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The Influence of Innovation and Transformational Leadership as a Mediator of Internal Control Systems on the Performance of Public Sector Organizations

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Abstract

In the context of globalization and economic transformation, countries, including Indonesia, are striving to improve the performance of their public sector organizations. This article reviews the significant improvement in the efficiency and performance index of the Indonesian government according to the World Bank. However, some regional governments, such as Batam City, face difficulties in achieving the set performance targets. In-depth research is needed to identify the factors that influence such performance improvements.

The Batam City government has sought to improve performance through strengthening internal control, innovation, and transformational leadership. However, the results have not reached their maximum potential. This article suggests further research on the relationship between Internal Control Systems (ICS), Innovation, Transformational Leaadership (TL) and Organizational Performance (OP) in the Indonesian public sector. The research also explores to what extent innovation can mediate the relationship between ICS and organizational performance, as well as how transformational leadership affects such mediation.

City governments and other public sector organizations can use these findings as benchmarks and guidelines in an effort to advance their performance in the face of the demands of modernization and global competitiveness.

Keywords: Internal Control Systems (ICS), Innovation, Transformational Leaadership (TL) and Organizational Performance (OP), Public Sector Organizations.

1. INTRODUCTION

In an era of globalization and economic transformation, countries around the world continue to strive to strengthen their public sectors in order to adapt to the demands of

modernization, efficiency, and global competitiveness (Arundel et al., 2015; de Vries et al., 2018). Indonesia is one of the countries that seeks to improve efficiency and government performance welcoming the G20 Summit, November 2022 (Jaleswari, 2022).

The government efficiency and performance index released by the World Bank, known as the World Governance Indicator, became an important measure. By the end of 2022, Indonesia had achieved a significant increase in scores, from 0.35 in 2020 to 0.38 in 2021. This raises Indonesia's ranking from 73rd to 64th out of 214 countries assessed. Although some countries like Mexico, Brazil, India, and Russia are still lagging behind, Indonesia managed to surpass them. On the other hand, countries like Switzerland, Denmark, and Singapore scored above 2, getting predicated as the most effective government (World Bank, 2022)

As a response to efforts to improve the performance of the government, Indonesia passed the Act No. 23 of 2014 on Regional Governance, which gives the authority, rights and obligations to the region to manage and plan the development of the region with an effective and innovative approach. In order to measure government performance, the Government of Indonesia has issued the Ministry of Home Affairs of the Republic of Indonesia Regulation No. 38 of 2020 on the Head of District Leadership Index. This regulation requires the Regional Government to meet the established standards of performance, with a weight of 60 for accessing performance and 40 for receiving awards.

Regional governments often face obstacles in their efforts to the achievement of the performance set by the Central Government. For example, the Batam City Government is facing challenges in achieving the set performance achievements targets. By 2021, the Batam City Government's performance reached only a weight of 48, well below the expected standard. Even in terms of receiving awards, they only earn 19 weights (Laporan Kinerja Kota Batam, 2021). This phenomenon prompted further investigation to reveal why the performance of the Batam City Government has not met the standard criteria that have been established. In-depth research is needed to categorize the factors that influence this outcome, including the challenges and obstacles that hit the Batam City Government in its efforts to more ambitious performance targets.

The Batam City Government has been working to improve organizational performance by focusing on strengthening internal controls through innovation and transformational leadership from 2020 to 2023. However, despite the continued efforts during this period, the results have not yet reached their maximum potential. Further evaluation and improvement are still needed in the implementation of this strategy in order to more optimal results Regional Government Work Plan, Government of Batam City 2024.

In the above context, relevant research to maximize existing potential, in order to better government performance is how to explain the relationship between Internal Control Systems (ICS) and organizational performance in the public sector in Indonesia, through emphasis on the role of mediating innovation intensity and the moderation role of transformational leadership (Freeman & Engel, 2007a; Jaskyte, 2012).

2. Library Review and Hypothesis Development

ICS helps organizations to improve compliance with regulations and laws, as well as minimize risk (Li et al., 2006), besides, internal control is an important resource that helps organizations maintain assets (Park et al., 2017). With this in mind, institutions in the public sector emphasize improving internal controls as a top priority to maintain operational stability and simultaneously optimize the use of resources. Transformational leadership must play a key role in inspiring employees through clear communication of values and visions, focusing on the future, through motivating speeches, as well as concrete actions to improve the level of innovation and organizational performance. Through the control of ICS, transformational leaders enhance the aspirations of their followers to accomplish while driving organizational development (Bass & Avolio, 1990). Therefore, we propose the following hypothesis:

H1. Improved Internal Control Systems (ICS) in public sector organizations will contribute positively to the development of Transformational Leadership (TL).

Innovation in the public sector plays an important role in addressing economic and social challenges (Bloch & Bugge, 2013). While effective Internal Control Systems (ICS) help public sector organizations in optimizing operations and resource utilization (Shen et al., 2020). ICS also plays an important role in innovation in public sector organizations, helping to set the right goals, motivate employees, and enable focus on innovation. (Freeman & Engel, 2007b). Therefore, public sector organizations need to place greater emphasis on internal controls to maintain operational stability while also boosting innovation. Therefore, we propose the following hypothesis:

H2. Increased efficiency of Internal Control Systems (ICS) will have a positive impact on the level of innovation intensity in the public sector.

Transformational Leadership in public sector organizations can improve organizational performance by increasing innovation intensity (Shanker et al., 2017).

Transformational Leadership can allocate resources from the Internal Control System (ICS) to innovation activities, reduce the risk of innovation, and create an environment that supports the experimentation of new ideas. With a stronger Transformational Leadership, the positive impact of ICS on the intensity of innovation in public sector organizations can be enhanced. Transformational Leadership also motivates employees to support ICS and focus on improving innovation. Therefore, the relationship between ICS and innovation in public sector organizations can be strengthened by the presence of a strong Transformational Leadership (Bass & Avolio, 1990; Shanker et al., 2017). Therefore, we propose the following hypothesis:

H3. Transformational Leadership Positively Improves Organizational Performance.

Innovation plays an important role in improving the performance of the public sector. It helps public sector organizations cope with economic and social challenges and optimize their operations and use of resources (Bloch & Bugge, 2013). In addition, ICS is also an important factor in driving innovation in public sector organizations (Freeman & Engel, 2007b). ICS helps public sector organizations to set appropriate goals and motivate employees to participate in the innovation process, dig knowledge, and complete the tasks needed to focus on innovation (Shen et al., 2020). The challenges of innovation in the public sector are institutional constraints, technology, resources, and a lack of leadership focus on innovation (Vassallo et al., 2023). Transformational Leadership can motivate employees to innovate and change traditional organizational culture. Transformational Leadership can motivate employees to innovate and transform traditional organizational culture (Buil et al., 2019). Moreover, Transformational Leadership is also seen as a moderating factor in the relationship between ICS and Innovation. Transformational Leadership can enhance the positive impact of ICS on Innovation by allocating resources to innovation, motivating employees, and strengthening ICS (Hoai et al., 2022). In this context, Innovation, ICS, and Transformational Leadership play an important role in optimizing the performance of public sector organizations. Therefore, we submit the following hypothesis:

H4 Innovation plays an important role in improving the organizational performance of the public sector.

ICS has an indirect influence on Organization Performance. ICS contributes to governments and the public sector in efforts to address various problems and fraud when implemented effectively (Peltier-Rivest, 2018), Reduce fraud and corruption practices

(Maria et al., 2017), as well as ensuring the optimization of resource use, improving the efficiency of public assets, strengthening transparency, and increasing accountability (Aziz et al., 2015). The above arguments support the idea of the mediating effect of innovation on Organization Performance. It shows that a good ICS can trigger a higher level of innovation, which in turn makes a positive contribution to organizational performance, especially in the government sector and the public sector.

H5 ICS has a positive influence on organizational performance through the role of innovation level mediation.

Many studies reveal that transformational leadership has a tremendous impact on the level of satisfaction and hard work of the subordinate (Bass & Avolio, 1990; Nguni et al., 2006; Parry & Proctor-Thomson, 2002; Shamir & Howell, 2018; Shea, 1999). Other studies also showed a positive effect on underlying performance (Shamir & Howell, 2018), especially in a group or team situation (Barling et al., 1996; Bass & Avolio, 1990; Hanges et al., 1999). Transformational Leadership is also seen as a key factor in building confidence and overcoming stress among team members (Barling et al., 1996). In addition, transformational leadership is also associated with increased personal loyalty to an organization or group (Barling et al., 1996). From a subordinate development perspective, the intellectual stimulation dimension in transformational leadership has proven to encourage subordinates to face challenges with creativity, critical thinking, and independence, as well as to find new approaches in problem-solving by considering different opinions before determining solutions (Bass & Avolio, 1990). Furthermore, individual consideration is often interpreted as a means to strengthen the subordinate's confidence in dealing with problems (Bass & Avolio, 1990).

H6 Transformational Leadership as a mediation provides a positive link between ICS and OP.

Innovation demonstrates an important role in maximizing the efficiency, effectiveness, and legitimacy of public organizations, as demonstrated by various studies (Damanpour et al., 2009; Demircioglu & Audretsch, 2019a; Lægreid, 2007; Torugsa & Arundel, 2016). Moreover, cultivating a culture of innovation in the public sector will increase employment satisfaction, organizational commitment, and reduce the intention to move among employees (Demircioglu & Audretsch, 2019b). Although the importance of innovation in the public sector is increasingly recognized, there is a huge gap in understanding the role of

universities as a major source of innovation, in terms of producing innovative activities in the Public Sector. This gap is significant because the university is recognized as an important contributor to economic growth, sustainable jobs, and competitiveness in international markets (Demircioglu & Audretsch, 2019b). Moreover, collaborative involvement between universities and public organizations has the potential to drive "spectacular innovation" (Wettenhall & Aulich, 2009), so that we can overcome the key research gaps in the public sector.

H7 Innovation as mediation gives positive influence between ICS to OP.

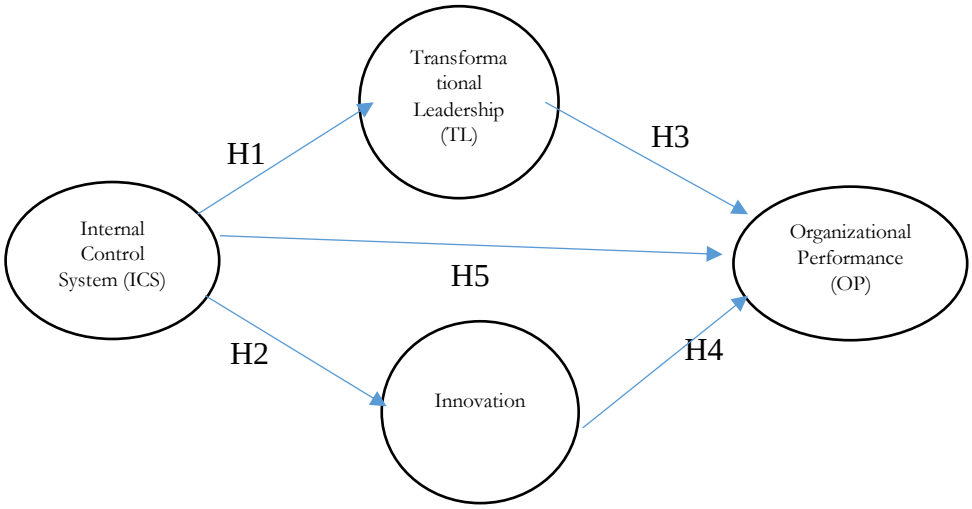

Figure 1. Research Model

3. RESEARCH METHODOLOGY

3.1 Research location

This study deals with the performance of public sector organizations in Batam City, which is a growing and developing region. To improve organizational performance, the Batam City Government has implemented some important aspects such as a strong internal control system. (Hoai et al., 2022), visionary transformational leadership (Huafei Wei et al., 2023), and sustainable innovation (Demircioglu & Audretsch, 2019b) of them through (Https://Simpeg.Batam.Go.Id/Admin/Main/Login, n.d.)dan (*Https://Siasn-Instansi.Bkn.Go.Id/*, n.d.) in accordance with the regulations of the National Assembly No. 22 of 2020 (MENPANRB, 2020), but the results have not yet been achieved.

The non-optimal performance of public organizations in Batam City, is one of the proper objects of research for this research because in general public organisations in batam City still have the same problems as other developing areas, including poor performance of officials, bureaucracy, systematic corruption, and abuse of authority (Pham, 2018).

3.2 Sampling and data

In this study, the target respondents are public organizations in Batam City, with a population of 4,177 people. The main focus of the study is on middle-level officials who have at least one year's experience in the organization. This requirement is set to ensure that respondents have the skills and knowledge necessary to fill in questionnaires on behalf of public organizations in Batam City. The number of respondents for the post of administrator (eselon III) is 186 people, the supervisory post (eselon IV) is 579 people and the functional post of expertise is 3,412 people. To maintain objectivity, middle-level officials evaluate their leaders, not their leaders who evaluate themselves.

In this study, the Slovin method was used to calculate the size of the required sample size. Based on Slovin formula (https://www.statology.org/slovins-formula-calculator/, n.d.) with a population of 4,177 and an acceptable error margin of 0.05, the calculations showed that the sample required was 365 samples. However, to ensure the reliability of the analysis and anticipate the possibility of samples that could not be analyzed, the number was increased to 415. These measures are taken to ensure that a sufficiently large sample remains awake, as well as anticipate possible data loss or non-representation that may occur during the analysis.

The questionnaire is written in Indonesian according to variable items and dimensions. Then the questionnaire was distributed with google forms via WhatsApp. Samples are taken precisely from a population that can really represent the population. This is done to reduce the likelihood of common method bias (Podsakoff et al., 2003). Given the level of organizational public analysis we did, we did a thorough search in our sample to find duplicate responses from the same person. We have also obtained demographic information from respondents and their organizations.

3.3 Data collection procedures

The primary data used in this study is primary Data taken from the results of the questionnaire distributed and has been filled in by the respondents themselves. The questionnaire is distributed through the google form (*https://forms.gle/wVh9UZSefmZfBJbbA*)(Google Form, 2023) It is divided into two parts: respondent demographics and research questions. The research questions consist of four

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(four) research variables: internal control system, transformational leadership, innovation and organizational performance. For internal control systems questions we group them based on monitoring, information and communication, control activity, risk assessment, activity and control environment.

3.4 Data Analysis Techniques

The analysis technique uses smartPLS 3.3 software with a partial Least Square data analysis system that runs to model the relationship between variables by looking for meaningful relationship patterns through structural assessment and measurement.

4 DISCOURSE AND RESULTS

The two main parts of the data analysis in this study include the Internal Model Test and the Outer Model Test. The Measurement Model Test involves aspects such as Convergent Validity, Discriminant validity (Cross Loading), Average Variance Extracted (AVE), Fornell Larcker Test, and Reliability Test. From the Convergence validity test results, it appears that all indicators associated with the variables Internal Control System (X1), Organizational Performance (Y1) and Transformational Leadership (Z1), Innovation (Z2), (Y1), and have required convergent validity because they have factor loading values that exceed the 0.60 threshold. It suggests that there are no indicators that need to be eliminated from the analysis. The diagram showing the results can be seen below.

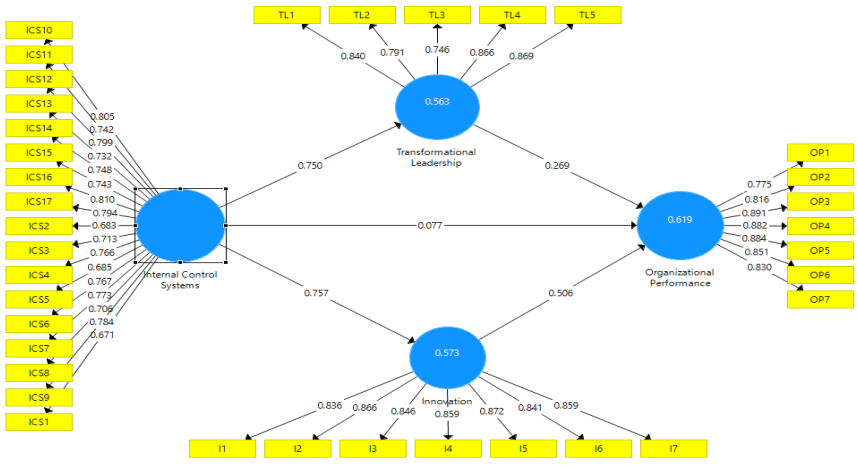

Figure 2. PLSAlgorithm data processing result

Discriminant Validity, reviewed from Cross Loading scores, indicates that each of the latent variables in this study has met the criteria of Discriminants validity. It is proved by the greatest value of any construction, exceeding the value of other indicators available. In the analysis of Discriminant Validity, the method used is any structure with a correlation between other structures in the model compared to the value Square of Average Extracted (AVE), so the conclusion is that each structure shows a good discriminatory validity.

4.1 Average Variance Extracted (AVE)

Meanwhile, the Average Variance Extracted (AVE) describes that each variable has an Averages Variance Extracts score greater than 0.5 (AVE > 0.5). Based on the measurements, it can be concluded that the problem with Convergent Validity in the model being tested does not exist.

Table 1. Average Variance Extracted (AVE)

	Average Variance Extracted (AVE)
Internal Control Systems	0.562
Innovation	0.730
Transformational Leadership	0.719
Organizational Performance	0.679

Primary data processed using smartPLS 3, 2023.

4.2 Fornell-Larcker Criterion

Based on the analysis from table 2, it can be concluded that each structure in the model has a higher degree of variance in its own indicator than the relationship between the main structure and the other structure. Thus, the structures estimated in this model meet the criteria of the Fornell-Larcker test because the Average Variance Extracted (AVE) value indicates a strong discriminatory validity between these structures.

Table 2. Fornell-Larcker Criterion

	Innovation	Internal Control Systems	Transformational Leadership	Organizational Performance
Innovation	0.854			
Internal Control Systems	0.757	0.750		

Transformational Leadership	0.756	0.662	0.848	
Organizational Performance	0.713	0.750	0.687	0.824

Primary data processed using smartPLS 3, 2023.

4.3 Reabilitas Reliability Test

After a reliability analysis can be seen composite reliability values and Cronbach's alpha latent variables as a whole, it can be stated that the entire late variable shows a value that meets expectations and is satisfying, above 0.60 (Chin, n.d.). From these results, it can be concluded that the questionnaire used as a research tool showed a high degree of reliability and consistency in measuring the observed latent variables.

Table 3. Composite Reliability dan Cronbach's Alpha

	Composite Reliability	**Cronbach's Alpha**
Innovation	0.950	0.938
Internal Control Systems	0.956	0.951
Transformational Leadership	0.913	0.881
Organizational Performance	0.947	0.934

Primary data processed using smartPLS 3, 2023.

4.4 Bootstrapping Test

In the analysis of structural model testing with the PLS (Partial Least Squares) approach, a Bootstrapping test was conducted to evaluate the relationship between variables Internal Control Systems (ICS), Transformational Leadership (TL), Innovation, Organizational Performance (OP). Bootstrapping results are used to test the research hypothesis, showing the significance level of the R-Square (R) as a measure of how much the endogenous variable is affected by other variables, and the path coefficient as an indicator of how strong the influence of the independent variable is on the dependent variable. Significance assessment in PLS uses the Bootstrapping method to evaluate relationships between variables, displaying results that indicate the degree of reliability of the results of the structural analysis performed.

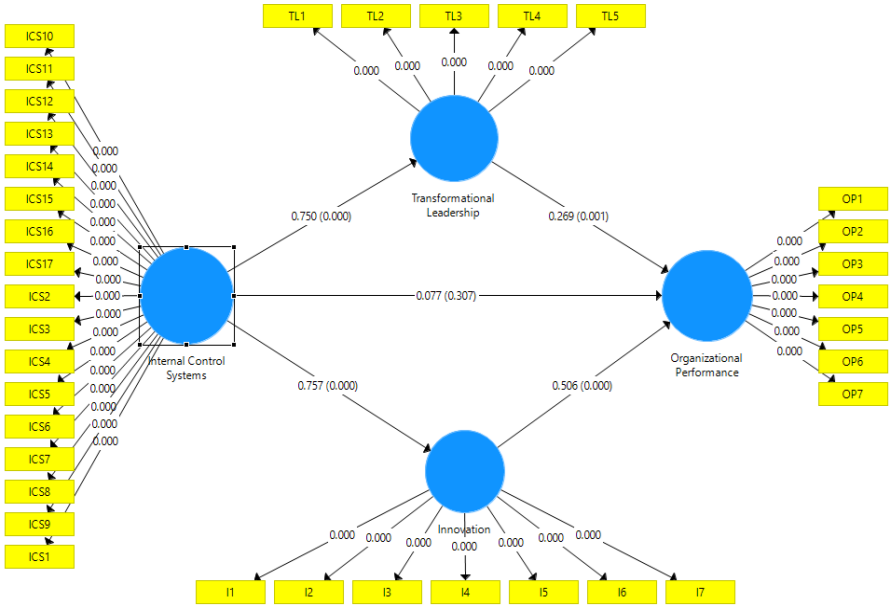

Figure 2. Bootstrapping Test

The results of the Bootstrapping process are used to test the research hypothesis. The Bootstrapping graph gives an overview of the significance of the R-square (R) and path coefficients. R-Square(R) serves as a metric to assess how much an endogenous variable is affected by another variable.

4.5 R-Square Results

Collectively, the value of the R Square impact on Innovation is 0.573 with an adjusted r square score of 0.572. Then the entire exogenous structure collectively affects the Innovation of 0.572 or 57.2%. Since the Adjusted R Square is between 50% and 75% then the impact of the whole exogenic structure on innovation is categorized as moderate (Sarstedt et al., 2017). The R Square value collectively affects TL with a score of 0.563 with an adjusted r square value of 0.562. It can then be concluded that the entire exogenous structure collectivly affects the TL with the value of 0.562 or 56.2%. Since Adjusted R Square is between 50% to 75% then the overall impact of exogenous constructions on TL is in the moderate category (Sarstedt et al., 2017). While the R Square value that simultaneously affects exogenous constructions, Innovation and TL against OP is 0.619 with an adjusted r square score of 0.616. Then the entire exogenic construction, innovation and TL together affects OP about 0.616 or 61.6%. Since Adjusted R Square values are between 50% to 75%

then OP is affected by all exogenous constructions, Innovation and TL moderately (Sarstedt et al., 2017).

Table 4. R-Square

	R-Square	R-Square Adjusted
Innovation	0.573	0.572
Organizational Performance (OP)	0.619	0.616
Transformational Leadership (TL)	0.563	0.562

Primary data processed using smartPLS 3, 2023.

4.6 F-Square

The ICS F-Square value against OP has a value of 0.005 is considered to have no significant effect, or can be ignored, as it is less than the 0.02 threshold (Sarstedt et al., 2017). The impact of TL on Organizational Performance with a value of 0.073, concluded as a minor effect, given that the value is less than the 0.15 threshold (Sarstedt et al., 2017). While the impact of Innovation on OP, with a value of 0.255, is considered to have a moderate effect as it is in the range of 0.15 to 0.35 (Sarstedt et al., 2017). Furthermore, ICS is known to have a major impact on Innovation and TL, with values of 1.341 and 1.288 each well above the 0.35 threshold. (Kwong & Wong, 2015; Sarstedt et al., 2017). These results show that ICS has a considerable impact on Innovation and TL in the context of organizational performance, making it an important factor in improving efficiency and innovation in an organization.

Table 5. F-Square

	Innovation	(ICS)	(OP)	(TL)
Innovation			0.255	
Internal Control Systems (ICS)	1.341		0.005	1.288
Organizational Performance (OP)				
Transformational Leadership (TL)			0.073	

Primary data processed using smartPLS 3, 2023.

4.7 Hypothesis Test

Hypothesis testing using bootstrapping methods is carried out to obtain path coefficients and evaluate the results of the entire research hypothesis. If the statistical T value exceeds the threshold of 1.96 or the P-value is below 0.05, then it can be stated that

the result has statistical significance, in accordance with the guidelines presented in the study by Hair et al., 2011).

Based on the results in table 6, the variable relationship found in the study is as follows: (H1) ICS has a positive influence on TL because of statistical T 23.114 and P value 0,000 and the results are relevant to previous studies (Bass & Avolio, 1990; Li et al., 2006; Park et al., 2017). (H2) ICS has a very positive influence on Innovation because of T statistics 22,269 and P value 0,000 and its research results are very relevant to previous research (Bloch & Bugge, 2013; Freeman & Engel, 2007b; Shen et al., 2020). (H3) TL positively affects OP because of T statistics 3,489 and P value 0,001 and the results are relevant to previous studies (Bass & Avolio, 1990; Shanker et al., 2017). (H4) Innovation has a positive impact on OP because of T statistics 6,293 and P value 0,000 and the research results are in line with previous research (Freeman & Engel, 2007b; Hoai et al., 2022; Shen et al., 2020; Vassallo et al., 2023). (H5) ICS has a negative impact on OP because T statistics 1,023 and P value 0.307 and the results of the study are not in conflict with previous studies (Aziz et al., 2015; Maria et al., 2017; Peltier-Rivest, 2018).

The result of the TL hypothesis as a mediation is (H6) ICS has a positive influence on OP because T statistics 3,234 and P value 0,001 and the results are relevant to previous studies (Bass & Avolio, 1990; Nguni et al., 2006; Shamir & Howell, 2018). Innovation as mediation (H7) ICS has a positive impact on OP because of T statistics 6.103 and P value 0,000 which means the results of the research are in line with previous research (Damanpour et al., 2009; Demircioglu & Audretsch, 2019b; Wettenhall & Aulich, 2009).

Table 6. Path Coefficients

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/SDEV)	P Values
Innovation > Organizational Performance	0.506	0.507	0.080	6.293	0.000
Internal Control Systems > Innovation	0.757	0.761	0.034	22.269	0.000
Internal Control Systems > Organizational Performance	0.077	0.069	0.076	1.023	0.307

Internal Control Systems > Transformational Leadership	0.750	0.752	0.032	23.114	0.000
Transformational Leadership > Organizational Performance	0.269	0.276	0.077	3.489	0.001

Primary data processed using smartPLS 3, 2023

Table 7. Specific Indirect Effects

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/SDEV)	P Values
Internal Control Systems > Innovation > Organizational Performance	0.383	0.387	0.063	6.103	0.000
Internal Control Systems > Transformational Leadership > Organizational Performance	0.202	0.199	0.062	3.234	0.001

Primary data processed using smartPLS 3, 2023

5. CONCLUSIONS AND SUGGESTIONS

In this study, there are five direct relationships that all the hypotheses are accepted: Innovation to Organization Performance, Internal Control Systems to Innovation, internal control Systems to Organizational Performance, internal control systems to Transformational Leadeship, and Transformational Leadership to Organizational Performance. Although the direct relationship between Internal Control Systems and Organizational Performance has a negative influence, the hypothesis is consistent with previous research.

Then there are two indirect relationships, namely the relationship between Internal Control Systems and Organizational Performance mediated by Innovation and the relation between internal control systems and organizational performance Mediated by

Transformational Leadership. All the hypotheses are also accepted and relevant to previous research.

The direct application of this research as a reference for all leadership decisions in public sector organizations in managing human resource management practices and equipment from all aspects to improve organizational performance. Theoretically, the benefits of this research can explain the factors that have a positive influence on organizational performance, so that public sector organizations can adapt and balance the demands of accelerated service to the public. The world will continue to evolve rapidly, so the demands of the research needs will also continue to be required to adjust to the requirements of modernization and global competitiveness.

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