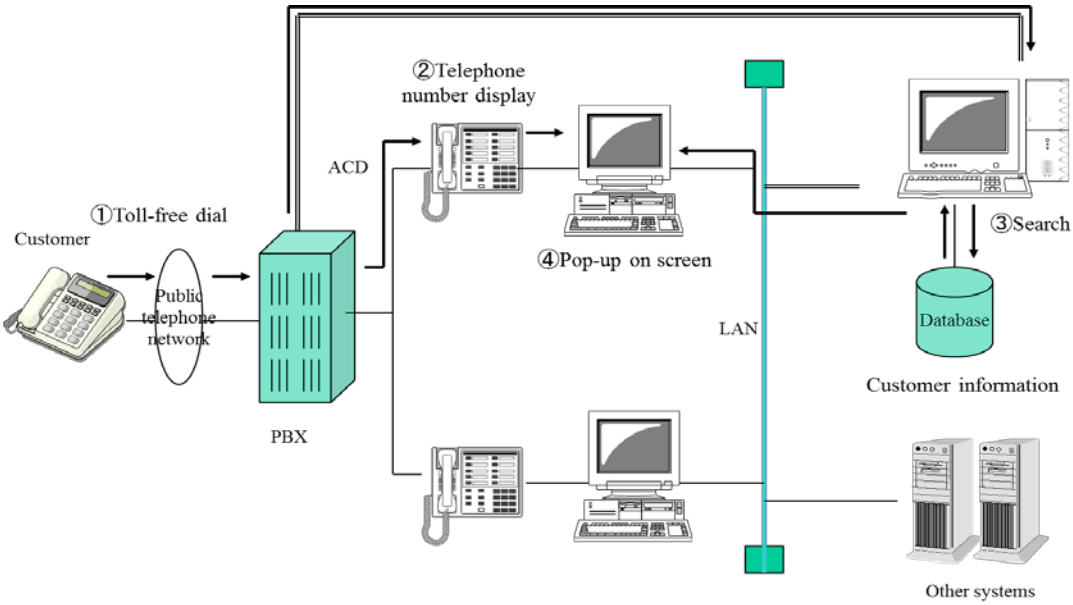

Figure 4: Call-center CTI (Mail Order Company)

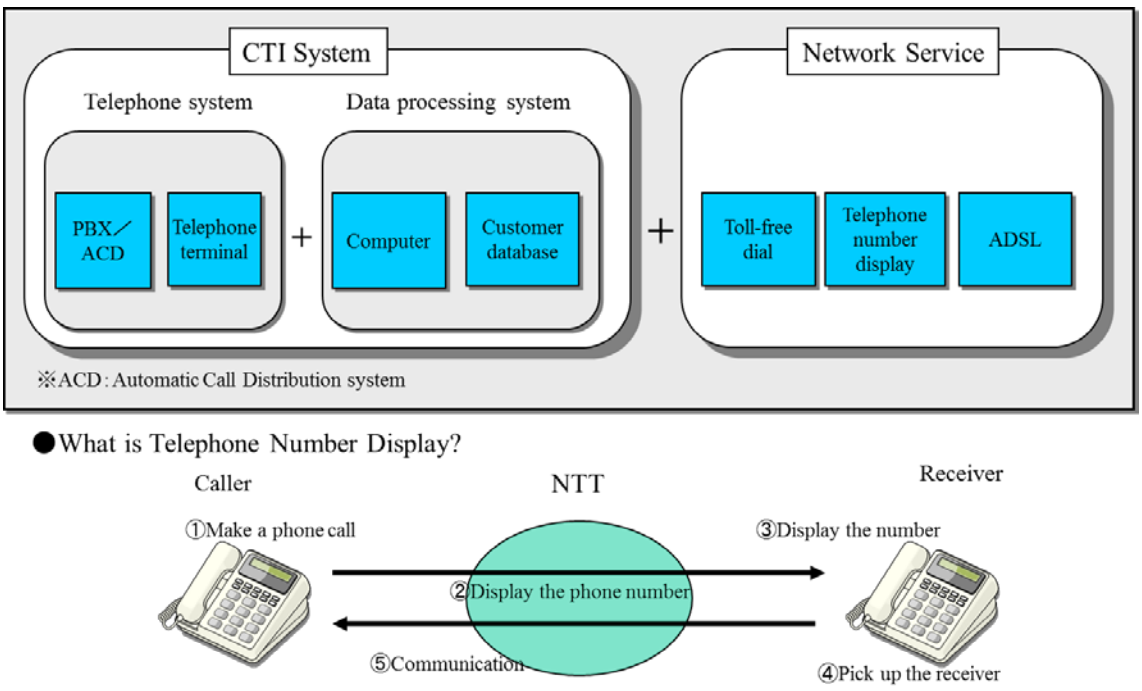

Figure 5: Information Technology for CTI

the environment where order entry job can be processed with no mistake and without keeping customer waiting.

3.5 Effects of Implementation

A drastic reduction of the time needed for processing of an order entry was obtained as an effect of implementation of the system (Figure 6). Before the implementation, orders received in the afternoon were unable to be shipped out by the end of the day. After the implementation it became possible to ship out the order received until 3 in the afternoon by the end of the day (Figure 7). In addition to the elimination of jobs such as transportation of order sheets, the lead time for Kanto district was reduced by one day (Figure 8).

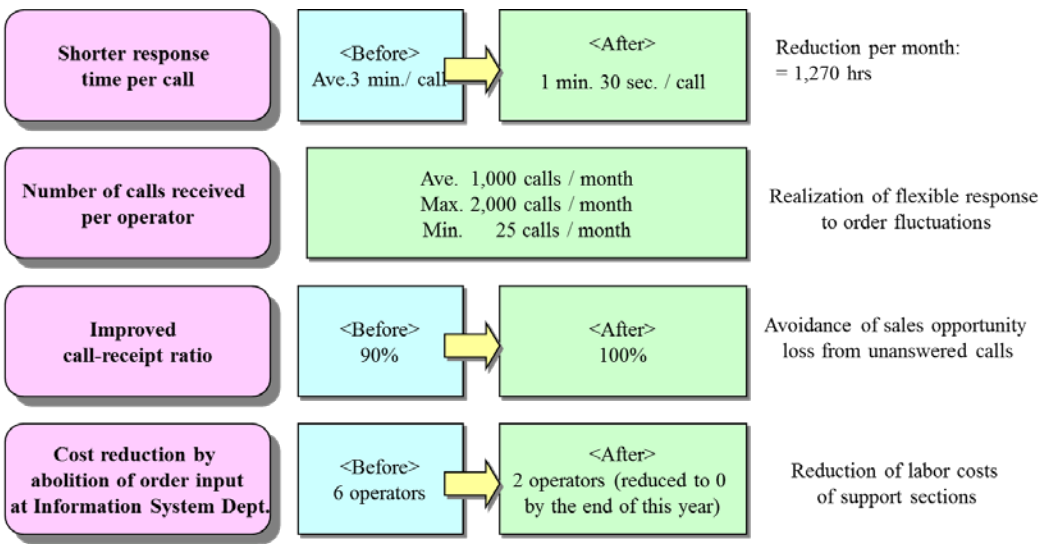

Figure 6: Effect of Improvement 1: Efficient Order Receipts

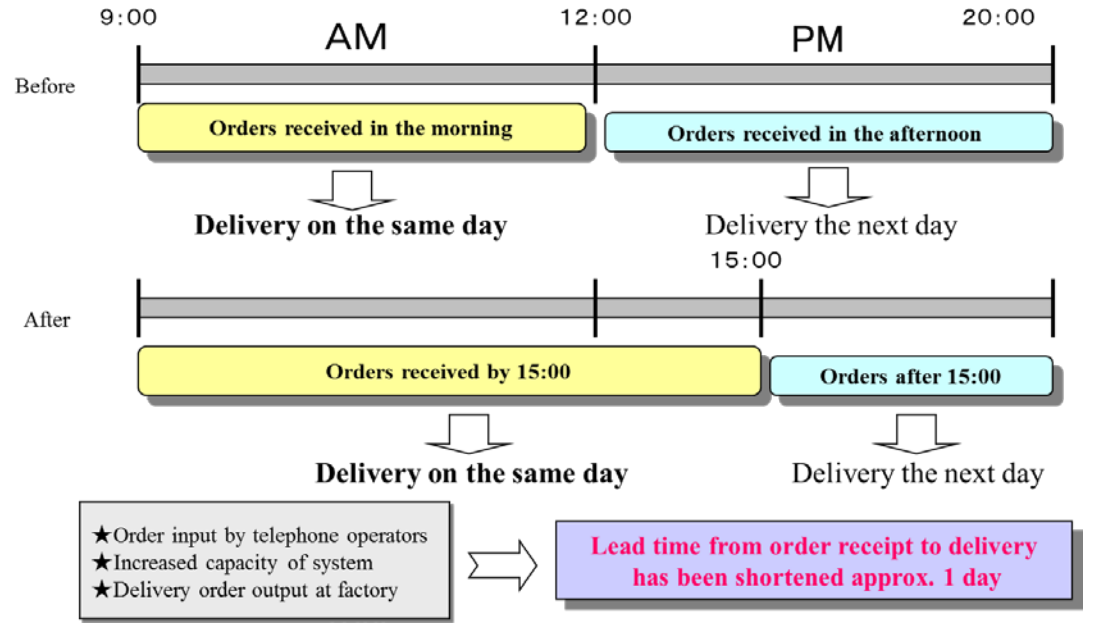

Figure 7: Effect of Improvement 2 : Shorter Lead Time

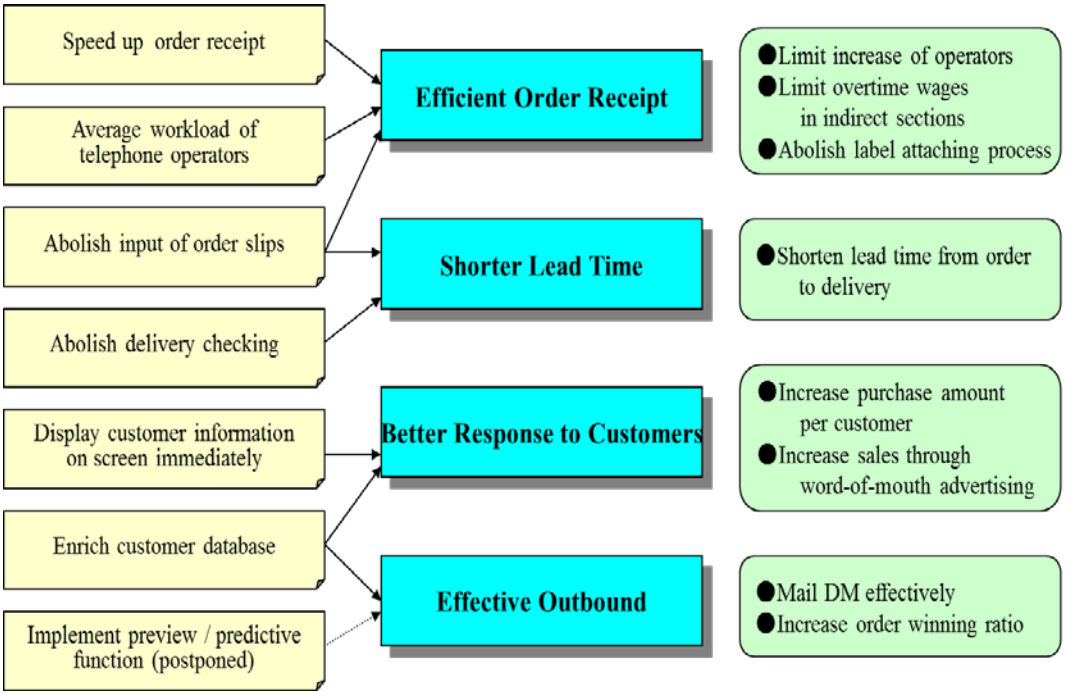

Figure 8: Summary : Effects of New System Implementation

4 Remarks

Here, we see the correlation between the viewpoints for the business renovation and this CTI system installation case (Figure 9). Systematic approach for business innovation is quite important to build an effective new system.

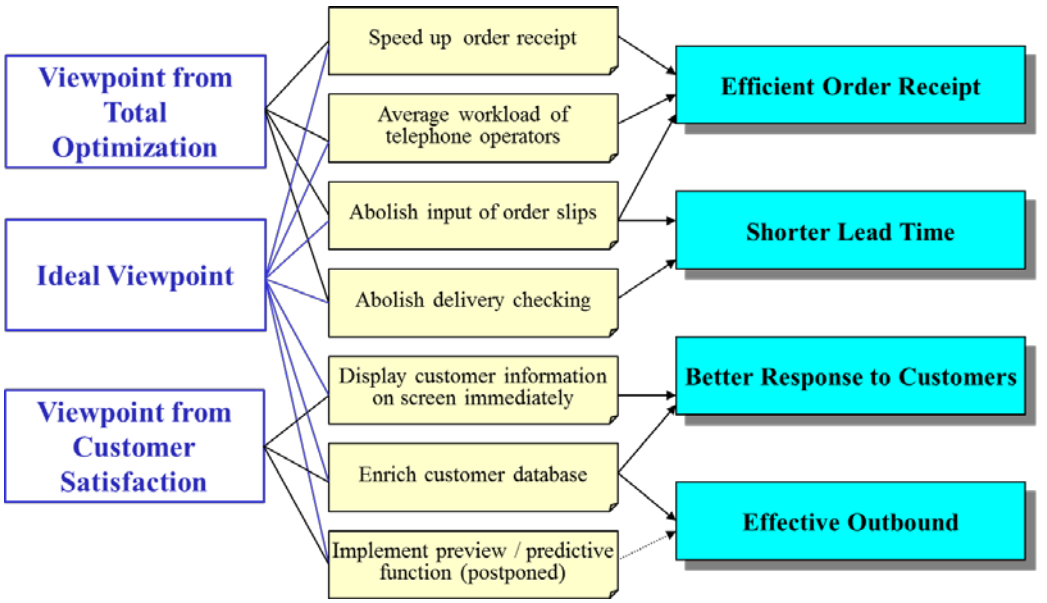

Figure 9: Correlation with the viewpoints

5 Conclusion

CTI had increasingly been implemented in order to increase the efficiency of order entry operation. The data stored by using CTI could also be utilized to form the marketing policy. This study showed the efficiency of the CTI implementation by reviewing the practical consulting case.

A drastic reduction of the time needed for processing of an order entry was obtained as an effect of implementation of the system. Before the implementation, orders received in the afternoon were unable to be shipped out by the end of the day. After the implementation it became possible to ship out the order received until 3 in the afternoon by the end of the day. In addition to the elimination of jobs such as transportation of order sheets, the lead time for Kanto district was reduced by one day.

Strategic utilization of customer database would be expected in the near future for further development.

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