



# RISET

JURNAL APLIKASI EKONOMI AKUNTANSI DAN BISNIS

<https://ejournal.ibik.ac.id/index.php/riset>

E-ISSN : 2656-7113 P-ISSN : 2797-4057 DOI : doi.org/10.37641/riset.v6i2.2118

## DELAY RED FLAG CONSTRUCTION COMPANY: CONTROL ANALYSIS WITH FOUR LEVER OF CONTROL

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### ARTICLE INFO

DELAY RED FLAG  
CONSTRUCTION  
COMPANY: CONTROL  
ANALYSIS WITH  
FOUR LEVER OF  
CONTROL

*Submitted:*

14 – July – 2024

*Revised:*

29 – July – 2024

*Accepted:*

26 – August – 2024



### ABSTRACT

Despite extensive research on construction delays, this persistent issue continues to challenge the global construction industry. This case study aims to enhance the theoretical and practical understanding of management control systems (MCS) in construction firms by identifying the primary causes of project delays and examining the MCS components involved. A qualitative case study was conducted at a national private construction company (Jakons) to identify delay factors and propose solutions by linking them to MCS. The study focused on two Jakons projects that experienced delays, with primary data collected through interviews with five key informants directly engaged in MCS for the projects. Analysis of the interviews revealed common delay causes related to the project owner, consultants, labor, and materials. These causes were then connected to MCS practices and assessed using the four Levers of Control (LoC) framework, including Belief, Boundary, Diagnostic, and Interactive control systems. The study identified areas for improvement in MCS related to communication management, coordination, competence, and risk management that impact schedule delays. These findings provide valuable guidance for construction practitioners in planning and managing projects and offer insights to reassess MCS strategies to mitigate delays and achieve timely project completion.

**Keywords:** Construction Delay, Management Control System, Lever of Control

## INTRODUCTION

Global competition in the construction services industry is increasingly tight, marked by the growth rate of construction companies of 27.68% in 2021, which is different from the growth in the value of construction projects, which is only 7.10% (Yuniastuti, 2022). It is a challenge for construction service companies because getting projects will be increasingly competitive. Competition is the main factor causing declining profit margins and positioning construction companies in conditions of tightening operating costs. Construction service companies are threatened with maintaining business continuity, in addition to construction delays, which are an eternal problem and continue to disrupt the construction industry globally. The longer it takes to complete the work, the greater the costs that must be incurred and the thinner the profit margin.

Olawale & Sun (2015) state that the construction industry is primarily concerned with one-off projects; the influence of uncertainty is more common, thus necessitating effective project management control. A construction delay is a delay in achieving work from the planned completion target. This construction delay is expensive because the activity does not provide added value but causes additional costs ranging from labor wages, staff costs dedicated to the project, and interest costs if the project uses bank loan funds for financing. The contractor will be subject to penalties according to the contract. At the same time, the project owner's income will be reduced due to delays in operations because the building is not yet finished. A red flag or "red flag" is a term in English generally used to indicate a dangerous or suspicious situation and can be a sign or indicator that something is not as expected. Construction delays in construction projects are "red flags" or warning signs. Based on several previous studies, construction delays in construction projects indicate various problems, such as poor planning, ineffective project management, or problems with labor or material supply (Nguyen, 2020). Construction delays also result in additional costs because the longer the project lasts, the more costs must be incurred (Tariq & Gardezi, 2023), affecting the contractor's reputation and relationship with the client (the project owner). If the project is not completed on time, it will cause client dissatisfaction and potentially damage the construction company's reputation (Alrasheed et al., 2023). Management's attention is essential to overcome and reduce delays so company goals can be completed.

Research on construction delays in several neighboring countries has also been carried out to determine the factors that cause construction delays, including research conducted by Nguyen (2020) in Vietnam, which analyzed management failure factors that influence construction project times. Multiple logistic regression analysis was carried out to determine the level of project delays from professionals' perspective. It was found that factors in the failure of the construction management function towards project delays must include construction planning, directing the construction schedule, controlling the construction schedule, and organizing project financing. Similar research was also conducted in Saudi Arabia (Alsuliman, 2019), it was found that various causes of delays in public construction projects in Saudi Arabia, including because projects tend to be awarded to the lowest bidder, beyond their financial and technical capabilities, government agencies are late in granting financial rights to contractors, government agencies are not interested in delayed projects from faltering contractors, weak technical analysis of competitors, use of less qualified consultants, and weak efficiency and experience of technical oversight departments in government agencies. Similar research

was also conducted in Kuwait (Alrasheed et al., 2023) and found that the causes of critical delays in Kuwait's construction industry were management incompetence, contractor location, challenges related to subcontractors, lack of design quality, problems arising from previous contracts, and supply chain disruptions that affected the availability of labor and materials. construction. This study concludes that attention is needed to mitigate the causes of construction project delays. Yap et al. (2021) ranked the causes of construction delays in Malaysia based on a priority importance index that integrates frequency and severity indices, identifying five leading causes, namely lack of proper planning and scheduling, too many change orders by clients, lack of competent site management and supervision, lack of competent subcontractors as well as contractor financial problems. In other research conducted in Pakistan, Tariq & Gardezi (2023) found five causes of delay and conflict: financial problems (from the project owner), project planning and scheduling, material-related problems, order changes/variations, and lack of communication.

Even though several studies regarding construction delays have been carried out in various neighboring countries and the causes of construction delays are also known, there is no systematic solution for construction companies in Indonesia that links the causes of these delays to the existing Management Control System (MCS). The novelty of this research case study compared to previous research is that it links the role of MCS with the problem of construction delays in Indonesian national companies to identify whether there are components of the existing MCS framework that are inadequate when compared with screening of the framework Merchant & Stede (2011) and Simons (1995) because those who developed the framework have been tested and Internationally applicable to theories relating to business strategic control.

The problems construction service companies face can be explained from the contingency theory perspective. Contingency theory is a critical theory and is most widely used in research in MCS (Lambe, 2016; Merchant & Otley, 2020). In their literature study, Brenner et al. (2024) found that 27 of 57 articles on the MCS topic used contingency theory in explaining their findings. Other theories are rarely used. In the context of analysis in the construction services sector, contingency theory is also used to show various contingency factors related to fluctuating performance within the company, so this theory can explain why construction project work delays occur. Contingency factors explain the element of uncertainty. In the construction industry, the level of uncertainty is very high because construction projects are specific and dynamic by market demand, project locations are different, and the market is significantly influenced by clients where client interests are strongly protected by the existence of insurance companies, supervisors, and also financial institutions, such as banks, which bind construction companies to continue to comply with requests from clients. Apart from client uncertainty, the construction industry is also influenced by uncertainty in labor wages because it is a labor-intensive business. The results/quality of buildings are also influenced by the skills of the construction workers, where construction workers outside Java usually have different skills and work cultures.

Contingency factors are also related to the mission and competitive strategy that can lead the company to a competitive advantage and impact performance (Merchant & Stede, 2011). The construction industry is characterized by being capital intensive; clients determine budgets and work completion times, and profit margins are thin, so competitive strategies are needed so that construction companies can survive, for example, by being

more selective in selecting clients and also being selective in choosing the type of projects undertaken. Construction companies must also have a vital mission and involve aspects of customers, employees, companies, and society to survive amidst intense competition. The final contingency factors that influence are factors that can be observed (observability). Examples are measurement, evaluation, and feedback on personal activities, which are used to assess the effectiveness of the management control system. It focuses on economic mechanisms, thus forgetting aspects of morality.

In general, an MCS or management control system is a system that focuses on the hierarchical relationship between agents and principals, namely between superiors and subordinates. Luft (2016) states that MCS will influence organizational performance by influencing employee relationships through the form and way information is distributed between them. This existing information can lead to coordination as well as competition between them. Simons (1995) says: "MSS are formal, information-based routines and procedures that managers use to maintain or change patterns in organizational activities." Merchant & Stede (2011) also underline MCS as a control in an organization that involves all members to ensure that the decisions and behavior of all members are consistent with the strategy and goals of the organization. How do we keep it " on track "? Of course, everything in the organization must be controlled so that the MCS can be coercive and direct and force all the resources, especially the people or employees, to behave according to the company's expectations. Otley (2016) states that contingency theory is the theory that is mainly used to explain research in the field of MCS in the last 40 years (1980-2014 period). According to contingency theory, controls can applied to various levels within an organization, and the types of controls implemented may vary at different organizational levels. Simply put, this theory suggests that the design and use of MSS depends on the organizational context (Martin, 2020).

Research on MCS can be carried out in various industries and business scales. Pešalj et al. (2018) state that MCS can help organizations implement strategies, encourage the emergence of various positive behaviors, and improve performance. Micheli & Mura (2017), for example, surveyed various top managers from large companies in Europe (which came from the Bureau Vans) and found the critical role of performance measurement systems, which are part of MCS as a mediator of strategy implementation aimed at improving organizational performance. Meanwhile, Pešalj et al. (2018) researched small-scale companies (SMEs) in Barendrecht, the Netherlands, using an action research (in-depth participative immersion) approach. The research results show that MCS helps overcome the challenges faced by SME management, and the four elements of levers of control are used simultaneously and alternately.

In Indonesia, research on MCS analysis has been carried out, although research in other accounting areas is less than in other areas of accounting. Kaunang et al. (2021) researching at PT. PLN (Persero) South Manado Customer Service Unit will find out whether the MCS implemented by the company has improved performance. Using a descriptive qualitative approach, this research concluded that the strategic planning process needed to be implemented optimally within the company because PT PLN (Persero) ULP Manado Selatan only implemented the program provided by UP3. Several studies have also been conducted for MCS research in private companies. For example, Mahulette et al. (2020) focused on MCS analysis, which focuses on the production section of PT Citra Raja Ampat Canning in Manado by comparing the budget prepared with activities in the field. The research results show that good delegation of authority and

responsibility has been carried out, so it is not surprising that the production manager's performance has increased. A descriptive qualitative study by Arifah et al. (2021) also shows that a well-run MCS can improve PT's management performance and productivity (especially production management). Liebra Permana Bawen in Semarang. On a smaller business scale, MCS analysis has also proven helpful for LKM Bina Sejahtera (Amiati et al., 2023). Accounting information is also said to be used by research objects to assist in decision-making and the management control process. The importance of MCS research

This research is a case study of a national private construction company, Jakons (pseudonym), which also faced challenges related to project completion time; several projects carried out could not be completed according to the agreed schedule (construction delay). This construction delay occurs not only in Jakons but also everywhere and continues worldwide. The causal factors involved have received much academic attention but are still descriptive and explanatory from the research. It has resulted in little success in addressing this problem. Delays in project completion are often the leading cause of complications in construction projects, especially in developing countries. Malaysia is no exception, where almost 80% of projects experience construction delays. Similar situations also occur in Saudi Arabia, Nigeria, and South Africa; delays can cause difficulties such as increased construction costs, loss of profits due to low productivity, the emergence of disputes, and poor quality of work caused by haste in project completion (Yap et al., 2021).

This case study was conducted at a national-scale construction company in Jakon and focuses on the behavior of individuals involved in construction projects. When management wants each individual in the company to behave according to the company's goals, three big questions must be considered: First, Do employees in the company know what the company expects of them?, Second, Can they work consistently and try as optimally as possible to achieve what the company expects of them? And three, Are they able to do what is expected?

These three questions will be examined in the MCS case study of the Jakons construction company, whether they are related to the current "construction delay" problem. The "construction delay" currently occurring impacts financial losses. If resolved immediately, it could create a good reputation for Jakons, affecting its long-term business continuity. Considering that construction companies are very dynamic, we hope for a good MCS, namely when the MCS can estimate the potential for losses if there is no control and take preventive steps if problems beyond predictions occur. When this problem occurs or cannot be avoided, then with these preventive steps, the impact and losses can be predicted. According to Merchant & Otley (2020), to understand MCS, it is necessary to develop a closer relationship with managerial and organizational practices, and it is necessary to document the various control mechanisms in its use.

The research will be carried out by analyzing the four levers of control according to Robert Simons (1995), a professor from Harvard University. Simons (1995) explained that people who work in companies want to do competent work for the company. However, there are obstacles called organizational blocks, so a strategic control system is needed to eliminate organizational blocks. Simons (1995) states that as organizations become more complex, controls can stifle employee creativity, experience, and initiative. This condition will be a challenge in empowering employees and encouraging accountability in the workplace. Simons (1995) presents a model that focuses on implementing strategies in MCS. This model consists of four tools, which include belief

systems (belief systems such as core values or organizational guidelines), boundary systems (boundary systems such as codes of ethics), diagnostic control systems (diagnostic control systems such as performance measurements), and interactive control system (interactive control system, for example, the involvement of subordinates who provide input to their superiors). These four elements are called the four control levers in implementing strategy, and combining these four elements is the main thing.

A system is a definition of an organization that is formally communicated and systematically practiced by top managers to establish the organization's values, goals, and direction (Simons, 1995). Belief systems teach core values to inspire and motivate employees to seek, explore, create, and undertake appropriate actions for the organization. This belief system is created and communicated through formal documents such as vision, mission, or goal statements. With vision and mission statements, managers attempt to provide fundamental values, goals, and direction for the organization (Simons, 1995). Trust systems will create a stable environment for organizational members and play an essential role in addressing values and assumptions through communication (Hermawan et al., 2021). Belief systems convey goals and values that are not routinely reflected in MCS. The belief system also communicates core values to inspire and motivate employees, providing all employees with a sense of pride and direction. Core values or fundamental values and vision and mission statements that are actively communicated will become guidelines for action.

Boundary systems are the opposite of belief systems. This formal system limits organization members' acceptable domains or areas of strategic activity (Simons, 1995). Top managers use boundary systems to set limits in the form of rules and communicate actions that employees should avoid. It is done so that employees can innovate and excel in specific fields. The forms of boundary systems are business behavior boundaries and strategic boundaries. Simons (1995) compared the function of a boundary system to the function of brakes on a car; without brakes, the car (or organization) could not work quickly. Boundary systems encourage people to act ethically and follow established moral codes. Examples of boundary systems for project control include project regulations relating to safety, fair contracts and acceptable behavior within teams, hiring practices, policies, and limits of authority (Rezania et al., 2016).

Diagnostic control systems encourage employee motivation to work and align their behavior with organizational goals. This formal feedback system monitors organizational results and corrects deviations from established performance standards (Simons, 1995). The system also reports information on critical success factors that enable managers to focus on organizational direction.

An interactive diagnostic control system is a formal system used by top managers to regularly and personally involve themselves in the decision-making activities of subordinates (Simons, 1995). This system aims to focus attention and force dialogue and learning through the organization by reflecting the signals sent by top managers. The main focus of interactive control systems is strategic uncertainties. Strategic uncertainties are emerging threats and opportunities that can make the assumptions of a business strategy not currently valid. This interactive control system is expected to collect and summarize information related to the effects of strategic uncertainty on company/organization strategy. The ultimate goal is that the organization/company can adapt to strategic uncertainty so that achieving the organization's goals can run smoothly.

This research seeks solutions to construction delays in Jakons by linking them to existing MCS. Based on the background of the problems that occurred, the research problem formulation based on the framework principles of Merchant & Stede (2011) and Simons (1995) is as follows: (first) How is MCS implemented in Jakons? and (second) What components of the control system are inadequate in the MCS at Jakons, so they need to be repaired in order to reduce construction delay problems? To answer this problem, formulation screening will be carried out on the Jakons MCS using the Lever of Control framework (Simons, 1995) so that it can be identified whether there are deficiencies in the Jakons MCS and if there are any recommendations for improvements to the Jakons MCS will be provided in order to mitigate construction delays. The expected result is that construction delay problems can be overcome, which is beneficial for Jakon management, which is involved in designing and configuring MCS for internal improvements. Exemplary implementation of MCS ensures strict implementation of inspections and controls and makes existing plans more efficient and effective. This research is research without hypothesis testing but applied research that carries out case analysis of construction projects.

## **RESEARCH METHODS**

The design of this research is a case study with a qualitative approach. The research will describe the implementation of MCS in Jakons based on the principles of the MCS framework (Merchant & Stede, 2011; Simons, 1995). From the description of the interview results, the control system components that were inadequate in the MCS at Jakons were then identified so that the causes of delays in construction company projects were identified, and recommendations for improvements to the existing MCS were provided to mitigate these delay problems. This research is based on two cases faced by Jakons, namely, those related to delays in completing construction projects from a Japanese perspective (Yin, 2018).

The subjects studied were those who were involved or relevant to the case at hand, namely as follows: (first) GMO (General et al.), as the person responsible for controlling MCS business process activities at the head office and at the project location (interview media and documents: employee assessment, project organizational structure, business process diagrams, job description data, financial reports) and (second) MP (Project Manager) and SE (Site Engineer) to obtain data related to project implementation (interview media, documentation: cost budget plan, implementation budget plan, weekly project report, monthly project report, project schedule, plan vs actual work completion progress, work progress minutes request letter for extension of time).

This research uses primary data in the form of interviews. It also uses secondary data, namely company documentation in the form of organizational structure data, business process diagrams, job description data, financial reports, project documents (cost budget plans, implementation budget plans, weekly project reports, monthly reports project, project schedule, work progress minutes), documents related to meeting minutes, and letters and memos related to construction company productivity.

In this research, semi-structured interviews were conducted using writing instruments, recorders, and several literature reviews of management control systems. In this research, the author conducted data collection procedures through the company's

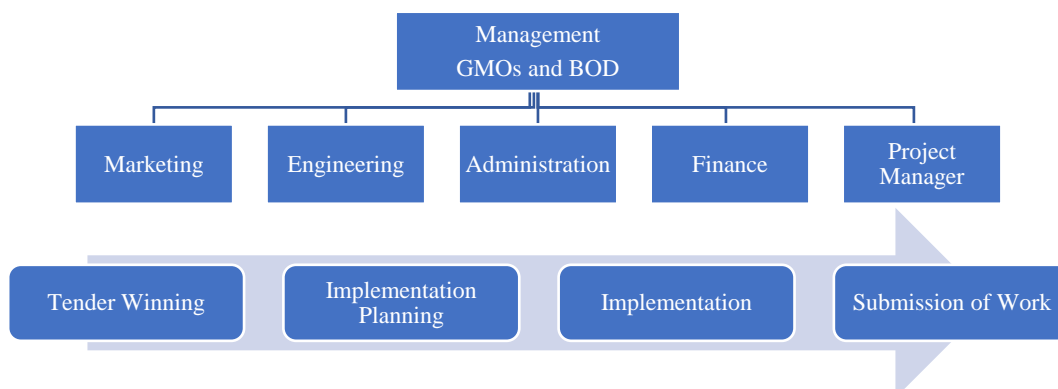
internal team. Data on project cost budget plans, project documentation, and planned time schedules are obtained from the engineering division. Business process diagram data and company organizational structure were obtained from GMO. Job descriptions are obtained from the personal and general affairs division. From the project division, the author obtained data on implementation budget plans, weekly project reports, monthly project reports, project time schedules, work progress minutes, meeting minutes, and letters and memos required regarding project implementation.

Primary data from interview results was obtained from five informants directly related to MCS who were fully responsible for project completion: the operational general manager, two project managers, and two site engineers. The two projects used as research samples are: (First), For the CUST-03 project located in Lampung, there was a construction delay of 317 days, the construction completion time according to the contract was 240 days, and there was the most significant deviation in the profit target, namely 26.72% and (Second), The CUST-09 project is located in Central Java. There was a " construction delay " of 167 days, and completion of construction according to the contract was 180 days, causing a deviation from the profit target of 3.98%.

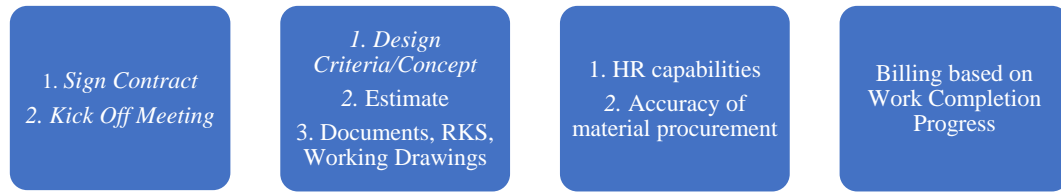
Secondary data from the company's business processes is recorded and studied in detail. Primary data was obtained from interviews. The data obtained is then reduced, namely summarizing the main points of the data by focusing on the essential things so that a more precise picture is obtained, which makes it easier to carry out research. Then, the data is presented in tables and figures to make evaluation easier, with the aim of research being more systematic and easy to understand. A triangulation method was used to avoid bias when conducting the analysis, where the researcher checked the validity of the data obtained by comparing it with the results of interviews with the object under study. Triangulation over the quality of this research.

## RESULTS AND DISCUSSION

In Jakons, the supervision process by the GMO and Director is centralized through the same system of procedures for all projects carried out, both in Java and outside Java. Figure 1 illustrates that the business processes and control systems at Jakons are centralized by management (GMO and Director). In implementing the project, the Project Manager coordinates his team to optimize the productivity of its performance by the targets for achieving the physical progress of the work determined by management. However, in its implementation, the achievement of physical progress differed from expectations; several obstacles were "construction delays".







**Figure 1. Jakons business process**

Source: Research Data (2024)

Five informants in this research were chosen based on research relevance, namely that these people had job descriptions related to MCS activities and were directly responsible for the projects they managed. A semi-structured interview guide that reflects the conceptual foundations of the Four Lever of Control study in exploring MCS design at Jakons was used to guide discussions with informants who were formally interviewed. Table 1 below describes the profile of the informants who were interview sources in this research.

**Table 1. Informant Profile**

No	Informant Code	Male/Female	Position	Education	Length of work
1	GMOs	Man	GM Operations	S1 Architectural Engineering	8 Years 6 Months
2	MP-1	Man	CUST-09 Project Manager	Bachelor of Civil Engineering	8 Years 5 Months
3	SE-1	Man	Site Engineer CUST-09	Bachelor of Civil Engineering	7 Years 11 Months
4	MP-2	Man	Project Manager CUST-03	Bachelor of Civil Engineering	One year
5	SE-2	Man	Site Engineer CUST-03	Bachelor of Civil Engineering	1 Year 8 Months

Source: Data Processed, 2024

This research was designed with the following framework, first indicating the presence of " construction delay " as a red flag, then searching, sorting, and analyzing the causes of delays or punctuality in completing two construction projects, namely CUST-03 and CUST-09. The next step was screening existing MCS activities in two projects, namely CUST-03 (project location in Lampung) and CUST-09 (project location in Central Java), using the Four Levers of Control principle by conducting interviews with key informants. The results of interviews from both projects will be tabulated to determine the causes of " construction delays, "whether due to the MCS mechanism not being implemented, internal constraints, or constraints from the external environment. The results are compiled, assessed based on priorities, compared with the existing MCS mechanism, and finally, a conclusion is drawn.

The evaluation was carried out on data obtained from the results of semi-structured interviews regarding four control components based on the Four Levers of Control to determine the implementation of MCS in Jakons. Each component was explained in several questions to describe the current MCS condition in Jakons. Then, the interview answers were tabulated using a checklist that revealed positive answers (in the sense that

the resource person described "understanding" of the current system). In contrast, the opposite was true for negative answers.

Then, an evaluation was carried out on the results of interviews with the five informants, using four control components based on the Four Levers of Control. It was identified that all four levers of control were covered in the existing MCS, but in implementation, there were several deviations, which will be discussed as follows. The assumption used in determining deviations in answers from interviews from 5 informants is that each informant's answer has a weight of 20% for each question so that if there is "one" "negative" answer from the informant, it means that the implementation of the MCS is worth 80% (assuming there are no deviations / the average informant understands and can implement the current MCS components).

Researchers categorize MCS deviations with the assumption that if there are at least two negative responses to a question, it can be interpreted that the implementation of the MCS is worth 60% (assuming there is a deviation/the informant does not understand and cannot implement the current MCS components so that the company's goals are not achieved). The following Table 2 describes a summary of the evaluation of MCS deviations based on the analysis of interview answers that have been conducted.

**Table 2. Summary of Evaluation of Interview Results**

<b>Beliefs Systems</b>	<b>Deviation</b>	<b>Discussion</b>
Opinion on the extent to which these values motivate/inspire him to achieve company goals	40%	The company values have yet to inspire/motivate staff to achieve company goals, as pointed out by informants MP-2 and SE-2, who had only worked at Jakons for one year.
Awareness of company values	40%	It has often been echoed by management, but not all staff know the importance of company values.
Obstacles experienced in understanding and implementing company values in daily life	80%	It requires process and consistency, as well as an awareness of a sense of ownership of the company so that its core values can be applied in everyday life.
<b>Boundary Systems</b>	<b>Deviation</b>	<b>Discussion</b>
Understanding of company guidelines for risk assessment	60%	Guidelines already exist, but staff in the project/field need help understanding them.
Opinions regarding the recruitment process in the company	60%	The recruitment process already has standards, but there are recruitment results that are not in line with what is needed (minimal knowledge about the project, so it requires much direction)
<b>Interactive Systems</b>	<b>Deviation</b>	<b>Discussion</b>
Submission of reports on the current system	40%	Regarding reporting, only informants MP-2 and SE-2, whose work period was one year, said that reporting was done directly and that there had been no reporting. Meanwhile, other informants submit reports daily, weekly, and monthly.

**Table 2. Summary of Evaluation of Interview Results (Continuous)**

Interactive Systems	Deviation	Discussion
Opinion on whether improvements are needed to the current system	60%	Some say they need to implement the existing system consistently, but others do not understand the current MCS
Diagnostic Control Systems	Deviation	Discussion
Explain understanding of existing SOPs for risk mitigation	80%	80% of informants did not understand whether the existing MCS had an SOP to mitigate the risk of <i>delay problems</i>

Source: Data Processed, 2024

By observing the results of interviews and evaluating in table 2, if it is related to the research objectives, the most basic causes of project delays can be found, namely : (First), CUST-09 Project: The DED drawings for implementation required many initial adjustments, which required coordination, approval, and communication with the Project Owner and supervising consultants. Thus, this became one of the obstacles in the implementation process and (Second), CUST-03 Project: Project delays are influenced by workforce skills and the arrival of materials at the project.

The analysis of Jakons's four control system components found several suggestions/recommendations for improving the existing MCS components, as described in Table 3 below.

**Table 3. Summary of Evaluation of Interview Results**

Repair Area	Recommendation
Beliefs Systems	
Opinion on the extent to which the company's values motivate/inspire it to achieve company goals	Banners in the project can also help socialize written regulations, especially for each new employee, so that they better understand the company's values.
Awareness of company values	More than central management is needed to echo these company values; they must also be echoed by project leaders so that all staff involved know the importance of the company's core values.
Obstacles experienced in understanding and implementing company values in daily life	It requires process and consistency, as well as an awareness of a sense of ownership of the company so that its core values can be applied in everyday life.
Boundary Systems	
Understanding of company guidelines for risk assessment	Designate key personnel in the project in the job description/job desk, such as MP, as the person responsible for risk mitigation. So that it is more apparent who is responsible.  Create risk mapping for each project undertaken, which would be more of a preventive control than, as is currently the case, more of a solution after a problem occurs.
Standard recruitment process	Carry out further competency evaluations to see whether each personnel still meets the demands of their position.

**Table 3. Summary of Evaluation of Interview Results (Continuous)**

<b>Repair Area</b>	<b>Recommendation</b>
<b>Interactive Systems</b>	
Submission of reports on the current system	Make standard provisions regarding sanctions for ignoring controls and rewards if the controls run well.
Opinion on whether improvements are needed to the current system	Consistency is needed to implement the current MCS so that compliance audits are carried out, reward and punishment systems are implemented It is necessary to hold frequent briefings/socializations regarding compliance with the current MCS.
<b>Diagnostic Control Systems</b>	
Explain understanding of existing SOPs for risk mitigation	Every division head in his daily life provides briefings to his team by instilling an understanding of the importance of mitigating risks to avoid delays, which is each individual's responsibility.

Source: Data Processed, 2024

## CONCLUSION

From the results and discussion of the Jakons case, the implementation of MCS in Jakons is quite good. However, there are still several obstacles to implementing the existing MCS in Jakons, so it cannot mitigate the construction delays that have occurred so far. Some of the obstacles that occur can be seen from several components as follows: (1) Belief System component, employees only know the core values of Jakons, but they do not wholeheartedly implement these values in their daily work; (2) Boundary System Components: (a) risk mapping was not made at the start of the project, so what is happening now is that when a problem occurs a solution is sought, instead of mitigating the risk before the problem/ delay occurs in particular, and (b) further competency evaluation is required to see whether each personnel is still in accordance with the demands of their position; (3) Interactive System Component, consistency is needed to implement the current MCS, so that compliance audits are carried out, a reward and punishment system is implemented; and (4) Diagnostic Control System components, lack of understanding regarding the SOP in the existing MCS so that it is necessary for every division head to conduct daily briefings to his team by instilling an understanding of the importance of mitigating risks to avoid delays, and this is the responsibility of each individual. The implication for Jakons is to integrate the role of MCS to mitigate delays so far by providing recommendations on several areas that need to be improved in the existing MCS.

Although several interesting things were found in this private construction company's MCS case study research, there were research limitations regarding the sample. This research only used a sample of two projects that experienced delays, with different project locations, one in Java and the other outside Java. Limitations also occurred regarding the number of parties interviewed (Yin, 2018). Although they were relevant because they were the parties responsible for the project, the number was limited

to only five people, and on the CUST-03 Project, the two informants had only worked for one year. Therefore, future research is expected to be carried out on non-private construction companies with more project samples. MCS is designed by top managers and used by middle managers to influence the operational activities of project team members; the aim is to optimize the company's financial performance (projects can be completed on time, costs within budget, and good quality). MCS resistance by the project team, which causes construction delays, is influenced by geographical location, individual/community culture, and contextualization. All control elements in the MCS must be appropriately implemented to mitigate construction delays.

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