

CROSS-ORGANIZATIONAL PERFORMANCE OF E-GOVERNMENT AT SURABAYA CITY IN INDONESIA

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ABSTRACT

There are tens to hundreds of cross-organizational e-Government applications at Surabaya City Government. It is necessary to conduct an in-depth study on what factors affect the system performance and consider user input as an evaluation to improve the service quality of the cross-organizational e-Government system at Surabaya City Government. This study was conducted to examine and determine the factors that influence the primary performance of the cross-organizational e-Government system, namely "Effectivity," "Efficiency," "Accountability" by considering "Technical," "Managerial/Organizational," and "Institutional/Inter-organizational" factors. Questionnaire questions use a Likert scale assessment with numbers 1 to 7. The Likert scale itself is an assessment to measure respondent perception, opinions, and characteristics towards a social phenomenon. The questionnaire has prepared then validated first to at least 30 respondents before being distributed. The respondents are employees of various levels at Surabaya City Government, East Java at Surabaya City Government. The Demographics of respondents are 18-58 years old. The educational background of the respondents is from Senior High School (SHS), Bachelor, to Postgraduate. The survey obtains 164 data from respondents offline. The data processing uses Partial Least Square (PLS) by testing the structural model (outer model) and the measurement model (inner model). The findings of this study provide suggestions for developing the performance of cross-organizational e-Government systems based on factors that have a significant influence and obtain strategic recommendations that can affect the performance of cross-organizational e-Government systems at Surabaya City Government in Indonesia. In addition, this study also provides a methodology for implementing and describing the conceptual models for further research related to an integrated cross-organizational e-Government system.

KEYWORDS

Surabaya City Government, Cross-Organizational, e-Government System, Partial Least Square

1. INTRODUCTION

Characteristics of good e-Government are to have an integrated e-Government service and being people-centered (Andersen & Henriksen, 2016). The importance of integration provides many opportunities to improve and enhance government services (Fountain, 2001). Integration can occur across departments and organizations in one government by applying information and communication technology (Kearns, 2004). Cooperation or collaboration systems cannot be separated in an organization because they can help achieve a common goal, especially in providing the best possible service to the public effectively and efficiently (Lee, et al., 2011). Performance towards effectiveness and efficiency is an important goal of cross-organizational integration (Scott, et al., 2014). Collaboration on the system has risks that may arise due to differences in work culture, environment, level of information, communication technology needs, and information needs (Agranoff & McGuire, 2003). Fiscal problems that governments must face today are the lack of performance and integration of the cooperation system between organizations (Oftelie, 2010), the lack of attention to cross-governmental system, and the lack of awareness to studies from previous studies on the topic system. Chen et al. revealed that studies conducted by previous researchers focused more on assessing the availability and variety of online e-Government service information compared to reflections on the “Efficiency” and “Effectivity” of e-Government across organizations (Chen, 2019).

The utilization of public value is essential to measure the performance of e-Government (Rose, et al., 2015). Effectiveness and efficiency are two values that consistently maintain the performance of e-Government system evaluations (Scott, et al., 2016). Public service research can include efficiency and effectiveness factors to provide meaningful value for cross-organizational e-Government system. In addition, it also focuses on accountability as a critical social value that is used as user responsibility between organizations or institutions (Chena, et al., 2019). The application of cross-organizational e-Government systems tend to focus on efficiency as an exchange of information across organizational boundaries to provide time savings and increase information accuracy compared to manual systems (MDHHS, 2016). The effectiveness of implementing information systems is measured by end-user satisfaction (Morgeson, 2011).

According to (Ramamurthy, et al., 1999), improving service quality can be a tool for effectiveness with user experience on the quality of information and the quality of the information system provided. Accountability is a complex and multidimensional concept (Koppel, 2005). The most important dimension of accountability is transparency, and the advantage of transparency is to reduce corrupt practices. The application of cross-organizational e-Government systems require transparency so that the government involved is responsible for the administrative processes of the system. According to (Rose, et al., 2015), a cross-organizational in e-Government system can be successfully implemented if the organization pays attention to the performance of the elements that are the key to the success of e-Government, including technical, managerial, and institutional factors.

There are several previous studies related to the analysis of the performance of the e-Government system, which is the reference or basis for this study. (Chen, 2019) the study entitled Cross-boundary e-Government systems: Determinants of performance aims to conduct a survey related to determining the factors that influence the performance of cross-organizational e-Government system consisting of “Technical”, “Managerial/Organizational”, and “Institutional/Inter-organizational”, each of which measured

using three main performance measures, there are “Efficiency,” “Effectivity,” and “Accountability”. A study (Bahari, 2012) analyzed the development of a Citizen Relationship Management (CiRM) implementation study which had a significant effect on the implementation of CiRM. This study answered four crucial problems for the theoretical understanding of CiRM, namely: 1) the meaning of the CiRM implementation process; 2) determining factors that can affect the CiRM implementation process; 3) appropriate approaches to investigate the CiRM implementation process; and 4) the perspective of the CiRM implementation project. Study of (Gil-Garcia, 2010) identifies a series of determinants of trust in government initiatives in sharing information on cross-organizational systems or referred to as Cross-Boundary Information Sharing (CBI) by presenting three determinants of confidence in the CBI context, namely clarity of roles and responsibilities, knowledge of participating organizations, and exercise of authority.

Surabaya City Government is one of the government institutions in Indonesia that has implemented an e-Government system in carrying out its functions in government. Currently, there are tens to hundreds of cross-organizational e-Government applications that have been developed at Surabaya under the coordination of Surabaya City Communications and Information Department and in collaboration with other Surabaya Offices. Cooperation or collaboration cannot be separated in an organization in achieving common goals and increasing capabilities within the organization (Skielse, et al., 2017). An integrated system between organizations can create practical and efficient public services (Rose, 2015). Furthermore, it is necessary to conduct in-depth research and analysis on what factors affect the system's performance and consider user input as an evaluation to improve the service quality of the cross-organizational e-Government system at Surabaya City Government. From the assessment, it is possible to find new strengths and references as a form of strategy to improve the performance of "Effectivity," "Efficiency," and "Accountability" in cross-organizational e-Government system as well as recommended service improvements based on the theoretical implications of the relationship of the factors studied.

2. METHODOLOGY

This study starts from the literature study stage to collect reference sources from several articles. The article (Chen, 2019) is the primary reference for developing this research. After conducting a literature study, the next step was to adjust the questionnaire design adapted from previous research. Questionnaire questions related to performance, technical, managerial/organizational, and institutional/inter-organizational factors from the use of the cross-organizational e-Government system owned by Surabaya City Government. Several statements were adjusted to the variables and indicators. Questionnaire questions use a Likert scale assessment with numbers 1 to 7. The Likert scale itself is an assessment to measure people's perceptions, opinions, and characteristics towards a social phenomenon. The questionnaire has prepared then validated first to at least 30 respondents before being distributed. If the questionnaire is valid, then the questionnaire will be distributed directly to respondents using the e-Surat application in 20 offices in Surabaya City Government.

The method used for data processing in this research uses Partial Least Square (PLS) using SmartPLS software. The PLS method is used because the variables in the study do not have likelihood variations. After the data is obtained, the next stage is the evaluation of the suitability

of the model to test the existing model in this study. There are two test models: the outer or structural model and the inner model or measurement model. The next stage is to analyse the results that have been obtained in the previous stage, namely the evaluation test of the suitability of the model with hypothesis analysis (Mudjahidin, et al., 2019). This hypothesis will be tested using the bootstrapping method to see the significance of non-parameters. In determining whether the idea is accepted or rejected, the technique used in this study is to look at the T-statistic value compared to T-table and the probability (P-value), which is compared to the alpha value (α). The last stage is the preparation of recommendations based on the analysis of the hypothesis of this study. Furthermore, it produces recommendations in the form of analysis of the factors that affect the performance of e-Government across organizations and what factors affect the application of e-Government across organizations to improve the performance of the e-Government system managed by Surabaya City Government.

3. MODEL DESCRIPTION

This study develops an integrative empirical structural model and performance measure from a cross-organizational e-Government study. This study consists of three measurement variables, including "Technical" (ξ_1), "Managerial/Organization" (ξ_2), and "Institutional/Inter-organization" (ξ_3), which links to the endogenous variables, namely the "performance", which consists of "Effectivity" (η_1), "Efficiency" (η_2), and "Accountability" (η_3). "Technical" has two main variables, namely "Information Quality" (ζ_1), and "System Quality" (ζ_2). Quality information on the information system used and the system that is easy to use tends to have a higher level of use and satisfaction. It affects the perceived benefits of the institution on the use of its information system.

"Managerial/Organization" is a factor that becomes a managerial element in the organization, where there are three supporting dimensions: "Management Support" (ζ_3), "Citizen-Centric" (ζ_4), and "Lack of Negative Experience" (ζ_5). "Institutional/Inter-Organization" is a factor that shows the institutional relationship and collaboration between organizations that must be supported by securing administrative rules, goals that are formed together, and the level of trust between organizations that must be considered, there are four supporting dimensions, namely "Supporting Administrative Procedure" (ζ_6), "Interdependence Between Agencies on Administrative Transactions" (ζ_7), "Inter-Agency Trust in Information Exchange" (ζ_8), and "Shared Goals" (ζ_9). In this model, the relationship between variables causes 27 hypotheses that are shown in Table 1.

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Table 1. Research hypothesis

| Hypothesis | Question |
|------------|---|
| H1a | “Information Quality” has a significant positive correlation with “Effectivity”. |
| H1b | “Information Quality” has a significant positive correlation with “Efficiency”. |
| H1c | “Information Quality” has a significant positive correlation with “Accountability” |
| H2a | “Information System Quality” has a significant positive correlation with “Effectivity”. |
| H2b | “Information System Quality” has a significant positive correlation with “Efficiency”. |
| H2c | “Information System Quality” has a significant positive correlation with “Accountability”. |
| H3a | “Management Support” has a significant positive correlation with “Effectivity”. |
| H3b | “Management Support” has a significant positive correlation with “Efficiency”. |
| H3c | “Management Support” has a significant positive correlation with “Accountability”. |
| H4a | “Citizen-Centric” has a significant positive correlation with “Effectivity”. |
| H4b | “Citizen-Centric” has a significant positive correlation with “Efficiency.” |
| H4c | “Citizen-Centric” has a significant positive correlation with “Accountability.” |
| H5a | “Lack of Negative Experience” has a significant positive correlation with “Effectivity”. |
| H5b | “Lack of Negative Experience” has a significant positive correlation with “Efficiency”. |
| H5c | “Lack of Negative Experience” has a significant positive correlation with “Accountability”. |
| H6a | “Supporting Administrative Procedure” has a significant positive correlation with “Effectivity”. |
| H6b | “Supporting Administrative Procedure” has a significant positive correlation with “Efficiency”. |
| H6c | “Supporting Administrative Procedure” has a significant positive correlation with “Accountability”. |
| H7a | “Interdependence Between Agencies on Administration Exchange” has a significant positive correlation with “Effectivity”. |
| H7b | “Interdependence Between Agencies on Administration Exchange” has a significant positive correlation with “Efficiency”. |
| H7c | “Interdependence Between Agencies on Administration Exchange” has a significant positive correlation with “Accountability”. |
| H8a | “Inter-Agency Trust in Information Exchange Performance” has a significant positive correlation with “Effectivity”. |

| | |
|-----|--|
| H8b | “Inter-Agency Trust in Information Exchange Performance” has a significant positive correlation with “Efficiency”. |
| H8c | “Inter-Agency Trust in Information Exchange Performance” has a significant positive correlation with “Accountability”. |
| H9a | “Shared Goal” has a significant positive correlation with “Effectivity”. |
| H9b | “Shared Goal” has a significant positive correlation with “Efficiency”. |
| H9c | “Shared Goal” has a significant positive correlation with “Accountability”. |

The conceptual model in this study uses the Structural Equation Modeling (SEM) model from the (Chen, 2019) research. There are three factors that are measured, namely “Technical”, “Managerial/Organizational”, and “Institutional/Inter-organizational”. The three factors are measured using three main performance measures, namely “Effectivity”, “Efficiency”, and “Accountability”. This research model can be seen in Fig. 1.

This section describes the mathematical equations developed based on the SEM research model consisting of structural and measurement models. The structural model is a model that describes the relationship between latent variables based on substantive research. Evaluation and analysis of this structural model include checking the estimated coefficients. Two criteria must be met, including the significant parameter (t -value) and the coefficient of determination (R^2) (Kline, 2016). Examples of structural model mathematical equations on Eq. 1 to Eq. 3. Each exogenous variable has an effect of γ_x on the endogenous variables connected to it plus a measurement error. While the measurement model is a specification of the relationship between latent variables and their indicators which is carried out through Confirmatory Factor Analysis (CFA), while the instrument reliability test is measured through construct reliability (CR) and variance extracted (VE) values (Byrne, 2010). Example of variable measurement model equation “Effectiveness” (η_1 consists of 2 loading factors, including FE1 and FE2). Focus on Eq. 4, and Eq. 14, ε_i for $i=1$ to 11 is error factor from endogenous variable (“Effectivity”, “Efficiency”, and “Accountability”). Furthermore δ_i for $i = 1$ to 12 is error factor from exogenous variable (Eq. 15 to Eq. 26) for “Information Quality”, “Information System Quality”, “Management Support”, “Citizen-Centric”, “Lack of Negative Experience”, “Support Administrative Procedure”, “Effectiveness Between Agencies”, “Inter-agency Trust”, and “Shared Goal”.

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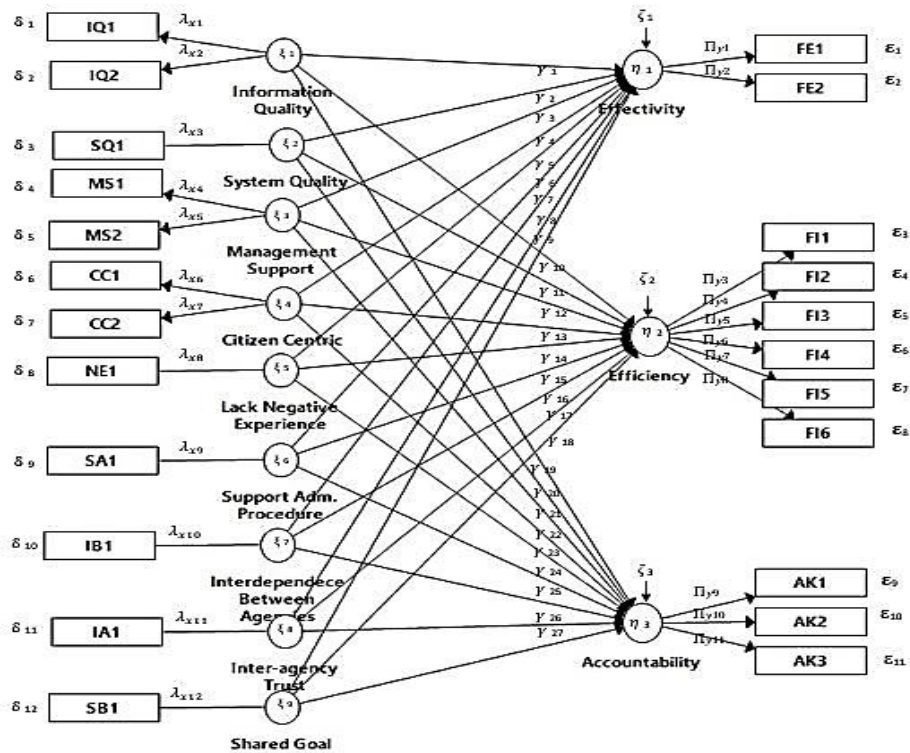


Figure 1. The structural model factor that affects the performance of cross-e-government systems

4. QUESTIONNAIRE DEVELOPMENT AND TESTING

The next step is to prepare a questionnaire related to the variables of the research model (Figure 1) and mathematical equations (Eq. 1 to Eq. 26 in Table 2). The questionnaire consists of 27 questions that were adjusted to the relationship between endogenous and exogenous variables. The questionnaire uses a Likert scale assessment with numbers 1 to 7 (Revilla, et al., 2014). In this study, the respondents are employees of various levels at Surabaya City Government, East Java at Surabaya City Government. The Demographics of respondents is 18-58 years old. The educational background of the respondents is from Senior High School (SHS), Bachelor, to Postgraduate. The survey obtains 164 data from respondents offline. After removing the out layer, the valid data are processed into 106 data.

The next stage is data pre-processing. The data obtained were then tested on pre-processing to determine the validity and reliability of the questionnaire using SPSS. Based on the validity test results, the indicator of each variable has a calculated R -value $>$ the R table, meaning that each question indicator on the questionnaire is valid. Meanwhile, in the reliability test, the Cronbach Alpha value was 0.970, which met the standard of Cronbach Alpha $>$ 0.6, which stated

that the questionnaire data was reliable. After that, an evaluation of the model's suitability consists of testing the measurement model or the outer model and the structural or inner model. The measurement function of the external model is to measure the correlation between constructs and latent variables in the research model with a minimum standard of Loading Factor value 0.4, and the interpretation value of Composite Reliability must > 0.7. Based on the results of the tests that all the importance of the loading factor and composite reliability of the study have met the requirements, it can conclude that the research variables have shown consistency and accuracy as a valid measuring tool. The structural model or Inner Model is done after passing the evaluation of the measurement model. The first step of testing or evaluating this structural model is examining the significant values between variables/constructs. The considerable value can see in evaluating the *R-Square* value (regression interpretation), *t-count*, and path coefficient (path coefficient).

Table 2. Loading factor for each exogenous and endogenous latent variable

| Variable | Equation | Variable | Equation |
|---|---|---|--|
| Structural Model Equation “Effectivity” (η_1) | $\eta_1 = \gamma_1 \xi_1 + \gamma_4 \xi_2 + \gamma_7 \xi_3 + \gamma_{10} \xi_4 + \gamma_{13} \xi_5 + \gamma_{16} \xi_6 + \gamma_{19} \xi_7 + \gamma_{22} \xi_8 + \gamma_{25} \xi_9$ (1) | | $AK3 = \Pi_{y11} \eta_3 + \varepsilon_{11}$ (14) |
| Structural Model Equation “Efficiency” (η_2) | $\eta_2 = \gamma_2 \xi_1 + \gamma_5 \xi_2 + \gamma_8 \xi_3 + \gamma_{11} \xi_4 + \gamma_{14} \xi_5 + \gamma_{17} \xi_6 + \gamma_{20} \xi_7 + \gamma_{23} \xi_8 + \gamma_{26} \xi_9$ (2) | “Information Quality” consists of 2 loading factors | $IQ_1 = \lambda_{x1} \xi_1 + \delta_1$ (15) |
| Structural Model Equation “Accountability” (η_3) | $\eta_3 = \gamma_3 \xi_1 + \gamma_6 \xi_2 + \gamma_9 \xi_3 + \gamma_{10} \xi_4 + \gamma_{15} \xi_5 + \gamma_{18} \xi_6 + \gamma_{21} \xi_7 + \gamma_{24} \xi_8 + \gamma_{27} \xi_9$ (3) | | $IQ_2 = \lambda_{x2} \xi_1 + \delta_2$ (16) |
| “Effectivity” (η_1) consists of 2 loading factors | $FE1 = \Pi_{y1} \eta_1 + \varepsilon_1$ (4) | “Information System Quality” consists of 1 loading factor | $SQ_1 = \lambda_{x3} \xi_1 + \delta_3$ (17) |
| | $FE2 = \Pi_{y2} \eta_1 + \varepsilon_2$ (5) | “Management Support” consists of 2 loading factors | $MS_1 = \lambda_{x4} \xi_1 + \delta_4$ $MS_2 = \lambda_{x5} \xi_1 + \delta_5$ |
| “Efficiency” (η_2) consists of 6 loading factors | $FII = \Pi_{y3} \eta_2 + \varepsilon_3$ (6) | “Citizen Centric” consists of 2 loading factors | $CC_1 = \lambda_{x6} \xi_1 + \delta_6$ $CC_2 = \lambda_{x7} \xi_1 + \delta_7$ (21) |
| | $FI2 = \Pi_{y4} \eta_2 + \varepsilon_4$ (7) | “Lack of Negative Experience” consists of 1 loading factor | $NE_1 = \lambda_{x8} \xi_1 + \delta_8$ |
| | $FI3 = \Pi_{y5} \eta_2 + \varepsilon_5$ (8) | “Support Administrative Procedure” consists of 1 loading factor | $SA_1 = \lambda_{x9} \xi_1 + \delta_9$ (23) |
| | $FI4 = \Pi_{y6} \eta_2 + \varepsilon_6$ (9) | | |
| | $FI5 = \Pi_{y7} \eta_2 + \varepsilon_7$ (10) | | |

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| | $FI6 = \Pi_{y8}\eta_2 + \varepsilon_8$ (11) | “Interdependence Between Agencies” consists of 1 loading factor $IB_1 = \lambda_{x9}\xi_1 + \delta_{10}$ (24) |
| “Accountability” (η_3) consists of 3 loading factors | $AK1 = \Pi_{y9}\eta_3 + \varepsilon_9$ (12) $AK2 = \Pi_{y10}\eta_3 + \varepsilon_{10}$ (13) | “Inter-agency Trust” consists of 1 loading factor $IA_1 = \lambda_{x9}\xi_1 + \delta_{11}$ (25) “Shared Goal” consists of 1 loading factor $SB_1 = \lambda_{x9}\xi_1 + \delta_{12}$ (26) |

Furthermore, based on the test results by looking at the value of the outer loading on each of the endogenous and exogenous variables in the measurement model, the resulting value has met the requirements of 0.4, so it can be concluded that all indicators and data used in this study are valid. The test results are presented in Table 3.

Table 3. Estimate the value of the loading factor for each exogenous and endogenous latent variable ($\geq 0,4$)

| Variable | Equation | Variable | Equation |
|--|--|---|--|
| Structural Model Equation “Effectivity” (η_1) | $\eta_1 = 0.092\xi_1 + 0.201\xi_2 + 0.080\xi_3 + 0.368\xi_4 + 0.011\xi_5 + 0.068\xi_6 - 0.027\xi_7 + 0.147\xi_8 + 0.058\xi_9$ (27) | “Accountability” (η_3) consist of 3 loading factors | $AK3 = 0.838\eta_3 + \varepsilon_{11}$ (40) |
| Structural Model Equation “Efficiency” (η_2) | $\eta_2 = 0.146\xi_1 + 0.067\xi_2 + 0.040\xi_3 + 0.258\xi_4 + 0.105\xi_5 + 0.043\xi_6 + 0.010\xi_7 + 0.180\xi_8 + 0.178\xi_9$ (28) | “Information Quality” consist of 2 loading factors | $SQ1 = 0.959\xi_1 + \varepsilon_3$ |
| Structural Model Equation “Accountability” (η_3) | $\eta_3 = 0.132\xi_1 + 0.168\xi_2 + 0.058\xi_3 + 0.435\xi_4 + 0.044\xi_5 + 0.127\xi_6 - 0.006\xi_7 + 0.056\xi_8 + 0.060\xi_9$ (29) | “Information System Quality” consist of 1 loading factor | $SQ1 = 0.964\xi_1 + \varepsilon_3$ |
| “Effectivity” (η_1) consist of 2 loading factors | $FE1 = 0.912\eta_1 + \varepsilon_1$ (30) $FE2 = 0.924\eta_1 + \varepsilon_2$ (31) | “Management Support” consists of 2 loading factors | $SQ1 = 1.000\xi_2 + \varepsilon_3$ $MS1 = 0.916\xi_3 + \varepsilon_4$ $MS2 = 0.687\xi_3 + \varepsilon_5$ |
| “Efficiency” (η_2) consist of 6 loading factors | $FII = 0.804\eta_2 + \varepsilon_3$ (32) $FI2 = 0.808\eta_2 + \varepsilon_4$ (33) $FI3 = 0.853\eta_2 + \varepsilon_5$ (34) $FI4 = 0.816\eta_2 + \varepsilon_6$ (35) $FI5 = 0.847\eta_2 + \varepsilon_7$ (36) | “Citizen Centric” consists of 2 loading factors “Lack of Negative Experience” consists of 1 loading factor “Support Administrative Procedure” | $CC1 = 0.913\xi_4 + \varepsilon_6$ $CC2 = 0.916\xi_4 + \varepsilon_7$ $NE1 = 1.000\xi_5 + \varepsilon_8$ $SA1 = 1.000\xi_6 + \varepsilon_9$ |

| | | | |
|--|---|---|---|
| | $FI6 = 0.783\eta_2 + \varepsilon_8$ (37) | consists of 1 loading factor | |
| | | “Interdependence Between Agencies” consists of 1 loading factor | $IB1 = 1.000\xi_7 + \varepsilon_{10}$ |
| “Accountability” (η_3) consist of 3 loading factors | $AK1 = 0.849\eta_3 + \varepsilon_9$ (38) | “Inter-agency Trust” consists of 1 loading factor | $IB1 = 1.000\xi_8 + \delta\varepsilon_{11}$ |
| | $AK2 = 0.915\eta_3 + \varepsilon_{10}$ (39) | “Shared Goal” consists of 1 loading factor | $SB1 = 1.000\xi_9 + \varepsilon_{12}$ |
| | | | |

The structural model was conducted by the Effect Size Test (f^2 Test) to determine the relative impact of endogenous latent constructs on exogenous latent. f^2 measures the relative influence or whether endogenous variables can affect exogenous variables using the bootstrapping method. f^2 has several categories, as shown in Table 4 and Figure 2. Based on the results of f^2 , exogenous latent variable CC (“Citizen-Centric”) only has a strong influence on the endogenous latent (FE, FI, AK). Meanwhile, the other exogenous latent has an average or moderate effect on the existing endogenous latent.

Table 4. The result of effect size value of the exogenous latent variable

| Variable | f^2 value | | | Description | | |
|----------|-------------|-------|-------|-------------|--------|--------|
| | FE | FI | AK | FE | FI | AK |
| IQ | 0.092 | 0.146 | 0.035 | Medium | Medium | Medium |
| SQ | 0.201 | 0.067 | 0.044 | Medium | Medium | Medium |
| MS | 0.080 | 0.040 | 0.004 | Medium | Medium | Weak |
| CC | 0.368 | 0.258 | 0.216 | Strong | Strong | Strong |
| NE | 0.011 | 0.105 | 0.007 | Weak | Medium | Weak |
| SA | 0.068 | 0.043 | 0.030 | Medium | Medium | Medium |
| IB | -0.027 | 0.010 | 0.000 | Weak | Weak | Weak |
| IA | 0.147 | 0.180 | 0.005 | Medium | Medium | Weak |
| SB | 0.058 | 0.178 | 0.005 | Medium | Medium | Weak |

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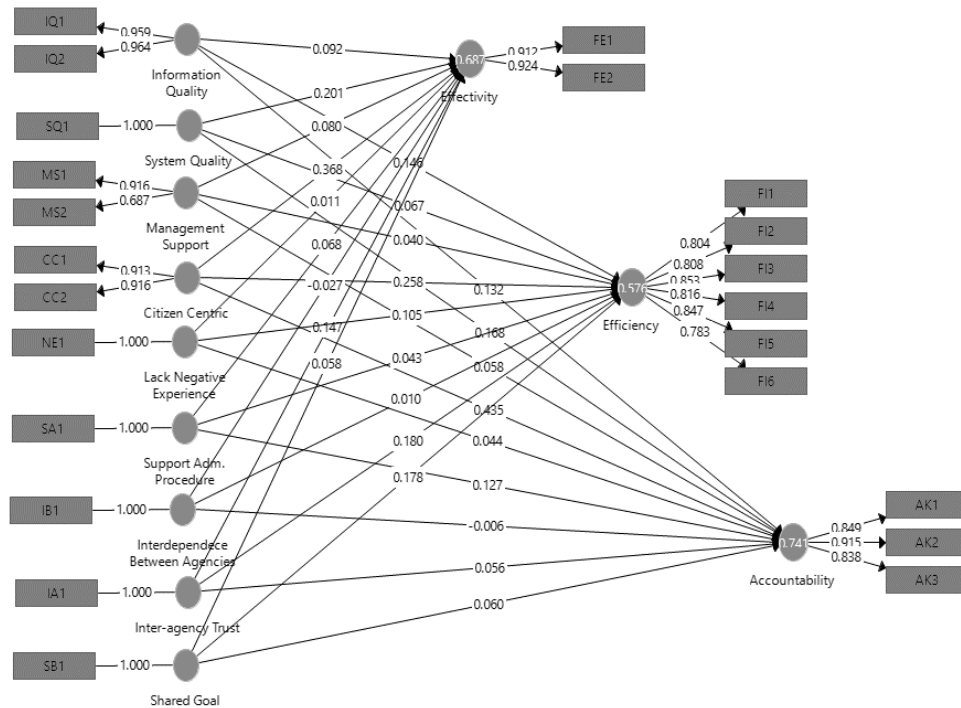


Figure 2. The effect size test results

5. RESULT AND DISCUSSION

This study succeeded in adopting and describing previous study (Chen, 2019), that conducted in Taiwan by evaluating a cross-organizational government application called Commerce/Industry Service Information System (CISIS) with several valid surveys of 592 respondents. In previous study, there were 16 accepted and significant hypotheses from the 27 proposed hypotheses. Furthermore, the results of the analysis show that 8 variables have a positive and significant relationship from the 9 variables they have. In contrast, this study was conducted in Indonesia by evaluating the Surabaya City Government Application, namely E-Surat, with several reasonable surveys of 164 respondents. The demographics of the two studies are different, so the background of life and characteristics are also diverse. The number of valid respondents obtained is also different, affecting the results obtained between the two studies. The number of respondents can affect the results of the significance of the T-statistics and P-value, which is the benchmark for measuring the relevance of the constructs in these two studies (Olejnik & Algina, 2003).

In this study, 27 hypotheses were tested to determine the significance of the relationship between variables or decisions that can be taken regarding this hypothesis test. This can be done by looking at the results of the *T* statistic value 1.65 with a 90% confidence degree and the *P*-value with < 0.1 to find out which hypothesis is valid—accepted or rejected. Hypothesis testing is seen from the T-statistic value 1.65 with a 90% confidence degree and the *P*-value with $\alpha < 0.1$ (see Table 5).

Table 5. T-value and P-value of hypothesis result test

| Hypothesis | Model | T Statistics (O/STDEV) | P Values | Decision | Hypothesis | Model | T Statistics (O/STDEV) | P Values | Decision |
|------------|-------|-----------------------------|----------|-----------|------------|-------|-----------------------------|----------|-----------|
| H1a | IQ-FE | 1.502 | 0.134 | Reject H1 | H5c | NE-AK | 0.951 | 0.342 | Reject H1 |
| H1b | IQ-FI | 1.867 | 0.063 | Accept H1 | H6a | SA-FE | 0.966 | 0.334 | Reject H1 |
| H1c | IQ-AK | 2.222 | 0.027 | Accept H1 | H6b | SA-FI | 0.534 | 0.594 | Reject H1 |
| H2a | SQ-FE | 2.824 | 0.005 | Accept H1 | H6c | SA-AK | 2.191 | 0.029 | Accept H1 |
| H2b | SQ-FI | 0.771 | 0.441 | Reject H1 | H7a | IB-FE | 0.368 | 0.713 | Reject H1 |
| H2c | SQ-AK | 2.093 | 0.037 | Accept H1 | H7b | IB-FI | 0.103 | 0.918 | Reject H1 |
| H3a | MS-FE | 0.984 | 0.326 | Reject H1 | H7c | IB-AK | 0.069 | 0.945 | Reject H1 |
| H3b | MS-FI | 0.374 | 0.709 | Reject H1 | H8a | IA-FE | 1.489 | 0.137 | Reject H1 |
| H3c | MS-AK | 0.806 | 0.421 | Reject H1 | H8b | IA-FI | 1.744 | 0.082 | Accept H1 |
| H4a | CC-FE | 3.687 | 0.000 | Accept H1 | H8c | IA-AK | 0.743 | 0.458 | Reject H1 |
| H4b | CC-FI | 2.547 | 0.011 | Accept H1 | H9a | SB-FE | 0.595 | 0.552 | Reject H1 |
| H4c | CC-AK | 3.826 | 0.000 | Accept H1 | H9b | SB-FI | 1.652 | 0.099 | Accept H1 |
| H5a | NE-FE | 0.188 | 0.851 | Reject H1 | H9c | SB-AK | 0.699 | 0.485 | Reject H1 |
| H5b | NE-FI | 0.951 | 0.062 | Reject H1 | | | | | |

Based on the results of the t-value on hypothesis testing to see the relationship between exogenous and endogenous latent variables, including:

1. The influence of technical factors on the performance of e-Government systems across organizations is as follows.
 - a. “Information Quality” (H1) affects “Efficiency” performance (H1b) and is proven to be statistically significant with the value of 0.146 (Eq. 28) and affect performance “Accountability” (H1c) with proven statistically significant of 0.132 on the cross e-Government system at Surabaya City Government (Eq. 29). “Information Quality” serves as the background of all steps in the communication process in organizations (Michnik & Lo, 2009). “Information Quality” is the output of implementing information systems with characteristics such as accuracy, timeliness, relevance, and completeness (DeLone & McLean, 2003). The government must understand the features of the information desired by the users of the service system provided to improve efficiency and overall accountability (Wang & Yi-Wen, 2008). “Information Quality” has accurate, up-to-date, and user-focused characteristics to improve services and help complete administrative tasks between institutions at Surabaya City Government.
 - b. “Information System Quality” (H2) affect performance “Effectivity” (H2a) with proven statistically significant of $\gamma = 0.201$ (Eq. 27) and affect performance “Accountability” (H2c) with proven statistically significant of $\gamma = 0.168$ on the cross e-Government system at Surabaya City Government (Eq. 29). “Effectiveness” of information systems is seen from user satisfaction (Morgeson, 2011). Information system quality refers to the user's ease, reliability, functionality, and integration provided by the user (DeLone & McLean, 2003). The system provided must be accessible to users 24 hours a day and seven days a week to effectively implement cross-organizational e-Government system at Surabaya City Government (Huang & Bwoma, 2003). In addition, it performs a clear and documented division of tasks to ensure transparency and work accountability from cross-organizational e-Government system users at Surabaya City Government.

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2. The influence of “Managerial/Organizational” factors on the performance of across organizational e-Government system is as follows. “Citizen-Centric” and “Innovation Organizational Culture” (H4) affect performance “Effectivity” (H4a) has a significant effect by $\gamma = 0.368$ (Eq. 27) and affect performance “Efficiency” (H4b) is having a substantial impact by $\gamma = 0.258$ (Eq. 28) and affect performance “Accountability” (H4c) has a significant effect by $\gamma = 0.435$ (Eq. 29) on cross organizational e-Government system at Surabaya City Government. Surabaya City Government can take advantage of the system to provide more effective services to citizens and view the use of cross-organizational e-Government system as government innovations. The way to foster an organizational culture is innovative and user-focused to support the government's efforts to implement a cross-organizational e-Government system at the Surabaya City Government (Anwer, et al., 2016).
3. The influence of institutional/inter-organizational factors on the performance of cross-organizational e-Government system is as follows:
 - a. Supporting administrative procedure (H6) affects performance “Accountability” (H6c) has a significant effect by $\gamma = 0.127$ on the cross e-Government system at Surabaya City Government (Eq. 29). The Surabaya City Government needs to carry out administrative rules to share information and collaborate on cross-organizational information systems. One form of procedure that the Surabaya City Government can develop is an information system component that contains process documentation such as user manuals or user manuals that are easy to understand (Dawes, et al., 2009).
 - b. “Inter-Agency Trust in “Information Exchange Performance” (H8) affect performance “Efficiency” (H8b) has a significant effect by $\gamma = 0.180$ on the cross e-Government system at Surabaya City Government (Eq. 28). “Inter-Agency Trust in Information Exchange Performance” is the key to the success of information systems. A high level of trust allows for more collaboration and openness in exchanging information across organizations. Surabaya City Government needs to foster trust between organizations to save collaboration time (Bekkers, 2007).
 - c. “Shared Goal” (H9) affect “Efficiency” (H9c) has a significant effect by $\gamma = 0.178$ on the cross-organizational e-Government system at Surabaya City Government (Eq. 28). This factor has a common goal: to help organizations participate in getting the benefits of collaboration and the plans of interest to achieve (O’Leary, et al., 2012).

Surabaya City Government could improve the quality of information, which is timely, relevant, complete, and accurate, to increase organizational efficiency and accountability in implementing cross-organizational e-government. Improved information systems and ease of use can increase effectiveness and accountability. Experience with implementing information system services shows the importance of organizational service culture in uniting various government departments in implementing community-centered information systems.

6. CONCLUSION

This study was successfully describing the conceptual model into the structural mode so it can use to analyses factors that influence performance of the cross e-Government system, namely “Effectivity”, “Efficiency”, “Accountability” by considering “Technical”, “Managerial/Organizational”, and “Institutional/Inter-Organizational” factors. Based on the results of the analysis, it is found that:

- “Information Quality” (H1) correlates with “Efficiency” (H1b) and “Accountability” (H1c).
- “Information System Quality” (H2) correlates with “Effectivity” (H2a) and “Accountability” (H2c).
- “Citizen-centric” and “Innovation Organizational Culture” (H4) correlates with “Effectivity” (H4a), “Efficiency” (H4b), and “Accountability” (H4c).
- “Supporting administrative procedure” (H6) correlates with “Accountability” (H6c).
- “Inter-Agency Trust in Information Exchange Performance” (H8) correlates with “Efficiency” (H8b)
- “Shared Goal” (H9) correlates with “Efficiency” (H9c).

Based on the conclusions in the results of this study that it can be a reference for developing and improving the quality of cross-organizational e-Government system at Surabaya City Government based on the results of the analysis of variables that have a significant influence and impact.

Suggestions that can be given for further research based on the results of research that have been carried out include developing the coverage of other cross-organizational e-Government system respondents at Surabaya City Government because the development of respondent coverage can affect the level of significance between variables (path coefficient and R²). In addition, the suggestion for further research is to develop and evaluate other variables that can affect the performance of the across organizational e-Government system in Surabaya City Government.

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