Performance Optimization Through Belief System, Boundary Control System, Diagnostic Control, and Interactive Control System

Ietje Nazaruddin[1*], *Syolichah* Dwi Karuniawati[2], and *Indah* Yani[2]

[1]Department of Accounting, Faculty Economy and Business, Universitas Muhammadiyah Yogyakarta, Indonesia
[2] Master of Accounting, Universitas Muhammadiyah Yogyakarta, Indonesia

Abstract. This study examines the effect of belief systems, boundary control systems, diagnostic control, and interactive control systems on performance. The permanent employees of the Regional Apparatus Organization in Ngawi Regency were the object and subject of this research. The study employed purposive sampling for its sampling. Primary data were collected by distributing questionnaires to 150 respondents. This study utilized SEM-PLS with SmartPLS v.4.0 software to test the data. Based on the findings, three hypotheses could be tested: diagnostic control had a long-term effect on performance, whereas belief systems, boundary control systems, and interactive control systems did not. Furthermore, by utilizing variables, the belief system, boundary control system, and interactive control system would positively impact performance. Consequently, the trust system, boundary control system, and interactive control system could enhance employee performance in Regional Apparatus Organizations.

1 Introduction

The COVID-19 pandemic has had a wide-ranging influence, notably on the economy, society, and culture. As a result, increasing the quality of trained human resources capable of working under internal and external pressure and adapting to fulfill organizational and corporate objectives is critical. Public service is defined as a set of actions to address the service demands of all citizens and residents about commodities, services, and administrative services given by public service providers in line with statutory regulations [1]. All public organizations must be able to devise performance improvement plans to survive the COVID-19 pandemic. The goal of public sector performance is to improve government resource allocation and decision-making while also facilitating public accountability. Government leaders play a vital role in reform efforts by fostering a culture that measures the efficiency and effectiveness of policy implementation through various technique [2].

In truth, employee performance has been subpar since the COVID-19 pandemic in 2020, which disrupted numerous activities and influenced people's lives and the nation. This circumstance impacts the government's performance, particularly the local government of

* Corresponding author: ietje.nazaruddin.@umy.ac.id

Ngawi Regency, which must reorganize programs, operations, and performance targets in response to field conditions. This challenge requires the implementation of new habit adaptations and changes in public services from manual to information technology-based to adapt to pandemic conditions. Based on the Community Satisfaction Index results in 2020, Ngawi Regency Local Government services are not considered optimal in their service behavior. In addition, technology improvements and online services, including updating data on the website https://ngawikab.go.id, still need to be accessed. Online licensing population services and employee competence still need to be entirely done by the government.

The role of local government (Pemda) is crucial in improving service optimality. Local governments are responsible for local government affairs. They must carry out their duties professionally for the community's welfare and be responsive to existing complaints to provide optimal service [3]. The success of the SG's agenda or services can be measured through the performance outcomes achieved, where the organizational structure has a management control function and builds a network of groups that work by organizational goals. According to [4], there are four types of control systems or levers of control (LOC), namely, belief system (core values), boundary system (behavioral constraints), diagnostic control (monitoring), and interactive control (management involvement). To achieve optimal results, these four systems must be implemented simultaneously in the business strategy because the elements in the levers of control cannot be implemented separately but must be integrated comprehensively [5].

Several factors can be used as control, namely, belief system (core values), boundary system (behavioral constraints), diagnostic control (monitoring), and interactive control (management involvement). Research [6, 7] found that the company's mission statement, which articulates the company's belief system, positively affects company performance. A study [8] proves that there is a positive impact of the boundary system on employee-oriented measures. Implementing a boundary system that fits its portion in an organization will increase employee satisfaction. [9] also states that the diagnostic control system is positively correlated, but the study results revealed that diagnostic control has a non-significant impact on innovation. Interactive control systems, however, have a significant positive impact on innovation [9]. This aligns with a study [10], which explains that the interactive control system positively impacts innovation. It is in contrast to research stating that the belief system does not affect performance [11], the boundary control system has no effect on performance [12], and the interactive control system does not affect performance [13]. Due to the inconsistency of previous research results, this study used a different research location. The difference between this research and previous studies lies in the place and object of the research, which was conducted in the Ngawi Regional Government.

2 Hypotheses development

2.1 Hypotheses development

2.1.1 Belief system on the performance

Consistent application of belief systems can increase innovation; belief systems motivate employees to strive to achieve the main goals and mission of the organization and seek new opportunities. Through the belief system, managers can effectively communicate organizational values to all employees, thus motivating and inspiring them to create and explore ideas and concepts relevant to organizational goals. Research [9] asserted that the belief system significantly correlates positively with innovation. This finding agrees with the

results of research [14], which suggests that the belief system opens up space for developing new ideas, actions, and initiatives in the organization.

H1: Belief systems have a positive effect on performance.

2.1.2 Boundary control system on the performance

A boundary system is a formal system management uses to communicate organizational boundaries and regulations effectively [15]. This system informs employees of restrictions and encourages them to innovate and achieve specific standards. According to [5], the boundary system significantly improves organizational performance by motivating employees to continue searching and experimenting while respecting the boundaries. A study [8] has proven that the boundary system has a positive impact on employee-oriented measures. Implementing a boundary system that fits its portion in an organization will increase employee satisfaction.

H2: Boundary control system has a positive effect on performance.

2.1.3 Diagnostic control on the performance

The correlation between diagnostic control and innovation includes strategy-based work design, financial target setting, comparison of results with targets, and variance analysis. The implementation of a formal performance measurement system (PMS) provides a mechanized approach to decision-making, which has the potential to minimize organizational focus so that it can continue to drive innovation [16]. The diagnostic control system is positively correlated, but the study results uncovered that diagnostic control has a non-significant impact on innovation [9].

H3: Diagnostic control has a positive effect on performance.

2.1.4 Interactive control system on the performance

The interactive control system aims to expand learning opportunities and processes, which can be observed in the active participation of senior managers [17]. According to [18], this system measures performance to optimize management quality and maximize commitment to achieving organizational goals. By implementing an interactive control system, companies can provide facilities for managers to actively participate in individual and collective decision-making, thus encouraging innovation in the organization [9]. Research [10] also supports these findings, suggesting that the system positively contributes to innovation by encouraging subordinates to come up with new ideas and notions, which increases innovation through consistency in implementing the interactive control system.

H4: Interactive control system has a positive effect on performance.

Based on the development of theory and hypothesis, a research model was formulated, as illustrated in Figure 1.

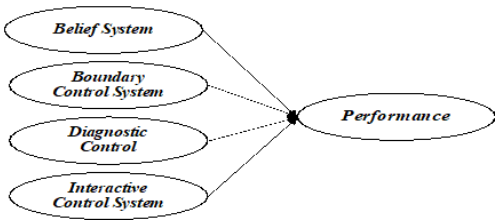

Fig. 1. Research model.

3 Method

3.1 Sample and data

This quantitative study employed a questionnaire distributed to respondents, namely employees who worked in the Regional Government and were in each district or city of Ngawi. The sampling technique used a purposive sampling method, with sample criteria for employees with at least one year of work experience, State Civil Apparatus with administrative positions such as general staff, staffing, finance, planning and evaluation, and had worked for more than one year. The questionnaire was distributed directly to obtain accurate data. The data used in this study consisted of primary data obtained directly from research respondents using a measuring instrument in the form of a questionnaire using a 5-point Likert scale, one indicating "Strongly Disagree" to 5 indicating "Strongly Agree." Using a survey approach, the questionnaire was consulted and validated by involving expert lecturers in accounting research. This research utilized SmartPLS 0.4.

Since this study used non-probability sampling, according to [19], a power analysis is needed to determine the minimum sample size. The results revealed that the minimum required sample size was 77 respondents. Table 1 details the results of the questionnaire distribution, conducted with 150 permanent employees, which met the sample size requirements. Most respondents were female, 59%. As many as 61% of respondents were between 36 and 50 years old. One hundred thirty-six respondents, or 90%, had more than ten years of work experience. In addition, most respondents had a bachelor's degree, as many as 87 or 58%. According to their backgrounds, most of the respondents had educational backgrounds other than accounting, management, business, or law. Finally, based on tenure, most respondents, 39%, have worked for 1 to 5 years.

Table 1. Information of respondents

Information	Description	Number	%
Gender	Male	62	41
	Female	88	59
Age	20-35 years	7	5
	36-50 years	92	61
	>50 years	51	34
Last Education	SMA	22	15
	D1	1	1
	D3	12	8
	S1	87	58
	S2	28	18
Background	Accounting	26	17
	Management	27	18
	Economic	10	7
	Law	25	16
	Other	28	19
	No Filling	34	23
Length of Service	<1 years	5	3
	1-5 years	40	27
	6-10 years	16	10
	>10 years	89	60
	Total	150	100

Source: Processed by researchers (2024)

4 Results and discussion

4.1 Bias test and descriptive statistic

Since the survey relies on self-reports, there is a risk of normative bias (CMV). The Harman's single-factor test [20] showed that the highest latent factor contributed only 46% of the variance, below the 50% threshold considered problematic [21]. Therefore, bias was not significant in this study.

The results of the descriptive analysis are presented in Table 2 to show respondents' perceptions of all the variables studied. It was found that respondents' perceptions of each variable tended to be high because the average value was in the range above scale 4.

Table 2. Descriptive statistic results

Variable	Theoretical Range			Actual Range			
	Min	Max	Mean	Min	Max	Mean	Std. Deviation
Belief System	4	20	12	8	20	16.46	18.741
Boundary Control System	4	20	12	8	20	16.09	18.730
Diagnostic control	5	25	15	10	25	19.60	28.661
Interactive Control System	5	25	15	7	25	20.38	25.562
Performance	8	40	24	8	40	27.57	6.0540

4.2 Validity test

Before testing the hypothesis, measurements must be validated through construct validity testing, with a minimum loading value of 0.5 [22]. Construct validity, which includes convergent and discriminant validity, ensures that items consistently measure the same concept. Table 3 shows that the loading and AVE values met general [23, 24].

Table 3. Convergent validity test results

Code	Indicator	Outer Loading
Diagnostic System – AVE: 0.664		
DS1	I use the performance measurement system to identify essential performance priorities that I need to achieve.	0.886
DS2	I use performance outcome information to set my performance targets.	0.845
DS3	I use the performance measurement system to monitor achieving my most essential performance targets.	0.730
DS4	I use the performance measurement system to achieve the performance targets that have been set.	0.777
DS5	I reviewed the key performance indicators used in performance measurement.	0.829
Boundary Control System- AVE: 0.707		
BCS1	I understand the rules of performance measurement in my agency.	0.816
BCS2	A policy/guideline informs about employee performance targets by their responsibilities.	0.869
BCS3	My supervisor actively communicates the risks if performance is off target.	0.894
BCS4	Agencies impose sanctions or penalties if employees are involved in activities outside of agency policy.	0.779
Belief System- AVE: 0.765		

Code	Indicator	Outer Loading
BS1	There is an official document containing the agency's values, goals, and direction (e.g., a statement of the agency's vision, mission, values, goals, and ideology).	0.827
BS2	Leaders communicate the agency's values to employees.	0.865
BS3	A statement of the agency's values is used to build employee commitment to achieving the agency's long-term vision.	0.911
BS4	A statement about the values adopted by the agency is used to motivate and guide employees.	0.893
Interactive Control System- AVE: 0.748		
IC1	In agencies, performance measurement systems generate information that becomes an essential agenda item in discussions between superiors and subordinates.	0.855
IC2	My agency periodically conducts performance evaluations (semester/year/specific period) involving leaders and employees.	0.879
IC3	Information from the performance measurement system is the subject of ongoing discussion, especially about data credibility, assumptions, and the agency's plans.	0.889
IC4	The performance measurement system in my workplace is used to discuss strategic changes in the agency.	0.900
IC5	Information from the performance measurement system can open and facilitate dialogue and information sharing with colleagues and agencies.	0.797
Performance- AVE: 0.664		
P1	I have a more significant contribution to the success of the agency.	0.746
P2	I have better performance in my agency.	0.731
P3	I am an employee with above-average performance.	0.861
P4	I work harder.	0.858
P5	I am one of the best-performing employees in my institution.	0.827
P6	I know more information.	0.817
P7	I know better what the community expects.	0.856
P8	I get a better appreciation for my performance.	0.813

Source: Processed by researchers (2024)

Testing discriminant validity was conducted to assess the extent to which items differentiate constructs or measure distinct concepts [25]. The Fornell-Larcker criterion, which states that the square root of AVE should be greater than its correlations with other latent constructs, was used to assess discriminant validity [23, 26, 27]. The results presented in Table 4 reveal that the square root of AVE for each construct was higher than its correlations with other latent constructs, indicating that discriminant validity had been met.

Table 4. Discriminant validity test results (fornell–lacker)

	Boundary Control System	Belief System	Diagnostic system	Interactive Control System	Performance
Boundary Control System	**0.841**				
Belief System	0.792	**0.874**			
Diagnostic system	0.679	0.643	**0.815**		
Interactive Control System	0.786	0.779	0.689	**0.865**	
Performance	0.361	0.307	0.587	0.385	**0.815**

Source: Processed by researchers (2024)

Table 5 allows us to draw some conclusions. The significance value for the boundary control system was 0.484, more significant than alpha (0.05), indicating no influence on performance, thus rejecting the first hypothesis. For the belief system, the significance value was 0.175, higher than alpha (0.05), which also did not affect performance, thus rejecting the second hypothesis. Diagnostic control had a significance value of 0.000, lower than the alpha level of 0.05. This means that the third hypothesis was supported. Lastly, the interactive control system had a significance value of 0.359, indicating that it did not affect performance, thus rejecting the fourth hypothesis.

Table 5. Hypothesis

Hypothesis	***Original sample (O)***		***T-statistics***	***P-values***	**Description**
Direct Effect					
Boundary Control System → Performance	H_1	-0.007	0.041	0.484	Unsupported
Belief System → Performance	H_2	-0.154	0.934	0.175	Unsupported
Diagnostic control → Performance	H_3	0.645	5.457	0.000	Supported
Interactive Control System → Performance	H_4	0.067	0.360	0.359	Unsupported

Source: Processed by researchers (2024)

4.3 Discussion

The boundary control system was found to influence performance. This research corroborates with research [12], which states that there is no significant effect of the boundary control system on the performance of the Regional Apparatus Organization apparatus. The boundary control system provides boundaries and a code of ethical behavior used to improve the vision and mission of the organization. This can happen if organizational leaders continuously communicate boundaries and codes of conduct to employees to inspire them to improve performance. The lack of implementation of codes of ethics and boundaries within the organization makes it unable to encourage employees to perform better.

Moreover, the belief system influences performance. This research aligns with [11], showing that the belief system does not affect organizational performance. Even though the agency has a reasonable belief system, this does not necessarily reflect the values that superiors must own and can reduce the leader's focus on the agency. The low belief system in Regional Apparatus Organizations in Ngawi Regency has decreased employee performance. This is caused by difficulties in understanding the implementation of programs or policies to realize a clear and accurate vision and mission. If organizational leaders communicate the agency's core values to employees, the belief system can increase. Therefore, Regional Apparatus Organizations need good communication from superiors to employees to create optimal performance.

In contrast, the diagnostic system revealed different results, namely a positive effect on performance. The higher the diagnostic control application in Regional Apparatus Organizations, the higher the motivation for public services. The relationship between goals set and performance is explained in goal setting theory. If the organization applies diagnostic control appropriately, this will encourage employees to improve the quality of their work, thereby achieving organizational goals oriented toward increasing public service motivation and public satisfaction with the services provided. These results are supported by research [28], which shows that diagnostic control positively affects motivation.

Furthermore, the interactive control system exhibited insignificant results. This result reinforces research [13, 27], which shows that the interactive control system does not affect organizational performance. This can be caused by the lack of managerial interaction or relationships with employees, employee participation in decision-making or actions, and supervision that ensures employee performance is not affected by business problems when the company is experiencing difficulties [29]. Although it has no direct effect, the interactive control system can affect performance through psychological empowerment. The interactive control system is not strong enough to directly affect performance, but if the system positively affects psychological empowerment, performance will increase.

5 Conclusion and recommendation

This study aimed to examine the effect of the boundary control system, belief system, diagnostic control, and interactive control system on performance at Regional Apparatus Organizations (OPD) in Ngawi Regency. The study's results have proven that the boundary control system does not affect performance in the Ngawi Regency OPD. This means that the lack of application of a code of ethics and boundaries in the organization could not encourage employees to do a better job. The study's results also revealed that the belief system does not affect performance, meaning that the Ngawi Regency OPD still needs help implementing programs or policies to realize a clear and accurate vision and mission. In addition, the study's findings demonstrated that diagnostic control has a beneficial impact on the performance of the Ngawi Regency OPD. This implies that the motivation for public services increases as the deployment of diagnostic control in Regional Apparatus Organizations increases. Lastly, the interactive control system's efficacy was demonstrated by the study's results, which indicated a lack of managerial interaction or relationship with employees.

This research provides theoretical and practical benefits. Theoretically, this research provides scientific contributions and empirical evidence. Practically, this research is expected to add insight into employees regarding applying the boundary control system, belief system, diagnostic control, and interactive control system at the Ngawi Regency OPD. However, this study has limitations; the sample must be more significant. Future research is anticipated to expand the research area and use the interview method to increase respondents' objectivity.

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