

Quality Control of Customer Technical Data on Telkom Indonesia (Regional III)

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Abstract— The purpose of this research is to find out how QC customer data on the valins program at Telkom Indonesia (Regional III) and find out the impact of the QC. Telkom Indonesia has several internet services, one of which is cable internet. Telkom Indonesia has many ODPs spread across every city, with so many ODPs the technicians often experience problems if there are new customers who want to install internet services. To deal with this problem, Telkom Indonesia created the valins program. The Valins program aims to make it easier for technicians to validate data on the system and field data. In the research on quality control analysis of customer technical data in Telkom Indonesia's valins program, the author uses a qualitative descriptive research method based on the Deming cycle or PDCA (Plan-Do-Check-Action). From the results of the research conducted, Telkom Indonesia Regional III has implemented data quality control in the valins program with the PDCA method. However, quality control is not optimal because obstacles occur in the "Do" factor, this is evidenced by the large amount of invalid data that can hamper Telkom Indonesia's operations.

Keywords— Operational Management, PDCA, Quality Control, Quality Management.

I. INTRODUCTION

Quality is very important to meet customer needs, good quality can increase customer satisfaction and build loyalty. According to Ariani (2020: 15) Quality can be defined as everything that is able to meet customer needs and expectations, or the match between customer needs and company offerings. The higher the quality of the product, the higher the level of customer satisfaction with the product. Therefore, the quality of a product must be controlled. Quality control according to Deming, a statistician and management system developer, emphasizes the importance of QC in improving the quality of products and services. Deming argued that QC is an integral part of an effective and sustainable management system. QC can improve operational performance by helping to save costs, so it can increase company profits by increasing sales of quality products. Including quality control of technology products.

Telkom Indonesia is the largest telecommunications services company in Indonesia by providing various communication services. A popular service among the public is the Indihome cable internet service. In the process of installing cable internet services, technicians must validate ODP data that will be installed by new customers. The obstacles encountered in the installation process are the problem of full ODP ports and the unplugging of drop core cables that have not been maximized so that customers who should not have subscribed but the drop cable has not been unplugged as if the ODP is full.

Therefore, a valins program was created that makes it easier for technicians to check ODP. With this valins program, it is easier for technicians to validate ODP data, so that there is no difference between data in the system and data in the field and in accordance with actual data. However, there are obstacles to the valins program, namely that there is still invalid data found. This can affect company operations such as the risk of decreased sales, and affect the quality of the valins program. The following is a table of invalid customer data in the valins program.

II. LITERATURE REVIEW

Quality management is defined as an effort to improve the quality of performance on an ongoing basis at every level or operational process or functional area in the life of the organization using its resources. Quality management and quality control are interrelated in improving the quality of products and services. Quality management involves various aspects including planning, controlling, assuring, and improving quality, while quality control focuses on ensuring effective implementation of quality control. Deming emphasized the importance of understanding consumer needs and implementing appropriate strategies to meet those needs based on the 4 stages of plan-do-check-action (PDCA) as well as continuous improvement and effective quality control to improve product quality:

1) Plan

Planning is a process of estimating what will happen in the future seen from the current situation so that it can set goals and improvement targets. Planning is done to identify goals and processes to find solutions to make improvements. In this process, the stages that need to be considered include determining services, customer expectations and satisfaction. The planning process focuses on quality improvement opportunities, by describing actions to find opportunities for improvement or methods to achieve them. The planning process must establish the necessary resources such as human resources (HR), infrastructure (buildings), process equipment, means of transportation, communication and work environment.

2) Do

Do or implementation is the implementation or work where at this stage of the work, namely collecting the required data, converting data, assessing information and reporting and communicating data. In this step, the plan that has been developed is implemented and the implementation process is monitored on a small scale or trial basis. For example, by establishing all the requirements for creating processes, performing verification, validation, monitoring, inspection, testing activities required for product acceptance criteria, communication with customers, design and development activities, purchasing, production and service equipment control activities, control of measuring instruments, and so on.

3) Checking

Check is the stage of checking and reviewing and studying the results obtained from the application of the do stage. Make comparisons between the actual results that have been achieved and the targets set. The "check" process is to evaluate the plan and implementation process, supervise and evaluate the improvements made. In this process, it is necessary to review whether what has been done is in accordance with existing standards or there are still shortcomings. Monitor and evaluate the process and results against the goals and specifications and report the results to ensure that the implementation is in accordance with the expected improvement and improvement plan. What is needed in this process is to monitor and measure customer satisfaction, conduct internal quality audits, monitor and measure processes and products, control nonconformities that occur, analyze all data obtained including trends in processes, then take corrective and preventive actions.

4) Action

Action is the stage of action to follow up on the results obtained. Actions taken at the action stage that can be taken are corrective and standardization. The "act" process is the process of following up on the results to make the necessary changes by reviewing the entire step change

process to perfect it before the next implementation. Follow up on the results by considering which plans to set and which.

III. RESEARCH METHODS

Researchers use a qualitative descriptive approach. By formulating a problem to explore the situation to be studied broadly and focusing on the phenomena that occur. The population in this study were 2 Telkom Indonesia employees, who were selected using interview techniques as research support. The data collection technique used is a literature study by tracing the sources of writings that have been made previously on the object under study. According to Rusmawan (2019: 104) Literature study is a method of collecting data by searching and reading existing written sources such as books or literature that explain the theoretical basis. It is the same as collecting data and information by exploring knowledge or knowledge from sources such as books, papers, and several other sources that have to do with the object of research. The data analysis technique used is by conducting a direct review to Telkom Indonesia to obtain the required data, as well as conducting documentation to record the available data, which is related to the matters to be studied.

IV. RESULT AND DISCUSSION

A. QC on Customer Data

Quality control (QC) on customer data is a process to ensure that the customer data collected and used by the company is correct, complete, and in accordance with established quality standards. The company should regularly monitor and verify the quality of customer data to ensure that the data is correct and appropriate, which includes things like accuracy, clarity, and consistency. This can be done through data audits, manual checks, or by using automated quality checking tools.

By performing QC properly, companies can improve efficiency in managing customer data, including reducing the time needed to correct incorrect data and increasing the speed of decision-making based on customer data.

QC is also important to ensure that all customer data used by the company meets established quality standards, as accurate customer data can help companies make better decisions and provide consumers with better services.

B. QC on Valins Program

Telkom Indonesia's cable internet service includes quality control (QC) of customer data on the Valins program. The process of validating field ODP (Optical Distribution Point) data with Telkom Indonesia's system data is included in the Valins program, which is designed to make it easier for technicians to check and validate ODP data to ensure that data between the system and the field is consistent and accurate. Customer data QC in the Valins program covers various aspects, from validating field ODP data with the system, overcoming technical obstacles. This program is very important to ensure that Telkom Indonesia's cable internet services are appropriate and of high quality. To ensure the quality of Telkom Indonesia's customer data, Telkom Indonesia conducts:

1. ODP Data Validation

Assisting in the validation of field ODP data with Telkom Indonesia system data includes checking the ODP ports to ensure that the ports used by new customers are valid and available, and that the ODP data in the field is in accordance with the data recorded in Telkom Indonesia's system.

2. Overcoming Technician Obstacles

The Valins program was created to handle technical issues such as invalid ODP port revocations or full ODP port issues. so that it can ensure that the data in the system and the data in the field are the same and appropriate.

3. Improving Efficiency and Accuracy

The Valins program improves the efficiency and accuracy of the installation of new wired internet services by guaranteeing that the data between the system and the field is consistent and accurate. Customer service must meet customer requests and needs.

4. Use of Technology

The Valins program uses technology to accelerate the ODP data validation process, such as the use of information systems that can automatically check and validate data, which allows technicians to check and validate ODP 1 data faster and more efficiently.

Interviews are also used as proof of previously obtained information or information. The interview method is carried out by preparing a list of questions according to the topic or problem being researched. According to Hardani, et al. (2020:138) an interview is a process of obtaining information for research purposes by means of face-to-face questions and answers between the questioner or interviewer and the respondent using a tool called *an interview guide*.

Based on the results of the interview statement, PDCA has been implemented to maintain the quality of customer data in the valins program. To find out the possible location of the error, the author used a questionnaire as a research supporter.

Descriptive Analysis Based on Respondents

Table 1 Recapitulation of Respondents' Responses Based on PDCA

PDCA CYCLE	STATEMENT	FREQUENCY OF ANSWERS					SUM
		5	4	3	2	1	
Plan	Procedures for verifying customer technical data before it is input into the system.	3	4	8	0	0	15
	Weight Value	15	16	24	0	0	55
	Procedures for validating data on systems and the field.	7	6	2	0	0	15
	Weight Value	35	24	6	0	0	65
	Determine the quality standards and procedures for collecting ODP data to be used	8	6	1	0	0	15
	Weight Value	40	24	3	0	0	67
	Total Weight Value						187
Do	Teknisi melakukan survey ke lapangan yang akan dilakukan pengecekan	0	5	7	3	0	15
	Nilai Bobot	0	20	21	6	0	47
	Teknisi melakukan validasi data dengan benar sesuai SOP		3	7	5	0	15
	Nilai Bobot	0	12	21	10	0	43
	Team leader melakukan update data jika "OK", dan menginfokan ke teknisi port mana yang dapat digunakan untuk proses PSB jika "NOK"	5	5	5	0	0	15
	Nilai Bobot	25	20	15	0	0	60
	Total Nilai Bobot						150

PDCA CYCLE	STATEMENT	FREQUENCY OF ANSWERS					SUM
		5	4	3	2	1	
Check	Mengecek kualitas data ODP yang dikumpulkan untuk memastikan bahwa data tersebut sesuai dengan standar yang ditentukan.	10	5	0	0	0	15
	Nilai Bobot	50	20	0	0	0	70
	Melakukan cek data yang dikumpulkan untuk memastikan validitas pelanggan	10	4	1	0	0	15
	Nilai Bobot	50	16	3	0	0	66
	Total Nilai Bobot						136
Action	Melakukan rekap data untuk diupdate/ dilakukan perbaikan	3	7	5	0	0	15
	Nilai Bobot	15	28	15	0	0	58
	Terdapat tindakan untuk mengatasi data yang tidak valid	13	2	0	0	0	
	Nilai Bobot	65	8	0	0	0	73
	Total Nilai Bobot						131

To find out the number of ideal scores of all the highest respondents' answers, it can be seen from the following explanation

Plan & Do

Maximum score: (item x highest weight x respondent)

$$: 3 \times 5 \times 15 = 225$$

Minimum score : (item x lowest weight x respondent)

$$: 3 \times 1 \times 15 = 45$$

Average : Maximum score – Minimum score

$$= \frac{225 - 45}{5}$$

$$= 36$$

To find out the level of the plan's dimension category, it can be determined below:

Excellent : 190-225

Good : 154-189

Netral : 117-153

Bad : 82-117

Very bad : 45-81

Based on the table, the total weight value on the *cycle plan* is 187 (good) good. While in *cycle do* it is 150 (neutral)

Check & Action

Maximum score: (item x highest weight x respondent)

$$: 2 \times 5 \times 15 = 150$$

Minimum score : (item x lowest weight x respondent)

$$: 2 \times 1 \times 15 = 30$$

Average : Maximum score – Minimum score

$$= \frac{150 - 30}{5}$$

5

$$= 24$$

To find out the level of the plan's dimension category, it can be determined below:

Excellent : 127-150

Good : 103-126

Neutral : 79-102

Bad : 55-78

Very Bad : 30-54

Based on the table, the total weight value on the *cycle check* is 136 (very good). While in the *cycle action* it is 131 (very good).

From the results of the calculation, it can be assumed that:

- Cycle check* and *action* are in the very good category
- Cycle plan* is in the good category
- Cycle do* is in the neutral category

So, the possibility of the error is in the *do cycle*.

The following is a visualization of the causes of invalid data errors "NOK" in the customer data of the valins program:

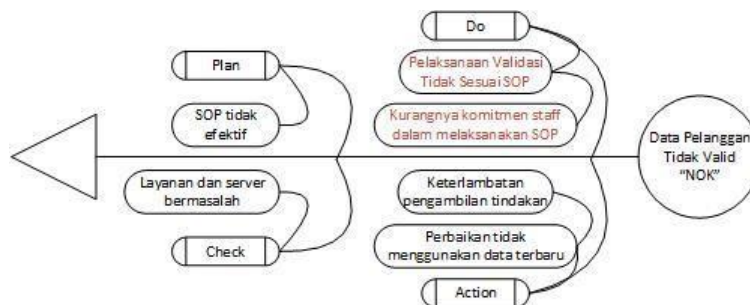


Figure 1 Fishbone Visualization

Fishbone visualization illustrates a symbol line that can clarify the relationship between the cause and a problem, and the causes of the problem (Muhamad et al., 2022) Invalid data affects the quality of valence which will have an impact on the quality of services provided by Telkom Indonesia, disrupt operational efficiency with increased costs and decreased productivity, hinder the increase in competitiveness in the telecommunications industry and have an impact on the profitability of the company. There are *plan-do-check- action* (PDCA) steps to improve the *quality control* of violator data on the valins ptoqram:

- 1) *Plan*
 - Identify problems that occur with the input of valins data.
 - Create a clear and specific plan to fix the problem.
- 2) *Do*
 - Ensure that the valins data input has been corrected and in accordance with the set criteria.
 - Re-control the data input to ensure that the issue has been resolved.

- 3) *Check*
 - Revalidate the data inputs to ensure that the data is appropriate and valid.
 - Re-analyze the data to ensure that the issue has been resolved and does not occur again.
- 4) *Action*
 - Implement the improvements that have been made and make sure that the improvements are effective.
 - Monitor data inputs to ensure that problems do not occur again and that data remains valid.

Invalid data "NOK" leads to a decline in the company's operational efficiency, and risks increasing sales failures. Here is the percentage risk of sales failure if the "NOK" data is not corrected.

Table 2 Customer Technical Data Table on the Valins Program

Moon	Amount of Data	OK	ENOUGH	Value	Risk (%)	Risk Assessment
January	1953	1722	231	IDR 280,000	11,8%	IDR 64,680,000
February	2157	1927	230	IDR 280,000	10,6%	IDR 64,400,000
March	2220	1933	287	IDR 280,000	12,9%	IDR 80,360,000
April	1272	1042	230	IDR 280,000	18%	IDR 64,400,000

Data Valid "OK"

OK data is valid data. This can be analyzed by checking the completeness of the data and the suitability of the validation procedure, such as:

- 1) ODP photo completeness
 - Open ODP (in)
 - Closed ODP (outdoor)
 - Pole accessories fittings
 - Photo of a comprehensive pole
 - Panoramic pole condition
- 2) *The result* is according to the ODP photo display
 - *Summary* ODP as per external ODP ID
 - Detected ONT ports >50% of the number of *dropcore cables* in the ODP photo

Valid data will provide accurate information to customers, so that they can better understand customer needs, and provide timely solutions. This will have an impact on increasing customer satisfaction, building better relationships with customers, and retaining loyal customers. In addition, Telkom Indonesia can detect and identify potential security threats. Telkom Indonesia can also improve operational efficiency and ensure the quality of services provided, because valid data will be reported to see sales opportunities.

Data Invalid "NOK"

NOK data is this invalid data, This can be seen and can be analyzed by comparing the procedure on the results of the valins website, as follows:

- 1) ODP photo completeness
 - No ODP photos in
 - No ODP photos outside
 - No ODP photos outside and inside

- 2) There is a *BT port* $\geq 50\%$ of the dropcore volume
- 3) There is a *none port* but there is a *dropcore*

The input of the valins correction that was declared invalid were:

- 1) Repair inputs using different ODPs
- 2) Repair inputs using old valins IDs
- 3) Repair input no external ODP photo
- 4) Repair input no ODP photo in
- 5) Repair input there is port none but there is dropcore
- 6) Correction inputs do not perform the correct regular valins

Based on Table 4.3, it can be seen that invalid data of "NOK", can affect the company's operations, especially sales risks. The more invalid the data, the higher the risk of sales failure that can occur. The risk percentages in the table are quite large, and can have an impact on the quality of the valins program. Thus, PDCA measures can help in correcting the valins data input problem and ensure that the input data is valid and in accordance with the set criteria.

V. CONCLUSION AND SUGGESTION

Conclusion

Based on the results of data analysis and research that has been carried out, the following conclusions can be drawn:

1. Based on the results of literature studies and interviews, Telkom Indonesia (Region III) has been quite good at maintaining *quality control* of customer data in the valins program. This is evidenced by the *plan-do-check-action* (PDCA) process on every data input into the system. However, based on the data in the table, errors in the input data hinder the next operational process and greatly affect the performance of *the valins program quality control*.
2. From the results of the research conducted, the obstacles experienced in *quality control* in the valins program are the existence of invalid data and the lack of commitment of technical staff in carrying out SOPs, which can hinder the company's operational activities.
3. The solution that can be proposed after the observation is carried out is to develop a system to be more automated in validating and providing intensive training to technical staff.

Suggestion

Based on the conclusions that have been described, there are suggestions that can be put forward, which are as follows:

1. For companies in improving *the quality control* of customer data of the valins program:
 - a) Developing applications used to validate data becomes more automated, so that data validation activities can be controlled effectively
 - b) Focus on the data to be validated so that the system data and field data are appropriate, as well as periodically validate the data which can help reduce data errors and improve system performance.
 - c) Create a *group discussion forum* with the valins program provider and technicians, to identify the risks of all SOPs set, and make mitigations to the risks.
 - d) Improve the quality of technician training in carrying out commitments to SOPs and reduce data errors
2. For readers

It is hoped that readers can add knowledge and insight related to *quality control analysis*
3. For the next researcher

In this study, the researcher analyzed the analysis of *customer data quality control* in the valins program at Telkom Indonesia. This research was conducted in a limited manner based on research variables. It is hoped that the next researcher can add other variables and can present this research as a source of research.

Acknowledgments

Solutions that can be emerged after the obstacles are known through PDCA observation are carried out:

1. The existence of invalid customer data.
 - a) Using a system that can automatically monitor and validate customer data. Thus, it can reduce the need for manual intervention and improve operational efficiency.
 - b) Implement *real-time monitoring* to monitor the status of customer data in real time, so that failure in sales, undelivered service and loss of customer loyalty can be avoided.
2. Lack of commitment from technical staff
 - a) Providing intensive training to technical staff on the importance of data validation and having a high commitment in implementing SOPs
 - b) Ensure that technical staff have high integrity by conducting regular evaluations

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