



Readiness Analysis of Politeknik STMI Jakarta Towards Implementation and Certification of ISO 21001:2018

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ABSTRACT

Higher education has great demands and responsibilities to ensure their student graduates as highly competent human resources. Thus, effective and efficient management is required for higher education's business process. To ensure their quality in process and result, compliance with national regulations and standards related to higher education is a must, and quality conformity with international standards is also one of the efforts of higher education institutions to improve their quality and competitiveness. ISO 21001:2018 is one of the international standards and best practice management systems for educational organizations that are widely used by various higher education institutions in the world. Considering Politeknik STMI Jakarta's vision for resulting competent human resources, and that it is not yet certified by ISO 21001: 2018, this study is conducted to know the extent of readiness of Politeknik STMI Jakarta towards implementation and certification of ISO 21001:2018. The method used is the gap analysis method between conditions existing in Politeknik STMI Jakarta to ISO 21001:2018 standard. The results showed that the level of readiness of Politeknik STMI Jakarta is 88.85% which showed that the implementation of the clause requirements is mostly carried out but not consistently. The conclusion that can be drawn from the research is that Politeknik STMI Jakarta is ready to implement and carry out ISO 21001: 2018 certification.

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1. INTRODUCTION

Higher education plays a strategic role in improving the quality of human resources and advancing science and technology (UU No 12 Tahun 2012 Tentang Pendidikan Tinggi, 2012). The rapid development of technology raises the industry's need for competent human resources. On the other hand, the number and types of

higher education vary, thus people have choices and the higher education market becomes more competitive (Wilkins, 2020) since there are 4621 higher education institutions in Indonesia (Kemenristekdikti, 2019). Industry demands for competent resources as well as competition between higher education institutions puts pressure on higher education institutions to

improve continuously the quality of education implementation. Therefore, the quality assurance system for the implementation of higher education plays an important role in meeting industry needs and facing competition in higher education.

In Indonesia, one way to ensure the quality of higher education is to meet several standards, such as the National Accreditation Standards by the Badan Akreditasi Nasional (Rahmadi & Iskandar, 2020). Higher education in Indonesia is also mandatory to have an Internal Quality Assurance System to ensure the quality of higher education is complies with the National Higher Education Standards (Republik Indonesia, 2016). In addition to referring to national regulations and standards related to higher education, quality conformity with international standards is one of the efforts of higher education institutions to improve their quality and competitiveness. One of the combined best practices for quality management systems in educational institutions is ISO 21001:2018 (Vilchez-Sandoval et al., 2020). ISO 21001:2018 specifically regulates the quality management system for educational institutions and has a specific clause on the interaction of educational institutions, educators, and stakeholders in educational institutions (ISO, 2018). This means that ISO 21001:2018 incorporates improved effectiveness in the management systems of educational organizations, ongoing monitoring of establishment and management processes to ensure compliance with the mission, meeting the needs and expectations of service consumers, implementing personalized learning approaches, increasing participation from stakeholders, and encouraging investments to ensure continuous improvement and customer satisfaction for learners and other beneficiaries (Kovalenko, 2020).

Politeknik STMI Jakarta as one of the higher vocational education institutions under the Ministry of Industry has a vision to be the most excellent vocational higher education and a pioneer in meeting the needs of industrial sector workers, both national and regional needs. To achieve this, Politeknik STMI Jakarta has already implemented and received ISO 9001:2015 certification. However, when referring to the ISO 9001:2015 clauses some

terms are not suitable for educational institutions. For example in the 7 principles of ISO 9001:2015, the first principle is to focus on customers, while in ISO 21001:2018, the first principle is to focus on students, and other beneficiaries. In the context of higher education, the term customer is not appropriate to describe students, given that industry is a customer of tertiary institutions as users of labor services for college graduate students (Rahmadi & Iskandar, 2020). ISO 21001:2018 is the latest for the implementation and development of management systems in educational entities that also help for accreditation process (Faura et al., 2019).

The implementation and certification of ISO 21001:2018 is one of the ways to continuous quality improvement and increase the competitiveness of higher education (ISO, 2018), including Politeknik STMI Jakarta. The integration of ISO 21001 in quality assurance for higher education institutions (HEIs) represents a significant advancement that could have notable effects on accreditation procedures (Gilbert, 2020). Politeknik STMI Jakarta also is also currently in preparation for international accreditation. The integration of ISO 21001 in quality assurance for higher education institutions (HEIs) represents a significant advancement that could have notable effects on accreditation procedures (Gilbert, 2020). Most clauses of ISO 21001:2018 is also aligned with Higher Education National Standard (Sitorus, 2021) which means it could help to national accreditation. Thus, Politeknik STMI Jakarta is planning to obtain ISO 21001:2018 certification. However, the implementation and process of obtaining this certification require preparation. by analyzing the implementation of the quality management system ISO 9001:2015 that is already running at Politeknik STMI Jakarta and comparing it with the clauses of ISO 21001:2018. Both standards employ an identical framework referred to as the High-Level Structure, which encompasses identical sections from 1 to 10. This facilitates a direct comparison between the two standards (Wibisono, 2018). Thus, this research is carried out in aiming to analyze the readiness of Politeknik STMI Jakarta for the implementation and certification of ISO 21001:2018 for a smooth transition from ISO 9001:2015.

The previous research carried out for ISO 21001:2018 (Vilchez-Sandoval et al., 2020) focused on analyzing the implementation of clause 8.5 in the scope of faculty of higher education. Similar research of (Rahmadi & Iskandar, 2020) conducts an analysis implementation of all clauses of ISO 21001:2018 at the institute level but use only top management as respondents of survey and interview, combining using a interactive model. Research by (Faura et al., 2019) focuses on analyzing compliance clause 8.5 at department level. Thus, this research tries to accommodate the analysis using the method (Vilchez-Sandoval et al., 2020) with analyzing compliance of all clauses requirements of ISO 21001: 2018. The analysis is performed on the institute level and broaden the respondent for survey and interview with all unit head in Politeknik STMI Jakarta, and perform reliability testing for research instruments as well. In particular, this study evaluates compliance with the requirements of the ISO 21001: 2018 clauses following with the implementation of educational services at Politeknik STMI Jakarta. Thus, the goals of this study are to assess the readiness of Politeknik STMI Jakarta for the implementation and certification of ISO 21001:2018, as well as to identify and provide recommendations to Politeknik STMI Jakarta on how to prepare for the implementation and certification of ISO 21001:2018.

2. LITERATURE REVIEW

The implementation of ISO 21001:2018 in education organizations to improve the quality of education process business is already widely known. Research by (Silaeva & Semenov, 2018) shows that applying all these principles in ISO 21001:2018 as guidelines and integrated approach to education quality assurance will help to provide both internal education quality assurance, and sustainable development. Research (Gilbert, 2020) also shown that ISO projects, including ISO 21001: 2018 resulting higher success rates over other quality efforts such as Lean, Six Sigma, and the Baldrige system and rested in a golden quadrant with lower times to completion. Thus, the achievement of the objectives will be beneficial of all parties interested in education quality in the long term base on the balance of economic,

social, and environmental components of EO activity.

The previous research carried out for ISO 21001:2018 (Vilchez-Sandoval et al., 2020) focused on analyzing the implementation of clause 8.5 in scope of faculty oh higher education. The similar research of (Rahmadi & Iskandar, 2020) conducts a analysis implementation of all clauses of ISO 21001:2018 in the institute level but uses only top management as respondents of survey and interview, combining using interactive model. Research by (Faura et al., 2019) focuses on analyzing compliance clause 8.5 at the departement level. Using the method in research (Vilchez-Sandoval et al., 2020) with analyzing compliance for all clauses requirements of the ISO 21001: 2018 on institute level as in (Rahmadi & Iskandar, 2020), this research broadens the respondent for survey and interview with all unit head in Politeknik STMI Jakarta, and perform reliability testing for research instruments as well.

3. RESEARCH METHOD

This research begins by determining the topic and title of the research. Furthermore, the research questions are arranged as follows with the research objectives. Furthermore, research boundaries are arranged to maintain the focus of the research. The research method was determined as the next stage. For the research method, this research was conducted using 6 main stages in the research (Vilchez-Sandoval et al., 2020) which consists of 6 steps as follows.

1. *Analysis of the current condition and situation.*
This stage is carried out by reviewing each of the current elements of the provision of educational services and products.
2. *Define the approach or quality model to be used.*
In this study, the approach or quality model used is ISO 21001: 2018.
3. *Identify the requirements defined in the model.*
Referring to (Rahmadi & Iskandar, 2020) requirement fpr this stage using ISO 21001:2018 are clauses 4 to 10, considering that clauses 1 to 3 are not surveyed because they are not directly related to the

implementation of the quality process.
 4. *Identification of evidence demonstrating compliance.*
 This stage consists in interpreting the previously identified requirements and contextualizing them in the educational institution to finally determine what will be

evidence of compliance with these requirements.
 5. *Determine the level of compliance of each requirement.*
 This stage consists of designing and implementing instruments to measure the achievement of each requirement in the

Table 1. Indicator variables for ISO 21001:2018 assessment

Variable	Indicator	Source
Context of Organization	Identify internal and external issues in relevance to the organization's vision and mission	ISO 21001: 2018
	Identify the needs and expectations of interested parties	
	Identify the scope of the quality management system	
	Mapping business processes and interactions between processes	
Leadership	Identification of Planning, Implementation, Evaluation, Monitoring and Improvement in the quality management system	ISO 21001: 2018
	Top Management Commitment for QMS	
	Establishment and implementation of quality policy	
	Determination of organizational structure, division of responsibilities and authorities	
Planning	The quality policy which includes the beneficiaries of education with special needs	ISO 21001: 2018
	Identify risk and opportunity	
	Setting quality goals and strategy	
Supports	The need for a change in strategy	ISO 21001: 2018
	Availability of resources (human, money, infrastructure, etc.)	
	HR competency assurance	
	Quality Awareness	
Operations	Training	ISO 21001: 2018
	Trained human resources to accommodate recipients of education with special needs	
	Operational Planning	
	Curriculum Preparation	
	Control over third party services and products	
Performance Evaluation	Operational Implementation	ISO 21001: 2018
	Handling customer complaints	
	Measurement of customer satisfaction	
Improve-ment	Internal Audit	ISO 21001: 2018
	Management Review	
	Continous Improvement	ISO 21001: 2018

existence of evidence function in educational organizations. To achieve this, it is necessary to establish qualification criteria and/or level of achievement in meeting the standard requirements. The research instrument in

question will be explained in the sub-chapter of data collection instruments. This stage will use questionnaires, interviews and field observations to collect data.

6. *Identify gaps or improvement opportunities.*

Once the evaluation (interviews, documentary review, etc.) has been carried out and the existence of evidence has been verified, it should then be clearly stated what requirements were not met and the opportunities for improvement. In identifying gaps and analyzing opportunities for improvement, the method used is the gap analysis method which is also used in the research (Rahmadi & Iskandar, 2020)

This study uses a combination of several methods referring to the research (Rahmadi & Iskandar, 2020) to collect data, which are observation, interviews, and surveys. Observations are conducted in Politeknik STMI Jakarta directly related to the process of ensuring the quality of learning and educational services, as well as the results of the internal audit and the implementation of ISO 9001:2015. Interviews were also conducted with decision makers and policy implementers in department or support units at Politeknik STMI Jakarta.

Data collection begins with designing a research instrument for a survey: a questionnaire that includes the following stages:

a. Variable Assignment

The variables that will be used in the survey research instrument refer to the ISO 21001:2018 document which is summarized in Table 1

The qualification criteria in meeting the requirements of the standard is based on whether the standard in ISO 21001:2018 is implemented consistently and supported by documented evidence of its implementation. For this reason, the survey instrument uses a scale of 4 as shown in Table 2.

Scale 4 questionnaire was used considering in (Vilchez-Sandoval et al., 2020) and (Rahmadi & Iskandar, 2020) that the availability of standard documents but no evidence of implementation was carried out, or implementing the requirement in standard but not documenting it as the same level where the organization is

unable to show evidence that the standards are consistently applied.

To ensure that the results from the survey are representative and valid results, two main factors for respondent demographics are determined.

1. Respondents must have sufficient knowledge regarding the implementation of the quality management system in educational institutions and/or work units
Respondents must represent all work units in educational institutions

Table 2. Assessment criteria for clauses

Score	Definitions
1	If the organization neither understands the requirement nor implement it
2	If the organizations understand the requirements but do not implement it.
3	If the documented informations are available but not implemented, or if the organization implements it but not yet documented.
4	If the organization implements the requirement and documented the implementation consistently

To ensure that the results from the survey are representative and valid, two main factors for respondent demographics are determined.

1. Respondents must have sufficient knowledge regarding the implementation of the quality management system in educational institutions and/or work units
2. Respondents must represent all work units in educational institutions.

The respondents were selected from each work units at Politeknik STMI Jakarta. Thus, this study used 33 respondents. The validity test was carried out by Pearson correlation and all items were valid questions with a calculated r value greater than r table. Reliability test using

Cronbach Alpha and obtained a value of 0.9691. Thus the questionnaire is valid and reliable.

4. RESULT AND DISCUSSION

The maximum score for each clause is calculated by the maximum value per question multiplied by the number of questions to obtain the following values in Table 3.

Table 3. Maximum score for each clause of ISO 21001:2018

Clause	Clause Statement	Maximum Score
4	Context of Organizations	28
5	Leadership	20
6	Planning	12
7	Supports	20
8	Operation	24
9	Performance Evaluation	12
10	Improvement	4

Table 4 presents the results of the calculation, where the total average answer for each question item derived from the ISO 21001:2018 requirements of the clause is summed. The readiness level is then calculated by aggregating the total value of all clauses to obtain the maximum score. The table provides the specific values for each clause based on the questionnaire responses, as well as the overall total.

Referring to (Rahmadi & Iskandar, 2020), the percentage obtained can be categorized into several levels of description as shown in Table 5. Throughout this research, Politeknik STMI Jakarta has already obtained certification for ISO 9001:2015 and has been accredited by the higher education national accreditation body, BAN-PT. Thus, the score that is calculated in this study also reflects those facts.

Context of Organization. The readiness value for clause 4 is 85.39% which is the lowest among all the clauses assessed.

Table 4. Gap analysis result

Question Indicators	Likert Score	Max-Score	% Readiness
Clause 4	23.91	28	85.39%
Clause 5	17.64	20	88.18%
Clause 6	10.70	12	89.14%
Clause 7	17.41	20	87.04%
Clause 8	22.18	24	92.43%
Clause 9	11.06	12	92.17%
Clause 10	3.73	4	93.18%
Total	106.62	120	88.85%

Table 5. Gap analysis range

Range	Description
91-100%	Politeknik STMI Jakarta is ready to carry out ISO 21001:2018 certification and has already implemented the standards consistently
75%-90%	Politeknik STMI Jakarta is ready to carry out ISO 21001:2018 certification, but it has not implemented standards consistently
50%-74%	Politeknik STMI Jakarta is required to improve the quality system and implement standards of ISO 21001:2018
1%-49%	Politeknik STMI Jakarta needs to understand and review the implementation of the ISO 21001:2018 educational organization management system

The lowest score is attributed to the process of

consistently implementing the identification of internal and external issues that are relevant to the organization's strategic direction, as well as addressing the needs and expectations of interested parties. This implementation should be carried out within the scope of the unit and study program during the management review.

Leadership. The readiness value obtained for clause 5 is 88.18%. The gap identified is regarding requirements of quality policies related to educational beneficiaries with special needs had not been implemented consistently Politeknik STMI Jakarta.

Planning. The readiness value for clause 6 89.14%. The gap between standard and

implementation is regarding the requirement for identifying risks and opportunities, as well as determining strategies and the need for strategy changes that is not yet implemented consistently.

Support. Politeknik STMI Jakarta got a score of 87.04% in clause 7. The gap identified in several work units and some departments in the implementation of requirements for availability of resources (human, money, infrastructure, etc.), HR competency assurance, quality awareness, training, and availability of trained human resources. to accommodate recipients of education with special needs

Table 6. Readiness of each unit in Politeknik STMI Jakarta

Unit	Clause						
	4	5	6	7	8	9	10
Automotive Industrial Engineering Dept.	75%	70%	75%	80%	75%	100%	75%
Polymeric Chemical Engineering Dept.	54%	63%	63%	73%	71%	88%	100%
Automotive Business Administration Dept.	88%	90%	92%	90%	94%	96%	100%
Information System of Automotive Industry	80%	88%	88%	78%	94%	71%	88%
Automotive Engineering Technology	75%	95%	92%	90%	88%	83%	75%
P2M	93%	85%	100%	65%	92%	100%	100%
STMI Karir	100%	100%	100%	80%	100%	100%	100%
Teaching Factory	99%	100%	100%	93%	100%	100%	100%
Management	93%	97%	94%	90%	90%	92%	92%
SPM	91%	93%	88%	90%	96%	96%	88%
Business Incubator	70%	70%	67%	65%	75%	71%	63%
LSP	96%	90%	100%	100%	100%	100%	100%
SPI	95%	90%	100%	88%	100%	100%	100%
PMB	93%	95%	100%	95%	100%	100%	100%
Academic Sub Division	91%	95%	96%	98%	90%	88%	88%
General & Finance Sub Division	77%	85%	92%	92%	97%	97%	100%
Supporting Unit	86%	89%	83%	85%	88%	94%	100%

Operation. In terms of requirements for operational implementation in clause 8, the value obtained is higher than clauses 4-7, which is 92.43%. Thus this shows Politeknik STMI Jakarta has carried out operational planning, curriculum preparation, control of third-party services and products, operational implementation and handling of student complaints and other beneficiaries.

Performance Evaluation. For the requirements in clause 9 regarding performance evaluation,

Politeknik STMI Jakarta received a high score of 92.17% as Politeknik STMI Jakarta measured of student satisfaction and other beneficiaries, the implementation of internal quality audits and the implementation of management reviews regularly and consistently.

Improvement. The highest score 93.17% is for clause 10 since quality internal audit finding is being followed up consistently. However, the lowest score of 85.39% is for clause 4.

For overall requirements, the implementation gap identified is also regarding the fulfillment for requirements related to special need educations. Politeknik STMI Jakarta needs be formally stated in academic regulations and strategies related to the process or resources needed for special needs education. In addition, the learning process also needs

5. CONCLUSION

Based on the previous explanation, the following summary can be drawn: Politeknik STMI Jakarta is prepared to pursue ISO 21001:2018 certification although consistent implementation has not yet been achieved, with a readiness score of 88.85%. Consequently, the recommendations for enhancing Politeknik STMI Jakarta's performance include conducting an analysis of internal and external issues at the unit and department level during management reviews. Additionally, it is essential for the institution to establish clear criteria for accommodating students with special needs and to regularly monitor and evaluate the learning resources available to students and lecturers, documenting the findings as evidence. Last but not the least, it is also required that Politeknik STMI Jakarta to conduct risk management by analyzing opportunities that also be based on processes in each unit and evaluate it periodically.

For the development and quality improvement of future research, research can be carried out to see the extent to which ISO 21001:2018 is aligned in assisting the accreditation process in higher education. The use of the gap analysis method can be combined with other methods in analyzing the readiness of higher education in the implementation of ISO 21001:2018.

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