Pursuing Stable Operation by Reforming Service Quality

● Kumiko Kenmoku

In line with a growing awareness of customer satisfaction (CS) both inside and outside the industry, customers now expect the quality of maintenance services they receive to be improved. In response to this expectation, each business unit of Fujitsu has been developing CS and service quality activities under such guiding concepts as "customer focus, on time, high quality, and speed." This paper introduces the "Speed de No.1" service quality reforms developed by Fujitsu's maintenance service division. The maintenance division implements Speed de No.1 activities to achieve its primary goal of ensuring the stable operation of customer systems by promptly providing maintenance services. We have drastically accelerated these services by reforming the operations of CEs and the call centers through which our customers contact us, and by establishing a new structure for assessing service quality and feeding back information from our customers.

1. Introduction

Fujitsu's system support group (hereinafter referred to as the 'maintenance division') is responsible for maintaining systems mainly for enterprise customers after the start of operation. Numerous social systems and the mission-critical systems of customers are supported, with top priority placed on the "stable operation of customer systems."

The maintenance division has contributed to the continuation of customer businesses and maintained customer trust in Fujitsu, while fulfilling Fujitsu's social responsibilities.

The number of systems being operated by customers has recently increased significantly, along with a greater openness of systems that reflects an industry-wide trend. As a result, it has become increasingly difficult in recent years to provide courteous, human-intensive support. At the same time, customers have made more requests for customer satisfaction (CS) and better service quality. In response to this situation,

Fujitsu's maintenance division has been conducting "Speed de No.1" activities since October 2003.

This paper introduces the reforms made to the processes and service quality through these activities.

2. Mission and service quality of maintenance division

This section describes customer needs for maintenance, Fujitsu's maintenance system, and our commitment to quality.

1) Customer needs for maintenance

According to *Nikkei Computer*[note 1] and Fujitsu's own customer satisfaction surveys, customers place top priority on the following items regarding the services provided by IT vendors:

- Initial response to trouble
- Troubleshooting
- Answers to inquiries

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note 1)   One of Japan's most popular IT magazines.

These represent maintenance-related items to be evaluated after the start of system operation.

Fujitsu's customers tend to select a Fujitsu system as their next system given Fujitsu's outstanding support system, which is highly ranked every year (according to Fujitsu's own customer satisfaction surveys). As evidenced above, maintenance services, particularly the initial response to failures, largely impact customer evaluations of all IT vendors and their business meetings to select the next version of a particular system.

2) Fujitsu's maintenance system

We should minimize the effects of failures on business through a prompt response and early recovery, especially for failures occurring in customer systems. Therefore, it is crucial to secure the necessary number of personnel and service depots for providing maintenance services.

Fujitsu has established a maintenance system having the largest scale in the business for corporate users as shown below, and which deals with about 100 000 inquiries regarding failures and questions from customers every month.

- 850 service centers throughout Japan (CE service depots)
- 8000 CEs
- 300 parts service centers throughout Japan
- Two call centers in eastern and western Japan (available 24 hours a day)

There are roughly three types of maintenance:

- Contractual support mainly consisting of response to failures and preventive maintenance (SupportDesk)
- Charge-free support during the warranty period
- Troubleshooting service per case at cost

Details of services differ depending on the type of maintenance. Regardless, we should satisfy the needs of all customers.

CDS : Customer Delight by Service
CS : Customer satisfaction
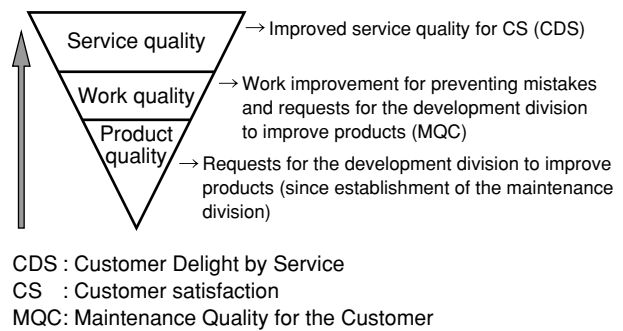MQC: Maintenance Quality for the Customer

Figure 1
Activities in maintenance division until 2003.

The contracted rate for medium- and large-sized servers is almost 100%.

3) Quality of maintenance and services

The roles of the maintenance division relative to quality are categorized as follows:

- Based on the on-site operational status, defects in quality should be reported to the development division.
- The speed and certainty of all work should be improved by promoting the quality of maintenance (e.g., improving CE operations, procuring proper tools, enhancing product specifications, changing repair procedures).
- Service quality should mainly be improved on the part of CEs and call centers that directly serve customers.

The maintenance division should be fully responsible for improving the quality of CE work under the second category and services in the third category above. Both are explained below.

3. Innovations in service quality until 2003

Figure 1 shows the activities of the maintenance division up until 2003. We have placed top priority on making "definitive improvements" to quality ever since Fujitsu's maintenance division was established in 1974. However, in line with the growing awareness of CS both inside and outside the industry, the maintenance division has stepped up its efforts to achieve CS and improve service quality since the 1980s. We

established the Customer Delight by Service (CDS) Committee for improving service quality, and the Maintenance Quality for the Customer (MQC) committee for eliminating mistakes made by CEs in line with improved work quality in 1989.

We also constructed the following mechanisms for understanding and evaluating quality.

1) Technical management index (since 1994)

Measures quality in numerical terms with the primary objective of failure management, and establishes and monitor goals (e.g., failure rate, repeating rate, time required for CEs to visit customers).

2) Service quality management (SQM) (since 2000)

Quality targets (such as preventative maintenance executing rate, target repair time compliance rate, and call center processing time compliance rate) must be set for all processes of maintenance services, with records controlled monthly. The quality indexes for CEs should be conditions for affiliated companies in charge of maintenance. Service quality must also be monitored to ensure a uniform level.

Other quality activities have later been developed through these activities and mechanisms. However, despite these activities, customer satisfaction surveys (service evaluations) conducted by *Nikkei Computer* gave Fujitsu low evaluations every year.

4. Speed de No.1 activities

This section explains the Speed de No.1 activities (initiated in October 2003) in response to the customer satisfaction surveys described above.

1) Objectives of the activities

We analyzed the customer satisfaction surveys and found that customers placed top priority on rapid maintenance services.

Fujitsu's maintenance division required a CS strategy for repairing products faster than other companies, while seeking a way to differ-

entiate Fujitsu in the industry. The division initiated Speed de No.1 activities in October 2003, but needed a recognizable slogan and targets so that 8000 CEs throughout Japan could participate in the activities and achieve the intended effects.

2) Execution system

In the original execution system, call centers and the supporting technology division played a leading part. In 2005, Fsas, which was Fujitsu's largest maintenance company, became a wholly owned subsidiary. Functions were integrated with Fujitsu and most frontline personnel at call centers and the supporting technology division were reassigned to Fsas. In line with that move, the core organization promoting the activities (headed by the project general manager and head office) was transferred to the Fsas field division.

Personnel in the field consequently had a complete understanding of the objectives and details of the activities, which were then further activated. We could also collect the reactions of customers from CEs on a timely basis, confirm the effects and appropriateness of the measures taken, and accelerate the cycle of Plan, Do, Check, and Act (PDCA) for the activities, including discussions about subsequent measures.

3) Priority activity items (slogan)

We investigated characteristics of the speed requested by customers to CEs and the maintenance division by getting back to the basics. We thus established the slogan of "Rapid visit, rapid repair, and intelligible explanation."

We also added "self-motivated CEs" and the "reduction of failures" to top priority issues in October 2005 (**Figure 2**).

5. Major reforms

Typical major reforms made through Speed de No.1 activities are described below.

5.1 Rapid visits

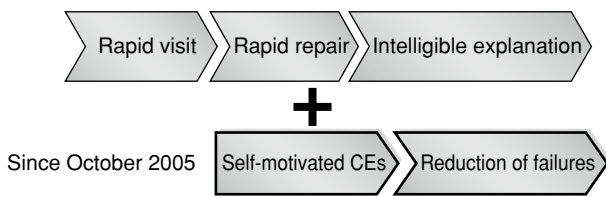Since the breakdown of a social system results in grave consequences for customer

Figure 2
Principles of "Speed de No.1" activities.

businesses, we should repair the system faster than usual. Therefore, we set a target time of 5 minutes for CEs who received a call-out from a call center to go into action. This target was realized by "parallel operation" where multiple staff members work at the same time. For trouble identified as being serious, a call center asks the customer about specific conditions of the trouble, while it orders the relevant service depot to dispatch a CE in order to shorten the time needed for the CE to start for the customer (**Figure 3**). The activity to start to dispatch CEs within 5 minutes began in April 2004. The target time has been met at a rate of 95% or more since 2006. We have established a cross-subsidization strategy whereby if a CE cannot immediately visit a customer site from the relevant service center, a CE from another service center (an affiliate company) available in the region will visit the customer instead. This is why we highlight our major point of Fujitsu having the largest maintenance system in the industry.

5.2 Rapid repair
5.2.1 Use of mobile phones (improved measures against failures)

We can trace the locations of CEs in an organized manner after a call center instructs CEs to visit customers by connecting the mobile phones of CEs to the call tracking system. As a result, we could change the work processes of CEs and the supporting divisions. Major improvements are listed below (**Figure 4**).
1) Recording and listening to conversations between call centers and customers

Call centers and CEs can share the situations of customers that cannot be expressed in words.
2) Operating instructions mail
We can move quickly by issuing instructions to CEs on the move from a service depot.
3) Transmission of progress
We can grasp the situation by transmitting via mobile phone the time at which a CE departs, arrives at the site, and begins and finishes work in a timely fashion. This can also improve the accuracy of work record data.
4) Automatic escalation
We can provide higher levels of information depending on the severity of the trouble.

5.2.2 Improvement of CE technical capabilities (reformed development of human resources)

Fujitsu maintains a wide range of devices including general-purpose machines, servers, PCs, networks, and financial terminals. As a result, each CE covers multiple fields. We should improve the repair skills of CEs on a day-to-day basis in line with technical innovations made to the equipment.

Meanwhile, the number of customers who conclude maintenance contracts with SEs after starting operations has declined due to the increasing openness of systems. Consequently, CEs must now perform more operations (such as system recovery) that were previously performed by SEs. For this reason, it was urgently requested to nurture CEs who can understand the entire system, including the software.

Fujitsu has already established its own CE education and qualification system to upgrade and better understand the technological level of all CEs. Fujitsu modified the system in response to the challenges described above as follows:
1) Development of engineers who understand the systems (ACE: Advanced CE)
We have developed courses of instruction and a recognition system for system operations
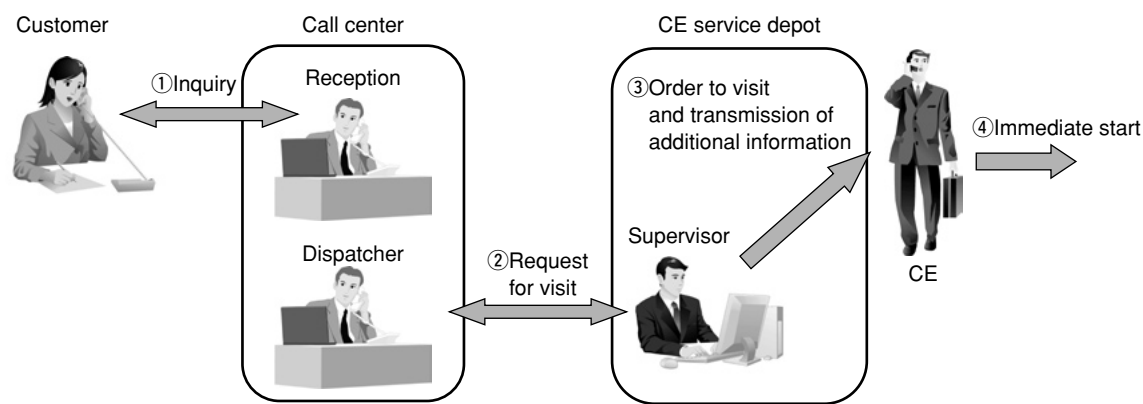
Figure 3
Parallel operation for CE start within 5 minutes (① to ④ proceeded simultaneously).
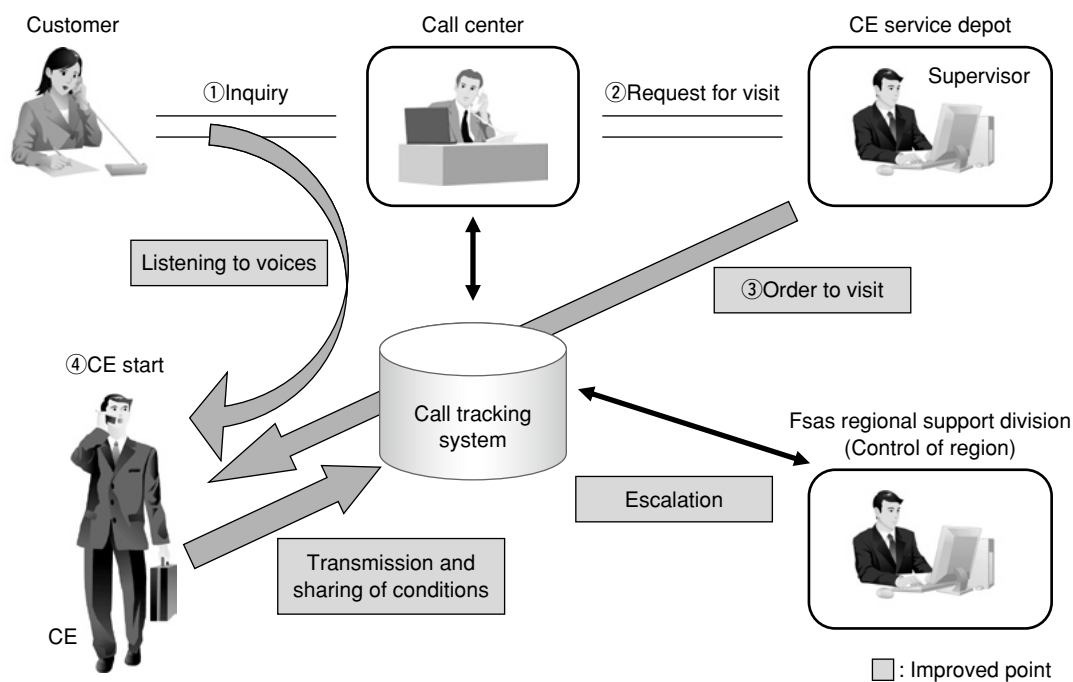
Figure 4
Operation processes by connecting mobile phones.

~**Fujitsu promotes "Speed de No.1"**~ Let us know how you liked it.		
Did the CE arrive soon?	Was repair completed quickly?	Was there an intelligible explanation?
Yes or No	Yes or No	Yes or No

Figure 5
Maintenance service report (extract).

and software technologies such as for networks, middleware, and storage. As a result, ACE qualification has been granted to 30% (80% for Fsas) of all CEs as of 2006.

2) Development of self-motivated CEs

According to Fujitsu's own customer satisfaction surveys, customers mainly request CEs to propose measures for preventing the recurrence of trouble. In response to this request, we are fostering self-driven human resources who can better understand the needs of customers.

More specifically, we have adopted a program to improve service sensitivity known as S-MAX,[note 2] developed our own discussion support tool, and distributed the tool to the field. All CEs participate in small-group activities in the field.

5.3 Intelligible explanations

Some CEs have conducted the activities shown below up until now. We promoted these activities as part of division policy.

5.3.1 Evaluations by customers when repairs are reported (enhanced communication)

After repairing a device, Fujitsu CEs explain the cause of trouble and details of repair to the customers based on a "maintenance service report," and then obtain a seal of approval.

We have provided check boxes (e.g., descriptions of the Speed de No.1 activities and customer satisfaction) in the report (**Figure 5**) to obtain the following benefits:

1) Promoting the appealing activities of the CE division.

2) Using the reports in communicating with customers.

3) Should a customer check "No" (meaning dissatisfied), the source of dissatisfaction should be rapidly eliminated in the follow-up call described below.

5.3.2 Follow-up call (secure and stable operation)

For cases where customers checked "No" in the maintenance service report described above and for all serious trouble (such as system down) that affected customer businesses, we have CEs follow up the trouble by telephone, visit the customer the next day, or conduct subsequent repair.

At the Speed de No.1 promotion meetings, we check the progress of innovation. Specifically, many customers praise and thank us for the follow-up calls. We will continue follow-up calls as effective measures for relieving customer anxiety, as well as detecting and resolving potential problems.

We also recommend that CEs make phone calls (known as 'happy calls') to customers asking about the current status, even in cases other than serious trouble. We intend to make phone calls in 30% or more of all cases.

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note 2) Abbreviation for Service-Maximum. This is a program provided by JMA Management Center Inc. It consists of "original education material development" and "facilitator development."

5.4 Other measures (development of system for awarding maintenance partners)

As mentioned above, Fujitsu's maintenance division has 8000 CEs and at least 90 affiliate companies to which maintenance services are commissioned.

We established a system when Speed de No.1 was initiated for giving awards to partners exhibiting excellent service quality every six months.

We also give awards to partners at the national CE partner meeting, which is an opportunity for sharing business policy with the executives of maintenance partner companies, and at local CE partner meetings held every six months at ten depots nationwide. We also give awards to partner companies and CE service centers that provide high-quality services in order to reflect the orientation of the maintenance division and promote the project.

6. Grasping activity status — introducing new methods —

This section explains the new methods of measuring service quality. These methods are roughly divided into the following groups:

1) Quality as viewed by customers

We should place top priority on this method, although the number of measurements is somewhat limited.

2) Work results (performance data)

We should continuously confirm that target values are associated with the needs of customers and grasp all correspondence in terms of the services.

The maintenance division adopted a new method of measuring service quality for gauging the progress of activities, in addition to a mechanism for understanding and evaluating quality as described in Section 3 ("Innovations in service quality until now"). This method entails a "service quality check" and "monitoring survey" which fall under 1) above, and the "Speed de No.1" index

that falls under 2) (**Table 1**).

The characteristics of each method are described below.

6.1 Service quality check (telephone customer survey)

We make a telephone call to customers within one week from the day after a failure was remedied, asking them to evaluate the personnel who dealt with the trouble at the call center and the CE dispatched. Evaluation items include "quickness, technical capabilities, explanatory capability, and manner." The satisfaction levels for each item are evaluated in a four-level rating system. In this check, customers evaluate individual responses to failures. As a result, this check can clarify something unsatisfactory better than normal customer satisfaction surveys, and offers the advantage of generating specific improvements. We actually discuss measures for preventing the recurrence of all cases having lower evaluations from customers. At the same time, it is difficult to obtain a comprehensive evaluation from customers. Therefore, we obtain a certain number of samples and observe the transition in quality conditions.

This survey initially covered the call centers, and then was expanded to cover CEs. Customers attach significantly higher values to CEs than call centers. However, customers provided many indications and requests. We discussed these characteristics in the division and reviewed evaluation guidelines for the service quality check. (We attach high value not to evaluation values, but to indicators.)

1) Customers rarely give low evaluations of CEs who they meet directly. Dissatisfied customers usually do not give low evaluations of CEs, but point out problems instead.

2) If there is no comment about dissatisfaction in the service quality check, but many requests and a high evaluation, the service quality is considered high. Any indicators should be processed in the same manner as

Table 1
Methods of evaluating service quality used by maintenance division and their features.

|	Outline	Measurable quality (○: possible, △: partially possible, ×: impossible)				Evaluation methods used by Fujitsu's maintenance division		
		Speed	Skills	Response ability, explanation	Added value	Evaluation method	Advantages	Disadvantages
Quality viewed from customers	Customers or third parties evaluate. Some staff give the name of Fujitsu and others do not.	○	○	○	○	<Evaluation compared to other companies. The name Fujitsu is not mentioned.> * *Nikkei Computer* customer satisfaction survey * Customer satisfaction survey conducted on all Fujitsu Group companies * Other customer satisfaction surveys published on Websites	• The most important evaluations reflecting the actual feelings of customers can be collected. • Overall/comprehensive evaluations of customers can be collected. • Fujitsu's advantages and weak points can be clarified through comparisons with other companies.	• Trouble with customers that occurred several years ago may affect evaluations. Disagreements may occur in the targets of evaluation. • Research cost is high.
						<Absolute evaluation; the name Fujitsu is mentioned> * Service quality check * Monitoring survey (Corresponding evaluation by third parties)	• It is easy to clarify problems and establish measures due to evaluations of individuals addressing failures and inquiries.	• Customer dissatisfaction deepens by omitting follow-ups. • Research cost is rather high.
Operation record	Corresponding data are extracted from the call tracking system and aggregated.	○	△	△	×	* Technology management index * SQM * Speed de NO.1 index	• Relatively easy aggregation (data processing) • State of all maintenance services can be grasped. • No research cost is required.	• Mistaken data input may cause errors. • Evaluation specifications and target values may not improve CS (and are only favorable for one's own division).
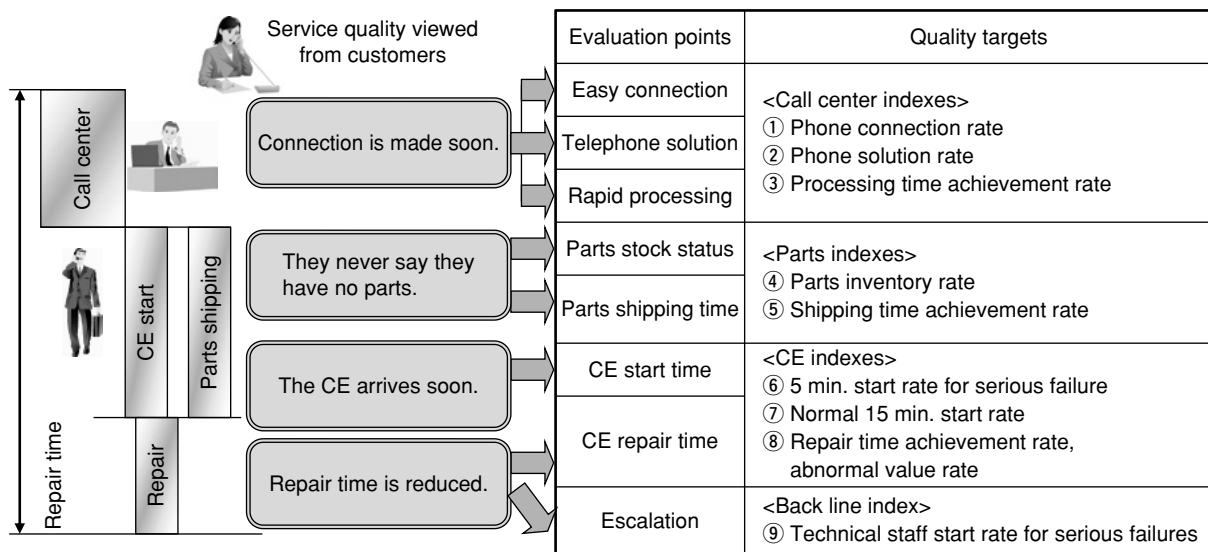
Figure 6
"Speed de No.1" index (extract from corresponding quality indexes in case of system trouble).

when evaluating dissatisfaction.

Since surveys of the maintenance division are characterized by evaluations obtained from customers, the personnel evaluated also evaluate themselves using the same items as customers. This clarifies the gap in recognition between customers and maintenance personnel. In this way, we can warn those personnel having with a larger gap or showing no improvement.

6.2 Monitoring survey (grasping quality corresponding to customers)

Conventionally, customers asked CEs familiar to them to deal with trouble. However, receptionists not familiar to the customers refer CEs through the call centers that have been established. Calls are now being commonly received by call centers both inside and outside the industry. As a result, customers are highly evaluating call centers more and more.

We consequently began evaluating the quality of responses based on actual conversations with operators at the call centers (including one-stop solution centers, and the reception of hardware and software) of Fujitsu's maintenance division when the call centers were estab-lished in 2000. Types of support are now being surveyed every six months to clarify the status of quality and overall problems regarding call centers and individual operators in order to make improvements.

We virtually satisfied the targeted quality (e.g., basic response, speech patterns, vocal characteristics) for the common call centers by 2005 (the first phase). In the second phase, we are reviewing the evaluation criteria by focusing on the quality (in terms of technology and handling capacity) that customers require of IT call centers, and by continuing to conduct surveys.

Aside from conducting semiannual surveys, each division checks itself on a continuous basis. This has gradually improved the quality of response.

6.3 Speed de No.1 index

As shown in **Figure 6**, quality indexes regarding SQM that are closely linked to customer satisfaction and dissatisfaction are collected as a Speed de No.1 index. The status of achievement per month is checked and divisions failing to achieve the criteria are ordered to make

corrections.

This index and status of achievement are displayed at Fsas in order to share targets and current states.

7. Results of activities

1) Results of *Nikkei Computer* customer satisfaction surveys[1)-6)]

Customer evaluations of services have gradually improved. In particular, Fsas ranked second in operational services in the survey conducted in 2006.[6)] Other maintenance partner companies of Fujitsu that have promoted quality activities also have the same quality of services. Such high ranking can be considered an evaluation of Fujitsu's entire maintenance division.

2) Fujitsu's own customer satisfaction surveys

In customer satisfaction surveys conducted annually by Fujitsu, the evaluations of CEs are steadily improving.

The time required for CEs to visit a customer site for servicing PC servers in particular after the customer makes a telephone call has ranked first continuously ever since 2004 among the major 5 vendors.

8. For establishing and developing activities

We developed a mechanism to rapidly address and resolve trouble through Speed de No.1 activities. The concept of action that focuses on speed has become widespread throughout the entire division. This contributes to the stable operation of customer systems and we have begun to receive reasonable evaluations.

We will also pursue speed in the future and further strengthen the following activities:

8.1 Quality improvement activities based on opinions from on-site engineers and salespeople

We have managed quality by measuring the results of services in numerical terms. In the future, we will improve the quality of servic-
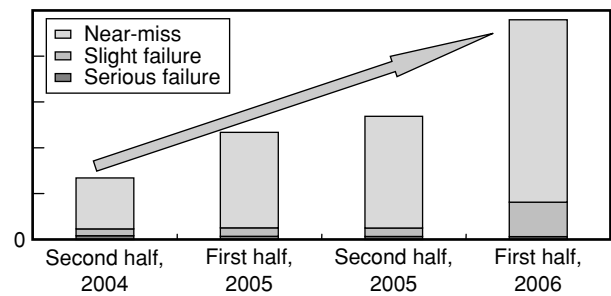

Figure 7
Transition in MQC reports due to human error including near-misses.

es based on potential opinions and awareness from the local site. In this way, we can prevent failures and trouble with services.

Latent information in the field is now being collected via the mechanism described below.

1) Awareness in the field

All Fujitsu companies should share problems and proposals uncovered by salespeople, SEs, and CEs in direct contact with customers.

2) MQC report

Information about mistakes in CE work is registered in each case. This includes not only mistakes that affect customer systems, but also includes near-miss incidents.[note 3)]

3) DB for managing opinions from customers

Indications and claims sent by customers to Fujitsu call centers and its other divisions are managed and addressed in an integrated manner.

In particular, as shown in **Figure 7**, the number of human errors affecting business has been reduced according to MQC reports. The number of near-miss incidents, however, has rapidly increased since 2005. To ensure the quality of maintenance work, we should not only devise countermeasures after mistakes are made, but also prevent mistakes before they occur.

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note 3) Mistakes that may have caused a large-scale accident, although having minor effects due to avoidance immediately prior to occurrence.

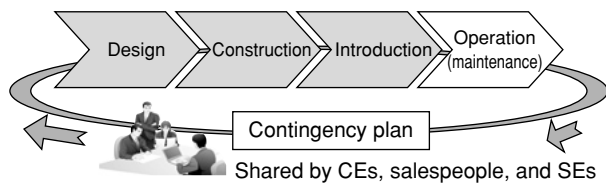FUJITSU Sci. Tech. J., **44**,2,(April 2008)

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Figure 8
Next system design originating in maintenance activities.

8.2 Proposals utilizing contingency plan

A contingency plan entails information for managing possible hazards posed to customer systems as collected by CEs. The weak points of customer systems should be searched according to this plan, and CEs and salespeople should make proposals for stable operations to customers. Such a plan was initiated at Fsas in 2005. We ultimately plan to implement contingency plans for all of Fujitsu's customers.

Conventionally, the flow included system design, construction, and operation in this order. At the same time, proposals based on a contingency plan generate a flow originated from operations that contribute to the next customer system (**Figure 8**). CEs can meet customer needs through discussions and proposals, because they have supported customer systems for a long time and are fully knowledgeable about the states of those systems.

9. Conclusion

This paper described the work process innovations and new methods of grasping service quality for Speed de No.1 activities conducted by Fujitsu's maintenance division. We will continue promoting activities for the stable operation of customer systems.

On a final note, the credits obtained through communicating with customers for a long time are a most important asset for Fujitsu. Even if the IT environment and customer needs change, the mission to maintain customer trust and protect the stable operation of customer systems will not change. Therefore, we will continue to further improve the quality of service in order to achieve greater customer satisfaction.

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