www.ijmae.com

The Role of Boundary Systems and Diagnostic Control in Controlling Achievement of Performance Targets

Yosefin Eva Yolanda[1] and Dyna Rachmawati
Department of Accounting, Graduate School, Widya Mandala Catholic
University Surabaya, East Java, Indonesia

Abstract

Boundary systems and diagnostic controls are two levers used to control the achievement of performance targets. We use these levers to analyze how Collection Department of PJ Property achieves the performance targets. PJ Property's revenue relies to rent revenue. The firm faces difficulty to collect rent revenue from tenants. The collection of rent revenue has decreased in period 2018. This research is a qualitative research with case study method. The case study we used in this study is on Collection Department. Collection Department is underperformed in 2018. The results showed that the underperformance of Collection Department is caused by first; there are no consequences for performing or underperforming of in achieving department's performance targets. Second, boundary systems are weakly implemented. Third, the diagnostic controls are also poorly implemented.

Keywords: Boundary System, Diagnostic Control, Performance Targets.

Introduction

According to Simons (2000:301), Levers of Control (LoC) is a procedure and routine based on information systems that are used to carry out routine activities and are able to encourage innovation and creativity for organizations. LoC consists of four components, namely belief systems, boundary systems, diagnostic control systems, and interactive control systems. Belief system aims to communicate the vision, mission, and

---

[1] *Corresponding author's email: yosefinvyolanda@gmail.com*

organizational values that act as "what to control" because belief systems are a tool that can be controlled by the company in the form of achieving the company's vision and mission (Simons, 2000:275). Interactive control system is used to analyze opportunities and challenges in the form of interaction, communication, or meetings between organizational divisions that act as a "how to control" interactive control system is a means of control in the form of communication and inter-division meetings that discuss organizational performance (Simons, 2000:216). Belief system can function well in achieving the organization's vision and mission through an interactive control system, namely by holding meetings and communication between organizational divisions to discuss organizational performance to achieve the vision and mission.

Rezania (2016) proves that the boundary system motivates a person to work according to the established morals. Standard Operating Procedures (SOP) in a company as controlling someone in complying with these norms. Diagnostic control system is a system that helps companies monitor results and correct deviations from current performance standards. This study is a qualitative study that tests on project control, namely the Project Management Institute (PMI), the International Project Management Association (IPMA), and the International Standardization Organization (ISO). The project manager's emphasis on diagnostic control systems and project boundary systems is positively related to project performance.

Qualitative research that has examined the role of boundary systems and diagnostic control is Tuomela (2005), Rezania (2016), Stone (2014), and Pesalj (2018). According to Tuomela (2005), companies need a boundary system in financial terms to handle financial risks. Many customers do not pay off payments that cause high risks. In the non-financial aspect, that is the tolerance given in terms of late customers in paying their payments. The role of diagnostic control systems in financial terms discusses whether the company's financial strategy can be achieved, namely total annual sales, while in the non-financial aspect, it is about the critical success factors of the company's strategy that can be applied, namely the achievement of predetermined occupancy rates. Tuomela's research was conducted at insurance companies at FinABB.

Stone's research (2014) examines business applications namely eBay with a boundary system that is located on the boundaries listed on the site to reduce the error rate when data entry. In the case of diagnostic control there is a balance scorecard report as a measurement of the ability to measure the results of a process to find out how the development of performance has been achieved. This research is a qualitative study conducted on an auction website that reaches out to people all over the world to carry out transactions of buying and selling goods and services. This study cannot estimate eBay's boundary system regarding established enforcement. In this study, eBay requires a diagnostic control system with monitoring on online buying and selling sites between sellers and buyers.

Pesalj, Pavlov, and Micheli (2018) prove that the boundary system is used to maintain timely delivery and respond to customer inquiries on the same day. The diagnostic control system is used to monitor and evaluate actual performance to meet company goals. This research was conducted in small and medium businesses. This research needs budgeting and performance targets to analyze its performance.

www.ijmae.com

The conclusions of the results of previous studies with a qualitative paradigm discuss the boundary system and diagnostic control system in insurance companies, digital companies, MSMEs, and projects that lead to performance to achieve organizational goals. This study will use the concept used by Tuomela (2005) to examine the role of boundary systems and diagnostic control systems in controlling performance outcomes both financially and non-financially.

The main problem in PJ Properties lies in the unachievement of performance targets related to the boundary system. Problems related to the unachievement of performance targets are focused on the Collection section. This performance target is not achieved because management provides a policy of extending the payment due tolerance so that the boundary system can be said to be weak, so some tenants do not immediately pay off the payment. Because of this flexible policy, PJ Property also needs to think of efforts that must be made so that tenants immediately pay their payments.

PJ Property cannot reach the rental revenue target due to the absence of punishment if the target portion of the collection is not reached, thus making the company's cash flow statement disrupted. The customer will be tolerated if he does not pay the rental payment on the due date of the month, but if it has passed the following month, the Collection section will provide a Warning Letter to the customer to immediately make payment of the lease and follow up when the customer will pay within term 1 Sunday.

One of the reasons for the receipt of rent is not achieved because of an increase in rental prices and service charges every year. This is one of the factors why tenants do not immediately pay the rent. The increase was due to an increase in inflation of 5%. In addition, the increase in UMK is also the basis for the tariff increase. However, PJ Property is not arbitrary in raising the rate because it is seen from the PJ Property business business conditions and management policies related to the tariff increase. If consumers' purchasing power is high in purchasing products at PJ Property tenants, they will be subject to tariff increases. However, if the average tenant business condition is declining then the tariff will not be charged. The tariff increase is used to finance cleaning, maintenance, technicians, and security. In addition, air conditioners, lights, elevators, and escalators also require a fee.

If based on a diagnostic control system, the intended strategy that the company has set is to continue billing to tenants who have difficulty paying so that rent revenue can meet the target, but if the financial strategy has not been reached, then there must be a feed back to describe what has happened. With this, management needs to understand the behavior of tenants. Management needs to know whether the critical success factor of the company's strategy can be applied by using the occupancy rate as of December 31, 2018 of 95.52%. It can be said that PJ Property in selling rental units to tenants is quite high because it has an occupancy rate of 95.52%. But the problem faced is the inability to collect accounts receivable from the Collection. PJ Property must strive to achieve the collection of trade receivables because the fixed costs that must be borne by PJ Property are very large. This study examines something that can be controlled by the company.

Literature review and research background

Organizational Theory

Organizational theory is a human social unit that is structured and managed to meet needs, or to pursue shared goals. One critical aspect of the organization is that it seeks to describe the style and structure of management and form generalizations that will help to further inform management. This means that in character, organizational theory is an applied science that investigates scientifically and describes organizational behavior and then makes the resulting knowledge available for problem solving and decision making in an ongoing company. An organization consists of three aspects, namely a group of people, cooperation, and shared goals. Organization is a form of cooperation between two or more people who together to carry out joint activities in organizational regulations to achieve organizational goals. Managers need to know the behavior of subordinate individuals psychologically because it will affect organizational behavior so that managers can know how to get individuals to work together (Hasibuan, 2013:24-25).

Intended Strategy

Intended strategy acts as a tool to support organizational theory, namely the company will analyze current conditions and then plan strategies that will be realized to achieve organizational goals. Simons (2000:302) states that the intended strategy is a plan that is trying to be implemented by managers in certain product markets based on an analysis of the dynamics of competition and current capabilities. This is the strategy the organization wants to achieve. Emergent strategy is a strategy that arises spontaneously in an organization when employees respond to threats and opportunities that cannot be predicted through experimentation and trial and error. This is an unplanned strategy. Realized strategy is a combination of the intended strategy implemented and the unplanned emergent strategy that occurs spontaneously. This difference will prove important in understanding how levers of control can be used to control business strategies.

However, some of the strategies intended may not be realized; organizational goals can be set inappropriately or circumstances can change, making achievement of goals impossible or undesirable (Simons, 2000:303). Some intended strategies are never enough. A diagnostic control system is needed to monitor this situation because a diagnostic control system can change the intended strategy into a realized strategy as the achievement of goals for every individual in the business. A diagnostic control system measures and compares results with established profit plans and performance goals. Without a diagnostic control system, the organization will not know whether the intended strategy of the organization is achieved.

Management Control System

Management control system is a standard-setting system, receiving feed back in the form of current performance and taking the actions needed to compare whether the actual performance occurred in accordance with the strategy planned before (Anthony, Robert, and Govindarajan, 2011:4). A strict management control system must provide a higher

level of certainty that employees will act according to the wishes of the organization (Merchant and Van der Stede, 2007:118).

Management control system is a process used by managers to ensure that resources are obtained and used effectively and efficiently in achieving organizational goals (Anthony, 1965 in Langfield-Smith, 1997). The management control system consists of accounting-based planning control, activity monitoring, measuring performance and integrative mechanisms, and separating management control from strategic and operational control. The internal control system is described as a process for influencing behavior. The management control system provides the means to obtain collaboration between individual collectives or organizational units as a channel to organizational goals. Based on Anthony et al (1989) in Langfield Smith (1997), control is divided into two namely formal control and informal control. Formal controls include rules, standard operational procedures, and the budgeting system. Formal control is used to ensure that specific results will be achieved and involves monitoring, measuring and taking correct actions. Whereas informal control is not designed in writing which usually comes from the culture of the organization.

Framework for Management Control Systems (Ferreira and Otley, 2009)

According to Ferreira and Otley (2009), it is necessary to propose a design for exploration with a view to achieving organizational goals. Existing mechanisms are used to support and monitor the achievement of objectives. The mechanism acts as a method used to implement based on organizational strategy. Every control system requires goals and objectives where its performance can be assessed. Focus on the framework of management control systems according to Ferreira and Otley, namely on the success of the organization, the overall level of management level, if the goals of the organization are achieved.

Framework for Management Control Systems (Merchant and Van der Stede, 2007)

Merchant and Van der Stede (2007:25) state that organizations have goals to be achieved so employees must take actions according to what they believe they can complete well for organizational goals. The performance will then be evaluated for consideration and proposal in accordance with the plan established for organizational goals. There are 4 types of management control systems according to Ferreira and Otley, including yield control, action control, personnel control, and cultural control.

Framework for Management Control Systems (Simons, 2000)

According to Simons (2000:301), a formal control system framework that is used to change the pattern of activities in order to improve company performance in achieving its objectives is called the Levers of Control. Each control system has its own functions and if implemented together can provide maximum results. Levers of Control consists of 4 components including belief systems, interactive control systems, boundary systems, and diagnostic control systems.

www.ijmae.com

According to Simons (2000:275), belief systems are corporate values and culture. Senior managers communicate formally about providing the basic values, goals, and direction of the organization. According to Simons (2000:216), interactive control systems are management control systems where managers must communicate to be involved in decision making in organizations. Interactive control system is used to identify risks due to external factors namely environmental changes. Boundary system is an internal control system that limits the areas where employees will look for opportunities related to the goals achieved by the company (Simons, 2000:289). Examples of boundary systems are standard operational procedures, employee ethics, and staffing regulations. The elements that exist in the boundary system are the strategic planning system, company regulations, SOP, employee regulations, and risk avoidance efforts. Based on Simons (2000:303), a diagnostic control system is a control system to change the intended strategy into a realized strategy that focuses on achieving goals for the business and for each individual in the business. The diagnostic control system is used by managers to monitor organizational output and correct deviations from established performance standards (Simons, 2000:209). The elements that exist in the diagnostic control system such as setting targets, progress reports on the achievement of results, regular meetings for monitoring, improvement efforts to achieve targets, and achievement of targets as an effort to determine incentives.

Comparison of Conceptual Framework for Management Control Systems

Table 1. Symmary of previous works

No	Information	Ferreira and Otley, 2009	Merchant and Van der Stede, 2007	Simons, 2000
1.	Focus	Organizational success	Management control	Control system to achieve organizational goals
2.	Management Level	Overall level of management	a. Results control: top management b. Action control: middle level management c. Personnel and cultural control: lower management level	Focus on top level management
3.	Size	If organizational goals are achieved	a. Results control: Employee's abilities kemampuan and expertise can be developed b. Action control: know the limit specified, responsibility for the work done, and communicate well	a. Belief system: if the vision and mission of the organization are achieved b. Boundary system: limitations that must be obeyed c. Interactive control system: quality

No	Information	Ferreira and Otley, 2009	Merchant and Van der Stede, 2007	Simons, 2000
			c. Personnel control: employees can work well according to their abilities d. Cultural control: obedience to ethical principles	organizational communicati-on d. Diagnostic control system: results will be evaluated based on standards

Performance Targets

Performance targets function as financial and non-financial measurement tools to achieve organizational targets (Agostino and Arnaboldi, 2012). With the performance target, the organization can find out how far the company's performance has been achieved. Performance targets are used to encourage employees to improve their performance based on targets determined as a control system to find out how to improve employee performance. Financial performance targets such as net income. Through net income, organizations can find out how the condition of net income compared to previous years. Non-financial performance targets such as customer satisfaction. Companies can provide customer surveys to find out the level of customer satisfaction and the level of company performance.

Simons (2000:316) states that in order to achieve profit goals and strategies, organizations must regulate the things that need to be considered such as profit, growth, and control; intended and emergent strategies; unlimited opportunities; and self-interest and the desire to contribute. Organizations need to know performance measurement techniques combined with levers of control to achieve organizational goals. There needs to be a regulation between creative innovation and the achievement of predicted goals because it is the key to profitable organizational growth.

The relationship between management control systems and performance targets

According to Ferreira and Otley (2009), organizations that perform well are organizations that have achieved their goals. Every control system requires goals and targets whose performance can be assessed. Companies need to describe strategies more precisely to maintain a good fit between goals, plans and performance measures. Based on Ferreira and Otley (2009) that performance management systems as developing mechanisms, processes and systems are used by organizations to convey the main goals and objectives posed by management, to assist ongoing strategic and management processes through analysis, planning, measurement, control, reward, and manage performance broadly, and to support and facilitate learning and organizational change. Performance management systems play a role in supporting various management activities including strategic processes that involve strategic formulation and strategic implementation.

The relationship between the intended strategy, boundary system, and diagnostic control system with performance targets

The relationship between boundary systems and performance targets that is the existence of restrictions in the form of procedures and employee ethics will encourage employees to perform in accordance with established company procedures and ethics. With a boundary system, company risk can be minimized to achieve organizational goals. For example there is a risk of employees not doing according to company procedures because there are no written procedures, so with standard operational procedures as a basis for employees to perform in accordance with established policies (Simons, 2000:302).

The relationship between the diagnostic control system and performance targets that is the existence of a comparison between the results of performance achieved with the targets set can be used as an evaluation and measurement related to the achievement of company targets. Companies also need to determine the intended strategy as a control to achieve these goals. If the strategy cannot be realized then an emergent strategy will be determined to achieve the new goals set. If the company does not have the intended strategy, then all internal parties of the company will not perform optimally for the company's goals (Simons, 2000:303). One of the intended strategies that the company can do is to have a strategic planning system that is by planning a strategy to make customers pay their rent payments for example by giving rewards or punishment.

Research metodology

The design of this study is an analysis of case studies. The case study in this study focuses on not achieving the rental revenue target. Therefore this study focuses on management control systems, especially the levers of control, the boundary system and the diagnostic control system used to evaluate and analyze the non-achievement of the rental revenue target. The approach and type of this research is qualitative research. The reason for this research uses qualitative research because this research is an analysis of case studies regarding the non-achievement of the rental revenue target. The type of data in this study are qualitative data in the form of billing procedures and rental revenue targets. The source of data in this study is to use primary data in the form of researcher interviews with informants. Observation guidelines conducted in this research are checking documents related to standard operational procedures regarding billing and reading minutes of meetings conducted routinely as monitoring of rental revenue targets to be achieved. Data collection procedures of this study are observation and interviews. Observations were made in the form of observations on the subjects and objects of research. This research was conducted by structured observation by checking the billing procedure guidelines and documents related to the billing process. While the interviews were conducted in a structured manner based on interview guidelines by giving oral questions to obtain accurate information by conducting a question and answer to the Accounting Supervisor and Collection Person in charge of billing and receiving rent. The purpose of this observation and interview is to find out how the rental revenue target is not reached.

Data Disclosure, Findings, and Discussion

The following Table 1. is a data analysis for boundary system solutions and diagnostic control system for PJ Properties:

Table 1. Data analysis

Num.	Levers of Control	Element	Fact	Effective / Ineffective	Proposed Solution
1.	Boundary System	Strategic Planning System	Punishment in the form of tenant lights is turned off if there is no rental payment	Ineffective	Give rewards to tenants in the form of vouchers every month for shopping if the tenants pay off before the due date
		Company regulations	There is no punishment on the part of the Collection if the tenant does not immediately pay the rent.	Ineffective	Providing punishment if the tenant does not pay the rent, namely by deducting a salary from the Collection.
		SOP	Not explained in full in SOP Billing related how many times the Collection must contact the tenant until the tenant repaid the rental bill.	Ineffective	The Billing SOP contains steps on how the Collection section must charge the lease to the settlement of the lease by including that the Collection department must contact tenants 3 times to follow up with the aim of ensuring when the customer will pay the rent.
		Employee Regulations	All employees must check in at work hours at 09.00 a.m. and check out at 18:00 p.m. every Monday to Friday.	Effective	-
		Risk avoidance efforts	There is no risk aversion effort related to many unpaid rentals.	Ineffective	Give a fine of 2% of the installments every month if the tenant pays the rent after the due date.
2.	Diagnostic Control System	Targeting	PJ Property does not provide any punishment on	Ineffective	Provides punishment by deducting part of the salary from the

Num.	Levers of Control	Element	Fact	Effective / Ineffective	Proposed Solution
			the part of the Collection if the target for receiving rent is not reached on the initial employment contract.		Collection on the initial employment contract.
		Progress report on achievement of results	Make a report on the rental revenue target with the realization of rental income.	Effective	-
		Regular meetings for monitoring	Meetings are held routinely, once a month to discuss unpaid rent.	Effective	-
		Improvement efforts to achieve the target	There is no improvement effort to reach the target of receiving rent.	Ineffective	Give a 2x bonus base salary every year if the rental revenue target is reached.
		Achievement of targets as an effort to determine incentives	Incentives will be given every 3 months about 20% of the basic salary to the Collection if the rental revenue target is reached.	Ineffective	Providing incentives every 3 months in the amount of the percentage of achievement of the target of receiving rent from the basic salary with the aim to make the Collection more motivated to do the collection.

Conclusions, Limitations, and Suggestions

Conclusions

The conclusion of this research is that PJ Property requires LoC as a control tool to support the achievement of planned goals. LoCs that are needed on PJ Properties are boundary systems and diagnostic control systems. PJ properties require a strong boundary system because the SOPs set by PJ properties are not executed to the maximum. It is a policy that the customer must pay the rent before the due date stated on the bill given to

the customer. However, if the customer has not paid off the lease before the due date then the Collection portion is not penalized and will provide concessions until the customer will pay it until the following month. PJ Property does not have an effort to avoid the risk that occurs that is not achieving the target of receiving the lease so that the Collection let the lease be paid in the following month. This makes the PJ Property's cash flow statement disrupted because rent receipts are supposed to be received in the relevant month but because the customer pays the following month so that rent receipts will be recorded on the cash flow statement in the following month.

PJ Property also requires a strong diagnostic control system to support the intended strategy of making all customers pay their rent according to the target set by billing 2 weeks before the due date. However, many customers do not pay it off because if the customer pays the lease beyond the due date and the receipt of the lease does not reach the target then it is not subject to any sanctions. The determination of the rental revenue target does not motivate PJ Property to be able to achieve it because there is no effort to work towards achieving that target. The Collection Section will be given a quarterly incentive of 20% of the base salary if the rental revenue target is reached. However, uncollectible receivables in 2018 still reached 47.8% so that the achievement of targets as an effort to determine incentives is still ineffective.

Limitation

The limitation of this study is that this study discusses the Levers of Control on the boundary system and diagnostic control system elements because the main problem in this study lies in the non-achievement of rental revenue targets. In addition, this research focuses on discussions related to the Collection section of the lease to the receipt of rent from the customer so it does not discuss other parts such as the Marketing or Legal section.

Suggestion

In terms of boundary systems, there needs to be an effective strategic planning system that is to provide rewards in the form of vouchers for discounted shopping if tenants pay their rent before the due date. In addition, there is a need for sanctions if the tenant does not immediately pay off the lease by deducting a salary from the Collection. Billing SOP also needs to contain steps for the Collection section in billing to the settlement of the lease by informing that the Collection section must follow up to the tenant by telephone or email 3x before the due date to ensure that the tenant has paid the lease. PJ Property also need to charge a fine of 2% of the installments each month if they are past due on the bill.

In terms of the diagnostic control system, PJ Property needs to provide punishment by cutting the salary of the Collection if the Collection fails to charge the tenant to the settlement of the lease so that the rental revenue target is reached. PJ properties should also provide a bonus of 2x basic salary each year if the rental revenue target is reached so that the Collection section is more motivated to charge the lease to the customer. In addition, PJ Property should provide incentives every 3 months at 50% of the base salary with the aim of making the Collection part more motivated to do a billing to the tenants.

www.ijmae.com

The solution for the next research is to make a research model by testing the experiment whether the business is more profitable to use a physical store with an online store in terms of the costs incurred and the benefits obtained.

References

Agostino, D. and Arnaboldi, M. (2012). Design Issues in Balanced Scorecards: The "what"and "how"of Control*, European Management Journal Elsevier.*

Anthony, N. R. dan Govindarajan, V. (2011). *Management Control System* Sistem Pengendalian Manajemen, Salemba Empat: Jakarta.

Anthony, R., dan Govindarajan, V. (2012). Sistem Pengendalian Manajemen, Karisma Publishing Group: Tangerang.

Baird, K. and Su, S. (2018). The association between controls, performance measures and performanc*e, International Journal of Productivity and Performance Management*: Emerald Publishing Limited.

Chenhall, R. H. (2003). Management Control Systems Design within its Organizational ContePJt: Findings from Contingency-based Research and Directions for the Future*, Accounting, Organizations and Society.*

Ferreira, A. dan David O. (2009). The Design and Use of Performance Management Systems: An Extended Framework for Analysis*, Management Accounting Research,* Volume 20, Issue 4, Pages 263-282

Handoko, T. H. (2011). Manajemen Personalia dan Sumber Daya Manusia, BPFE: Yogyakarta.

Hasibuan, Malayu S.P., (2013). Manajemen Sumber Daya Manusia, Bumi Aksara: Jakarta.

Langfield-Smith, K. (1997). Management Control Systems and Strategy: A Critical Review*, Accounting, Organizations and Society*, vol. 22, issue 2, 207-232

Malmi, T. dan Brown, D. A. (2008). Management Control System as a Package-Opportunities, Challenges and Research Directions*, Management Accounting Research*, Volume 19, Issue 4, Pages 287-300

Merchant, Kenneth A., dan Wim A. Van der Stede, (2007). *Performance Measurement, Evaluation and Incentives,* Boston: Prentice-Hall.

N. Stone, D., N. Nikitkov, A. and C. Miller, T. (2014), "Strategy, IT and control @ eBay, 1995-2005: The management control system (MCS) as consumer product", *Qualitative Research in Accounting & Management*, Vol. 11 No. 4, pp. 357-379

Pešalj, B., Pavlov, A. and Micheli, P. (2018), "The use of management control and performance measurement systems in SMEs: A levers of control perspective",

International Journal of Operations & Production Management, Vol. 38 No. 11, pp. 2169-2191

Rezania, D., Baker, R. and Burga, R. (2016), "Project control: an exploratory study of levers of control in the context of managing projects", *Journal of Accounting & Organizational Change*, Vol. 12 No. 4, pp. 614-635

Simons, R. (2000). *Performance Measurement & Control Systems for Implementing Strategy*, New Jersey: Prentice-Hall, Inc.

Sugiyono (2018). Metode Penelitian Kombinasi (*Mixed Methods*), Penerbit: Alfabeta, Bandung.

Tuomela, T. (2005). The interplay of different levers of control: A case study of introducing a new performance measurement system, *Management Accounting Research,* Volume 16, Issue 3, Pages 293-320.