

Boosting E-Service Quality through IT Service Management of Online Stores

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Abstract—The intention of conducting such the research was to evaluate mediating roles of IT service management on information system success model and IT governance, further boosting E-service quality. A method combining convergent triangulation and an explanatory, follow-up design was implemented. The population engaged middle-up online stores that have marketed products online in five-year time in West Kalimantan. Questionnaires were completed by 99 out of 112 managers. Quantitative analysis was performed through SEM-PLS. In-depth interviews and FGDs with 5 key informants, however, yielded data used for qualitative analysis. Results conclusively reveal that information system success model is insignificant for E-service quality despite direct, positive influences gained. In other words, the business success of online stores has no reliance on this type of model. The focus should be on IT governance reinforcing IT service management. The fact is supported by qualitative findings emphasizing that such the governance is eminently influenced by information system success model and it is requisite to actualize IT service management for progressed E-service quality.

Keywords—*E-Service Quality, IT Service Management, IT Governance, Information System Success Model, Online Stores.*

I. INTRODUCTION

Immensely quick growth of Information Technology (IT) industries has offered numerous opportunities allowing each business company to build personalized relationships with customers through various online channels, for example online store commerce [1]. Online stores applying Business-to-Consumers (B2C) provide simplicity and flexibility of building connections with customers, have a wider commerce range, as well as enable collaboration with business partners and investment without spending high operational costs [2]. Online commerce communication is more effective, more interactive in terms of procurement and distribution of products based on customers' needs. Running the online stores excludes high operational costs and chances of increasing profit margins [3]. The shift of paradigm in businesses is from goods-based economy to IT service-based economy [3,4]. Easiness and benefits are obtained not only by determining fine websites, but also by crucially applying optimal, accurate IT service management exceeding customers' expectations [5].

Previously found results of a number of studies in the scope of Indonesia highlight low quality of IT services and business performance of online stores leading to delayed improvement and failure. Principal causes are that readiness maturity is low as well as capabilities to empower platforms of application portfolios of IT services and support quality of IT operation are poor [6]. Moreover, service quality partially emphasize availability and capabilities of IT infrastructure

[7] and the management is prone to focus on data processing only for internal necessities [8,9]. Additionally, apparent framework of mapping implementation roles of application portfolios in improving IT service quality is absent [10,11]. It is further found that the culture becomes a primary hindrance of raising awareness of online transaction security [12]. Besides, IT service quality of online stores ineffectively, inefficiently, and inaccurately facilitates purchases and deliveries of products to fulfill customers' needs and expectations [13,14]. Finally, availability and consistency of delivering information services in online transaction are uncertain [15].

Apart from accuracy, completeness, and updates [15], capabilities to provide and deliver information with decent quality of online services satisfying customers' expectations essentially rely on ascertainment of satisfaction values, trust, and loyalty through persistent enhancement of service quality [16]. Also, personalized relationships with customers should be built through service supports after sales, quick responsiveness, sincere interest of problem solving, and firm commitment of punctual service deliveries [17]. Failure of boosting online stores can lead to customers' dissatisfaction, complaints, and more fatally, the shift to other stores [18]. This condition indicates that availability and integration of IT service quality should be always linked to routine information updates when marketing products online through websites. It is noted in particular that they are an integral part of online business success [18]. Another characteristic is that IT service quality is inseparable from structures, processes, and mechanisms of architecture designs of websites [19]. To obviously conclude, online businesses with B2C segmentation closely pertain to provision of system of IT service quality and online service mechanisms requiring quick responsiveness of feedback for fulfilled customers' needs.

Previous studies included incomplete discussion on E-service quality. They mostly highlighted certain variables without considering interrelationships of IT service management, information system success model, and IT governance in boosting E-service quality. Specifically, industries of products with a middle-up scale and Business-to-Business (B2B) form were concerned. Understandably, a smaller scale of online business was neglected. Besides, the aims emphasized by previous researchers were generally on business performance and competitiveness. In this study, by contrast, IT service management was used to mediate influences of information system success model and IT governance in improving E-service quality of businesses of online stores implemented through B2C. Significant contributions were presented to the management or

stakeholders investigating and finding solutions in sustainably managing such businesses.

The focus of formulated problems was on improved E-service quality of online stores influenced by exogenous constructs of information system success model and IT governance through an endogenous construct of IT service management. This was in line with the research goal, i.e. to cognize the extent of influences and interrelationships of constructs of the success model and IT governance in enhancing E-service quality through IT service management of online stores (B2C). A new model was additionally created.

Micro, Small, and Medium Enterprises (MSMEs) marketing products online and operating in West Kalimantan were selected. Such the region has high potency of market growth and promising investment opportunities due to its close border with Malaysia. This circumstance allows every online store to market typical products globally, build personalized relationships with overseas customers, and improve multinational competitiveness. Perceived benefits of this formulated strategy can support online businesses of MSMEs.

II. LITERATURE REVIEW

A. IT Service Management

IT service management refers to management of all integrated business processes for ascertainment of IT service quality based on levels approved [20,21]. It embraces initiation, designs, organizations, controls, procurement, supports, and improvement based on organizational requirements [22]. IT service providers should provide assurance of implementation through business processes [23] satisfying customers' expectations. IT service management includes dimensions of supports and deliveries [24,25].

B. IT Governance

IT governance has crucial roles of managing and integrating the whole IT service units to conduct operational activities properly [26]. Moreover, it encourages organizational success through relational structures controlling one another by adding values and balancing risks pertaining to the management of IT service processes [27]. IT governance is defined as an integrated part of organizational management consisting of leadership, structures, and processes, and ensuring that IT organizations can retain and extend strategy and goals [28]. The evidence suggests that IT remains a vital resource of implementing proper, accurate governance [29] facilitating achievement of goals and productivity of organizations. IT governance possesses dimensions of structures, processes, and relational mechanisms [30,31].

C. Information System Success Model

The success of IT service management is strongly linked to the model of information system [32] indicating significant impacts of boosting online service quality [33]. The one proposed by DeLone and McLean (1992) is currently relevant and widely used in the study on information system and other fields [34]. Referring to previous results, there are three important quality factors such as system, information, and services. The first factor is overall performance of information system, whereas the rest are consecutively characteristics of information produced by information system and overall supports of IT service

providers in terms of fine application portfolios of IT services [34,35].

D. E-Service Quality

Online service quality is defined as the form of services offered online through the internet network and managed by customers interactively through information availability [36]. This research focused on service quality of online stores (B2C) in the form of online retail [37,38]. E-service quality should exceed commercial transaction services based on interaction of online service deliveries. In the context of the Web, it refers to the extent of website services facilitating efficient, effective retail transaction for fulfillment of customers' needs [39].

III. RESEARCH METHOD

This research adopted the combination method of convergent triangulation and an explanatory design through follow-up description [40]. The population consisted of the whole organizations or business units which have marketed products online in five-year time in West Kalimantan, whereas respondents were specifically managers of middle-up online stores working at marketing and IT department, and chosen with a purposive sampling technique. Furthermore, data were primarily obtained through questionnaires disseminated to 112 respondents. Nevertheless, only 99 (88.39%) of questionnaires were successfully returned to researchers. An electronic medium of google form was utilized and data with Likert Scales were managed. Intervals were from Score 6 (strongly agree) to Score 1 (strongly disagree) [41].

Current questionnaires with some modification referred to a previously conducted study. Their validity and reliability passed the examination. The analysis model of SEM-PLS with SmartPLS Version 3.2.7 was additionally in use. Such a conceptual model was examined through algorithms, bootstrapping, path diagrams, and evaluation. Next, conclusion and suggestions were provided [42]. Quantitative results were revalidated through justification given by informants wholly selected based on criteria of inclusion and exclusion through interviews and FGDs [43]. Ensuring more precise information, feedback was given to reduce personal bias [43]. The following figure showed conceptual framework of hypotheses:

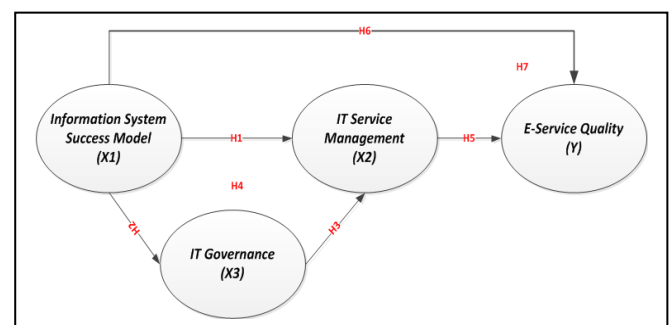


Fig. 1. Research Model

Concerning Figure 1, hypothesis tested comprised H1: Information system success model has positive influences on IT service management; H2: Information system success model has positive influences on IT governance; H3: IT governance has positive influences on IT service management; H4: Information system success model has positive influences on IT service management mediated by

IT governance; H5: IT service management has positive influences on E-service quality; H6: Information system success model has positive influences on E-service quality; and H7: Information system success model has positive influences on E-service quality mediated by IT service management.

IV. RESULT AND DISCUSSION

Commencing with an outer model processed with path analysis, the study design incorporated constructs of information system success model, IT governance, IT service management, and E-service quality. The initial construct consisted of dimensions of system quality (ISSM1), information quality (ISSM2), and service quality (ISSM3). System quality covered indicators of completion (ISSM1.1), accuracy (ISSM1.2), and availability (ISSM1.3). Information quality covered indicators of reliability (ISSM2.1), flexibility (ISSM2.2), and accessibility (ISSM2.3). Service quality covered indicators of responsiveness (ISSM3.1), guarantees (ISSM3.2), and reliability (ISSM3.3). IT governance, however, consisted of dimensions of structures (ITG1), processes (ITG2), and relational mechanisms (ITG3). Structures covered indicators of IT steering committee (ITG1.1), IT strategy committee (ITG1.2), and IT project steering committee (ITG1.3). Processes covered indicators of portfolio management (ITG2.1), strategic planning of information system (ITG2.2), and project governance (ITG2.3). Relational mechanisms covered indicators of IT governance awareness (ITG3.1) and IT leadership (ITG3.2). Then, IT service management consisted of dimensions of service supports (ITSM1) with indicators of information need adjustment (ITSM1.1), information acceleration (ITSM1.2), IT infrastructure configuration (ITSM1.3), and service deliveries comprising indicators of continual information (ITSM2.1), punctual information (ITSM2.2), and smooth operation (ITSM2.3). Ultimately, E-service quality covered indicators of reliability (E-SQ1), responsiveness (E-SQ2), practicality (E-SQ3), privacy (E-SQ4), availability (E-SQ5), and website designs (E-SQ6).

Computation of SEM-PLS was continued with estimation through algorithms of PLS and bootstrapping. Two kinds of validity, i.e. convergent validity and discriminant validity were tested based on Average Variance Extracted (AVE). Data given by respondents revealed influences of constructs represented by path analysis of the research model in Figure 2:

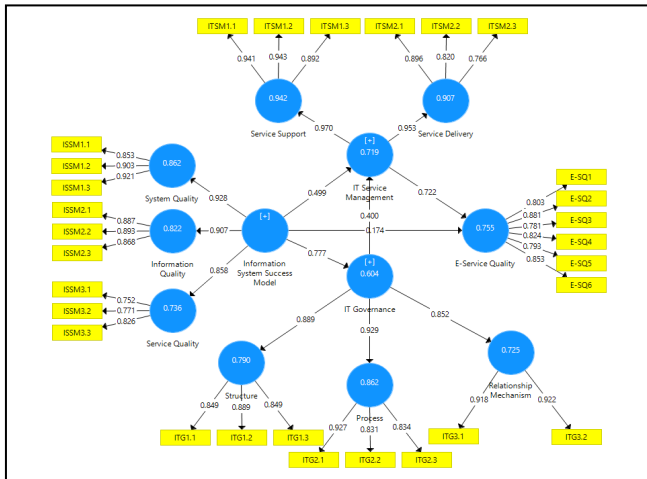


Fig. 2. Path Diagram of Research Model

Examination outcomes of an outer model indicated outer loading scores of all valid indicators properly used in this study. Discriminant validity of construct levels was tested with Fornell-Larcker Criteria. While Table I showed results of such the examination, Table II presented the ones of reliability and validity through Composite Reliability (CR), Cronbach's Alpha, and AVE. Provided that CR score, Cronbach's Alpha, and AVE are respectively greater than 0.80, 0.70, and 0.50, reliability is good [44].

TABLE I. DISCRIMINANT VALIDITY

Fornell-Larcker Criteria	E-Service Quality	IT Governance	IT Service Management	Information System Success Model
E-Service Quality	0.823			
IT Governance	0.796	0.784		
IT Service Management	0.863	0.788	0.846	
Information System Success Model	0.758	0.777	0.810	0.769

TABLE II. CONSTRUCT RELIABILITY AND VALIDITY

Construct Reliability and Validity	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted
E-Service Quality	0.905	0.909	0.926	0.678
IT Governance	0.910	0.913	0.927	0.614
IT Service Management	0.919	0.924	0.937	0.715
Information Quality	0.858	0.860	0.914	0.779
Information System Success Model	0.912	0.921	0.928	0.591
Processes	0.831	0.837	0.899	0.749
Relational Mechanisms	0.818	0.818	0.916	0.846
Service Deliveries	0.770	0.779	0.868	0.687
Service Quality	0.686	0.689	0.826	0.613
Service Supports	0.916	0.918	0.947	0.857
Structures	0.829	0.833	0.897	0.744
System Quality	0.872	0.877	0.922	0.797

Proceeding to another stage, an inner model was analyzed with bootstrapping and SmartPLS. Conducting the former intended to examine indicator significance of each construct. T-value was further used to examine relationships of constructs and the probability score should be less than 0.05. Indicators are significant if t-statistics is more than 1.96 (z-score of Confidence Interval (CI) 95% equals 1.96 [45]). Figure 3 indicated bootstrapping outputs of the research model crucially used to cognize significance values of all indicators of constructs.

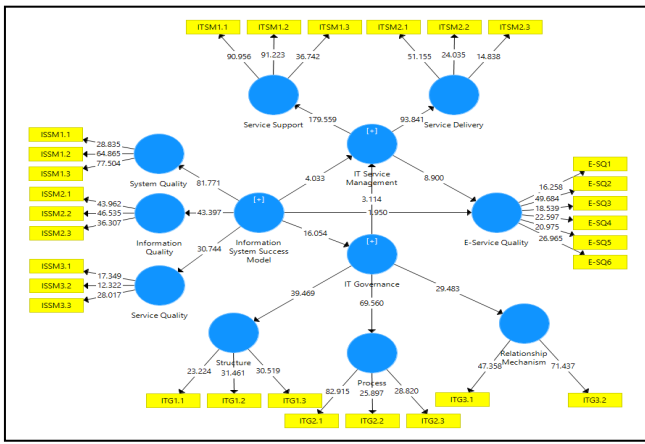


Fig. 3. Path Diagram of Bootstrapping Outputs

Table III contained examined results of indicator significance of overall constructs. It was found that t-statistics was significant. Therefore, it was useable without the need of improvement.

TABLE III. PATH SIGNIFICANCE TEST

Fornell-Larcker Criteria	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T-Statistics ((O/STDEV)	P Values
IT Governance → IT Service Management	0.400	0.410	0.128	3.114	0.002
IT Governance → Processes	0.929	0.930	0.013	69.560	0.000
IT Governance → Relational Mechanisms	0.852	0.853	0.029	29.483	0.000
IT Governance → Structures	0.889	0.888	0.023	39.469	0.000
IT Service Management → E-Service Quality	0.722	0.727	0.081	8.900	0.000
IT Service Management → Service Deliveries	0.953	0.953	0.010	93.841	0.000
IT Service Management → Service Supports	0.970	0.971	0.005	179.559	0.000
Information System Success Model → E-Service Quality	0.174	0.172	0.089	1.950	0.052
Information System Success Model → IT Governance	0.777	0.778	0.048	16.054	0.000
Information System Success Model → IT Service Management	0.499	0.488	0.124	4.033	0.000
Information System Success Model → Information Quality	0.907	0.906	0.021	43.397	0.000
Information System Success Model → Service Quality	0.858	0.859	0.028	30.744	0.000

Fornell-Larcker Criteria	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T-Statistics ((O/STDEV)	P Values
Information System Success Model → System Quality	0.928	0.929	0.011	81.771	0.000

Path coefficients revealed that original sample possessed positive scores. Interpretatively, all constructs and/or indicators influence one another. In addition, t-statistics (a score indicating a significant influence of independent variables on a dependent variable) < 1.96 was found. The representation was a positive influence of information system success model on E-service quality. It was reinforced by probability score > 0.05. The significance level was, thus, very low. Relationships of all constructs were, furthermore, positive, significant.

Apart from these, computed R-squared-adjusted value of E-service quality was 0.750 (75%). To provide affirmation, the success of such the construct was extremely influenced by information system success model with indicators of system quality, information quality, and service quality through IT service management. Meanwhile, the rest were other influencing factors excluded from this research model (25%).

On the other hand, calculated R-squared-adjusted value of IT service management was 0.713 (71.3%). The lowest score (0.600) was possessed by IT governance. It could be inferred that IT service management, further leading to the success of E-service quality, was also strongly influenced by all indicators of information system success model. In spite of the lowest score, IT governance should still be concerned since the process indicator score was 0.862. Processes had an important role in boosting IT service management through IT supports and IT service deliveries.

Next, in order to obtain R-squared predictive relevance [43], the formula $Q^2 = 1 - (1 - R^2 \text{ E-service quality}) * (1 - R^2 \text{ IT service management}) * (1 - R^2 \text{ IT governance})$ was useable. Calculated results reflected R-squared predictive relevance = 97.73% meaning that this research model had very strong, fundamental predictive relevance as it had large influences on the success of enhancing E-service quality of all companies managing online stores in West Kalimantan.

For this reason, the study of this research model showed path coefficients of constructs and the highest score possessed by service supports (0.970). In other words, service supports were a necessity in improving IT service management. The lowest coefficient, nonetheless, represented effects of information system success model on E-service quality (0.174). Reflecting this, information system success model weakly influenced E-service quality of online store businesses. This quality apparently required IT supports and IT service deliveries under IT service management. This statement was given based on the path coefficient of influences of information system success model on IT service management and of IT service management on E-service quality (0.360).

Furthermore, linkages of information system success, IT service management, and E-service quality reflected that strong influences were factually from IT service management on E-service quality (0.722). Information system success model was more influential for IT service

management compared to on E-service quality because of a higher path coefficient (0.499) compared to 0.174. Such the condition indicated that there was a dissimilarity with previous research clarifying that information system success model significantly influenced E-service quality [16,18].

Regarding another case among the four constructs, the highest path coefficient was shown by influences of information system success model on IT governance (0.777). Consequently, IT governance was strongly influenced by information system success model with indicators of system quality, information quality, and service quality. The findings reinforced previous research [19,20,21] that managing these three kinds of quality required IT governance in improving IT service management.

Meanwhile, influences of information system success model on IT service management through IT governance turned out to be less influential as indicated by path coefficient = 0.310 which was lower than direct effects of IT governance on IT service management (0.400). The reflection of this circumstance was that the capability to enhance IT governance directly impacted enhancement of IT service management. Information system success model, hence, possessed firmer influences on IT governance compared to on IT service management. This elucidation reinforced the previous one.

Approving the evidence, boosting E-service quality of all online store businesses in West Kalimantan should concentrate more on the capability to improve IT service management compared to IT governance influenced by information system success model. Computed path coefficients show linkages with positive effects so that all hypotheses are acceptable despite incomplete significance. For instance, information system success model and E-service quality have insignificant values. Meaningfully, these two constructs counter each other. Study outcomes noting their connections are irrelevant to the previous ones [36,37,38,39]. The difference of research results can occur because of indicators differently applied. It can be generalized that possessing information system success model with high performance indicators does not always directly improve performance of e-service quality of online store businesses in West Kalimantan. Instead, ownership of IT service management strengthened with appropriate IT governance is the key to the success of improving E-service quality.

Relationships and influences among constructs are inseparable from critical factors in indicator determination. Regarding outer model results, indicators with loading factors < 0.80 are E-SQ3 (practicality), E-SQ5 (availability), ITSM2.3 (smooth operation), ISSM3.1 (service responsiveness), and ISSM3.2 (service guarantees) with consecutive values 0.781, 0.793, 0.766, 0.752, and 0.771. All of these indicators represent three main constructs and IT governance turns out to have the highest value, meaning that online stores have understood and implemented it well based on company needs. Such findings are of great fundamentality since IT governance is greatly considered as a major complication when boosting E-service quality [2,6,13,14]. Additional triangulation applied is through interviews conducted with five key informants with the following assertions:

“Service quality, especially service responsiveness and service guarantees are still low. These two factors clearly result in inability to smoothly supply information online. It is a requirement for providers of application portfolios of IT services to produce information that is easy to use and assure its availability (Key Informants 1 and 2).”

“The quality of IT services in online store businesses essentially depends on information that is easily obtained and always available (Key Informant 3).”

“Service quality is still the main problem because application portfolios of IT services slowly operate and respond. Also, it seems that transaction is insecure (Key Informants 4 and 5).”

V. CONCLUSION AND FUTURE RESEARCH

Based on this research quantitatively and qualitatively completed, it can be evidently summarized that IT service management has an important role in directly, positively, and significantly boosting E-service quality. Such the quality is independent from information system success model because it shows an insignificant value despite having a positive effect. In addition, IT governance required to improve quality of system, information, and services, the foundation of IT service management, is firmly influenced by information system success model. In fact, IT governance has direct, positive, significant influences on IT service management, while information system success model does not. Accordingly, IT governance and IT service management eminently determine the business success of online stores.

It is obviously recommended that the whole online stores performing online sales immediately enhance availability and practicality of information, smooth operation, as well as responsiveness and guarantees of services. Also, application portfolios of IT services should be well managed. This research can be in continuance with inclusion of the construct of IT innovation adoption and IT effectiveness performing as an integral part in boosting E-service quality of all online stores located in West Kalimantan in particular.

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