Integration conceptual framework of quality management system - occupational safety and health- and environment (QHSE) at PT. Wijaya Karya

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Abstract. This research is to identify the advantages of integrating quality management systems, Occupational Health and Safety management systems, and Environmental management systems (QHSE Management System). The study was conducted at a State-Owned Enterprise. The study will compare All Management Systems with Existing in Wijaya Karya Company with ISO 9001 System on quality management system, ISO 45001 on Health and Safety management system, and ISO 14001 on Environmental management system. The study was conducted by Archive Analysis and Literature studies. Previous literature studies show that the clauses that make up the integration of the QHSE Management System are scope, leadership, policy, planning, support, operations, performance evaluation, and improvement.

1. Introduction
The level of implementation of the Quality, Safety and Occupational Health and Environment System integration in BUMN Karya companies in Indonesia is still partially integrated as a result, which does not have a consistent effect on the sustainable construction system performance consumptions [1]. In 2018 there were 12 Accident Infrastructure Projects in 7 Months [1,2], referring to this clearly the Construction Accidents and Occupational Safety and Health in Indonesia are still Low. In addition, the quality of infrastructure in Indonesia is still very low in quality when compared to neighboring countries such as Singapore. For the above incident, as a regulator in the field of Construction Services the Ministry of Public Works and Public Housing provided a proposal to the Ministry of SOEs to establish a Special Unit of Quality, Health, Safety and Environment (QHSE) in each BUMN Karya.

In the Construction Services Act No. 2 of 2017 it is mentioned in article 59 paragraph 3 that the Safety, Safety, Health and Sustainability Standards as referred to in paragraph (l) at least include: a. material quality standards; b. equipment quality standards; c. occupational safety and health standards;
d. standard procedure for implementing Construction Services; e. quality standards for the implementation of Construction services; f. operation and maintenance standards; g. guidelines for the social protection of workers in the implementation of Construction Services in accordance with statutory provisions; and h. environmental management standards in accordance with statutory provisions.

All leaders identified that the integration of quality systems, environmental systems and safety systems has brought many benefits. Improvements in routine management are the main benefits, and financial benefits are the most important in their perception [3]. This research is to see the level of integration and the advantages of the integration of the quality management system, the Occupational Health and Safety management system, and the Environmental management system (QHSE Management System) to achieve sustainable construction results.

2. Literature Review

2.1. Integrated Management Systems (IMS)

In research conducted there is a model that tries to conceptualize QHSE integration.

![Diagram](image)

**Figure 1.** Variables used in integrated management systems to achieve sustainable construction [3,4].

Figure 1 above is the result of a literature study that shows research on the topic of Management System Integration. Seen that integration can be done. IMS aims to improve organizational performance with an integrated management system through the process of integrating dimensions, integrating risks, integrating audits and integrating quality / safety / environmental system resources by developing web-based information systems that are embedded with knowledge management in construction company organizations. The results of this study found a conceptual framework of an integrated management system to improve the performance of construction company organizations [4].

Figure 2 also shows research conducted in many countries showing a gap to integrate QHSE in the STI model. In the previous research, it was found that the clauses that form the integration of QHSE are scope, leadership, policy, planning, support, operations, performance evaluation, and improvement. This clause is intertwined and depends on the PDCA process approach. Level of importance and priority between clause variables According to the level of implementation of the IMS and the position or level of managers for each company will help achieve the objectives of the system. The process of integrating each clause must be in the process of integrating a model frame that reflects the stages of the management system of the integration process that can be applied at different levels of management system implementation [5].
This conceptual framework will examine the relationship between integrated management systems, knowledge management, health and safety, and information systems with elements of sustainable
construction. The integrated management system consists of the integration process, integration risk, and integration audit. To prove this concept, each relationship can be formed as a hypothesis as shown below:

H1: Knowledge management has a positive impact on the integration process as an integrated management system dimension. H2: Knowledge management has a positive impact on integration risk as an integrated management system dimension. H3: Knowledge management has a positive impact on integration auditing as an integrated management system dimension. H4: Health and safety have a positive impact on the integration process as an integrated management system dimension. H5: Health and safety have a positive impact on integration risk as an integrated management system dimension. H6: Health and safety have a positive impact on integrated auditing as an integrated management system dimension. H7: Information systems have a positive impact on the integration process as an integrated dimension of management systems. H8: Information systems have a positive impact on integration audit as an integrated management system dimension. H9: Integrated processes have a positive impact on sustainable construction. H10: Integrated Risk has a positive impact on sustainable construction. H11: Integrated audit has a positive impact on sustainable construction. Furthermore, the hypothesis is tested through surveys with relevant experts [6].

3. Methodology of Research

This research will begin by reviewing the literature related to the Quality Management System, Occupational Safety and Health Management System and the Environmental Management System, after which conduct an Archive Analysis to compare the ISO 9001 System on quality management systems, ISO 45001 on Health and Safety management systems, and ISO 14001 about the environmental management system with the existing system in Wijaya Karya. the research groupings can be explained in tabular form as follows:

| Strategy       | Form of Questions                      | Control of Events | Focus on Contemporary Events |
|----------------|----------------------------------------|-------------------|------------------------------|
| Experiments    | How, Why                               | Yes               | Yes                          |
| Survey         | Who, what, where, how much              | No                | No                           |
| Archive Analysis | Who, how, what, where, how much how much | No               | Yes                          |
| History        | How, why                               | No                | Yes/No                       |
| Case Study     | How, why                               | No                | Yes                          |

Based on the four research questions, the methods used to answer the research questions are as follows:
### Table 2. Research strategies in accordance with the problem statement.

| Problem Statement                                                                 | FAQ  | Strategy                      |
|----------------------------------------------------------------------------------|------|------------------------------|
| How is the Quality Management System Implemented at Wijaya Karya compared to ISO 9001 | How  | 1. Archive analysis          |
|                                                                                 |      | 2. Literature Study          |
| How the Occupational Safety and Health System is Implemented at Wijaya Karya compared to ISO 45001 | How  | 1. Archive analysis          |
|                                                                                 |      | 2. Literature Study          |
| How the Environmental Management System Implemented at Wijaya Karya compared to ISO 14001 | How  | 1. Archive analysis          |
|                                                                                 |      | 2. Literature Study          |
| How System Integration Is Implemented at Wijaya Karya                            | How  | 1. Archive analysis          |
|                                                                                 |      | 2. Literature Study          |

### Table 3. Research point of view.

| Problem Statement                                                                 | Input                                                                 | Process                                                                 | Output                                                                 |
|----------------------------------------------------------------------------------|-----------------------------------------------------------------------|------------------------------------------------------------------------|------------------------------------------------------------------------|
| How is the Quality Management System Implemented at Wijaya Karya compared to ISO 9001 | - Quality Management System Analysis in Wijaya Karya ISO 9001 Reference Theory About Quality Management Systems | Comparison of Wijaya Karya's quality management system with ISO 9001 Standards on Quality Management | Comparative Results of Quality Management Standards                   |
|                                   | - Analysis of the Occupational Safety and Health System at Wijaya Karya ISO 45001 Theory Reference About Systems Keselamatan dan Kesehatan Kerja | Comparison of Wijaya Karya's Occupational Safety and Health system with ISO 45001 StandardSistem Occupational Health and Safety | Comparative Results of Occupational Safety and Health Management Standards |
| How the Environmental Management System Implemented at Wijaya Karya compared to ISO 14001 | - Analysis of Environmental Management System Sni in Wijaya Karya ISO 14001 Reference Theory About Environmental Management Systems | Comparison of Wijaya Karya's Environmental Management System with ISO 14001 Standards on Environmental Management Systems | Comparative Results of Environmental Management Standards             |
| How is the Integration of the QHSE System Implemented at Wijaya Karya             | - Comparative Results of Quality Management Standards                 | Benchmarking with clauses of scope, leadership, policy, planning, support, operations, performance evaluation, and improvement | HSE System Integration in Wijaya Karya                                |
4. Result and Discussion
In previous studies there were clauses that formed the integration of system management including scope, leadership, policy, planning, support, operations, performance evaluation, and improvement. The results of this research will be a benchmarking that will be focused on this research. With the ISO 9001 System Literature Review of the quality management system, ISO 45001 about the Occupational Health and Safety management system, and ISO 14001 about the Environmental management system, an analysis of the Quality, Safety and Occupational Health and Environment standards in the Company PT. Wijaya Karya.

Each company has its own standards of adoption of some of the above systems, but there will certainly be similarities with ISO systems. As in Wijaya Karya they often mention the Implementation of HSE or Health, safety and Environment.

This research is limited to large companies such as Wijaya Karya and the company adopts ISO as its standard.

From the literature study, it is found that the clauses that form the integration of QHSE are scope, leadership, policy, planning, support, operations, performance evaluation, and improvement. This will be a benchmarking to look deeper into each management system.

To facilitate the understanding of this conceptual framework idea, the writer tries to explain as follows as set out in table 3.

5. Conclusions
This research will be conducted in 2019 the second semester and will be conducted in Jakarta at PT. Wijaya Karya. Based on the discussion above, it can be concluded that QHSE integration can be carried out and will increase company profits. It will also add to the performance achievements of the Construction Business Entity in realizing sustainable construction which is supported by Quality, Safety and Health at Work, and the Environment.

This report is a conceptual framework that tries to provide an overview for further research in the Integration of Quality Management Systems, Occupational Safety and Health, and the Environment and opens wide space for discussion, input, criticism and suggestions so that this conceptual framework can be translated into tangible results.

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