

Preparation for the Implementation of ISO 21001: 2018 using Assistance Program: Case study of Telkom Vocational High School

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Abstract. As a private school, Telkom Tourism Vocational High School must have competitive advantages that can increase the trust of prospective students and the community. One of the efforts to build excellence in education services is to implement a Quality Management System standard that has been widely proven and recognized. Currently, the school plans to use a standard that relevant for the educational organizations, ISO 21001:2018. The school has tried to start preparations, but the process has many obstacles to establish and implement the right strategy. Assistance Program is given as a strategy for the successful preparation of the implementation of ISO 21001. The questionnaire is used to measure the school readiness index through measuring the Implementation Team's availability for understanding and meeting the requirements in ISO. The measurement results will be analyzed using the modified Importance Performance Analysis method. The results of the analysis are mapping the level priority of clause factors that will influence the implementation of ISO 21001. Clauses 4, 6, and 9 have critical priority because of its' low readiness and understanding. Treatment in the form of training and practice and consultancy to deepen the Context of the Organization, Planning, and Performance Evaluation is needed as further action.

Keywords: Vocational School, ISO 21001, Quality Management System, Importance Performance Analysis

1. Introduction

Vocational education is an education that prepares students to mastering skills in a particular field that matches the Industries and makes graduated students ready to work. The relevance of learning material with the required skills and knowledge at work is a critical factor in vocational education [1]. Vocational schools are usually wanted by prospective students who have the desire to work right away and tend not to have an interest in achieving higher education degrees. However, some students are choosing the vocational school, and after graduating, they continue their studies to higher education. Considering the intense competition between schools and the needs of the labor market, schools must have advantages and guaranteed quality both nationally and internationally. Appropriate vocational learning standards are needed to make graduate students achieve and develop more in the rapid development of technology [1]. One strategy in building the excellence of educational organizations is to improve the quality of education, which is often discussed [2]. Each of the school stakeholders may have different interests and backgrounds, and all of them tend to have different definitions of quality [3].

Telkom Tourism Vocational High School Bandung is a Telkom school, under the auspices of the Telkom Education Foundation, which is one of the private vocational high schools. Private schools are different from public schools, where efforts to maintain the quality of education services are the most critical component to increase the confidence of prospective students and the community [4]. To make private schools superior to state schools, the Telkom Education Foundation seeks to ensure the quality of educational services provided by establishing an international standard quality management system by applying ISO (International Organization for Standardization) standards, specifically ISO 21001:2018 edition.

In the face of intense competition between schools, both public and private, and improve the quality of education services, it necessary to apply ISO standards into the quality management system. Implementing ISO standards requires a structured process. Telkom Tourism Vocational High School Bandung has been preparing for the application of ISO since 2018, but it has still not been successful. The preparatory process for implementing ISO requires external assistance to monitor the process to be effective, and the ISO implementation can be carried out immediately.

The International Organization for Standardization (ISO) developed a particular standard for educational organizations, ISO 21001 [2]. ISO 21001:2018 is a management system standard for educational organizations. ISO 21001 sets management system requirements when the organization need to demonstrate the ability to support the acquisition and development of competencies through teaching, learning or research; also aims to increase the satisfaction of students, other customers, and personnel through the practical application of EOMS (Educational Organizations Management System), including processes for system improvement [5]. The establishment of ISO 21001 as a management system standard specifically for educational organizations are going to shift the function of management system standards that apply to all industries, the ISO 9001 2015 edition. The implementation of ISO 21001 quality management systems by educational organizations is based on ISO 9001 models. ISO 21001 focused on Student Satisfaction and Other Customers (Government, Labor Market, Parents & Guardians) while still adopting a high-level structure as in ISO 9001 [5]. By implementing ISO 21001, the educational organization has guaranteed the quality of future education following the objectives, content, practices, and results that supported a new generation in a new era of globalization, information technology, and a knowledge-based economy [6].

The implementation of a quality management system by an educational organization based on an ISO standards model is an accelerating process in building an excellence service quality system [2]. The development of an education quality assurance mechanism has become a significant driver in many education systems, its implementation journey is not easy to handle but there will be many benefits for the organizations when implemented. For example, in Singapore, quality assurance in the education system is the critical factor that needs to be implemented in the entire system [3]. School quality management systems must address communication, planning, approval, and support for teaching staff, aid organizations, teaching-learning processes, and relationships with the broader community [7].

Quality Assurance is a general term associated with many instruments, including auditing, evaluation, accreditation, benchmarking, measurement of performance indicators, as well as other qualitative and quantitative indicators used to monitor and develop quality [8]. The Plan-Do-Check-Act cycle is usually used as a model of quality assurance for education [2]. The stages of education quality assurance consist of, the first stage is the main problem which involves the preparation and application process, the second stage includes the development and implementation of specific methods and techniques that promote consolidation and create the commitment of each team member and make everyone aware of their role in public work and explain the relationship between each employee's contribution and the success of the entire organization [9].

Telkom Tourism Vocational High School had tried to start the preparation process to implement ISO, but in the process, faced many obstacles. The right strategy needed to be applied. Previously, the preparation process runs tend to be undirected and prolonged, so an assistance program is required so that preparation and implementation go smoothly as well as directed.

2. Methods

This research is a continuation of previous research [4], which aims to formulate an assistance program model that can be used as a reference or standard in the implementation of ISO 9001: 2015 Quality Management System. However, in this research, ISO 21001: 2018 Standard is used. The formulated assistance program aims to increase the effectiveness of the preparation process, by a decide treatment that must be given to the implementation team. The assistance program based on the level priority mapping related to clauses in ISO 21001 is done by the assistance team to increase the importance of ISO Quality Management Systems 21001: 2018.

The survey is used to collect data through a questionnaire. Respondents who filled out the questionnaire were the team who prepared the ISO 21001:2018 implementation process from Telkom Tourism Vocational High School Bandung. They consisting of Structural Officers, Teaching Staff, and Administrative Staff. The questionnaire was divided into two measurement segments. First, measurement of readiness level, and Second, measurement of understanding level; each segment consisted of 55 questions. The mapping of problems in the questionnaire is carried out with the same dimension, following the clauses in ISO 21001 with the number of different items between needs. The level of readiness describes the team's availability in making procedure documents to meet the requirements of ISO 21001, while the level of understanding illustrates the team's knowledge of the provisions of ISO 21001 that will support and facilitate the process of making procedure documents. Clause 4 consists of 8 questions, Clause 5 consists of 5 questions, Clause 6 consists of 5 questions, Clause 7 consists of 7 questions, Clause 8 consists of 17 questions, Clause 9 consists of 7 questions, and Clause 10 consists of 7 questions, and Clause 10 consists of 6 questions.

Telkom Tourism Vocational School Bandung was chosen as the object of this research. This school has a tough situation in the process of implementing ISO standards in the Quality Management System. Even though the school has done preparations for implementation independently, it has not yet been successful in implementing it. This school will be chosen as a pilot project to carry out the process of implementing ISO 21001.

This pilot project will provide advantages for the chosen schools. It will provide added value and create excellence in education services, because based on the fact that vocational education institutions in Indonesia still have not implemented ISO 21001. The preparatory process that has been carried out at Telkom Tourism Vocational Bandung contains awareness of the application of ISO 21001. After being evaluated, it turns out that the level of readiness is still at a low level and is proven not to have complete quality standards and structured documentation as required in ISO 21001. The presence of ISO 21001 is considered as something new in the quality management system.

The results of the questionnaire were then analyzed using the modified Importance performance analysis method. This method is carried out to map the priority level of each clause in ISO 21001 that will affect the process of implementing the quality management system ISO 21001: 2018. The Mapping process is done based on the level of readiness and understanding of the team to the ISO 21001 clause. The results of mapping the priority level will determine more profound treatment related to the ISO 21001 clause that must be carried out on the implementation team of Telkom Tourism Vocational High School Bandung in implementing ISO 21001.

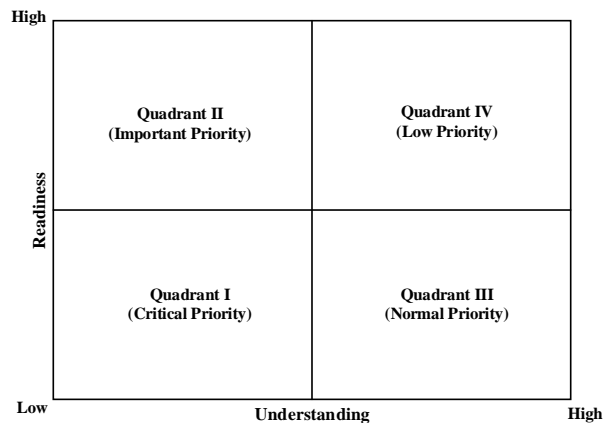


Figure 2. Cartesian Diagram of the Importance Performance Analysis Method.

Based on Figure 2, it has explained that four quadrants describe the mapping of priority levels for each ISO 21001 clause. Quadrant I describes the level of Critical Priority, with the same low level of readiness and understanding, so action/treatment is needed to improve the availability and knowledge of the implementing team towards the requirements of ISO 21001. Quadrant II describes the level of Important Priority, with high readiness but low understanding. At the Normal priority level located in Quadrant III, explained a high level of understanding but low readiness. Lastly, in Quadrant IV describes the Low Priority level, with a high level of readiness and understanding, so no special action/treatment is needed.

3. Result and Discussion

Based on previous research [4], to assist in the preparation process and implement assistance program, it is divided into two phases: the Preparation Phase, and the Implementation phase, in which both of phase consists of several sub-phases. In this research, the preparatory steps will be discussed, while the implementation steps will be continued in further research.

Table 1. Implementation Assistance Program ISO 21001: 2018.

Step	Distribution	Tools				
		Q	P	I	C	T
A Preparation						
1	Measurement of implementation readiness and understanding	√				
2	Identify the fulfillment of requirements		√			
3	Enhance understanding of ISO 21001 through learning by doing				√	√
4	Fulfillment of ISO 21001 requirements		√	√	√	
B Implementation						
1	Conducting AMI	Implementation				
2	Corrective action of non-conformity	Implementation				
3	Review management meeting	Implementation				
4	External audit (certification)	Implementation				

Note: Q = Questionnaire; P = Practice; I = Interview; C = Consultancy; T = Training

The Assistance Program is divided into two phases: the Preparation Phase and the Implementation Phase. At the preparation phase, various tools (Questionnaire, Practice, Interview, Consultancy, and

Training) are used to improve the effectiveness of the preparation process, because the preparation phase will determine the success of the ISO implementation process. The tools in this research needs to be implemented in other cases with different schools, to ensure that the existing tools are sufficient or other tools are needed, such as benchmarking.

There were two teams involved, the implementation team from Telkom Tourism Vocational School in Bandung and the assistance team, who acted as the supporting team. The assistance team has overseen the entire process, both in the preparation and implementation stage. Table 1 explains the action/treatment program that will be carried out by the Assistance Team for the Implementation Team implementing ISO 21001. In Table 2, the action/treatment that will be given by the assistance team to the implementation team is based on the mapping of the level of modified Importance Performance Analysis.

Table 2. Treatment will be given based on the mapping of the modified importance level performance analysis.

Quadrant	Level	Treatment
I	Critical Priority	Training (50%) Practice and Consultancy (50%)
II	Important Priority	Training (75%) Practice and Consultancy (25%)
III	Normal Priority	Training (25%) Practice and Consultancy (75%)
IV	Low Priority	-

The results of the questionnaire were analyzed using the modified Importance Performance Analysis method, to know the priority level mapping of clause factors that must be considered in the application of ISO 21001 based on the level of readiness and understanding that has been measured through a questionnaire survey. The results of the modified importance performance analysis are explained in Figure 2.

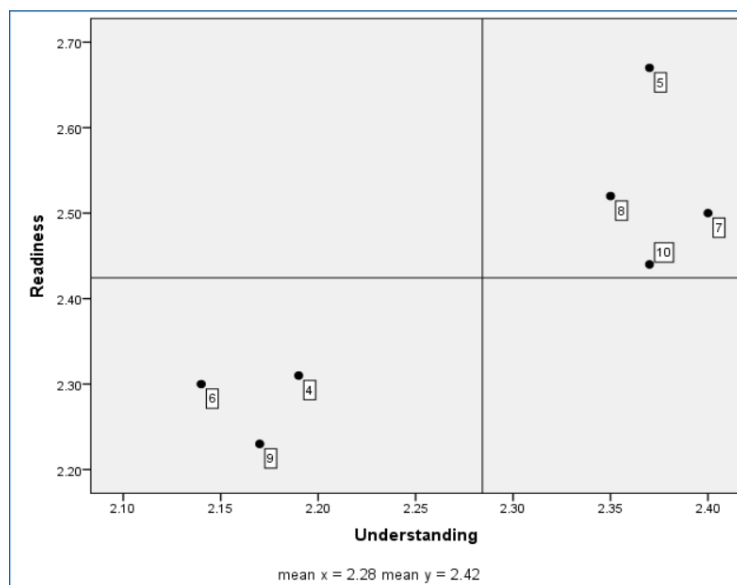


Figure 2. Result of modified Importance Performance Analysis.

From Figure 2, it can be seen that the results of the mapping by the modified Importance Performance Analysis method, the readiness for the application of ISO 21001 based on ISO 21001 clause factors spread, which is divided into two quadrants. Clauses 4, 6, and 9 are in quadrant I. While clauses 5, 7, 8, and 10 are in quadrant IV. The mapping results are explained in Table 2.

Table 3. Level mapping based on modified Importance Performance Analysis.

Clause	About	Average Readiness	Average Understanding	Quadrant	Level
4	Context of Organization	2.31	2.19	I	Critical Priority
5	Leadership	2.67	2.37	IV	Low Priority
6	Planning	2.30	2.14	I	Critical Priority
7	Support	2.50	2.40	IV	Low Priority
8	Operations	2.52	2.35	IV	Low Priority
9	Performance Evaluations	2.23	2.17	I	Critical Priority
10	Improvement	2.44	2.37	IV	Low Priority

Table 2 explained that clauses 4, 6, and 9, which are in quadrant I with the Critical Priority level, means that the implementation team experiences a low level of readiness and understanding. So that action/treatment needs to be done in the form of Training (50%) and Practice and Consultancy (50%). While clauses 5, 7, 8, and 10 do not need treatment because they are already at the Low Priority level.

Recommendations that can be given to Telkom Tourism Vocational School of Bandung based on the priority level mapping are to provide training and practice, and consultancy related to factors of clauses 4, 6, and 9 because of its critical priority levels. The training is conducted to strengthen understanding of the Context of the Organization, Planning, and Performance Evaluation. Aims to increase the readiness of the Implementation Team in implementing ISO 21001 with adequate knowledge, so that it will facilitate the preparation and implementation of ISO 21001.

4. Conclusion

The purpose of implementing ISO 21001 is to improve the quality and consistency of education services, and it requires careful preparation before implementing it. However, the preparation process usually does not run smoothly and tends to be hampered because of problems that are not identified. The processing time exceeded the expected time due to a problematic and undirected preparation process, which result in decreasing the team's motivation to implement ISO 21001.

The assistance team, as a companion team, will provide action/treatment to the Implementation Team to improve the effectiveness of the application of ISO 21001 in the Quality Management System. Action/treatment will be adjusted to the results of the level of readiness mapping for their understanding and ability to meet the requirements in the ISO 21001 clause.

The questionnaire result shows the value of the level of readiness, which consists of understanding and ability to fulfill the requirements in ISO 21001 into the Telkom Tourism Vocational School Quality Management System. After an analysis using the modified Importance Performance Analysis (IPA) method, two levels (based on ISO 21001 clause indicators) mapped. The Implementation Team is at the low priority level, which means they have a high level of understanding and ability to fulfill clauses 5, 7, 8, and 10, and no special action/treatment is needed. However, the Implementation Team has the same low level of understanding and fulfillment ability in clauses 4, 6, and 9, which means they are at the Critical Priority level. Based on this condition, the assistance team has concluded that they will provide treatment in the form of Training (50%), and Practice and Consultancy (50%) related to further understanding in clauses 4, 6, and 9. This action has done to deepen the Organizational Context, Planning and Performance Evaluation needed as further action.

5. References

- [1] Triyono M B 2015 The Indicators of Instructional Design for E- learning in Indonesian Vocational High Schools *Procedia - Soc. Behav. Sci.* **204**(November), pp. 54–61
- [2] Aniskina N and Terekhova E 2019 Innovative methods for quality management in educational organizations *International Journal of Quality & Reliability Management* **36**(2), pp. 217–231
- [3] Mahajan R, Agrawal R, Sharma V, and Nangia V 2014 Factors affecting quality of management education in India An interpretive structural modelling approach *International Journal of Educational Management* **28**(4), pp. 379 – 399
- [4] Rohayati Y and Sari K 2015 Assistance Program for the Implementation of ISO 9001 2015 : Case Study of Telkom Junior High School *IOP Conf. Ser.: Mater. Sci. Eng.* **528** 012074
- [5] Organization International Standard 2017 Draft International Standard ISO / DIS 21001 Educational Organizations — Management Systems for Educational Organizations — Requirements with Guidance for Use *SNI ISO 21001: 2018 Vol 2017* Ics 03.100.70; 03.180
- [6] Cheng Y C 2003 Quality assurance in education: internal, interface, and future *Quality Assurance in Education* **11**(4), pp. 202–213
- [7] Fernández-cruz F J, Rodríguez-Mantilla J M, and Fernández-Díaz M J 2016 Assessing the impact of ISO : 9001 implementation on school teaching and learning processes *Quality Assurance in Education* **27**(3), pp. 285-303
- [8] Ali S A B, Ahmad M N, Zakaria N H, Arbab A M, and Badr K B A 2019 Assessing quality of academic programmes : comparing different sets of standards *Quality Assurance in Education* **26**(3), pp. 318-332
- [9] Ng P T 2008 The phases and paradoxes of educational quality assurance *Quality Assurance in Education* **16**(2), pp. 112-125