

Enhancing Online Business Marketing to Expand Market Shares through IT Governance

Sandy Kosasi

Information System Department
STMIK Pontianak
Pontianak, West Kalimantan, Indonesia
sandykosasi@yahoo.co.id

Vedyanto

Information System Department
STMIK Pontianak
Pontianak, West Kalimantan, Indonesia
vedy91@gmail.com

I Dewa Ayu Eka Yuliani

Information System Department
STMIK Pontianak
Pontianak, West Kalimantan, Indonesia
dewaayu.ekayuliani@gmail.com

Abstract—Online business marketing applied to expand market shares is inextricably connected with availability and reliability of IT governance. This model of marketing covers activities and transactions with a digital mechanism. This research included the sample of 30 MSME (Micro, Small, and Medium Enterprises) businesses of traditional and finished clothes originated in Pontianak City. Stratified sampling technique was applied. In addition, questionnaires with each process divided based upon the levels were in use. These levels were served by using Guttman Scales. The aims of this research were to cognize gap values of maturity levels and propose a recent model of IT governance to reach expected maturity levels. Results show that the lowest values of maturity levels are at PO8 (2.336) and DS5 (2.560). Therefore, redefinition of information architectures, IT resources, quality management, estimation and management of IT risks, system improvement of IT infrastructure management, IT investment strategies, and communication are of great importance. A recommended model shows that PO8 is related to input control objectives PO1, PO10 and ME1 as well as output control objectives AI1, AI2, AI3, AI5, DS2, PO10, AI1, AI2, AI3, AI7, ALL, PO4, and AI6. Meanwhile, DS5 is associated with input control objectives PO2, PO3, PO9, AI2, and DS1 as well as output control objectives DS8, DS7, ME1, AI6, PO9, and DS11.

Keywords—IT Governance, Plan and Organize, Deliver and Support, Online Business Marketing

I. INTRODUCTION

Online business marketing is representation of new business opportunities of the use of IT in offering products globally. This reflects that broader target markets should be reached [1]. Online business marketing provides opportunities of growing new businesses, increases sales turnover, expands niche markets and market segmentation, offers flexibility of searching products, reduces operational costs, and increases incomes [2]. This kind of marketing is always in relation to consumers directly and personally [3]. Moreover, it provides guarantees for consumers intensively and interactively. Consumers' satisfaction, accordingly, gets increased [4].

Online business marketing pertains to availability and reliability of IT governance [5] due to the fact that all activities and transactions with consumers go through a digital mechanism [6].

Applying IT properly and having additional values of online business marketing immensely rely on procedures, scheduling, and maintenance of infrastructures, manual procedure updates, system verification, records of changes, and regular and continuous implementation of IT [7]. A crucial implication for the management and the stakeholders is that possessing proper IT governance sustains the competitiveness [8]. IT governance guarantees goal achievement and business risk prevention through appropriate elements once information is managed [9].

Online business marketing requires mechanisms, processes, and structures to govern IT. Personal relationships with consumers can, hence, be built [10]. IT governance performance should ascertain conformity between IT strategies and online business marketing to obtain maximal opportunities and benefits [11,12]. The availability of solutions of fine service system is an important need as indicators of business performance should be fulfilled and IT service standardization should be possessed by companies and online service providers [13]. This fact reflects that maturity levels of IT governance in two main aspects are requisite. While the former refers to procurement and implementation of system solution devices and IT infrastructures, the latter represents current availability of supports and services of IT and upcoming enhancement [14].

IT governance in online business marketing activities refers to PO (Plan and Organize) and DS (Deliver and Support). In this research, COBIT 4.1 (Control Objectives for Information and Related Technology 4.1) was in application. Principally, comprising PO (Plan and Organize), AI (Acquire and Implement), DS (Deliver and Support), and ME (Monitor and Evaluate) [15], this framework is for the management, IT service staff, control departments, audit functions, and

owners' business processes. Secrecy, integrity, and availability of data as well as sensitive and critical information are ascertained [16]. COBIT 4.1 can bridge the gaps of the two types of control through control objective levels (i.e. activities, tasks, processes, and domains). The main characteristics focus on businesses, orientations of business processes, and control bases through measurement ensuring more accurate results [17,18].

Such research problems were formulated: to what extent were the gap values affected by IT governance applied to current and online business marketing activities based on expected facts? and what was a new and recommended IT governance model of online business marketing used to reach expected maturity levels like?

A lot of companies applying online businesses claim that they have fine IT governance [19,20]. Specifically, however, deep analyses of IT governance maturity of online business marketing in Pontianak City were absent. It is found that most previous studies concerned promotion media used to expand businesses and target markets [21,22,23]. In this context, COBIT 4.1 is central to management of IT effectiveness of companies and provision of platforms on practices and relationships with the best use of IT in industries [24].

Increases of IT investments have not been enhanced with IT governance. As a result, supports and service systems have not completely ascertained information conformity [25]. Selection of IT control processes requires capabilities to identify and implement business strategies and IT continuously in IT-based businesses [26]. The fact indicates the lack of general directions of obviously providing initial stages for business companies and IT governance. Frameworks should be proposed and integrated with organization structures in the composition of IT governance [27]. Frameworks do not provide any guidance of contingency factors and complicate achievement of maturity levels [28,29]. A number of studies indicate that fine and reliable IT governance competences are required in online business marketing activities, particularly in building firm relationships with consumers [30,31,32].

This research aimed to cognize existing and expected gap values of maturity levels of IT governance in online business marketing activities based on PO and DS Domains. Description of measurement analyses of maturity and implications based on a managerial side on relationships among IT processes was made. Lastly, a recent model of IT governance used to reach expected maturity levels by referring to performance indicators of online business marketing was proposed.

II. RESEARCH METHOD

This survey research included the sample of 30 MSME businesses of traditional and finished clothes originated in Pontianak City. Stratified sampling technique was applied. In addition, questionnaires with each process divided based upon the levels were in use. These levels were served by using Guttman Scales[33].

Data given by the respondents were initially computed to find out maturity levels of each business process. The formula used to calculate maturity indices are: $\{\sum(\text{the number of answers} \times \text{maturity values}) : (\text{the number of questions} \times \text{the number of respondents})\}$. Rounding scales of indices of maturity model levels are in the range of 0 (zero/non-existent) to 5 (optimized) [34]. Next, aggregates of maturity levels were computed through arithmetic means. Finally, results were provided in forms of tables and radar charts using Microsoft Excel [35].

Measurement values of maturity levels identify to what extent companies have fulfilled standards of IT process management. The model of maturity intervals from 0 (zero/non-existent) to 5 (optimized) is in the form of the graphic (see Figure 1).

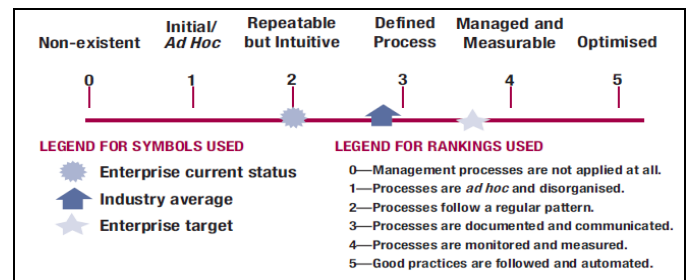


Fig. 1. Graphic of Maturity Level Intervals

III. RESULTS AND DISCUSSION

Measurement results of maturity levels of IT governance reflect current and expected conditions of IT governance. The following tables (Tables 1 and 2) show measurement outcomes of maturity levels of PO and DS Domains of IT governance to see existing gaps.

TABLE I. COMPUTATION OF MATURITY LEVELS OF PO DOMAIN

Domain	Process	Current Maturity Level
PO1	Defining strategic IT planning	2.720
PO2	Defining information architectures	2.576
PO3	Determining IT directions	2.966
PO4	Defining IT processes, organizations, and their interrelationships	2.623
PO5	Managing IT investments	2.647
PO6	Communicating aims and directions of the management	2.534
PO7	Managing IT resources	2.653
PO8	Managing quality	2.336
PO9	Estimating and managing IT risks	2.427
PO10	Managing projects	2.524
Average		2.601

TABLE II. COMPUTATION OF MATURITY LEVELS OF DS DOMAIN

Domain	Process	Current Maturity Level
DS1	Defining and managing service levels	2.835
DS2	Managing third parties' services	2.751
DS3	Managing performance and capacities	2.695
DS4	Ensuring sustainable services	2.684
DS5	Ensuring system security	2.560
DS6	Identifying and allocating costs	2.585
DS7	Educating and training users	2.862
DS8	Managing service desks and incidents	2.688
DS9	Managing configurations	2.835
DS10	Managing problems	2.760
DS11	Managing data	2.870
DS12	Managing physical environment	2.856
DS13	Managing operations	2.775
Average		2.750

As indicated in Tables 1 and 2, averages of maturity values of PO and DS Domains are respectively 2.601 and 2.750. In other words, averages of maturity level values are greater than a minimal value (2.51) and are at the third position (defined). Analysis results show that maturity values of PO8 and PO9 are respectively 2.336 and 2.427. The maturity value of DS5, conversely, is 2.560. Furthermore, the greatest maturity values of PO3 (2.966) and DS11 (2.870) exist. These values reflect that 30MSME businesses have conducted the function of providing information services to determine IT directions and support online business activities.

Maturity values of PO8 and PO9 denote that all procedures finely possess standardization and documentation. They are communicated to ease understanding and implementation based on prevailing mechanisms through the training. Then, processes are referred to and conducted. Nevertheless, the control system is needed for practices (see Figure 2).

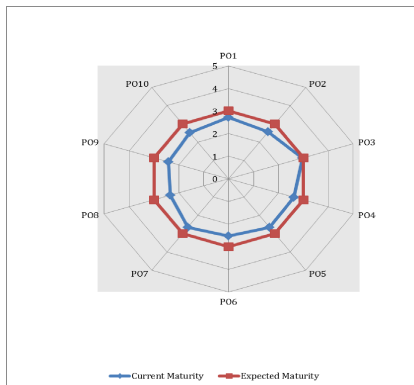


Fig. 2. Maturity Levels of PO Domain

It is realized that statements on requirement quality and communication on quantitative indicators, sustainable improvement, analyses, deviated actions, and results conveyed to the stakeholders do not exist. Also, quality management ascertaining the use of IT in providing values for enhancement, sustainable business processes, and transparency are not found.

Such aspects certainly require planning of IT infrastructures to determine and manage obvious and realistic expectations on IT products, information services, and mechanisms of deliveries or distributions of information. Regularly updated planning including these aspects: system architectures, technology directions, acquisition planning, standards, strategies of migrations and contingencies make the changes of competitive environment easy to adjust and improve interoperabilities of platforms and applications.

Maturity values of DS5 indicate that the majority of online business companies have comprehended the importance of system security. However, information integrity and security management applied to protect IT assets are absent. The evidence shows that IT security has a dispersed pattern. Moreover, implementation of the security has not been periodically controlled. It depends on each work unit. Corrective actions are also reactive. Comprehensibly, the handling does not possess overall integrated system. It is common to see the failure of security system. Thus, more convincing actions and patterns of security are needed (see Figure 3).

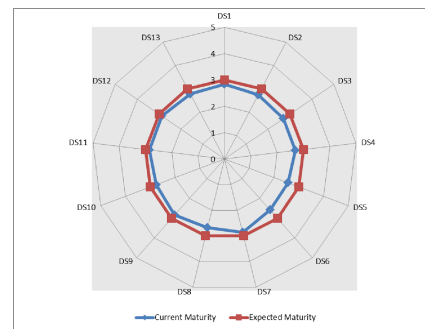


Fig. 3. Maturity Levels of DS Domain

This makes it clear that organizations should realize that managing effective data needs identification. Management processes of data including effective formulations of procedures support the management of backups, recoveries, and exports of data. Effective data management ensures the quality, time precision, and data availability in decision making. The maturity values need to be consistently increased through enhancement of procedures in the setting and control of IT data.

Measurement results require definition of process maturity levels. This indicates that better performance measurement results ensure higher process maturity levels. Definition of policies and procedures, improvement of performance indicator values, addition of control objectives, and refinement of IT processes should become priorities to reach process management fulfilling proper IT governance standards. Understandably, there are a number of gaps to be removed. Enhancement of the whole IT processes of PO and DS Domains should, hence, refer to details of control objectives of processes.

Besides improvement of processes, the management should take remedial actions to terminate inappropriateness of

existing processes on standards. Process management needs capabilities to determine indicators of performance measurement and condition understanding of online business marketing. Determination of maturity levels is a critical thing that should be concerned by the management for continuous improvement. Moreover, sustainable engagement between the management and the users of IT processes is needed to ascertain that steps taken match the actual occurrences.

A recommended model of IT governance shows that PO8 possesses input control objectives comprising PO1, PO10, and ME1 and output control objectives consisting of AI1, AI2, AI3, AI5, DS2, PO10, AI1, AI2, AI3, AI7, ALL, PO4, and AI6. In order to raise the maturity value of PO8, development of management system of online business marketing quality should possess planning, implementation, control, and maintenance of system with clear and understandable standardization. Managing quality is substantial since it ensures that IT can provide turnover values and profitability of online businesses, continual improvement, and information transparency for stakeholders and company executives. The focus of IT governance of PO8 refers to quality management system, performance monitoring, and implementation of programs for sustainable development of IT services.

DS Domain, on the other hand, possesses DS5 with these input control objectives: PO2, PO3, PO9, AI2, and DS1 and output control objectives: DS8, DS7, ME1, AI6, PO9, and DS11. To raise the maturity value of DS5, online business companies should suitably manage IT security based on business needs, make the planning of IT security to interpret business functions, risks, and needs of conformity by considering IT infrastructures and security cultures, and guarantee that security planning is properly implemented based on policies and procedures, and that investments are appropriate to services, human resources, software, and hardware.

Other facets of concerns for online business companies are capabilities to communicate policies and procedures of security to stakeholders and users, specific identification of internal and external users through authentic mechanisms and their activities in IT system (business applications, IT environment, operation system, and development and maintenance), as well as confirmation noting that users use the system and data in harmony with documented and defined business needs and that work needs are attached in users' identities. Allowing access requested by the management of users, approved by system owners, and implemented by those who are responsible for the security is also great significance. Ultimately, online business companies should conduct maintenance of users' identities and access to main storage, make cost-effective measurement procedures and updated techniques, and authenticate access rights.

IV. CONCLUSION AND FUTURE RESEARCH

The evidence suggests that averages of gap values of maturity levels of PO and DS Domains are respectively 2.601

and 2.750. The lowest values are at PO8 (2.336) and DS5 (2.560) and at the third position (defined). Therefore, specific management actions are required to develop the system of IT readiness and IT alignment in online business marketing. A recommended model of IT governance shows that PO8 Domain is related to input control objectives PO1, PO10, and ME1 as well as output control objectives AI1, AI2, AI3, AI5, DS2, PO10, AI1, AI2, AI3, AI7, ALL, PO4, and AI6. Meanwhile, DS5 is associated with input control objectives PO2, PO3, PO9, AI2, and DS1 as well as output control objectives DS8, DS7, ME1, AI6, PO9, and DS11. Maturity level values should be periodically measured by involving other domains to ensure obvious information unity and reach expected maturity levels.

REFERENCES

- [1] Z. Davids and I. Brown, "Social Media Marketing Strategy in Organizations: A South African Case Study," Proceedings Annual Workshop of the AIS Special Interest Group for ICT in Global Development, 2014, pp. 1-14.
- [2] P. Yannopoulos, "Impact of the Internet on Marketing Strategy Formulation," International Journal of Business and Social Science, Vol. 2, No. 18, 2011, pp. 1-7.
- [3] A. Bharadwaj, O. A. El Sawy, P. A. Pavlou, and N. V. Venkatraman, "Digital Business Strategy: Toward a Next Generation of Insights. MIS Quarterly, 37(2), 2013, pp. 471-482.
- [4] G. Holliman and J. Rowley, "Business to Business Digital Content Marketing: Marketers' Perceptions of Best Practice," Journal of Research in Interactive Marketing, Vol. 8, No. 4, 2011, pp. 269-293.
- [5] S. Kosasi and Vedyanto, "The Maturity Level of Information Technology Governance of Online Cosmetics Business," 3rd International Conference on New Media (CONMEDIA), IEEE, 2015, pp. 1-6.
- [6] X. Liu, L. Wu, J. Yu, and X. Lei, "A Holistic Governance Framework for E-business Success," Fourth International Conference on Management of e-Commerce and e-Government (ICMeCG), 2010, IEEE, pp. 142-146.
- [7] X. Bai, R. Krishnan, R. Padman, and H. J. Wang, "On Risk Management with Information Flows in Business Processes," Information Systems Research, Vol. 24, No. 3, 2013, pp. 731-749.
- [8] A. A. Neff, F. Hamel, T. P. Herz, F. Uebernickel, and W. Brenner, "IT Governance in Multi-Business Organizations: Performance Impacts and Levers from Processes, Structures, and Relational Mechanisms," 46th Hawaii International Conference on System Sciences (HICSS), 2013, IEEE, pp. 4466-4475.
- [9] W. L. Teo, A. A. Manaf, and P. L. F. Choong, "Perceived Effectiveness of Information Technology Governance Initiatives among IT Practitioners," International Journal of Engineering Business Management, Vol. 15, Issue 19, 2013, pp. 1-9.
- [10] M. A. Al-saeed, S. M. Al-mahamid, R. M. H. Al-sayyed, "The Impact of Control Objectives of Information and Related Technology (COBIT) Domain on Information Criteria and Information Technology Resources," Journal of Theoretical and Applied Information Technology, Vol. 45, No. 1, 2012, pp. 9-18.
- [11] S. P. J. Wu, D. W. Straub, and T. P. Liang, "How Information Technology Governance Mechanisms and Strategic Alignment Influence Organizational Performance: Insights from a Matched Survey of Business and IT Managers," MIS Quarterly, 39(2), 2015, pp. 497-518.
- [12] F. Schlosser and H. T. Wagner, "IT Governance Practices For Improving Strategic and Operational Business-IT Alignment," Pacific Asia Conference on Information Systems, 2011, pp. 1-13.
- [13] N. Rezaei, "The Evaluation of Implementing IT Governance Controls, Journal of Applied Business and Finance Researches," Vol. 2, No. 3, 2013, pp. 82-89.

- [14] S.Kosasi, I. D. A. Eka.Yuliani, and Vedyanto, "Evaluation of Maturity Level of E-Procurement Application Systems, Electrical Engineering Computer Science and Informatics Conference, 2015, pp. 167-172.
- [15] IT Governance Institute, "COBIT 4.1: Framework, Objective Controls, Management Guidelines, Maturity Models," ISACA, ITGI, 2007.
- [16] D. Radovanovic, T.Radojevic, D.Lucic, and M.Sarac, "Analysis of Methodology for IT Governance and Information Systems Audit," 6th International Scientific Conference, 2010, pp. 2029-4441.
- [17] G.Mangalaraj, A.Singh, and A.Taneja, "IT Governance Frameworks and COBIT-a Literature Review," Twentieth Americas Conference on Information Systems, Savannah, 2014, pp. 1-10.
- [18] V.Raodeo, "IT Strategy and Governance: Frameworks and Best Practice," International Journal of Research in Economics & Social Sciences, IJRESS, Vol. 2, Issue 3, 2012, pp. 49-59.
- [19] R. Guesalaga, "The Use of Social Media in Sales: Individual and Organizational Antecedents, and the Role of Customer Engagement in Social Media," Industrial Marketing Management, Vol. 54, 2016, pp. 71-79.
- [20] Y.Wang, X. Q. He, and X.Yin, "The Impact of Consumer Materialism in China on Online Compulsive Buying Behavior," Wuhan International Conference on e-Business, 2016, pp. 582-589.
- [21] C. I. Setiawati, "The Driving Factors of Instagram Utilization for Marketing Efforts in Promoting Student-owned Online Store," International Seminar on Application for Technology of Information and Communication (ISemantic), IEEE, 2016, pp. 64-69.
- [22] X. Zhu, Q. Zhang, and J.Yang, "Evaluation of Online Promotion of Mobile Communication Devices: An Empirical Study," International Conference on Business Management and Electronic Information (BMEI), Vol. 5, IEEE, 2011, pp. 283-289.
- [23] Y. Yang, and A. Kankanhalli, "The Impact of Social Media Marketing on Online Small Business Performance," Pacific Asia Conference on Information Systems, 2014, pp. 1-11.
- [24] H. Rui, Z. Robert, and W, P. R. Leon, "Influencing the Effectiveness of IT Governance Practices through Steering Committees and Communication Policies," European Journal of Information Systems, Vol. 19, 2010, pp. 288-302.
- [25] X.Zhijie, "A Method of IT Investment Portfolio Optimization in the Government Sector Integrated with IT Governance," International Conference on Business Computing and Global Informatization (BCGIN), IEEE, 2012, pp. 6-9.
- [26] T. Y. J. Tu, M. J. Shaw, and R.Subramanyam, "IT Governance and Portfolio Management: An Exploration of the Superior IT Project Investment Portfolios," Pacific Asia Conference on Information Systems, 2015, pp. 1-11.
- [27] R.S.Debreceny and G.L.Gray, "IT Governance and Process Maturity: A Multinational Field Study," Journal of Information Systems, Vol.27, No.1, 2013, pp. 157-188.
- [28] R.Pereira and M.M.Silva, "A Literature Review: Guidelines and Contingency Factors for IT Governance," European Mediterranean & Middle Eastern Conference on Information Systems, 2012, pp. 342-360.
- [29] S.Ali, and P.Green, "Effective Information Technology (IT) Governance Mechanisms: An IT Outsourcing Perspective," Information Systems Frontiers, 14(2), 2012, 179-193.
- [30] A.Novotny, E. Bernroider, and S. Koch, "Dimensions and Operationalisations of IT Governance: A Literature Review and Meta-Case Study, 2012, pp. 1-13.
- [31] J. Braojos-Gomez, J. Benitez-Amado, and F. J. Llorens-Montes, "Impact of IT Infrastructure on Customer Service Performance: The Role of Micro-IT Capabilities and Online Customer Engagement," Pacific Asia Conference on Information Systems, 2015, pp. 1-17.
- [32] S. Ali, P. Green, and A. Robb, "The Influence of Top Managements' Absorptive Capacity of IT Governance Knowledge on Business-IT Alignment: an Empirical Analysis," Americas Conference on Information Systems, 2012, pp. 1-11.
- [33] J. W. Creswell, "Research Design: Qualitative, Quantitative, and Mixed Methods Approaches," (Fourth ed.), California: SAGE Publications, Inc., 2014.
- [34] R. A. Khther and M. Othman, "COBIT Framework as a Guideline of Effective IT Governance in Higher Education: A Review," International Journal of Information Technology Convergence and Services (IJITCS) Vol.3, No.1, 2013, pp. 21-29.
- [35] H. Zandhessami, M. H. Kargar, "Prioritization of COBIT Framework Processes Based on SazehgostarSaipa's Information Technology Strategies," Asian Journal of Management Research, Vol.2, Issue 1, 2011, pp. 359-379.