

Developing Maturity Levels of IT Governance for Family Businesses

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Abstract—Developing maturity levels of IT governance strategically influences perpetuity of all activities of IT service performance, especially for family businesses marketing products online. Such the research included the goal of supporting the previous study discussing domains of Acquired and Implement (AI) and Monitor and Evaluate (ME) by referring to more detailed outcomes of maturity levels of IT governance among IT process domains of Plan and Organize (PO) and Deliver and Support (DS) in order to create IT service performance. In addition to evaluation of levels of gaps, implications occurring to managerial aspects and a suggested IT governance model based on interrelationships of IT processes through COBIT 4.1 were provided. Findings indicate that averages of domains of PO and DS are consecutively 3.017 and 2.928. Besides, PO4, PO5, PO7, PO9, DS4, DS7, and DS10 possess the least values. On average, the third level is reached and expectations of companies are exceeded. A suggested IT governance model emphasizes management of changes through horizontally performed communication and other orientation instead of seniority of family status. Conducting synchronization and interoperability can perpetually improve IT service performance to ascertain online customer relationships.

Keywords—IT Governance; Maturity Levels; Family Businesses; Plan and Organize; Deliver and Support

I. INTRODUCTION

Identifying Information Technology (IT) governance has been an immensely crucial matter of ensuring the success of implementation of IT services referring to strategic conformity of IT and businesses [1]. This evidence is strengthened by previous research with positive links of organization performance and IT governance implementation [2]. Currently, digital revolution era is being indicated with innovation growth, accessibility and dynamics of markets, as well as rapid organization agility. Expanding IT implementation has created critical dependency of performance and configuration of information services so that proper management system of IT

governance is requisite [3]. The success of applying IT governance should be evaluated when maturity levels of IT processes are measured. Thus, actual conditions and expected IT service performance are identifiable [4].

Maturity values of IT governance have a fundamental purpose of guaranteeing the conformity and achievement of business goals. Preventing the risks of failure and inappropriate processes of IT and businesses should refer to compliance elements of data management mechanisms as well as current and upcoming IT service performance [5]. This fact implies that the management of, unexceptionally, family companies conducting online marketing in West Kalimantan to actualize and develop maturity values of IT governance. It is particularly noted that growing significantly based on a seniority factor, they are managed from one generation to others without engagement of professionals [6].

The present research performs the continuance of a previously conducted study [7] pertaining to maturity values of domain processes of Acquired and Implement (AI) and Monitor and Evaluate (ME) failing to reach the third position (defined process) as expected due to averages with scales below 2.51. As a matter of fact, family companies running businesses through online marketing eminently require readiness and reliability of IT service performance. Accordingly, availability of transaction services of all products is directly affected. It is, then, undeniable to enhance this performance beginning with assurance of fine maturity values of the whole domains of IT governance in organization management. Besides, the expectation of the fourth level (managed and measurable) put in this research is greatly concerned. It is recognized that competitions of online businesses are getting stricter since threats demanding professional treatment are nationally and globally encountered [8].

Following survey results present the proof that mostly, family companies in West Kalimantan generally function IT

departments. Nonetheless, they are integrated with other units and divisions of work. Furthermore, IT services are apt to be centralized and only accessible by certain departments. Also, orientation of the management system is on the factor of seniority. Each department owning procedures and mechanisms holds the orientation based on family levels. The other evidence is that short-term IT investment is apt to be decided, operational budget is prioritized, and extra values are partially obtained. Contextually, information mapping on relationships of utilized IT and measured information service performance is absent.

Encountered complexities are factually identical to those found in several previous studies. It is affirmed that more strategic evaluation of the maturity of IT governance has been on conformity, reliability, and innovation in enhancing values of IT service performance of family companies [9,10]. Also, IT service investment has incompletely referred to need awareness of this kind of evaluation. The lack of knowledge on the maturity results is the fact that IT processes fail to meet identification and implementation of strategic alignment of businesses and IT [11]. It is found that maturity of IT governance is only to satisfy internally provided information services [12]. Performance regarding this matter properly and intensely determines the competitive success of current and upcoming online businesses [13,14]. Additionally, maturity values of IT governance become a critical factor of determining the steps taken by the top management to conduct remedial actions of managing all IT processes [15]. Such values reflect finer performance once measurement results guarantee more mature IT processes satisfying control objectives [16].

A research problem formulated was on the extent of gaps in IT governance in providing IT services for now and in the future. Another one was on elaboration of a newly suggested IT governance model based on maturity values of IT governance used to ensure improvement of IT service performance comprehensively. The research objective supported previous research including domains of AI and ME by referring to results of more detailed evaluation of maturity levels of IT governance among relationships of IT processes in domains of PO and DS to actualize IT service performance. The principle is that improving the maturity of IT governance is a starting effort to properly perform IT services in family businesses so that online marketing can be implemented smoothly.

In addition to maturity values, this research also set goals to find out the implications of managerial aspects and recommend a recent IT governance process model to complement previous studies only concerning domains of AI and ME. Through measured outcomes of maturity values of IT processes of domains of PO and DS, it was greatly expected that a strong foundation of repositioning previous IT service performance emerged.

II. LITERATURE REVIEW

A. IT Governance

The term IT governance has begun to be an essential concern for organization needs since the research was published by [17] and [18], and been an inherent part of organizational governance [19]. IT governance is defined as an integrated part of the management of a company or organization embracing leadership, an organizational structures, and processes and ascertaining that IT organizations can maintain and expand organizational strategy and objectives [20]. Implications of implementing IT governance significantly provide effectiveness of business management. Through a strategy committee and effective communication system, all policies and procedures can obviously and positively affect IT governance [21].

B. IT Maturity Levels

Maturity levels of IT governance facilitate determination of maturity values of IT processes of domains for now and in the future [22]. Moreover, they can be used to raise awareness of the importance of managing IT processes while identifying priorities at levels of IT governance [23]. Apart from these, they represent performance of each IT process existing in organizations [24]. Maturity models have grouping levels from zero or non-existent level (not available yet) up to the fifth level (optimized). Every IT process of each domain possesses ranks based on management expectations [25].

C. PO Domain

PO Domain represents strategy, tactics, and identification of IT mechanisms. It contributes to achievement of organizational goals. The strategy appropriately requires planning, communication, and management [26]. PO Domain consists of PO1 (strategic IT planning definition), PO2 (information architecture definition), PO3 (IT direction determination), PO4 (definition of IT processes, organizations, and interrelationships), PO5 (IT investment management), PO6 (management communication of objectives and directions), PO7 (IT resource management), PO8 (quality management), PO9 (estimation and management of IT risks), and PO10 (project management) [20].

D. DS Domain

Such the domain represents deliveries of actual information including the management of fluency and security, supports of services to users, management of data, and operation of facilities [26]. DS Domain consists of DS1 (definition and management of service levels), DS2 (service management of the third party), DS3 (management of performance and capacity), DS4 (continuous service assurance), DS5 (system security assurance), DS6 (identification and allocation of costs), DS7 (education and training of users), DS8 (management of service desks and incidents), DS9 (configuration management), DS10 (problem management), DS11 (data management), DS12 (physical environment management), and DS13 (operation management) [20].

III. RESEARCH METHOD

The form of the research design was a survey integrating quantitative and qualitative methods in order to achieve comprehensiveness, validity, reliability, and objectivity of data [27]. This combined method applied a convergent triangulation model with an explanatory design through the model of follow-up explanation [28]. At first, data were collected for calculation and quantitative analysis. Next, they were clarified with qualitative data used to enable interpretation and explanation [29]. The research population covered all companies or business units that have marketed products online for more than 5 years in West Kalimantan. Respondents were business heads of online stores of an upper middle scale selected with a purposive sampling technique. Required primary data were obtained by distributing questionnaires to 112 respondents. However, there were 99 of those filling out and returning them (response rate = 88.39%). Google form was used as a medium of filling out questionnaires and data were processed with Likert scales with intervals ranging from strongly agree (Score 6) to strongly disagree (Score 1).

The survey was performed through online dissemination of questions for 3 respondents of each company. Since businesses were managed by families, adopted seniority system prevailed. Next, in-depth interviews were conducted to make interpretation of obtained answers. Reprocessing of these answers were further applied to measure maturity levels.

For requirements of measuring maturity levels of all domains of IT governance, COBIT 4.1 Framework became the reference [20]. Maturity levels of domain processes of PO and DS were further measured. Calculating aggregation values of maturity levels represented by arithmetic averages was performed afterwards. The index of IT governance for each objective of research results adopted this formula: $\text{Index} = \{\Sigma (\text{number of answers} \times \text{maturity value}) : (\text{number of questions} \times \text{number of respondents})\}$ [30,31]. Following these, results obtained were integrated with description given by informants to strengthen previous quantitative research. All aggregation results were represented by using radar graphs. The rounding index scales were in Table I.

TABLE I. ROUNDING INDEX SCALES

Scale	Level of Maturity Model
4.51 – 5.00	5 – Optimized
3.51 – 4.50	4 – Managed and Measurable
2.51 – 3.50	3 – Defined Process
1.51 – 2.50	2 – Repeatable but Intuitive
0.51 – 1.50	1 – Initial/Ad Hoc
0.00 – 0.50	0 – Non-existent

IV. RESULTS AND DISCUSSIONS

Measurement conducted afterwards primarily produces averages of current maturity values of domains of PO (3.017) and DS (2.928) which are at the third level (defined process). The lowest ones with scales below 2.51 are, however, possessed by PO4 (2.356), PO5 (2.432), PO7 (2.478), PO9 (2.437), DS4 (2.356), DS7 (2.426), and DS10 (2.398).

Comprehensive maturity values of IT processes of PO and DS Domains are presented in Tables II and III.

TABLE II. GAPS OF MATURITY LEVELS OF PO DOMAIN PROCESSES

Domain	Process	Tested Result	Maturity Level
PO1	Strategic IT planning definition	3.648	4
PO2	Information architecture definition	3.368	4
PO3	IT direction determination	2.998	4
PO4	Definition of IT processes, organizations, and interrelationships	2.356	4
PO5	IT investment management	2.432	4
PO6	Management communication of objectives and directions	3.355	4
PO7	IT resource management	2.478	4
PO8	Quality management	3.763	4
PO9	Estimation and management of IT risks	2.437	4
PO10	Project management	3.332	4

TABLE III. GAPS OF MATURITY LEVELS OF DS DOMAIN PROCESSES

Domain	Process	Testing Result	Maturity Level
DS1	Definition and management of service levels	3.652	4
DS2	Service management of the third party	2.791	4
DS3	Management of performance and capacity	2.675	4
DS4	Continuous service assurance	2.356	4
DS5	System security assurance	2.783	4
DS6	Identification and allocation of costs	3.378	4
DS7	Education and training of users	2.426	4
DS8	Management of service desks and incidents	3.313	4
DS9	Configuration management	3.058	4
DS10	Problem management	2.398	4
DS11	Data management	3.356	4
DS12	Physical environment management	3.112	4
DS13	Operation management	2.772	4

Another finding reveals that expectations of companies are achievable as indicated by PO1, PO8, and DS1 which are at the fourth position (managed and measurable) with maturity values greater than 3.50 and less than 4.51. Conversely, the rest are at the third (defined process) and second (repeatable but intuitive) positions. Computation results show that domains of PO and DS possess greater maturity values than the ones of AI and ME do in terms of averages and positions. More detailed interpretation is that numerous family companies embrace implementation of strategic IT planning in processing IT services for online customers accurately and have the capability to manage information quality smoothly. Also, management system of these companies is improved if compared to previous research [7]. Obviously, attention and conformity of service strategy are noticeable. On the other hand, IT processes with maturity values below 2.51 reflect the truth that PO and DS are identical to AI and ME in terms of the

second position (repeatable but intuitive) reached that is far from expectations of companies.

Based on processed data, it can be clarified further that maturity values of IT governance of PO Domain, especially PO4, PO5, PO7, and PO9 have a fairly high gap. Understandably, some of them have clear definitions of interrelationships of IT processes and organizational activities. Moreover, there is non-appearance of structures, processes, and mechanisms in relation to standards leading to undirected system of IT processes for each work unit of companies. Besides, management of IT investment is still partial and generally focuses on financing of hardware and software. Following these, IT resource management is prone to concentrate on aspects of withdrawal and training without further investigation of roles, the ability to collaborate, and evaluation of performance. Also, IT resources do not only focus on users, but also include facilities, infrastructure, and configuration of flows of information system. Finally, management and estimation of IT risks are more on operational constraints and daily repair costs without sustainably anticipating the planning and evaluating the failure of IT processes.

On the other hand, regarding DS Domain, DS4, DS7, and DS10 indicate that accountability to ascertain appropriateness of services, provision of information, and compliance with standard requirements is unclear. Furthermore, reports of IT services are still unstructured and tend to be incomplete. The other interpretation is that system of education and training includes unclear standardization and ineffective planning allowing individuals to participate with their initiatives. It is lastly noted that procedures, tracking, and solutions to operational problems are unclear and standards of understanding the problem solving in providing IT services to users are neglected. The following is the composition of maturity values of IT processes for family businesses that have implemented online marketing of products from the perspective of PO and DS Domains (see Figure 1).

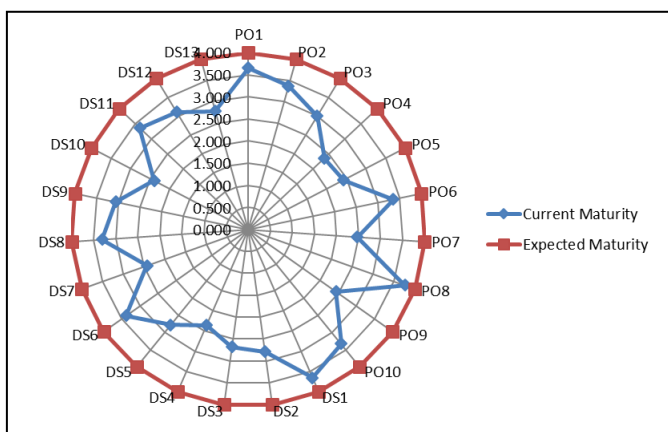


Fig. 1. Maturity Level Model of PO and DS Domains

Study findings further show that according to details, IT processes have different values and again, there are only three IT processes successfully reaching the fourth position (managed and measurable). This remains fundamental implications for heads of family companies in marketing their

products online. A requirement is to pay serious attention to guarantee IT service performance so that it can last [32]. Complexities faced must be quickly and well tackled to avoid the performance decrease of other IT processes [33]. Terribly, however, values of existing maturity levels make IT services unclear as well as organizational structures of IT unresponsive and stagnant in IT process implementation according to roles and responsibilities integrated with decisions and businesses. Another effect brought is that decisions of IT investment become ineffective and inefficient in managing IT service portfolios restricted to provision of IT budget. This condition can even worsen due to the management model of family companies compelling seniority decisions.

Providing sustainable IT services requires IT development, maintenance and examination of IT, the use of reserves, and periodic training [34]. IT processes should be effective and continuously minimize possibilities of disruption of IT services [35]. The lack of management attention in education and training of marketing products online needs data processing with the combination of policies, standards, and procedures. Programs of education and training can make users utilize technology effectively and recognize risks and responsibilities of empowering IT [36]. Authentic actions of the management in updating and investigating IT processes should exist to enhance information service performance. Running a business online through involvement and supports of the top management by increasing maturity values of IT governance, information can be easily accessible to customers.

Therefore, enhanced maturity values of IT governance become a prerequisite for reliable information service performance. The whole domains and processes supporting and influencing each other should also be concerned [37]. More specifically, every IT process facilitates the aforesaid performance through strategic alignment of businesses and IT, especially for family companies running online businesses.

The model of IT governance is suggested in connection with the priority of IT processes with values below 2.51 such as PO4, PO5, PO7, PO9, DS4, DS7, and DS10. It is known that they have direct interaction with AI and ME and, again, hence, require enhancement. Here are recommendations of IT governance for fine, expected maturity values:

1) PO4 (defining IT processes, organizations, and interrelationships) is linked to other control objective inputs including PO1 (strategic, tactical IT plans), PO7 (policies and procedures of IT human resources, IT skill matrices, and job description), PO8 (actions of quality improvement), PO9 (remedial action plans of IT-related risks), ME1 (remedial action plans), ME2 (effectiveness reports of IT controls), ME3 (catalogs of legal, regulatory requirements associated with IT service deliveries), and ME4 (process framework improvement) as well as control objective outputs consisting of ME4 (IT process framework), AI7 and DS6 (owners of documented system), and PO7 (IT organizations, relationships, documenting roles, and responsibilities).

2) PO5 (managing IT investment) is linked to other control objective inputs including PO1 (strategic, tactical IT plans, projects, and service portfolios), PO3 (infrastructure

requirements), PO10 (updated IT project portfolios), AI1 (feasibility studies of business requirements), AI7 (post-implementation reviews), DS3 (performance and capacity plans), DS6 (IT finance), and ME4 (expected business outcomes of IT-enabled business investment) as well as control objective outputs consisting of PO1, AI2, DS6, ME1, and ME4 (reports of costs and benefits), DS6 (IT budget), and DS1 and PO10 (updates of IT service portfolios).

3) PO7 (managing IT resources) is linked to other control objective inputs including PO4 (IT organizations, relationships, documenting roles, and responsibilities) and AI1 (feasibility studies of business requirements) as well as control objective outputs consisting of PO4 (policies and procedures of IT human resources), PO4 and PO10 (IT skill matrices), PO4 (job description), DS7 (abilities and competencies as well as individual training of users), and DS7 (specific training requirements).

4) PO9 (estimation and management of IT risks) is linked to other control objective inputs including PO1 (strategic, tactical IT plans, projects, and service portfolios), PO10 (management plans of project risks), DS2 (risks of suppliers), DS4 (contingency test outputs), DS5 (threats of security and vulnerability), ME1 (trends of historical risks and events), and ME4 (appetite of enterprises for IT risks) as well as control objective outputs consisting of PO1, DS4, DS5, and ME4 (risk assessment), ME4 (risk reports), PO6 (IT-related risk management), and PO4 and AI6 (remedial action plans of IT-related risks).

5) DS4 (ensuring continuous services) is linked to other control objective inputs including PO2 (assigned data classification), PO9 (assessment of risks), AI2 (availability, continuity, and specification of recovery), AI4 (users, operation, technical supports, and administrative manuals), and DS1 (SLAs) as well as control objective outputs consisting of PO1, DS4, DS5, and ME4 (risk assessment), ME4 (risk reports), PO6 (IT-related risk management), and PO4 and AI6 (remedial action plans of IT-related risks).

6) DS7 (educating and training users) is linked to other control objective inputs including PO7 (abilities and competencies of users, individual training of users, and specific training requirements), AI4 (requirements of training materials and knowledge transfer for solution implementation), DS5 (specific training requirements of awareness of security), and DS8 (reports of satisfaction of users) as well as control objective outputs consisting of ME1 (process performance reports) and AI4 (required documentation updates).

7) DS10 (managing problems) is linked to other control objective inputs including AI6 (authorization of changes), DS8 (reports of incidents), DS9 (configuration of IT), and DS13 (logs of errors) as well as control objective outputs consisting of AI6 (requests for changes), AI6 (problem records), ME1 (process performance reports), and DS8 (recognition of problems, errors, and work).

V. CONCLUSION AND FUTURE RESEARCH

Raising maturity levels of IT governance is vital to assure strategic alignment of businesses and IT for family companies running online businesses in West Kalimantan. Findings of this study complement previous studies. Apparently, there are still quite a lot of processes with scales below 2.51 despite the fact that the other three exceed expectations of companies. Therefore, change management through implementation of horizontal communication should exist. Also, the oriented focus of seniority levels in family structures should be eradicated. These activities can contribute to anticipation of needs of creating and performing IT governance through IT process integration. Mechanisms of integration among processes of businesses and IT are further a part of reaching synchronization and interoperability to produce and improve IT service performance for internal and external necessities.

Referring to this study, follow-up research can focus on analysis of IT governance regarding comprehensive domain relationships of PO, DS, AI, and ME to gain KPI (Key Performance Indicators) and KGI (Key Goal Indicators) of IT processes. Determination of KPI and KGI through gap integration of the whole domains can give more apparent information on every weak aspect of the whole IT processes of IT governance of all family companies running online businesses in West Kalimantan. This can stimulate achievement of strategic alignment of businesses and IT as well as support needs of activities in improving IT service performance.

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