Achievement of quality management system ISO 9001:2015 strategy in Vocational High School

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Abstract. The purpose of this research is to find out the strategy to achieve the ISO 9001:2015 quality management system in Vocational High School in Malang. Strategies found in this research when applied correctly enable the certification of the ISO 9001:2015 standard. In order to further enhance the success of obtaining the certification, commitment and continues support from the school principal, president, as well as forming a plenary, education, and training teams and bringing in external auditors will be required. Implementation of ISO 9001 based quality management has a positive impact on school performance and activities. The strategy of achievement of ISO 9001:2015 version emphasized risk register compared to the previous version, which is the ISO 9001:2008 where risk register is not taking into account. The risk register is a preventive action that reduces the risk that occurs. Therefore, ISO version 2015 becomes a novelty quality management system because the additions of risk register.

1. Introduction

ISO 9001 is a set of standards developed and published by the International Organization for Standardization (ISO), which defines, builds and maintains an effective quality assurance system for manufacturing and service industries [1]. In an educational context, the services are the outputs or quality of the human resources.

The problem that is in Indonesia in terms of education is still the low quality of education at every level as explained by the Ministry of National Education that one of the factors that cause the low quality of education is inadequacy in school participation, especially by teachers and the community, in the implementation of education. Teacher participation in decision-making is often overlooked or ignored yet whether or not changes in schools are largely dependent on teachers [2].

By looking at this, it is necessary to improve and handle the quality of education that is by doing improvement process, security process of human resources especially teachers and other education stakeholders; and school environment that is by applying the quality management system ISO 9001: 2015 which is revision of ISO 9001:2008.
Public Vocational high school 2 Malang is one of the public vocational high schools in Malang City which has implemented ISO 9001:2015 quality management system. However, the main constraint that happened is inconsistency for example teachers have to make lesson planning but many teachers do not make the lesson planning, so teachers become inconsistent in a way there are not in accordance with responsibilities that ultimately lead to achievement of the quality objectives.

The first of these studies [3] is about the ISO 9001:2015 capability to solve the problem of an organization risk. Implementing ISO 9001:2015 has great benefits for an organization because the process of activities is documented. The second study [4] investigates that the ISO 9001:2008 to be the new ISO 9001:2015 is because of good time which relates to better changes. This becomes a new technological advancement for an organization to be competitive as the quality management system evolves.

The third study [5] indicates that the ultimate goal of ISO 9001 still gives confidence in the ability of organizations to consistently provide products and services in increasing customer satisfaction. Therefore, from this vision of ISO 9001:2015, the concept and meaning of "risk" and "risk free" is understand. The Fourth Research [6] concludes about how to properly implement an ISO 9001 quality management system in avoiding errors in the procedure, so the university prepares the proposal in preparation of documents such as requirements and stages of ISO 9001 quality management implementation.

The ISO standard is set of a tools focus on the quality issues, which the primary objective is to ensure applying total quality control is expected in organization and to achieve the effectiveness and efficiency of an organization. The ISO 9001 standard has been implemented by more than one million organizations in 187 countries, and a large number of these organizations aim to achieve product innovation and ISO 9000 series certification system the mean objective is the process standardization on quality of practice tracking and conformity assessment of product quality worldwide [7–9]. Quality Management system 9001 is a quality management system which refers to a set of interrelated or interacting elements to define policies and objectives to achieve those objectives that are used to guide and control an organization quality [10]. QMS is essential improves the quality of Vocational High School education in which educational institutions have implemented ISO Quality Management System to attract customers' attention and satisfaction with quality procedures that are often used as a competitive tool to produce ready-to-work output. In addition, government bodies require the education institutions to apply continuous improvement processes to prevent any risks involved in vocational schooling and improve the quality of education [8].

Improving the quality of education is one of the problems that until now is still under the supervision by the Indonesian government. One of the documented problems affecting the quality of education, for instance is where the, education management has not been improved professionally, this including vocational education as well [11]. The most important thing in the implementation of education is the improvement and quality assurance of education institutions. Guarantee and quality improvement of education conducted to answer competitiveness, imaging to society, and educational accountability. The preparation of qualified human resources can be achieved only with quality education, supported by all components of the education system (inputs, processes, and outcomes), and must meet quality and management standards used.

Strategy definition is a way to achieve long-term goals [12]. Hence, the defined strategies are the steps that must be followed to achieve the desired targets. Vocational education is a secondary education system that prepares students primarily to work in a particular field. Various efforts have been made to improve the quality of vocational education, among others through various training and quality improvement of school management. However, various indicators of educational quality have not shown any significant improvement, in fact, most schools are still in poor conditions [13]. Total quality management is a systematic quality improvement approach for overall enterprise management with the aim of improving performance in terms of quality, productivity, customer satisfaction, and profitability [14]. ISO 9001 created in 1987, has been present in successive revisions in the year 1994, 2000, 2008 and 2015 [15]. ISO 9001 is one of a series of quality management standard for business
process system that will help to realize the best of an organization by understanding processes of providing products and or services to customers [16]. Based on the study presented in [17], measuring the effectiveness of implementing the ISO 9001 standard shows it has a positive effect on innovation in the context of education.

Both ISO 9001:2008 and ISO 9001:2015 consist of three similar clauses, there are; 1. Introduction, 2. Scope, and 3. Normative references. Figure 1 shows, in ISO 9001:2008 consist of clauses 4.a. Quality management systems, 5.a. management responsibility, 6.a. resource management, 7.a. Product realization, and 8.a. Measurement, analysis and improvement. Compare to ISO 9001:2015 are point; 4.b. Context of the organization, 5.b. Leadership, 6.b. Planning for the quality management system, 7.b. Support, 9.b. Performance evaluation, and 10.b. Improvement [18].

![ISO 9001:2008 versus proposed ISO 9001:2015 clause](image)

**Figure 1. ISO 9001:2008 versus proposes ISO 9001:2015 clause**

In essence, the implementation of ISO 9001:2008 all activities be documented while ISO 9001:2015 on the other hand, requires all activities to be documented as well with additional clauses regarding risk register. This risk register documentation is very helpful in risk management where the ISO 9001:2015 is documented in a way to be able to identify the potential risks and problems it may occur in the future. In fact, significant differences between ISO 9001:2008 and 9001:2015 that the standard is the same process from planning, implementation, and evaluation. What distinguishes the ISO 9001:2015 version is that diverbs from the risk registers are more emphasized because it will inventory the risk of problems that will occur and is contained under clause 6. Whereas in ISO 9001:2008 version, there are 8 clauses and ISO 9001:2015 version there are 10 clauses. Version 2015 focuses on risk control and identification. In addition, in this case version 2008 requires management to take a more active role in aligning quality policy with business needs [7]. Hence, in the risk registers we will document the risks that occur in the process of activity in both external and internal factors. Therefore, the risks can be identified and solved to reduce the same risks re occur again in the future.

One example, when students are enjoying out Industry practices, they get tools from the place of existence (store) which is risky. With the risk register there, it will try to find a solution or problem solving. With the existence of preventive action, a risky event will be overcome by inventory before the incident. The benefits of an ISO Quality Management System will bring tangible and measurable benefits to all sectors, supportive standards for technology that can be relied on ensuring expected quality of an educational institution [19].

So the existence of an organization in education, especially Vocational High School by applying quality management system ISO 9001: 2015 will change the performance mindset of the education stakeholders so that a quality management in an organizations especially vocational high schools will become systematic and documented.

2. **Methodology**

Data collected in this research are through interviews and observations on the achievement strategy of ISO 9001: 2015 in Vocational High Schools. Schools interviewed are schools that have been certified with both ISO 9001:2008 and ISO 9001:2015. The purpose of this paper is to know the achievement of ISO 9001:2015 strategy. Thus, this paper will provide information and explanation on the
differences and the fundamental achievement of the quality management process in Vocational High School in the Malang Region.

3. School that can implement ISO version 2015
ISO 9001: 2015 standard was launched by the end of the year 2015, and not many schools are implementing this version of the quality management system, as a mere formality. There are some schools that are not international-school oriented but implemented the ISO 9001:2015 and have developed quite well, especially for schools that are still in the pioneering stage. The benefits of ISO are felt in terms of documentation, workflow-coordination-communication, job description and standard operating procedures (SOPs) so that each member of the school organization can understand its work.

Figure 2 shows a general design of quality management system process for Vocational High School. The management section consists of several components, these include: extra-curricular, finance, procurement, and support which supporting the running of business process quality management system in Vocational High school. This process starts from the design of development planning in accordance to ISO 9001:2008 and 2015 quality model system. Therefore, all the components are involved, where on the basis of ISO principles such as planning the implementation evaluation and then back again to component before. In the certification process, the teaching and learning process is an evaluation phase. Figure 3 shows the information about the implementation of ISO 9001 in Malang Region, based of observation of 20 vocational high schools.

![Figure 2. Quality Management System Planning at Vocational Education.](image)

![Figure 3. Implementation of data Vocational High School ISO 9001 QMS.](image)
School that implemented the ISO 9001:2008 standard was 60%, 50%, and 30% for the year 2015, 2016, and 2017 respectively. Only 5% of the school in the year of 2015 implemented the ISO 9001:2015 version. The number increases to 30% and 60% for the year 2016 and 2017 respectively for the ISO 9001:2015 standard.

Based on these results, it showed that many schools are willing to upgrade or implementing the ISO 9001:2015 standard because it greatly benefits and affects the performance of the colleagues in the Vocational High Schools. The increase in performance can only be achieved if the school implement the ISO standard in accordance to the standard of ISO 9001:2015 quality management system. This is to ensure to have a systematic procedure according to the activities undertaken by the school community in the institution.

4. School implemented ISO 9001:2015

The strategy for schools to achieve the ISO 9001:2015 standard is presented in figure 4. Strategy achievement of ISO 9001:2015 version basically start with arranging risk register. From the risk register, it will be able to map document to be arranged. The second preparation is the four compulsory documents, which is the quality manual, quality procedures, work instructions and several forms. Where the documents must meet the required format, and will be checked by the auditor from the institution of ISO organizer. Therefore, the school will only receive the ISO 9001:2015 certificate if the compulsory documents are completely presented.

The next step is to prepare the supporting documents, ranging from quality plans to school work programs. This follow by the socialization of all the citizens of the school, because school stakeholders will implement the ISO management and if it is in the socialization, it means that the school residents have implemented procedures in accordance with their respective units. From the implementation, it will result in the documenting, which must be maintained and archived or stored. Hence, from the process there will be an evaluation to determine the progress of certification.

Achievement Strategy ISO 9001: 2015 For Vocational High School

![Achievement Strategy ISO 9001: 2015 For Vocational High School](image)

Figure 4. Achievement Strategy of ISO 9001:2015 in Vocational High School.

By carrying out the audit or checks, and if it works, it concludes it has been successfully implemented the ISO 9001:2015 certification. If a school wanted to implement the ISO 9001:2015, it means the school must follow all the four compulsory documents that have been prepared. Where all the citizens of the school have to perform standard SOP (standard operational procedure) that has been set. Therefore, after implementing the standard process that has been established it means implementation strategy of ISO has been completed. In implementing the management of ISO 9001,
there is no force that all schools in Indonesia are required to implement the ISO 9001:2015 standard. However, implementing and obtaining the ISO certification will benefit the schools to have a systematic management, will have a positive impact on the schools.

5. Conclusion
Based on the results of observations and interviews conducted in Vocational High School in Malang that implemented the quality management system that based on the ISO 9001:2008 quality management system must make changes to the new ISO 9001:2015 version by conducting an internal audit and then follow by an external ISO institutions to ensure knowledge management oriented ISO 9001:2015 to the stakeholders in Vocational High School is presented.

As for the interview result, it indicates that there is no significant difference in the clause of ISO version 2008 to 2015. The only changes of ISO 9001:2008 is more emphasize on improvement while ISO 9001:2015 is more emphasize on risk register or risk prevention. A long-term strategy for achieving ISO 9001:2015 standard is a must to upgrade the quality management system with addition of clause of risk register. The implementation of ISO 9001: 2015 quality management system in education institute especially in Vocational High School is a way to improve the quality of education so that the output from Vocational High School can be absorbed in both industry workplaces and in the universities. With the implementation of ISO 9001:2015 will change the performance mindset of the education stakeholders so that a quality management in an organizations especially vocational high schools will become systematic and documented.

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