

MEASUREMENT OF ISO 9001:2008 IN PUSDATIN PUPR INDONESIA

Nurullina Andini¹

Faculty of Engineering and Informatics, Universitas Multimedia Nusantara, Indonesia
nurullina.andini@student.umn.ac.id

Wella^{2*}

Faculty of Engineering and Informatics, Universitas Multimedia Nusantara, Indonesia
wella@umn.ac.id

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Abstract - The issue at hand is to the implementation of the quality standard outlined in ISO 9001:2009, specifically focusing on clauses 4 through 8. In order to obtain the desired outcome, a comprehensive interview was conducted with the director of the department. Additionally, a total of 51 questionnaires were distributed among the 52 staff members, and relevant documents were carefully reviewed. The evaluation was conducted with the Likert Scale, and the final outcome was determined based on the maturity level. The implementation of clauses 4 to 8 of the ISO 9001:2008 quality standard at PUSDATIN has been successfully executed, achieving a level 4 rating (Managed and Measurable). PUSDATIN must enhance its capacity in order to attain the highest level of maturity, namely level 5. To get a level 5 rating, PUSDATIN should consider implementing ISO 9001:2008 standards. This would ensure that the required product quality is consistently maintained to meet customer expectations. Additionally, PUSDATIN can enhance its capabilities by recruiting professionals with expertise in quality management systems.

Keywords: ISO 9001:2008; Maturity Level; Quality Management System; Quality Standard.

1. INTRODUCTION

1.1 Research Background

Companies and government offices have different regulations and policies. In government offices, refer to applicable legislation. In this research, the author used a government office object, namely PUSDATIN (Center for Data and Information Technology) of the Ministry of Public Works and Public Housing. PUSDATIN, in carrying out its activities, refers to government regulations and uses standards from ISO 9001. In accordance with the provisions of Law No. 25 of 2009 on Public Services, public services encompass a range of activities aimed at meeting the service requirements outlined in statutory regulations for both citizens and residents. These services may include the provision of goods, services, and/or administrative assistance, and are typically facilitated by public service providers. Therefore, government offices, as providers of public services in the community, can provide good services that suit their needs. ISO 9000 is a guarantee for quality standards used in various business and government sectors to improve quality by providing guidance to an institution or organization that is used in establishing and measuring a quality system. ISO 9000 is a reference for selecting and using standards (ISO, 2017). ISO 9001 is understood as a quality management system that makes customers the orientation for organizational success by utilizing all components of the organization as a unified whole. ISO 9001 is top-down, meaning it requires direction from top management to lead all components involved in implementation.

ISO 9001 covers comprehensive aspects and is very flexible, meaning it can be applied to all types of organizations. (Subagyo, 2009) The author's aim in conducting research in government offices is to determine consistency in implementing ISO 9001:2008, which consists of 8 clauses. The author only conducted research from clause 4 to clause 8 because clauses 1 to clause 3 only In conducting research, the author chose a government office because, from several government offices that the author observed, there was a lack of consistency in implementing the existing quality management system for the long term. The government office in question is PUSDATIN (Center for Information Data and Technology) at the Ministry of Public Works and Public Housing. There are multiple factors utilized as sources for formulating research problems, including: (1) the management of PUSDATIN under the Ministry of Public Works and Public Housing in executing ISO 9001:2008 control and prevention measures; (2) the assessment of the level of consistency in the implementation of ISO 9001:2008 within PUSDATIN under the Ministry of Public Works and Public Housing. The purpose of this study is to examine the factors that contribute to the maintenance of quality in government offices and the attainment of ISO 9001:2015 certification. Additionally, the study aims to assess the progress and expansion of the Ministry of Public Works and Public Housing's PUSDATIN in implementing ISO 9001:2008.

1.2 Literature Review

1.2.1 Performance Evaluation

Performance evaluation is a tool used by government agencies or certain organizations to assess the performance of staff officials. Performance evaluation is to motivate officials to improve their performance; providing counseling helps officials prevent performance from being too slow, so that before a performance evaluation is held, leaders have already carried out counseling to make improvements in the future. Performance evaluation is a motivational tool for officials to raise their work standards; apart from being a tool for motivation, performance evaluation is also to measure work goals and empower officials (Wirawan, 2009). According to Wirawan (2009), the function of performance evaluation is as follows: Providing feedback to the assessed apparatus regarding their performance When recruiting valuable employees, officers must carry out the work assigned to them in accordance with job descriptions and operating procedures and meet performance standards. Promotion and demotion tools In almost all performance evaluation systems, the results of the evaluation are used to make decisions about giving promotions to assessed officials whose performance meets the provisions for promotions. Promotions can take the form of salary increases, bonuses or commissions, promotions, or occupying certain positions. On the other hand, if the performance of the appraised apparatus does not meet standards or is poor, the agency uses the results as a basis for giving a demotion in the form of a reduction in the salary, rank, or position of the appraised apparatus. an invaluable motivating tool. Assessed performance that meets standards, is very good, or is superior is a tool to motivate apparatus performance. The evaluation results can be used by agencies to motivate officials to maintain superior performance and improve good or moderate performance. Determining and measuring performance goals. A performance evaluation system that uses the principle of management by objectives begins by determining the goals or work targets of the appraised apparatus at the beginning of the year. Poor performance counseling Performance evaluation: not all apparatus are able to meet performance standards, or their performance is poor. This may be because he is facing personal problems or he is not trying to complete his work optimally. For officers like this, the appraiser will provide counseling regarding the causes of the appraisee's low performance and make efforts to improve performance in the coming 39 years. Counseling can

be carried out before the performance evaluation if the superior can find out about the apparatus' inaction. Empowerment of apparatus Performance evaluation is a tool to empower officials to be able to climb the ladder, or career ladder. Performance evaluation determines whether an officer's performance can be used as a measure to improve his career.

1.2.2 Standard Operating Procedures (SOP)

Objectives and Advantages of Standard Operating Procedures (SOP) The primary objective of developing Standard Operating Procedures (SOPs) is to streamline work processes and reduce errors within those processes. The Statement of Purpose (SOP) was developed with the objective of enhancing the effectiveness and efficiency of all job functions. In the context of organizational management, the advantages of Standard Operating Procedures (SOP) can significantly impact the viability and longevity of a company. The objectives and benefits of implementing a Standard Operating Procedure (SOP) inside an organization have been outlined by Sailendra (2015). The purpose of implementing Standard Operating Procedures (SOPs) is to ensure consistent performance among officers, employees, teams, and work units. SOPs serve to clarify the workflow, tasks, authority, and responsibilities of each work unit, facilitating the assignment of tasks and responsibilities to employees. Additionally, SOPs aid in the control and understanding of work processes, enabling the identification of failures, inefficiencies, and potential abuses of employee authority. By avoiding errors, doubts, duplication, and inefficiencies, SOPs safeguard the organization or work unit from administrative errors. Furthermore, SOPs provide guidance on the necessary documentation for work processes and contribute to time savings in training programs due to their systematic arrangement.

1.2.3 The International Organization for Standardization (ISO)

The International Organization for Standardization (ISO) is a globally recognized standard that pertains to the implementation of a management system for assessing the quality of organizations. Certifications have a significant role in assessing the credibility of organizations seeking to engage in global competition, while also serving as a means to enhance their quality management system (Fersisiliaanggi, 2014). The International Organization for Standardization (ISO) is a prominent global development organization and publisher of International Standards. It operates through a network of national standards institutes from 157 nations, with its Secretariat Center located in Geneva, Switzerland. As per the International Organization for Standardization (ISO, 2017). In order to obtain ISO certification, it is imperative that each organization adheres to the prescribed ISO standards. The ISO requirements that are required to be adhered to are outlined by Fersisiliaanggi (2014). The objectives of this organization are as follows: (1) to engage in the development, production, and provision of products and services that exhibit enhanced efficiency, safety, and cleanliness; (2) to facilitate equitable trade between nations; (3) to establish the technical foundation for legislation pertaining to health, safety, and the environment, as well as conformity assessments; (4) to promote the sharing of technological advancements and effective management practices; (5) to disseminate innovation; (6) to safeguard consumers and users at large through the provision of reliable products and services; and (7) to simplify processes by offering problem-solving solutions.

ISO 9001 is an internationally recognized standard for quality management system certification. ISO 9001 provides a framework for companies and a set of basic principles with a real management approach to the company's routine activities. With the aim of creating

consistency in achieving customer satisfaction (Djtmiko and Junaedi, 2011). According to Syukur (2010), the benefits of implementing ISO 9001 include:

- a. Make the work system a documented standard so as to facilitate the implementation of work.
- b. There is a guarantee that the company has a QMS (Quality Management System) and that the products produced are in accordance with customer wishes.
- c. Can serve as a work standard for training new employees
- d. Ensure that the processes implemented are in accordance with the established QMS.
- e. Increase employee morale because they feel clarity at work, so they become more efficient.
- f. There is clarity in the relationship of responsibility and authority between the parts involved in carrying out the work.
- g. Can direct employees to be quality-oriented in meeting customer requests (internal and external).
- h. Improve the consistency of work quality.
- i. Get used to acting based on data.
- j. Enables stricter monitoring of quality achievements.

The following are the clauses in ISO 9001:2008.

Table 1. Clause and Indicator

Clause	Indicator
1	Introduction
2	Introduction
3	Introduction
4 Quality management system	<ul style="list-style-type: none"> • Documentation Requirements • Quality Guidelines • Document Control • Control of recording
5 Management Responsibilities	<ul style="list-style-type: none"> • Management Commitment • Focus on Customers • Quality policy • Planning • Management Review
6 Resource Management	<ul style="list-style-type: none"> • Provision of Resources • Human Resources • Infrastructure • Work environment
7 Product Realization	<ul style="list-style-type: none"> • Product Realization Planning • Customer Related Processes • Design and Development • Purchase • Production and Service Provision • Control of Monitoring and Measurement Equipment
8 Measurement, Analysis and Improvement	<ul style="list-style-type: none"> • Monitoring and Measurement • Control of Nonconforming Products • Data analysis • Repair

The benefits of implementing the ISO 9001 quality management system are as follows (Djtmiko and Junaedi, 2011):

1. Increase the competitiveness of products produced in connection with free trade that does not recognize regional boundaries. Only products that have high competitiveness are accepted in the market.
2. With so much competition in the free market, consumers will choose products with good and consistent quality. If the company cannot meet consumer demand for quality products, then gradually the company will experience bankruptcy because it cannot sell its products. Thus, consumer patterns in the future will tend to choose producers who have quality standard certification (ISO).
3. Implementing ISO will increase productivity, efficiency, operational effectiveness, and reduce costs resulting from defective goods (rejected) or low-quality goods and waste.
4. Implementation of ISO makes the work system in a company a documented work standard. In this way, the company has good work rules that make it easier to control.
5. Implementing ISO can increase employee enthusiasm and morale because of the clarity of duties and authority (job description) as well as the relationships between related departments. That way, employees can work efficiently and effectively.
6. Competition value and company image increase with ISO certification.
7. Implementation of ISO ensures that the processes carried out are in accordance with the established quality management system.
8. Implementing ISO makes it easier for top management to achieve targets because targets and plans for achieving them have been prepared.

1.2.4 Maturity Model

According to Wardani (2014), the maturity model is a model to control the maturity of technology processes using the COBIT Framework with information using the assessment method.

Table 2. Maturity Model (ISACA, 2012)

Maturity Level	Explanation
Level 0 – No Existent	The company was completely unaware that there was a problem that needed to be addressed
Level 1 Initial	The company has evidence that it is aware that a problem exists and that it needs to be addressed
Level 2 Repeatable But Intuitive	The company is in the process of developing procedures that should be followed to deal with such problems
Level 3 Define Process	The company has carried out standardization, documents and training
Level 4 Managed and Measurable	The company has carried out supervision and followed existing procedures to obtain an action process to resolve problems.
Level 5 Optimised	The company is at a good level and can take further action to become better.

1.2.5 Previous Research

The following is previous research related to quality management systems.

Table 3. Previous Research

1	Author(s)	Vasileios Ismyrlis and Odysseas Moschidis (2013)
	Title	The effects of ISO 9001 certification on the performance of Greek companies A multidimensional statistical analysis
	Method	ISO 9001
	Result	Improved quality systems, customer satisfaction, corporate image and market share gains
	Conclusion	Companies experience improvements in terms of their company performance
2	Author(s)	S. Karthi and S.R. Devadasan (2011)

	Title	Integration of Lean Six-Sigma with ISO 9001:2008 standard
	Method	ISO 9001-2008
	Result	It was revealed that a high level of practicality was adapted in the company in particular, the ability of this model in facilitating an organization
	Conclusion	Implementing lean six sigma requires less time and resources required by management personnel from a company.
3	Author(s)	Made Arya Wira Santosa, I.A Rai Widhiawati, Gede Astawa Diputra (2013)
	Title	Penerapan Standar Sistem Manajemen Mutu (ISO) 9001:2008 Pada Kontraktor PT. Tunas Jaya Sanur (Studi Kasus: Proyek Pembangunan Apartment & Shopping Arcade Sea Sentosa Hotel)
	Method	ISO 9001-2008
	Result	The assessment results are in the Very Good category (81% Score 100%)
	Conclusion	Factors that become obstacles in implementing the ISO 9001:2008 quality management system are labor (HR), work methods or procedures, materials, and forms or documents that do not reach 100%.
4	Author(s)	Noerlina, Devi Gunawan (2012)
	Title	Evaluasi dan Pengembangan Prosedur Berbasis ISO 9001:2008 Pada PT. Puspa Pharma
	Method	ISO 9001-2008
	Result	The implementation of the quality management system and associated procedures has been executed in accordance with the company's Standard Operating Procedures (SOP).
	Conclusion	It is necessary to evaluate and improve the company's inadequate SOPs and compliance internal controls
5	Author(s)	Septantya Chandra Pamungkas dan Prof. Dr. Armanu Thoyib, S.E., M.Sc
	Title	Pengaruh Penerapan ISO 9001:2008 Terhadap Kinerja Pegawai Sekretariat Daerah Pemerintahan Kota Malang
	Method	ISO 9001:2008
	Result	The impact of HR practices, work infrastructure, and work environment on employee performance is noteworthy, hence supporting the acceptance of the first premise.
	Conclusion	The implementation of a quality management system has been found to have a favorable impact on the performance of personnel within the Regional Secretariat of the Malang City Government.

2. RESEARCH METHODOLOGY

2.1. Research Object

The author did research on data pertaining to ISO 9001:2008 at PUSDATIN of the Ministry of Public Works and Public Housing, in accordance with the specific study requirements. PUSDATIN, an organization established in 1969, currently operates from its headquarters situated in South Jakarta. The Public Works and Public Housing Information Technology Office (PUSDATIN) is a governmental entity that provides technological support to the Ministry of Public Works and Public Housing. The primary responsibilities outlined in Minister of Public Works and Public Housing Regulation No. 15/PRT/M/2015 encompass the implementation of advice, development, management, provision of data and information technology, and the establishment of information systems to facilitate effective ministry management. PUSDATIN underwent multiple name changes during its history, with the most recent occurring in 1969 when it adopted the name PUSDATIN. According to Ministerial Regulation No. 15/PRT/M/201 issued by the Ministry of Public Works and Public Housing, the responsibilities and roles of the PUSDATIN department within the ministry are outlined as follows:

Table 4. Functions and Duties of PUSDATIN

Functions PUSDATIN	Duties PUSDATIN
1. Preparation of plans and programs for coaching, development, data management and information technology,	1. Carrying out coaching,
2. Guidance and development of information systems,	2. Development,
3. Organizing and managing data and information security,	3. Management,
4. Quality control of information systems and technology;	4. Provision of data and information technology,
5. Management and provision of geospatial and statistical data and information,	5. As well as implementing an information system to support ministry management.
6. Implementation of Central administrative and household affairs.	

2.2 Research Method

The research standard employed in this study is ISO 9001:2008. The ISO 9001:2008 standard pertains to the quality management system of a corporation on an international scale. The ISO 9001:2008 standard encompasses stipulations and suggestions pertaining to the development and evaluation of a quality management system in its entirety. In accordance with Umar's (2007) findings, research design refers to a systematic blueprint and framework for conducting an investigation, with the primary objective of obtaining comprehensive responses to research inquiries. The employed research design is based on a quantitative approach. The objective of this approach is to provide a description of the nature or attributes of decisions by means of measurement. The employed research methodology is the sampling technique, wherein data collecting involves conducting on-site examinations of the organization through observations, interviews, and questionnaires. These methods are utilized to gather factual information regarding the manifestation of problematic symptoms. The data collection was conducted at the PUSDATIN government office, which is under the jurisdiction of the Ministry of Public Works and Public Housing. The following table presents the research plan that will be implemented for each study objective.

2.3 Research Variables

ISO 9001:2008 has 8 clauses consisting of clauses 1 to 3 which are the introduction, while clauses 4 to 8 are the implementation. So, the variables used start from clause 4 to clause 8. Each clause has different indicators, because each clause has different characteristics. In calculating each clause, the Linkert scale is used.

Table 5. Research Variables

Clause	Indicator	Scale
1	Introduction	
2	Introduction	
3	Introduction	
4 Quality management system	<ul style="list-style-type: none"> • Documentation Requirements • Quality Guidelines • Document Control • Control of recording 	Likert
5 Management Responsibilities	<ul style="list-style-type: none"> • Management Commitment • Focus on Customers • Quality policy • Planning • Management Review 	Likert

Clause	Indicator	Scale
6 Resource Management	<ul style="list-style-type: none"> • Provision of Resources • Human Resources • Infrastructure • Work environment 	Likert
7 Product Realization	<ul style="list-style-type: none"> • Product Realization Planning • Customer Related Processes • Design and Development • Purchase • Production and Service Provision • Control of Monitoring and Measurement Equipment 	Likert
8 Measurement, Analysis and Improvement	<ul style="list-style-type: none"> • Monitoring and Measurement • Control of Nonconforming Products • Data analysis • Repair 	Likert

Research data was obtained through interviews and questionnaires. Primary data was obtained from the results of questionnaires, documentary observations and interviews.

- a. Document observation carried out by the author by collecting documents related to the clauses and ISO 9001:2008 to find out whether the completeness of the documents owned by PUSDATIN for Public Works and People's Housing is complete or not and whether they are in accordance with ISO or not.
- b. Interview with the Subhead of PUSDATIN Interviews were conducted based on clauses 4 to 8 of ISO 9001. Interviews were conducted at PUSDATIN Public Works and Public Housing with 13 questions, some of which were related to clauses 4 to 8.
- c. The questionnaire was conducted as an open questionnaire. The questionnaire used was a research sample, namely respondents taken from the total population of 52 respondents. Questionnaires were distributed to directors, staff, and employees. The questionnaire consists of 51 statements consisting of:

Table 6. Questionnaire

Clause	Statement	Item
4	Quality management system	5
5	Management Responsibilities	11
6	Resource Management	5
7	Product Realization	20
8	Measurement, Analysis and Improvement	10

From Clause 4 to Clause 8, with the following assessment criteria (Sugiyono, 2010):

Table 7. Assessment Criteria (Sugiono, 2010)

#	Category	Explanation
1	Very Bad	Absence of a quality management system, There is no documentation, There is no implementation in the field.
2	Bad	There is a quality management system in place, There is no documentation, Failure to implement in the field.
3	Netral	There is a quality management system in place, There is documentation but it is not well organized, Implementation is not carried out fully in the field.
4	Good	There is a quality management system in place, There is well-organized documentation, Implementation is not carried out fully in the field.

#	Category	Explanation
5	Very Good	The quality management and documentation system is in accordance with the ISO 9001:2008 standard, Implementation is carried out in full in the field.

The results of the questionnaire assessments from respondents that have been tabulated are then calculated using the following formula:

Table 8. Calculation Formula

Name	Formula	Explanation
Median	$Me = Tb + \frac{\frac{1}{2}n - F}{f} C$	Me = Median Tb = Lower edge of median class N= Number of frequencies F= The number of frequencies before the median frequency C = Interval
Mode	$Mo = Tb + \frac{d1}{d1 + d2} c$	Mo = Mode Tb = Lower edge of mode class (class with highest frequency) d1 = The difference between the mode frequency and the previous frequency (fMo-fb) d2 = The difference between the mode frequency and the subsequent frequency (fMo-fa) c = Class

In processing data, the formulas used are median and mode. Median is used to find out the middle value of each clause, while mode is used to find out the value that often appears in all clauses but is calculated for each respondent. By using the median and mode, the data results will be obtained.

2.4 ISO 9001:2008

The ISO 9001:2008 standard is a globally recognized standard developed by the International Organization for Standardization (ISO). The International Organization for standards (ISO) was established in 1946 in Geneva, Switzerland. It serves as an International Federation of numerous national standards bodies from throughout the globe, boasting a membership of over 157 member states. Prominent ISO products:

- a. ISO 9000 : Quality management system.
- b. ISO 14000 : Environmental Management System.
- c. ISO TS 17025 : Laboratory Testing & Calibration Systems.
- d. ISO TS 16949 : Automotive Industry Quality Management System.

To get an ISO certificate, a company must meet several requirements that have been set by the BSN (National Standardization Body). The following are the requirements of ISO 9001:2008 that companies must have:

Table 9. ISO 9001:2008 Requirements

Introduction
<p>1. General</p> <p>The use of a quality management system is a strategic decision for an organization. The design and implementation of an organization's quality management system are influenced by:</p> <ol style="list-style-type: none"> a. The organizational environment, changes in that environment, and the risks associated with that environment b. varied needs. c. Specific targets d. Products provided e. The processes implemented f. organizational size and structure

The purpose of this International Standard is not to establish a standardized structure for quality management systems or standardize documentation. The standards of the international standard for quality management systems are intended to complement the requirements for the product. The notes provided serve as a helpful resource for comprehending and elucidating the pertinent stipulations. This International Standard has the potential to be utilized by both internal and external entities, including certification organizations, for the purpose of evaluating an organization's capacity to fulfill consumer demands and legal obligations pertaining to products, as well as the organization's internal requirements. The quality management principles delineated in ISO 9000 and ISO 9004 have been duly taken into account during the creation of this international standard.

2. Process Approach

The utilization of a process approach is advocated by this International Standard in the development, implementation, and enhancement of the efficacy of a quality management system. The primary objective is to enhance customer satisfaction by ensuring compliance with customer requirements. In order for a company to operate efficiently, it is important to establish and effectively manage a variety of interconnected operations. A process can be defined as an activity or set of activities that involves the utilization and management of resources in order to convert inputs into outputs. Frequently, the result of a given process serves as the immediate input for a subsequent process. The "process approach" can be defined as the utilization of a system of processes within an organization, encompassing the identification, interaction, and management of these processes, with the ultimate goal of achieving a desired outcome. One of the benefits of employing the process method is the implementation of ongoing control measures, which serve to maintain consistency and coherence among individual processes within a larger system of interconnected processes, encompassing their various combinations and interactions. When implemented inside a quality management system, the strategy places significant emphasis on the relevance of:

- a. Understand and fulfill the requirements,
- b. The need to consider processes that provide added value,
- c. Obtain process performance and effectiveness results, and
- d. continuous improvement of processes based on objective measurement.

Figure 2.2 illustrates the concept of a quality management system, depicting the interconnections outlined in Clauses 4 to 8. This diagram illustrates the substantial influence of the customer in establishing requirements as an input. The process of monitoring customer satisfaction include the assessment of data pertaining to consumer perceptions. The depicted model in Figure 1 encompasses all the necessary criteria outlined in this international standard, however lacking in the level of intricacy pertaining to the processes. Please take note. Furthermore, the application of a methodology called "Plan-Do-Check-Act" (PDCA) is applicable to various processes. The Plan-Do-Check-Act (PDCA) cycle can be broadly described in the following manner.

- a. Plan: establishes the objectives and processes necessary to deliver results in accordance with customer requirements and organizational policies.
- b. Do (Do): implement processes.
- c. Check: monitor and measure processes and products against policies, targets, and requirements for products and report the results.
- d. Act: take action to continuously improve process performance.

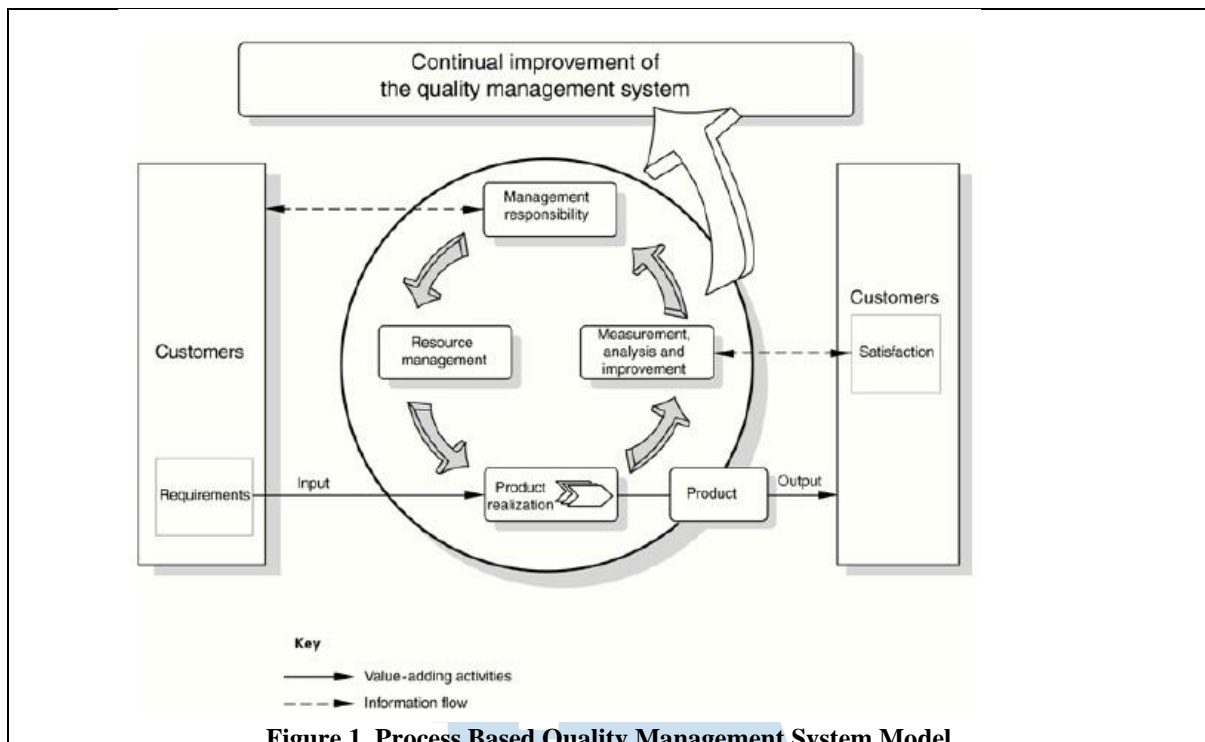


Figure 1. Process Based Quality Management System Model

3. Relationship with ISO 9004

ISO 9001 and ISO 9004 are quality management systems that can be designed to complement each other and can also be used separately. ISO 9001 specifies the requirements for a quality management system that can be used for internal implementation by an organization, for certification, or for contractual purposes. These requirements focus on the effectiveness of the quality management system to meet customer requirements. When this international standard was published, ISO 9004 was undergoing changes. The revised edition of ISO 9004 will provide guidance for management to achieve success in supporting organizations in complex, demanding, and even changing environments. ISO 9004 provides a broader focus on quality management compared to ISO 9001. This standard emphasizes the needs and expectations of all stakeholders and their satisfaction, with systematic organizational performance and continuous improvement. However, this standard is not intended for certification, regulatory, or contractual purposes.

4. Compatibility with other management systems

During the development of this international standard, some consideration was given to the provision of ISO 14001:2004 to improve conformity to both standards for the benefit of the user community. This International Standard does not include specific requirements for other management systems, such as environmental management, occupational health and safety management systems, financial management, or risk management. However, this international standard enables organizations to align or integrate their quality management system with related management system requirements. It is possible for an organization to adopt the current management system in order to create a quality management system that meets the requirements of this international standard.

After the ISO 9001:2008 requirements have been prepared, the company must also follow the stages that have been made by BSN, namely following the clauses that have been determined by BSN as a reference for the completeness of the required data. The following clauses must be applied:

Table 10. Clause of ISO 9001:2008

Clause	
1.	Scope
1.1	General
1.2	Application
2.	Normative Reference

Clause	
3.	Terms and Definitions
4.	Quality management system
4.1	General requirement
4.2	Documentation Requirements
4.2.1	General
4.2.2	Quality Guidelines
4.2.3	Document Control
4.2.4	Records Control
5.	Management Responsibilities
5.1	Management Commitment
5.2	Customer Focus
5.3	Quality policy
5.4	Planning
5.4.1	Quality Goals
5.4.2	Quality Management System Planning
5.5	Responsibility, Authority and Communication
5.5.1	Responsibilities and Authorities
5.5.2	Management Representative
5.5.3	Internal Communications
5.6	Management Review
5.6.1	General
5.6.2	Feedback Review
5.6.3	Review Output
6.	Human Resource Management
6.1	Resource Provision
6.2	Human Resources
6.2.1	General
6.2.2	Competence, Training and Care
6.3	Infrastructure
6.4	Work environment
7.	Product Realization
7.1	Product Realization Planning
7.2	Customer-Related Processes
7.2.1	Determination of Requirements Related to Products
7.2.2	Requirements Overview
7.2.3	Customer Communication
7.3	Design and Development
7.3.1	Organizational Design and Development Planning
7.3.2	Design and Development Input
7.3.3	Design and Development Output
7.3.4	Design and Development Overview
7.3.5	Design and Development Verification
7.3.6	Design and Development Validation
7.3.7	Design and Development Changes
7.4	Purchase
7.4.1	Purchase Process
7.4.2	Purchase information
7.4.5	Verify Purchased Products
7.5	Production and Provision of Services
7.5.1	Production Control and Provision of Organizational Services
7.5.2	Validation of Production Processes and Service Provision
7.5.3	Identification and Traceability
7.5.4	Customer's Property
7.5.5	Product Maintenance

Clause	
7.6	Control of Monitoring and Measurement Equipment
8.	Measurement, Analysis and Improvement
8.1	General
1.2	Monitoring and Measurement
8.2.2	Customer satisfaction
8.2.2	Internal Audit
8.2.3	Process Monitoring and Measurement
8.2.4	Product Monitoring and Measurement
8.3	Controlling Product Nonconformities
8.4	Data analysis
8.5	Enhancement
8.5.1	Continuous Improvement
8.5.2	Corrective action
8.5.3	Preventive Action

3. RESULTS AND DISCUSSION

3.1 PUSDATIN Quality Management System

The ISO 9001:2008 quality management system has been implemented by PUSDATIN Public Works and Public Housing since October 23, 2015. This implementation was carried out through the Quality System Certification Institute, which granted the ISO 9001:2008 Certificate. The accreditation for this implementation was provided by the National Accreditation Committee (KAN). Subsequently, PUSDATIN Public Works and Public Housing has been granted a charter, signifying the recognition of their establishment and upkeep of a quality management system. Based on the findings derived from the conducted interviews, it was determined that PUSDATIN had challenges in the process of augmenting its workforce. As a governmental entity, PUSDATIN is obligated to adhere to the regulations set by the governing authorities. Due to a weak understanding of the quality management system among certain employees at PUSDATIN, the organization encounters challenges in effectively managing its human resources. Due to the utilization of manual systems, PUSDATIN is required to frequently offer assistance and training pertaining to ISO 9001:2008, an online system. This is particularly necessary when accessing pre-existing data within the PUSDATIN system in accordance with the ISO 9001:2008 standard. Based on the findings derived from the conducted observations, it is evident that PUSDATIN is currently experiencing a shortage of personnel. Nevertheless, the personnel have executed this task in adherence to the ISO 9001:2008 protocols. This is evident from the comprehensive nature of the records maintained by PUSDATIN for Public Works and Public Housing. The achievement of adopting a quality management system with ISO 9001:2008 criteria, in compliance with the provisions outlined in ISO 9001:2008, is made possible via the collaborative efforts of PUSDATIN Public Works and Public Housing staff.

Interviews were undertaken with heads of departments in order to gather data regarding the implementation of ISO 9001:2008 within PUSDATIN, a division of the Ministry of Public Works and Public Housing. Based on the findings derived from the conducted interviews, it can be inferred that the PUSDATIN Ministry of Public Works and Public Housing has successfully implemented ISO 9001:2008 standards by adhering to the stipulations outlined within ISO 9001:2008. PUSDATIN endeavors to enhance the efficacy of its quality management system through the implementation of user outreach initiatives, which involve the facilitation of training sessions and seminars pertaining to ISO 9001:2008. PUSDATIN conducts internal reviews in accordance with the established agenda. The assessment is conducted to acquire the outcomes of prior activities, including any discoveries and challenges

encountered, as well as to assess the overall effectiveness of the process. The implementation of this action was undertaken by PUSDATIN with the objective of ensuring that no more discoveries would arise during the audit process. Consequently, PUSDATIN would be able to enhance its quality management system to conform with the latest ISO 9001 standards. PUSDATIN engages in the process of socialization through the implementation of training sessions and seminars. The purpose of this measure is to ensure the proper and compliant execution of ISO 9001:2008 implementation, adhering to specified protocols.

Conducting observations is an essential practice for gaining insight into the operations and dynamics of a firm. In this instance, the author conducted observations at the PUSDATIN, which is the acronym for the Ministry of Public Works and Public Housing. The author conducted an analysis of the ISO standards papers held by PUSDATIN, specifically focusing on the operational guidelines maintained by the organization. In addition to this, the author provided insights pertaining to the training conducted by PUSDATIN. The training conducted by PUSDATIN served as a means for fulfilling the organization's management obligations, and the author was fortunate enough to participate in the seminar.

As a means of acquiring research findings, the author administered questionnaires to the civil servant personnel of PUSDATIN, which is affiliated with the Ministry of Public Works and Public Housing. The conducted research pertains to a maturity model comprising six distinct levels, namely: Level 0 (nonexistent), Level 1 (initial), Level 2 (repeatable yet intuitive), Level 3 (specified process), Level 4 (controlled and measured), and Level 5 (optimal). The acquired data is subjected to analysis and processing, hence facilitating the determination of its use in the implementation of the ISO 9001:2008 quality management system at PUSDATIN for Public Works and Public Housing. Data analysis employs a Linkert scale to evaluate each clause and sub-clause, so yielding the outcomes of data processing in the following manner:

3.2 Results of Analysis of Clause 4 Quality Management System

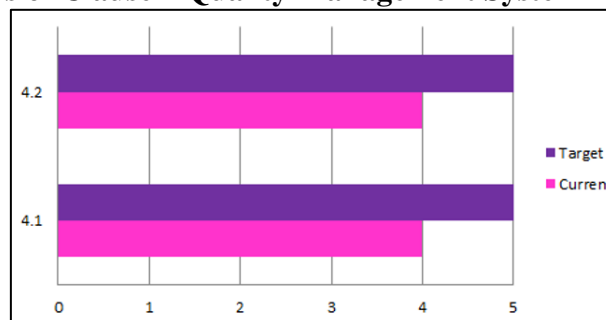


Figure 2. Result of Clause 4 Quality Management System

In clause 4 regarding quality management, Clause 4 has two indicators, namely general requirements and documentation. The first indicator, namely 4.1 General Requirements, discusses general requirements, namely:

- a. The determination of processes required by the Quality Management System (QMS) and their applications throughout the organization is undertaken by the governing body.
- b. This task involves identifying and analyzing the order and interrelationships of several activities.
- c. The essential criteria and methodologies must be determined.
- d. It is vital to provide the accessibility of the necessary resources and information.

- e. The process should be monitored, measured, and analyzed in order to adopt the appropriate activities required to attain the intended outcomes.

The second indicator, namely 4.2 Documentation Requirements, discusses documentation requirements. This is very necessary as proof of the work that has been done so far, which includes:

- a. Quality policy and quality objectives
- b. Quality guidelines
- c. Documented procedures
- d. Documents that include records specified by the organization
- e. Recording control

Based on the maturity model, clause 4 general requirements and documentation are at level 4—managed and measurable. To support quality management, PUSDATIN carries out training for staff and department heads to carry out regular updates. PUSDATIN also conducts evaluations every month to minimize the risk of findings during an audit. Every time you carry out an evaluation, PUSDATIN always makes improvements if there are findings.

3.3 Results of Analysis of Clause 5 Management Responsibilities



Figure 3. Result of Clause 5 Management Responsibilities

Clause 5 discusses management responsibilities. This clause has six indicators. Clause 5 has an important role in a company because it is related to the company's achievements. Therefore, clause 5 needs more attention in its implementation. The following are the indicators from clause 5. The first indicator, namely 5.1 Management Commitment, discusses management commitment, which includes:

- a. Evidence of commitment from top management in developing and improving the effectiveness of QMS by communicating throughout the organization
- b. Establish quality policies, ensure that quality objectives are set, conduct management reviews, and ensure resources are available.

The first indicator is on a scale of 3 because there are still some who do not carry out their commitments; therefore, further evaluation must be carried out in order to achieve the desired target. The second indicator, namely 5.2 Focus on Customers, discusses customer focus, which is useful for minimizing the occurrence of customers being disappointed with the products made by the company. Therefore, top management is required to implement methods to ensure that customer needs and expectations have been determined through QMS and are responsible for products, including applicable legal and regulatory requirements. The second indicator is on a scale of 4 because the organization provides customer service well and in accordance with customer wishes. In this case, the organization is running well and is close to the desired target, because in this second indicator, the company must be careful in order to

minimize the possibility of customers being disappointed with the products they make. The third indicator, 5.3 Quality Policy, discusses quality policy. This is useful so that the existing quality can meet customer demands. The quality policy must fulfill several stages, namely:

- a. According to the organization
- b. Commitment to meet requirements
- c. Provides a framework for determination or review and is reviewed for compliance.

The third indicator is on a scale of 4 because the organization always maintains quality, which has been carried out in accordance with existing procedures. In this case, it is running well and is close to the desired target. In this case, the company must continue to maintain the quality that has been implemented. The fourth indicator, namely 5.4 Planning, discusses planning. This is important in determining what will be done in the future so that the company continues to develop. To achieve this, the company must set quality targets and plan a quality management system. The fourth indicator is on a scale of 4 because the organization carries out a plan according to the existing flow and with careful planning. In this case, it is close to the desired target, which shows that the company has quite mature planning.

The fifth indicator, 5.5 Responsibility, Authority, and Communication, discusses responsibility, authority, and communication. Every company must have this because someone must be responsible, have authority, and communicate with each other so that the company runs as expected. In this case, the company must have an organizational structure to determine its responsibilities and authority, management representatives, and internal communications. The fifth indicator is on a scale of 4 because the organization carries out responsibility, authority, and communication between staff well and is conveyed. In this case, the organization has approached the desired target; it can be seen that the company has responsibility, authority, and good communication. The sixth indicator, 5.6 Management Review, discusses management reviews. This is related to the review of the QMS to ensure suitability, input for management review, and output from management review. The sixth indicator is on a scale of 3 due to a lack of evaluation from the company. In this case, it is good, but we need to monitor and evaluate the performance of the company's staff more. Based on the maturity model, the results obtained in clause 5 are at level 4 (managed and measurable). With these results, PUSDATIN is already at a good level but needs to increase its level to be at level 5.

3.4 Results of Analysis of Clause 6 Resource Management

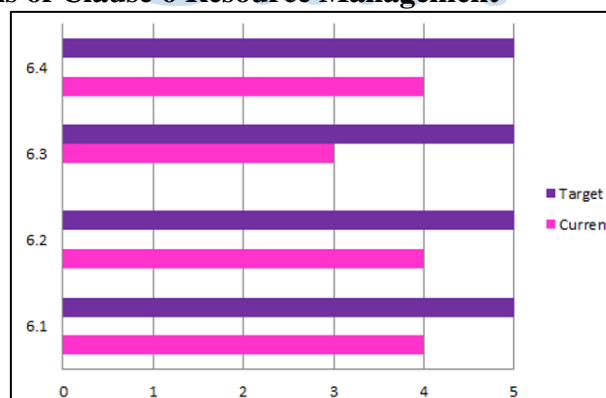


Figure 4. Result of Clause 6 Resource Management

Clause 6 pertains to the topic of resources. Clause 6 encompasses a total of four distinct indicators, with each indicator being accompanied by a unique explanation. The initial sign, denoted as 6.1 Provision of Resources, pertains to the allocation of resources. Specifically, it

emphasizes that each resource must possess the capability to establish and sustain a quality management system. This system should aim to consistently enhance its efficacy and elevate customer satisfaction by fulfilling customer demands. The initial indicator is assigned a value of 4 due to the company's sufficient resources and adherence to established protocols. In this particular instance, the organization has made significant progress towards attaining the predetermined objective set by the corporation. However, further examination is necessary in order to fully meet this target. The second indicator, 6.2 Human Resources, pertains to the management of human resources inside the firm. In this context, it is crucial for the company to exercise careful discretion in the process of selecting human resources, ensuring that only the most suitable candidates are chosen.

- a. Responsible for carrying out work that can affect product quality
- b. Providing training to meet the required competencies,
- c. Pay attention to education, skills, and experience.

The second indicator is close to the target desired by the company; it needs more attention so that it can achieve what is desired. In the third indicator, 6.3 Infrastructure, it discusses infrastructure; in this case, the company must have adequate infrastructure to support the performance of its human resources. What is needed is to provide and maintain the infrastructure necessary to achieve conformity to product requirements, such as:

- a. Building
- b. Workspace
- c. Related facilities
- d. Process equipment (hardware and software)
- e. Support services (transportation, communications or information systems).

The third indicator is measured on a scale ranging from 1 to 3. The insufficiency of the company's infrastructure is the underlying problem. Hence, it is imperative for organizations to prioritize the development and maintenance of their infrastructure in order to effectively attain their desired objectives. The sixth indication, 6.4 Work Environment, pertains to the examination of the work environment. The impact of the current environment on the company's performance is significant, as an uncomfortable atmosphere can lead to a reduction in performance. To ensure the successful execution of operational procedures, it is imperative that the work environment aligns with the organization's predetermined criteria. Additionally, the organization must effectively identify and manage the necessary work environment to attain compliance with product specifications. The fourth indicator suggests that the current work environment is generally appropriate, however some enhancements are necessary to align with the company's overall objectives. According to the maturity model, clause 6 is classified as level 4, denoting a state of being managed and measured. This demonstrates that the implementation of Article 6 by PUSDATIN has been effective. In order to achieve a higher degree of performance, specifically level 5, PUSDATIN must undergo further development.

3.5 Analysis Results of Clause 7 Product Realization

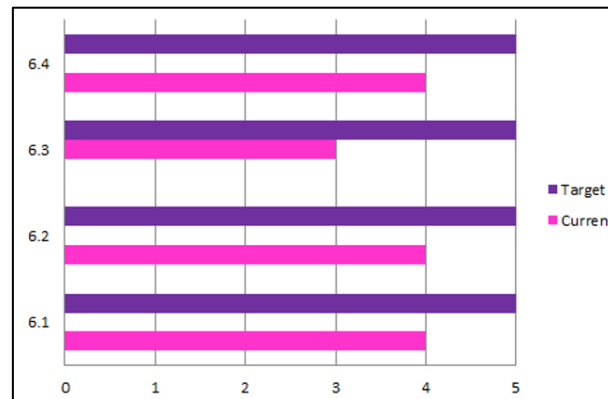


Figure 5. Result of Clause 7 Product

In clause 7, namely 7.1 Product Realization Planning, it discusses product realization; in clause 7, it discusses more about future plans for the products that will be made and the buying and selling that will be carried out. Because there is already certification, the company must do it according to the stages that have been determined. The first indicator discusses product realization. Companies that have products to realize must follow several stages, namely:

- a. Quality goals
- b. Product requirements
- c. Establish document processes
- d. Provide resources
- e. Perform verification
- f. Records required to provide evidence
- g. Consistent in product realization
- h. Check the clauses in the product realization section that cannot be applied.

The first indicator is on a scale of 4 because the product issuance is in accordance with the provisions. In terms of product realization, the company is almost on target and follows the requirements of ISO 9001:2008. The second indicator, namely 7.2 Processes Related to Customers, discusses processes related to customers. To retain customers, companies must have quality products and prioritize customers. To achieve this, the company must determine the requirements related to the product, namely:

- a. The organization has established requirements specified by the customer.
- b. Legal requirements.
- c. Provide additional requirements deemed necessary.

The subsequent step entails conducting an evaluation of the product's requirements, encompassing a comprehensive examination of the specifications associated with the product, as well as the establishment of a dedicated review phase. One crucial aspect that necessitates consideration is client communication, namely the development and execution of a proficient strategy for disseminating product information, addressing consumer inquiries, and receiving feedback. The second indicator is measured on a scale of 3, specifically assessing the necessity for several enhancements pertaining to customer-related aspects and communication with customers in order to enhance future performance. The third indicator, 7.3 Design and Development, pertains to the topic of design and development. The subject matter at hand pertains to:

- a. Design and development planning must follow current developments.

- b. Design and development input related to the required input
- c. Design and development outputs related to outputs from the document design process conform to requirements.
- d. Design and developer reviews relate to reviewing input and output that has been created as a result of record review.
- e. Carrying out design and development verification and validating design and development.
- f. Controlling design and development changes.

The third indicator is on a scale of 3, which indicates that we must be more careful in carrying out design and development and adapting to existing developments. The fourth indicator, 7.4 Purchases, discusses purchases. This indicator must have stages that must be carried out, namely the purchasing process, purchasing information, and verification of the product purchased. In the purchasing process, there are several provisions, namely:

- a. Ensure that the products purchased comply with the specified purchasing requirements.
- b. Carry out evaluations in selecting suppliers.
- c. Determine the criteria for selection.
- d. Make records of evaluation results.

The fourth indicator is on a scale of 4, which shows that in this case, the company has taken it seriously and carried out a little evaluation in order to achieve the target. The fifth indicator, namely 7.5 Production and Provision of Services, discusses processes related to products. This indicator has several provisions, including:

- a. Control of production and provision of services.
- b. Validation of production processes and service provision.
- c. Identification and traceability.
- d. Customer owned.
- e. Product preservation.

The fifth indicator is assigned a value on a scale of 4 due to the company's adherence to established procedures and the satisfaction of customers with the products and services provided. In this particular instance, the organization has already achieved a satisfactory level, although further enhancements are required in order to attain the desired objective in the future. The sixth indicator pertains to the control of monitoring and measurement equipment, denoted as 7.6. In this indication, the company is required to ascertain the monitoring and measurement activities that are conducted. In order to assure the authenticity of the results, it is imperative that the measuring equipment be utilized as appropriate.

- a. The equipment should be calibrated or verified, or both, at specified intervals or prior to use, using measurement standards that can be traced back to international or national measuring standards. In cases where such standards are not available, the method used for calibration or verification should be documented (see to section 4.2.4).
- b. Adequately adjusted or reset.
- c. The presence of identification is necessary in order to ascertain the calibration status.
- d. The instrument is securely protected from any modifications that may compromise the accuracy of the measurement outcomes.
- e. The object is safeguarded against harm and decay when being manipulated, maintained, and stored.

The sixth indicator is on a scale of 4 because the organization has implemented existing procedures and carried out regular monitoring. In this case, the sixth indicator has been implemented well. In order to achieve targets, the organization must carry out more equipment control and monitoring. Based on the maturity model, clause 7 is at level 4—managed and measurable. This shows that PUSDATIN has implemented clause 7 well, but PUSDATIN must also make developments so that it can be at the top level, namely at level 5.

3.6. Analysis Results Clause 8 Measurement, Analysis and Improvement

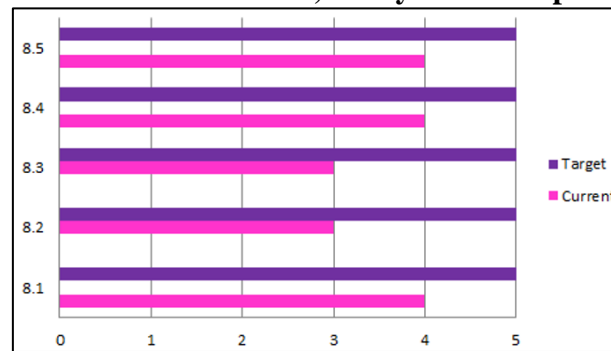


Figure 6. Result of Clause 8 Measurement, Analysis, and Improvement

Clause 8 is the last clause in the ISO 9001:2008 stage. Clause 8 discusses measurement, analysis, and responsibility. In this case, you must really pay attention to every stage. The first indicator, 8.1 General, discusses general matters for carrying out measurements, analysis, and improvements. This is done to find out what things need to be prepared, such as:

- a. The organization plans and implements monitoring.
- b. Measurement, analysis.
- c. Process improvements and the organization has established processes for measurement and monitoring activities to demonstrate conformance to product requirements.
- d. Ensure the suitability of the quality management system and determine appropriate methods.

The initial indicator exhibits a rating of 4 due to the overall adherence of the preceding phrase to the prescribed process. In this particular scenario, the indicator has positive attributes, although further evaluation is required to enhance its effectiveness and attain the intended objective. The second indicator, denoted as 8.2 Monitoring and Measurement, pertains to the topic of monitoring and measurement. This encompasses the following:

- a. Customer satisfaction
- b. internal audit.
- c. monitoring of processes and product measurements.

Customer satisfaction includes the organization's established methods to monitor related information and the information monitored to carry out QMS organizational performance measures. Internal audits include:

- a. The organization has carried out internal audits at planned time intervals.
- b. Establish documented procedures.
- c. An audit has been planned.
- d. Audit criteria have been established.
- e. Management is responsible for the audited area.

- f. Follow-up action activities.
- g. Records of audit results

Process and product measurement monitoring includes methods for monitoring and measuring processes. The second indicator is on a scale of 3, which means improvements to this indicator are needed to get maximum results according to the target. The third indicator, namely 8.3 Control of Non-Conforming Products, discusses the control of non-conforming products. This includes:

- a. The organization ensures that products that do not meet requirements are identified and controlled.
- b. Documented procedures have been established.
- c. The organization has dealt with non-conforming products.
- d. Products that do not conform must be repaired and the nature of the nonconformity recorded for follow-up.

The third indicator is on a scale of 3, indicating that several improvements are needed to get maximum results and achieve the desired targets. The fourth indicator, namely 8.4 Data Analysis, discusses data analysis. The fourth indicator has several assessments, such as:

- a. Determine.
- b. Gather.
- c. Analyze appropriate data to demonstrate suitability.
- d. The analysis should include data resulting from monitoring and data analysis that has provided information (customer satisfaction, conformity to product requirements, characteristics of the process, product, and suppliers).

The fourth indicator is on a scale of 4, which shows that the indicator is running well, but development is still needed in the future so that it is better and can achieve the target. The fifth indicator, namely 8.5 Improvements, discusses improvements. Repairs must be carried out periodically to avoid findings. Things that must be paid attention to are:

- a. Continuous improvement.
- b. Corrective action
- c. Preventive measures.
 - i. Continuous improvement has several assessments, namely that the organization has planned and managed the necessary processes continuously, uses information (such as quality policy, quality targets, audit results, data analysis, corrective and preventative actions), and has objective evidence that shows management involvement. peak.
 - ii. Corrective action has several assessments, namely that the organization has taken corrective action to eliminate the causes of nonconformity, the corrective action taken must be in accordance with the impact of the problem faced, and the organization has documented corrective action to carry out evaluation.
 - iii. Preventive actions have several assessments, namely determining actions to eliminate potential causes of nonconformities. The preventive actions taken are in accordance with the impact of the problem and must have documented procedures (determining nonconformities, evaluating needs, determining and implementing actions, recording results, and reviewing).

The fifth indicator is on a scale of 4, which shows that this indicator is good but still needs to be developed in the future so that it runs as desired and according to targets. Based on the maturity model, clause 8 is at level 4—managed and measurable. This shows that PUSDATIN has implemented clause 8 well, but PUSDATIN must also make developments so that it can be at the top level, namely at level 5.

2. Findings and Recommendations

Table 11. Findings and Recommendations

Clause	Finding	Recommendation
4 Quality management system	Lack of evaluation of ISO 9001:2008 users	PUSDATIN should carry out evaluations every month to minimize the risk of any findings.
5 Management Responsibilities	Lack of staff commitment in carrying out procedures	PUSDATIN is more explicit about staff who do not carry out their commitments by giving sanctions.
6 Resource Management	Infrastructure and human resources are less supportive	PUSDATIN provides infrastructure to support ISO 9001:2008, such as hardware and software, as well as information systems. Adding human resources who are experts in the field of quality management
7 Product Realization	Lack of service and products to customers	PUSDATIN should prioritize customers in providing product services according to customer wishes.
8 Measurement, Analysis and Improvement	Monitoring, measuring and controlling non-conforming products	PUSDATIN must monitor and measure products desired by customers more frequently to reduce the risk of customer disappointment.

From the table of recommendation results above, it can be concluded that PUSDATIN of the Ministry of Public Works and Public Housing in each clause is at level 4. PUSDATIN can be at level 4 because, from the results obtained, PUSDATIN has carried out ISO 9001:2008 procedures well. Therefore, PUSDATIN needs to make further improvements so that, in the future, it can be better and meet the desired targets. The results above were obtained from questionnaires, observations, and interviews conducted by the author at PUSDATIN, Ministry of Public Works and Public Housing.

4. CONCLUSION

The results in the PUSDATIN of the Ministry of Public Works and Public Housing about the implementation of ISO 9001:2008 are based on the issues pertaining to clauses 4 to 8. Enhancing the current research outcomes can be achieved through the consistent execution of evaluations and the incorporation of personnel capable of facilitating the adoption of ISO 9001:2008 within PUSDATIN. The findings and outcomes indicate that the Ministry of Public Works and Public Housing, specifically the PUSDATIN department, has effectively implemented ISO 9001:2008 in alignment with their stated commitment. Based on the findings, there are various areas that require enhancement and advancement in order to attain the intended objectives.

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