"Local government competitiveness analysis using the perspective of organizational excellence: Evidence from Indonesia"

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LOCAL GOVERNMENT COMPETITIVENESS ANALYSIS USING THE PERSPECTIVE OF ORGANIZATIONAL EXCELLENCE: EVIDENCE FROM INDONESIA

Abstract

Local government competitiveness is an intriguing contemporary issue that has not been discussed extensively in prior studies on the evolution of the structure and scope of government. This study aims to explore how local government management processes can enhance regional competitiveness for the benefit of citizens. Using an analytical hierarchy of paired comparisons and indicator aggregation, this study analyzes several components of the local government managerial process by quantifying the degree of importance of each component. Data were collected from 38 regions in Indonesia and 34 government experts. The results of the analysis show that there are three components of the local government managerial process that contribute significantly to regional competitiveness: the quality of customer/citizen management with an eigenvector value of 0.187, strategic planning with an eigenvector value of 0.169, and the effectiveness of the integrity system with an eigenvector value of 0.136. Other results show that the resultant eigenvector values for other components are less than 0.100 or 10%, so these components are not classified as strong. Furthermore, the p-value of the intercoder reliability test using the t-test was greater than the significance level of 0.05, implying that there was no difference between the test results of the first and second expert groups. This study concludes that customer/citizen satisfaction with government products and services, the effectiveness of strategic planning that focuses on socio-economic development, and legal and ethical compliance of organizational actors are the primary determinants of enhancing regional competitiveness.

INTRODUCTION

Since the passage of Law 22/1999, there has been autonomous local government management in Indonesia. Autonomous regional administration requires local governments to manage all regional concerns independently of the central authority. Consequently, each region will compete with another to gain citizen legitimacy. Unfortunately, the regional management policy prioritizes physical infrastructure development over community well-being. Due to a lack of citizen welfare funds, the quality of local government services to the community suffers (Skoufias & Olivieri, 2013). There are also various financial irregularities in regional physical infrastructure development. The high frequency of financial infractions suggests that regional financial management favors the interests of perpetrators of government organizations over the interests of citizens (Aziz et al., 2015). This phenomenon suggests that the execution of regional management strategies is not in line with the goals of regional autonomy, namely improving the competitiveness of local governments.

1. LITERATURE REVIEW

In past research, the concept of the competitiveness of public institutions has become an intriguing topic of discussion on a global scale. A study conducted in the United States attempted to assess the managerial quality of municipal government organizations by altering Malcolm Baldrige's version of the organizational excellence measurement (OEM) model (Prybutok et al., 2011). This study implies that researchers are trying to establish competition among municipal governments in the United States. In the case of Australia, public organizations are obligated to deliver services that are dialogical, relational, and outreach-oriented (Rana & Hoque, 2020). According to this study, organizational competitiveness has become a public demand in Australia. This suggests that creating competition among organizations is the preferred way for improving public sector performance. Similarly, in Indonesia, the central government announced a policy of regional management autonomy to encourage competition among regional administrations.

This study examines the managerial processes of local government using a set of organizational excellence measuring variables integrated into OEMs. Conceptually, OEM was first introduced by the United States Department of Commerce in the Malcolm Baldrige National Quality Award (MBNQA) in 1987 (Flynn & Saladin, 2006). The program intends to honor businesses with the highest quality organizational management. Consequently, OEM essentially increases the competitiveness of businesses. OEM has been adopted in public sector organizations throughout its development. Previous studies have showed that OEM is suited for municipal government organizations because it gives organizational actors with a better grasp of managerial processes (Prybutok et al., 2011). Meanwhile, Rochmatullah et al. (2022) explained that proper OEM deployment can enhance government-owned firms' productivity and competitiveness.

OEM is an organizational performance quality measurement system that integrates the measurement of managerial process quality and organizational operational accomplishments (Thompson & Blazey, 2017). Lazaros et al. (2017) state than

OEM promotes a knowledge of the need for excellence, instills trust that quality improves competitiveness, and enhances product or service quality through innovation. OEM focuses on seven components of the managerial process, including the leadership process, strategic planning, customer/citizen management, data, information, and knowledge management, human resource management, production and operation processes, and operating results (NIST, 2019a, 2019b).

In the perspective of public sector accounting, organizational accountability is the social interaction between customers/citizens and organizations, whereby the organization is required to perform in accordance with the demands or expectations of customers/citizens (Dubnick & Frederickson, 2011). To achieve an accountable management of the organization, the community has the right to be involved in the managerial process of the organization and oversee the performance of the organization (Roosbroek & Dooren, 2010; Schatteman & Charbonneau, 2010). In Indonesia, local government management is unaccountable due to corrupt officials and staff (Yurniwati & Rizaldi, 2015; Alfada, 2019; Berenschot & Mulder, 2019; Sayer et al., 2020; Lewis et al., 2020). This indicates that the seven components in the OEM have not been able to reflect the organizational management accountability. Therefore, this study incorporates an integrity system and internal control system to OEM for local governments as indicators of ethical and legal behavior of organizational actors.

The autonomy of organizational leaders has a substantial effect on the effectiveness of the entire organizational process (Setiawan & Barrett, 2016; Dimyati et al., 2021). This has been proven in several previous studies, which show that the leader's wisdom in fostering self-confidence, innovation, and adaptability of employees is a key factor for organizational progress (Meyer & Collier, 2001; Flynn & Saladin, 2006). In the concept of organizational excellence, Mellat-Parast (2015) revealed that the leadership criterion is the main driver of the OEM because it has a significant influence on other criteria. Meanwhile, the leader's capability in managing the organization is strongly supported by the effectiveness of the organization's strategic planning. Abdulla-Badri et al. (2006)

revealed that the capability of the leadership and all employees in developing strategic planning that emphasizes quality is a key factor for organizational success. Effective strategic planning can improve the quality of an organization's operating processes because it integrates total quality management (TQM) into the plan of the organization (Srivivatanakul & Kleiner, 1996). Based on the explanation described above, it can be concluded that the quality of leadership has a tight relationship with the competitiveness of an organization.

Previous studies show that quality of customer/citizen management is the most important aspect in OEM (Pannirselvam & Ferguson, 2001). Besides, several previous studies explained customer/citizen participation in business decision-making enhances loyalty and maintains competitive advantage and company reputation (Saeidi et al., 2015; Xie et al., 2017; Ting et al., 2021). Based on the above argument, it is completely obvious that quality customer management promotes an organization's competitiveness.

Expanding government IT infrastructure improves data, information, and knowledge management, organizational performance, and competitiveness (Rokhim et al., 2017; Budi et al., 2020). In particular, the adoption of cutting-edge technology will facilitate stakeholders' access to organization data and knowledge (Mohamad et al., 2017; Céspedes-Lorente et al., 2019). These four studies suggest that managing data, information, and knowledge about organizations improves data dependability, facilitates stakeholder access, and promotes organizational competitiveness.

Human resource management (HRM) quality is related to workplace excellence, innovation, and productivity (NIST, 2019a, 2019b). Therefore, employee education and training are key to efficient HRM. Education and training that adapts to technological advances and customer/citizen needs can boost the workforce's ability to innovate and foster adhocracy in the workplace (Weeks et al., 2000). Antonakas et al. (2014) found that employee integrity training affects an organization's efficiency. Thus, effective human resource management develops inventive skills, adhocracy, work ethics, and organizational competitiveness, according to the three sources above.

The quality of production and operation processes refers to the organization's efforts to meet customer/citizen preferences (Winters et al., 2014). Effectiveness of government management depends on cooperation with other sectors, finance, and control (Santoso, 2015; Petrushenko et al., 2021). Thus, increasing organizational competitiveness is related to managerial skills in recognizing customer/citizen demands, expanding cooperation networks with various sectors, allocating sufficient funding, and adequate quality control.

Internal control systems (ICS) are a set of principles and processes designed to ensure operation efficiency, financial reporting reliability, and compliance with laws and regulations (Ayagre, 2018). Effective SPI assures the correctness and reliability of organization data and information, compliance with policies, plans, procedures, standards, and regulations, asset protection against loss and theft, and efficacy and efficiency of economic resource utilization (Fadzil et al., 2005; Brown et al., 2014; Al-Thuneibat et al., 2015; Hajiha & Bazaz, 2016; Chen et al., 2020). Thus, effective SPI enhances organizational actors' adherence to plans, procedures, standards, and regulations, which improves data and information dependability and organizational competitiveness.

According to Said et al. (2020), an organization's integrity system (SIT) has legislated ethical values. Effective SIT promotes leaders' integrity, which supports competitive advantage (Petrick & Quinn, 2001). Effective SIT is linked to organizational competitiveness in Indonesia, according to Lukito (2016). Zarghamifard and Danaeefard (2020) found that SIT promotes organizational actor personality improvements such altruism, organizational-based self-esteem, decreasing machiavellianism, fairness in HR management, and transparency. Four studies demonstrate that an effective SIT increases organizational actors' ethical behavior, which improves Production and Operation processes, stakeholder relationships, and competitiveness.

The objective of this study is to examine how local government managerial processes enhance citizen wellbeing in order to increase regional competitiveness.

2. METHOD

This study uses a quantitative approach to data analysis. This study generates nine organizational excellence variables from several literatures, including: Standards for measuring organizational excellence (NIST, 2019a, 2019b); international internal audit standards (IIA, 2009; 2013), and previous studies (Prybutok et al., 2011; Rosli et al., 2015). Therefore, this study uses secondary data to validate the nine variables by examining their conformity with local government operations. The validity test aims to ensure that the variables used and the measured object of study are compatible (Sudjana, 1996). The secondary data were collected from the performance reports of 38 Indonesian local governments, as well as the appropriate laws and regulations. Meanwhile, primary data were acquired by the distribution of paired comparison questionnaires between variables to 40 government experts. To collect primary data, a sample of respondents was chosen on purpose based on specific criteria (Ghozali, 2011). This study establishes two criteria: 1) experts having more than 20 years of experience as local government consultants or auditors; and 2) experts who are independent or not directly involved in local government organizational processes. This is intended to ensure that respondents comprehend the extent of the local government and its operational activities. Primary data is used to determine the weighted value of each variable.

This study adopts a weighted index measurement method (Al-khalialeh & Al-Omari, 2004; Mai, 2015; Perez-Barea et al., 2018; Rabby et al., 2019; Nigro & Cisaro, 2020), that is implemented using the analytical hierarchy of paired comparisons approach and indicator aggregation (AHP) on a regular basis to determine the weight value of each variable (Saaty, 1990, 1994, 1998; Partovi et al., 1990; Finnie et al., 1993; Dey, 2002; Hambali et al., 2009; Kou et al., 2013; Dolge et al., 2020; Edmonds et al., 2020; Bulut, 2020). Each component's weight is determined by the eigenvector value ($\varkappa$) obtained from the AHP calculation. This means that the value of $\varkappa$ represents the extent of support for regional competitiveness provided by the management process components of the regional administration. Examining local government regulatory documents and performance reports is used to

validate each component in this study. The validity test in research ensures alignment between test signs and measured objects (Sudjana, 1996; Arikunto, 2006; Creswell, 2009).

$$\lambda_n = \frac{i_n}{\sum x_n}, \tag{1}$$

$$\varkappa_n = \frac{\sum_{i=1}^{n} \lambda_n}{n}. \tag{2}$$

where λ_n is the eigenvalue of the x_n variable; i_n is the x_n indicator comparison score; $\sum x_n$ is the total number of paired comparison scores; $\varkappa_n$ is the eigenvectors (the average eigenvalues of the x_n variable).

λ reflects one variable (x) characteristic values relative to others (x$_{1, 2, \dots n}$), whereas $\varkappa$ represents their weights (Saaty, 1990, 1994, 2008; Kou et al., 2013). The value of $\varkappa$ is obtained by normalizing the λ values of each variable (x$_{1, 2, \dots n}$). Normalization is conducted with the averaging the λ values. The value of $\varkappa$ indicates the weighted value that can be used as a parameter of priority ranking for each variable (x$_{1, 2, \dots n}$). Formulas (1) and (2) show the calculation of λ and $\varkappa$ values (Source: Kou et al. (2013) processed).

The AHP method is equipped with a calculation of the consistency ratio (CR) to see the level of consistency of the questionnaire responses by the experts. If the CR value is < 0.10, then the expert responses are declared consistent (Saaty, 1990, 1994, 2008; Kou et al., 2013; Moussaoui et al., 2018; Unver & Ergence, 2021). The CR calculation is shown in Formulas (3), (4) and (5) (Source: Kou et al. (2013) processed).

$$CR = \frac{CI}{RI} < 0.1, \tag{3}$$

$$CI\left(Consistency\ Index\right) = \frac{\left(\lambda\max - n\right)}{\left(n-1\right)}, \tag{4}$$

$$\lambda\max = \begin{pmatrix} i1_1 & \cdots & i1_n \\ \vdots & \ddots & \vdots \\ in_1 & \cdots & in_n \end{pmatrix} \begin{pmatrix} \grave{u}_1 \\ \vdots \\ \grave{u}_n \end{pmatrix}. \tag{5}$$

where λmax (Eigen maximum) is obtained from the multiplication of the positive matrix between

the pairwise comparison score of indicators (x) and Eigenvector ($\varkappa$) (Saaty, 1990; Aupetit & Genest, 1993); Random Index Consistency (RI) for 9 variables is 1.45 (Kou et al., 2013).

To verify the trustworthiness of the analysis results, an inter-coder reliability test was performed in this study. The inter-coder reliability test seeks to reduce the researchers' irrational bias (Campbell et al., 2013; Budiastuti & Bandur, 2018). Since it is based on established theory presumptions, namely comparisons between several coders, the inter-coder reliability test is preferred (Hughes & Garrett, 1990). The inter-coder reliability test verifies that first and second coder results are consistent. The mean difference test (t-test), which was used to judge the accuracy of the experts' responses, is calculated as shown in Formula (6).

$$t = \frac{\mu_1 + \mu_2}{\sqrt{\dfrac{(n_1 - 1) S_1^2 + (n_2 - 1) S_1^2}{n_1 + n_2 - 2}}} \left(\frac{1}{n_1} + \frac{1}{n_2} \right). \quad (6)$$

where t is t-value; μ_1 is the mean value of the first expert group; μ_2 is the mean value of the second expert group; n is total of all data used; n_1 is the number of experts at the first measurement; n_2 is the number of experts at the second measurement, and S is Standard deviation.

3. RESULTS AND DISCUSSIONS

This study validates nine organizational excellence variables using 38 local government performance report documents and appropriate Indonesian laws and regulations. The results of the validation test reveal that the nine organizational excellence variables used in this study can be proven in these documents. These results indicate that the nine variables can be declared valid. All data sets used in this study, as well as the results of the validity test, are accessible in a repository at https://data.mendeley.com/datasets/3n28ys3j25.

Based on predetermined sample selection variables, this study obtained 40 appropriate government experts. However, the six expert responses were inconsistent, as indicated by a consistency ratio (CR) below 0.1. Thus, this study analyzes 34

expert responses. Table 1 shows the sample of experts used in this study.

Table 2 illustrates the summary of the eigenvector ($\varkappa$) computation results, as well as the intercoder reliability test results. Each variable's weighted value is represented by the value of $\varkappa$. The calculation results indicate that the customer/citizen management quality (C.3) variable has the highest weighted value of 0.187. This result is in line with the most serious problem in regional management: local governments are overly ambitious in inter-regional competition, which leads to excessive physical infrastructure development; on the other hand, the products and services produced do not reflect community preferences (Lu, 2010; Skoufias & Olivieri, 2013). Meanwhile, the strategic planning variable (C.2) placed second with a weighted value of 0.169, implying that improvements in the preparation and implementation of strategic planning are the second priority to increase the competitiveness of local governments. This confirms the findings of several previous studies, which show that government organizations are still unaware of the importance of quality, which has an impact on regions' inability to conduct e-procurement (Nurmandi & Kim, 2015); poor financial management (Nor et al., 2019); and the inability of organizational actors to implement the latest information technology-based regional budgeting and reporting systems (Harun et al., 2020).

Table 1. Distribution of questionnaires based on expertise

No.	Expertise	n*	CR < 0.1**	Σ
1	Regional Development Planning	6	3	9
2	Government Audit	5	–	5
3	Public Sector Accounting	7	2	9
4	Social Policy	1	–	1
5	Government Information System	2	1	3
6	Urban and Regional Planning	2	–	2
7	Environmental Health	2	–	2
8	Public Policy	3	–	3
9	Community Development	5	–	5
10	Human Resource Development	1	–	1
	Total	34	6	40

*Note: * questionnaire used in this study; ** inconsistent.*

Furthermore, the weighted value of the integrity system variables (C.9) is ranked third with a priority weight of 0.136. This finding indicates that the

Table 2. Eigenvector and reliability calculation results

Variables*	Eigenvector	Intercoder reliability			Conclusion
		t-value	Mean difference	Std. error difference	
C.1	0,109	1.554	0.025	0.045	Reliable
C.2	0,169	1.608	-0.035	0.022	Reliable
C.3	0,187	3.662	-0.113	0.031	Reliable
C.4	0,099	1.834	0.042	0.023	Reliable
C.5	0,060	1.535	0.022	0.014	Reliable
C.6	0,050	4.356	0.024	0.005	Reliable
C.7	0,079	3.283	0.032	0.010	Reliable
C.8	0,111	1.051	0.001	0.014	Reliable
C.9	0,136	1.143	0.003	0.022	Reliable

Note: * the variables: Leadership Quality (C.1); Strategic Planning Effectiveness (C.2); Customer/Citizen Management Quality (C.3); Data, Information and Knowledge Management Quality (C.4); Human Resources Management Quality (C.5); Production and Operation Processes Quality (C.6); Operational Results Quality (C.7); Internal Control System Effectiveness (C.8); Integrity System Effectiveness (C.9); and t-distribution is 0.930, two-tailed.

local government needs to improve the integrity system that can control the ethical behavior and legal compliance of the leaders and staff of the organization. Corruption scandals involving government officials and staff revealed ethical problems in local government management (Lu, 2010; Firman, 2010; Aziz et al., 2015; Diliani & Susanti, 2015; Lukito, 2016; Isra et al., 2017; Prabowo et al., 2017; Prasojo & Holidin, 2018; Sihombing, 2018; Lewis & Hendrawan, 2019; Alfada, 2019; Berenschot & Mulder, 2019; Sayer et al., 2020; Lewis et al., 2020).

The results of the intercoder reliability test are also shown in Table 2 (t-test). The test results indicate that the t-value of each variable exceeds the two-tailed t-distribution, 0.930. These results indicate that the tests administered to the first and second expert groups yield identical results (consistent).

Recent studies on organizational competitiveness have discovered that several factors influence organizational competitiveness, including: Institutional capacity building, business behavior, integrating the global production chain, gaining access to global financial resources, digital connectivity to the globe, and business communication (Soltani et al., 2021); Dynamical productivity levels (Chikán et al., 2022); growth in the consumer price index (Prasada et al., 2022); welfare system mechanisms (Hajighasemi et al., 2022); and cost leadership approach (Gómez et al., 2022). Meanwhile, this study finds that the quality of customer management, the efficacy of

strategic planning, and the effectiveness of the integrity system are the three most important factors that contribute to the enhancement of organizational competitiveness. This study has uncovered new evidence that the effectiveness of the integrity system is closely related to the competitiveness of the organization, as demonstrated by these results.

The results of this study appear to be relevant to the problems faced by government organizations in various countries. Goddard et al. (2016) demonstrate that the managerial process of government institutions in Tanzania is plagued by corrupt officials and staff. In Benin, the highest audit authority was unable to control corruption in post-independence government agencies in 1960, according to the study (Lassou et al., 2021). Local government planning in China is unable to manage land usage for construction and food self-sufficiency, with serious consequences for food security (Wang et al., 2020). Local governments in Bangladesh, according to a study by Mamun and Chowdhury (2022), are inefficient in their handling of financial matters. These four studies reveal that corruption among organizational actors, erroneous strategic planning in socio-economic development, and careless financial management are widespread problems for governmental organizations worldwide. Consequently, this study recommends academics and researchers around the world to conduct research on the competitiveness of government organizations by incorporating integrity systems into the analysis process.

CONCLUSION

This study explores the competitiveness of local government entities in Indonesia. This study provides evidence that promoting competition among government organizations is a viable alternative to improving organizational management quality. This strategy encourages citizens to evaluate the management quality of government organizations and lends legitimacy to organizations with best practices. As a result, every governmental organization will endeavor to improve the quality of managerial processes in order to strengthen its competitiveness.

This study discovered three significant factors that contribute to the enhancement of local government competitiveness. First, quality products and services are a major priority that must be fulfilled to increase the competitiveness of local governments. Citizen satisfaction with local government products and services leads to an increase in organizational value. Second, strategic planning that focuses on citizens' socio-economic development encourages local governments to become more competitive. An essential global indicator of economic growth in a region is an improvement in the health, education, and social sectors of the population. Consequently, the budgeting system of the regional administration must prioritize development in these three areas. Third, the effectiveness of the integrity system in managing government organizations is an essential requirement for local government projects. An effective integrity system encourages organizational actors to operate legally and ethically in performing their duties and responsibilities. This system emphasizes human governance in organizational management. These findings contribute novel insights to the literature on strategic management in the public sector. Finally, this study concludes that the aforementioned three factors are the most influential in enhancing the competitiveness of local administrations.

AUTHOR CONTRIBUTIONS

Conceptualization: Mahameru Rosy Rochmatullah, Ratna Wijayanti Daniar Paramita.
Data curation: Mahameru Rosy Rochmatullah, Rahmawati.
Formal analysis: Mahameru Rosy Rochmatullah, Nurul Badriyah.
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Methodology: Mahameru Rosy Rochmatullah, Agung Nur Probohudono, Rahmawati, Nurul Badriyah.
Project administration: Agung Nur Probohudono.
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Writing – review & editing: Mahameru Rosy Rochmatullah, Agung Nur Probohudono, Rahmawati, Nurul Badriyah.

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APPENDIX A. Pairwise Comparison Matrix results

Table A1. Analysis results

Experts (R)	Eigenvector (ϰ)									CI**	CR***
Variables*	C.1	C.2	C.3	C.4	C.5	C.6	C.7	C.8	C.9		
R 3	0.052	0.116	0.250	0.101	0.031	0.046	0.092	0.132	0.178	0.132	0.091
R 4	0.221	0.164	0.120	0.052	0.092	0.040	0.076	0.110	0.125	0.090	0.062
R 5	0.052	0.116	0.250	0.097	0.033	0.046	0.097	0.132	0.178	0.140	0.097
R 6	0.071	0.176	0.131	0.068	0.033	0.061	0.077	0.152	0.230	0.139	0.096
R 7	0.108	0.173	0.196	0.135	0.053	0.047	0.075	0.084	0.130	0.115	0.079
R 8	0.165	0.202	0.140	0.052	0.094	0.040	0.075	0.109	0.124	0.121	0.084
R 9	0.122	0.206	0.157	0.055	0.094	0.041	0.075	0.117	0.134	0.135	0.093
R 10	0.029	0.110	0.244	0.107	0.045	0.059	0.088	0.132	0.187	0.098	0.068
R 11	0.101	0.208	0.187	0.133	0.050	0.038	0.074	0.083	0.126	0.113	0.078
R 12	0.170	0.183	0.127	0.057	0.094	0.045	0.080	0.114	0.131	0.075	0.051
R 13	0.032	0.237	0.146	0.206	0.081	0.051	0.060	0.088	0.101	0.104	0.072
R 14	0.209	0.160	0.122	0.066	0.080	0.054	0.080	0.107	0.122	0.068	0.047
R 15	0.055	0.109	0.242	0.105	0.036	0.049	0.096	0.136	0.171	0.135	0.093
R 17	0.100	0.175	0.209	0.147	0.044	0.052	0.070	0.069	0.134	0.126	0.087
R 18	0.224	0.154	0.122	0.061	0.079	0.049	0.079	0.105	0.125	0.118	0.082
R 19	0.299	0.162	0.096	0.153	0.056	0.040	0.047	0.068	0.079	0.142	0.098
R 20	0.033	0.153	0.290	0.144	0.050	0.059	0.066	0.084	0.122	0.059	0.041
R 21	0.040	0.189	0.168	0.075	0.090	0.065	0.104	0.124	0.143	0.130	0.090
R 22	0.051	0.210	0.189	0.144	0.072	0.038	0.070	0.103	0.123	0.108	0.074
R 23	0.018	0.245	0.181	0.121	0.078	0.081	0.070	0.097	0.110	0.070	0.048
R 26	0.245	0.153	0.189	0.046	0.043	0.048	0.079	0.092	0.105	0.096	0.066
R 28	0.029	0.186	0.246	0.092	0.078	0.052	0.060	0.145	0.111	0.138	0.095
R 29	0.143	0.174	0.252	0.063	0.041	0.051	0.071	0.102	0.103	0.114	0.079
R 30	0.210	0.180	0.121	0.064	0.081	0.044	0.067	0.123	0.110	0.065	0.045
R 31	0.067	0.118	0.236	0.076	0.038	0.055	0.102	0.138	0.169	0.135	0.093
R 32	0.046	0.197	0.145	0.068	0.106	0.055	0.097	0.133	0.153	0.142	0.098
R 33	0.100	0.236	0.187	0.150	0.049	0.038	0.054	0.082	0.104	0.104	0.071
R 34	0.063	0.164	0.239	0.146	0.035	0.047	0.079	0.109	0.117	0.101	0.070
R 35	0.231	0.160	0.134	0.088	0.044	0.050	0.066	0.121	0.106	0.116	0.080
R 36	0.066	0.171	0.193	0.141	0.048	0.065	0.127	0.089	0.102	0.134	0.092
R 37	0.070	0.183	0.133	0.059	0.034	0.061	0.080	0.147	0.232	0.101	0.069
R 38	0.165	0.157	0.208	0.110	0.096	0.047	0.058	0.071	0.089	0.071	0.049
R 39	0.052	0.107	0.252	0.098	0.033	0.048	0.098	0.134	0.179	0.119	0.082
R 40	0.055	0.109	0.242	0.105	0.036	0.049	0.096	0.136	0.171	0.107	0.074
μ	0.109	0.169[2]	0.187[1]	0.099	0.060	0.050	0.079	0.111	0.136[3]	0.111	0.076

Note: * The variables consist of: Leadership (C.1), Strategic Planning (C.2), Customer/Citizen Management (C.3), Data, Information and Knowledge Management (C.4), Human Resources Management (C.5), production and Operation Processes (C.6), Operational Results (C.7), Internal Control System Effectiveness (C.8), and Integrity System Effectiveness (C.9); ** CI (Consistency Index); *** CR (Consistency Ratio); RI (Random Index) for 9 indicators is 1.45. Signs 1, 2, and 3 show the ranking of variables based on their weight.

APPENDIX B. Questionnaire and scale

Table B1. Question 1: Leadership quality

No.	Variable A	Choose which of the variable A or B is more important, then mark (x) in the appropriate column of the scale.																		Variable B
		Score of 9 scales									Score of 9 scales									
		9	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8	9	
1	Leadership Quality	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Strategic Planning Effectiveness
2	Leadership Quality	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Customer/Citizen Management Quality
3	Leadership Quality	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Data, Information and Knowledge Management Quality
4	Leadership Quality	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Human Resources Management Quality
5	Leadership Quality	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Production and Operation Processes Quality
6	Leadership Quality	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Operational Results Quality
7	Leadership Quality	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Integrity System Effectiveness
8	Leadership Quality	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Internal Control System Effectiveness

Table B2. Question 2: Strategic planning effectiveness

No.	Variable A	Choose which of the variable A or B is more important, then mark (x) in the appropriate column of the scale.																		Variable B
		Score of 9 scales									Score of 9 scales									
		9	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8	9	
1	Strategic Planning Effectiveness	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Customer/Citizen Management Quality
2	Strategic Planning Effectiveness	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Data, Information and Knowledge Management Quality
3	Strategic Planning Effectiveness	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Human Resources Management Quality
4	Strategic Planning Effectiveness	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Production and Operation Processes Quality
5	Strategic Planning Effectiveness	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Operational Results Quality
6	Strategic Planning Effectiveness	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Integrity System Effectiveness
7	Strategic Planning Effectiveness	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Internal Control System Effectiveness

Table B3. Question 3: Customer/citizen management quality

No.	Variable A	Choose which of the variable A or B is more important, then mark (x) in the appropriate column of the scale.																		Variable B
		Score of 9 scales									Score of 9 scales									
		9	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8	9	
1	Customer/Citizen Management Quality	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Data, Information and Knowledge Management Quality
2	Customer/Citizen Management Quality	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Human Resources Management Quality
3	Customer/Citizen Management Quality	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Production and Operation Processes Quality
4	Customer/Citizen Management Quality	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Operational Results Quality

Table B3 (cont.). Question 3: Customer/citizen management quality

No.	Variable A	Score of 9 scales									Score of 9 scales									Variable B
		9	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8	9	
5	Customer/Citizen Management Quality	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Integrity System Effectiveness
6	Customer/Citizen Management Quality	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Internal Control System Effectiveness

Table B4. Question 4: Data, information and knowledge management quality

No.	Variable A	Score of 9 scales									Score of 9 scales									Variable B
		9	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8	9	
1	Data, Information and Knowledge Management Quality	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Human Resources Management Quality
2	Data, Information and Knowledge Management Quality	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Production and Operation Processes Quality
3	Data, Information and Knowledge Management Quality	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Operational Results Quality
4	Data, Information and Knowledge Management Quality	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Integrity System Effectiveness
5	Data, Information and Knowledge Management Quality	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Internal Control System Effectiveness

Table B5. Question 5: Human resource management quality

No.	Variable A	Score of 9 scales									Score of 9 scales									Variable B
		9	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8	9	
1	Human Resources Management Quality	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Production and Operation Processes Quality
2	Human Resources Management Quality	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Operational Results Quality
3	Human Resources Management Quality	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Integrity System Effectiveness
4	Human Resources Management Quality	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Internal Control System Effectiveness

Table B6. Question 6: Production and operation processes quality

No.	Variable A	Score of 9 scales									Score of 9 scales									Variable B
		9	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8	9	
1	Production and Operation Processes Quality	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Operational Results Quality
2	Production and Operation Processes Quality	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Integrity System Effectiveness
3	Production and Operation Processes Quality	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Internal Control System Effectiveness

Table B7. Question 7: Operational results quality

No.	Variable A	Score of 9 scales									Score of 9 scales									Variable B
		9	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8	9	
1	Operational Results Quality	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Integrity System Effectiveness
2	Operational Results Quality	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Internal Control System Effectiveness

Choose which of the variable A or B is more important, then mark (x) in the appropriate column of the scale.

Table B8. Question 8: Operational results quality

No.	Variable A	Score of 9 scales									Score of 9 scales									Variable B
		9	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8	9	
1	Integrity System Effectiveness	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Internal Control System Effectiveness

Choose which of the variable A or B is more important, then mark (x) in the appropriate column of the scale.

Your comment (if any): ....
....
....

Table B9. Saaty's 9-point rating scale

Importance intensity	Definition	Explanation
1	Equal importance	Two activities contribute equally to the objective
3	Weak importance of one over another	Experience and judgment slightly favor one activity over another
5	Essential or strong importance	Experience and judgment strongly favor one activity over another
7	Demonstrated importance	Activity is strongly favored and its dominance demonstrated in practice
9	Absolute importance	The evidence favoring one activity over another is of the highest possible order of affirmation
2, 4, 6, 8	Intermediate values between the two adjacent judgments	When compromise is necessary
Reciprocals of the above non-zero	If activity i has one of the above nonzero numbers assigned to it when compared with activity j, then j has the reciprocal value when compared with i.	