Strategy and Performance Measures of Information Technology in the Enhancement of Financial Management Internal Control, Ministry of Public Works and Housing

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Abstract: To be able to survive amid intense organizational competition, Small Medium Entrepreneurs (SMEs) require strategies to improve the quality of products/services offered. Quality improvement is clearly needed so that companies have high competitiveness. Good product/services can be produced by good internal processes. ISO 9001 Quality Management System is a framework that has been used extensively by SMEs to ensure the quality of the process. But not a few SMEs have successfully implemented and obtained QMS certification. Many factors influence the process of implementing ISO 9001 QMS, especially in the context of SMEs that have many limitations. This study aims to test the validity and reliability of scale for implementing ISO 9001's Critical Factors in SMEs level. The method used is a quantitative survey of four SMEs that have successfully implemented and obtained ISO 9001 certification. Data from the survey were analysed using the Aiken approach to show the level of validity and reliability. The results showed that of the 20 items tested, only 19 items were met the criteria. Item of Employee Acceptance was eliminated from scale because the implementation of ISO 9001 is mandatory for all stakeholders so the factors could be ignored.

1 INTRODUCTION

Government continues to give attention to build public works and housing infrastructure in Indonesia. It gives impact to the increasing budget of Ministry of Public Works and Housing (PUPR) from year to year. The budget of PUPR for 2018 has increased 91% compared to 2011 (State Law, 2017). PUPR implements internal control in carrying out its duty, it includes in the field of financial management.

The audit result from Indonesian Supreme Audit Institution (BPK-RI) has pointed that there are still weaknesses in the financial management internal control of PUPR. One of the causes is the utilization of Information Technology (IT) not yet optimal in the financial management at PUPR.

IT can be used to improve quality of financial management internal control, because IT can make financial management more effective and efficient. Currently, the benefit of IT is not yet optimal in financial management, because target and performance measures of IT have not yet align with the target and performance measures of financial management. This study was conducted to determine strategy and performance measures of IT Division in order to improve financial management internal control at PUPR.

2 THEORICAL FRAMEWORK

Balanced Scorecard (BSC) discovered by Kaplan and Norton for the very first time, is a new method in measuring organizational performance in a balanced manner and it is replacing performance measurement method that only focus on financial perspective (Kaplan and Norton, 1992). Performance measurement is conducted by measuring organizational performance toward its strategic objectives in various perspectives which are aligned with the mission, value and vision of the organization. Kaplan and Norton complement the performance measures produced by BSC with a

strategy map to show organization strategy in achieving organization mission through causality between strategic objectives that must be achieved by the organization (Kaplan and Norton, 2004).

BSC can be used to inherit strategy of parent organization to other organizations which are part of parent organization. BSC also can be used to align strategy and performance measures of IT Division which is part of the organization. Van Gembergen and Saul have shown that strategy and performance measures of IT can be aligned with the strategy and performance measures of parent organization by deriving the strategy and performance measures of IT from the strategy and performance measures of parent organization (Van Gembergen and Saull, 2001).

BSC can be used by IT Division in an organization to measure the performance of IT management toward perspectives in the parent organization's BSC namely: 1) financial; 2) customer; 3) internal process; and 4) learning and growth (Addo, Chow and Haddad, 2004). IT BSC also can be used during IT strategic planning, consisting of: 1) aligning IT strategy and business strategy; 2) IT performance evaluation; 3) IT strategic plan; 4) IT implementation plan; and 5) socialization of IT strategic plan (Tonneli, Bermejo, and Zambalde, 2014).

3 RESULT & DISCUSSIONS

The study was conducted with a qualitative approach using a case study method. Case study was used in this study to be able to explain in detail and comprehensive about strategy and performance measures of IT in improving the quality of financial management internal control.

Primary data collection was conducted by semi-structured interview. Researchers carried an interview guideline consisting of basic questions to guide researchers in collecting data to answer research problems. Interviews were conducted by asking open questions to informants who were executers of financial management and IT management at PUPR. Secondary data collection was conducted by collecting documents related to: 1) regulation of financial management and IT management; 2) strategic plan document of financial management and IT management; 3) BPK-RI audit results; and 4) government instance performance report.

Data collected then analyzed to be used in the formulation of strategy and performance measures.

Public organization can determine perspective, strategic objectives, and strategy map as well as performance measures if they already have mission, values and vision (Niven, 2003). The method used in structuring the strategy map and performance measures in this study is as shown in Figure 1.
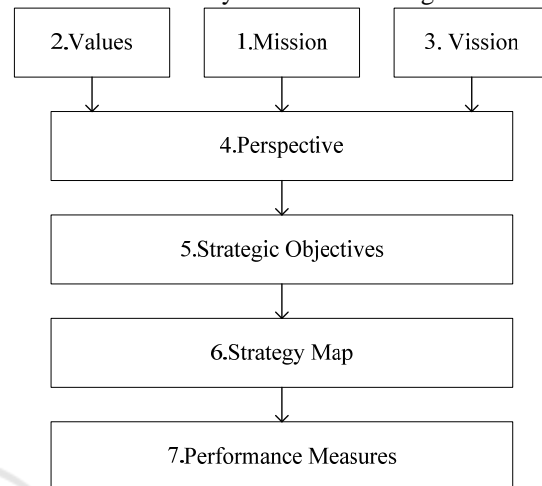

Figure 1: The Structuring of Strategy Map and Performance Measures

3.1 Strategy And Performance Measures Of Budget /Goods User

a.   Strategy of Budget/Goods User

President authorizes the authority of state financial management to Ministries/Agencies as Budget/Goods User to use budget and goods to conduct government programs in their respective Ministries/Agencies (State Law, 2003). The mission of Budget/Goods User at PUPR is to use the budget effective, efficient, accountably and transparently as well as to use state-owned property (BMN) optimally to support the implementation of reliable infrastructure development of public works and housing.

The Budget/Goods User at PUPR has values that must be implemented by all PUPR employees namely: integrity, professional, mission oriented, visionary; and ethical. The vision of Budget/Goods User at PUPR is to become a Budget/Goods User with integrity, professionalism and responsibility to support the realization of reliable infrastructure of public works and housing. Perspective will help Budget/Goods User to translate mission, values and vision into strategic objectives that must be achieved from various important perspectives in a balanced manner.

Budget/Goods User uses the customer's perspective to determine the value that can be generated in the form of products and services

desired by customer from Budget/Goods User associated with the mission, values and vision of PUPR. The customer of Budget/Goods User consists of: 1) President; 2) House of Representatives (DPR); 3)BPK-RI; 4) related Ministries/Agencies; 5) public; and 6) other related parties. Customer wishes Budget/Goods User to: 1) provide budget, goods/services, and financial report; 2) comply with regulations; 3) accept non-tax state revenues (PNBP); and 4)utilize BMN.

Budget/Goods User determines strategic objectives toward customer's expectation that has been explained in the customer perspective. Table 1 shows strategic objectives of Budget/Goods User in customer perspective.

Budget/Goods user uses an internal process perspective to determine processes that must be executed perfectly by Budget/Goods User in order to provide maximum value to customer. To be able to provide value to customer, processes which must be conducted by Budget/Goods User are namely: 1) preparing budget; 2) implementing budget; 3) holding responsible over budget; 4) reviewing PNBP potential; 5) conducting procurement of BMN; 6) implementing security and maintenance to BMN; 7) administering BMN; and 8) supervising state financial management.

Table 1: Strategic Objectives of Budget/Goods User in Customer Perspective

SO	Strategic Objective
SO1	Availability of the right budget
SO2	Availability of goods and services in a timely and quality manner
SO3	Availability of relevant and reliable financial statement
SO4	Increasing of regulatory compliance level
SO5	Increasing of PNBP revenues from PUPR
SO6	High utilization of BMN

Budget/Goods User determines strategic objectives based on the processes already described in the internal process perspective. Table 2 shows strategic objectives of Budget/Goods User in internal process perspective.

Budget/Goods user uses the perspective of human resources, information technology and organization in determining resources that must be owned by Budget/Goods User in order to carry out internal process providing value to customer. Budget/Goods user needs human resources that have a certain quality, appropriate information technology and the right form of organization in order to carry out the needed internal process.

Table 2: Strategic Objectives of Budget/Goods User in Internal Process Perspective

SO	Strategic Objective
SO7	Develop budget with program-based and outcome-based
SO 8	Carry out the budget in accordance with planning and regulations
SO 9	Holding responsible over budget in accountable and transparent manner
SO 10	Assesssing the potential of new PNBP
SO 11	Carry out strict supervision
SO 12	Providing BMN procurement in accordance with planning, transparent, competitive and fair
SO 13	Implementing security and maintenance of BMN properly
SO 14	Administering BMN in an orderly manner

Budget/Goods User determines strategic objectives based on needs of human resources described in the perspective of human resources, information technology and organization. Table 3 shows strategic objectives of Budget/Goods User in perspective of human resources, information technology and organization.

Each strategic objective in the strategy map of Budget/Goods User must have causality with other strategic objective both in the same perspective and different perspective. Causality shows strategy of Budget/Goods User to achieve mission, values and vision of Budget/Goods User.

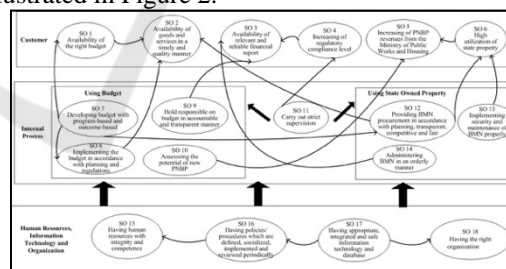The strategy map of Budget/Goods User is illustrated in Figure 2.

Figure 2. Strategy map of Budget/Goods User

Table 3: Strategic Objectives of Budget/Goods User in Human Resources, Information Technology and Organization Perspective

SO	Strategic Objective
Human Resources, Information Technology and Organization Perspective	
SO 15	Having human resources with integrity and competence
SO 16	Having policies/procedures which are defined, socialized, implemented and reviewed periodically

SO	
SO 17	Having appropriate, integrated and safe information information technology and database
SO 18	Having the right organization

b. Performance Measures of Budget/Goods User

Budget/Goods user has determined strategic objectives and described causality between strategic objectives contained in the strategy map describing strategy from Budget/Goods User to achieve mission, values and vision of Budget/Goods User. Budget/Goods user must measure their performance towards strategic objective that have been determined with the right performance measure. Budget/Goods user has strategic objectives that must be determined its performance measures as it is shown in Table 4.

Table 4: Performance Measures of Budget/Goods User at PUPR

SO	Performance Measures / Data Source
SO1	Performance Evaluation Value / Budget Performance Accountability Report (LAKIP)
SO2	Goods and services that are completed and can be received on time / Contract document, and Minutes of Handover (BAST) of work
SO3	BPK-RI opinion / BPK-RI Audit Report
SO4	State losses / BPK-RI Audit Report
SO5	Level of PNBP revenues / Treasurer Accountability Report (LPJ)
SO6	BMN used, utilized, and granted / BMN Report
SO7	Amount of DIPA revision and differences between plan and work result / Revision Document of Budget Implementation List (DIPA), Term of Reference, and BPK-RI Audit Report
SO8	Percentage of budget realization, Amount of late payment, Amount of over budget realization, Amount of payment refusal / Budget Realization Report Document, Invoice Document, Payment Warrant (SPM), and Fund Disbursement Warrant (SP2D).
SO9	Percentage of responsibility comprehensiveness over budget utilization, Obedience in the submission of financial statement / Evidence of budget utilization, Reconciliation Minutes of Financial Statement
SO10	Amount/number of PNBP type/ Study document of PNBP

SO	
SO11	Number of work unit supervised, Number of work implementation supervised / Aocument of audit implementation planning by internal auditor.
SO12	Number Procurement objection / Bidders' objection document
SO13	Amount of BMN used by unauthorized parties, amount of severely damaged BMN / BMN Condition Report and BMN Inventory Report
SO14	Percentage of BMN that has been revalued on time, Abedience in the submission of BMN report / BMN Report, BMN revaluation report, and BMN procurement document
SO15	Amount of certified HR, amount of training / Implementation report of training and HR certification.
SO16	Assessment result of quality management system / Quality management document
SO17	Support index of IT and database / document of IT and database needs, document of IT and database management
SO18	Organizational Index / Analysis document of organization form and the applicable organizational form document

3.2 Strategy And Performance Measures Of Division

On the Strategy Map of Budget/Goods User at PUPR, as it is shown in Figure 2, there is the 17th strategic objective (SO 17) found in the perspective of HR, IT and organizational, namely Budget/Goods User must have appropriate, integrated and safe information technology and database. IT Division has a role in financial management at PUPR to support Budget/Goods User in reaching SO 17, so that the mission of IT Division is to provide information system and database that are reliable, integrated and safe to support the use of budget in effective, efficient, accountable, and transparent manner, as well as optimal use of BMN.

IT Division at the PUPR has values that must be implemented by all PUPR employees, namely integrity, professional, mission oriented, visionary and ethical. The vision of IT Division in the financial management at PUPR is to become reliable and innovative information technology and database manager, in order to support integrated, professional and responsible Budget/Goods User.

The perspective used by IT Division to develop BSC of IT Division in the financial management of PUPR is a perspective that can be used to translate the mission, values and vision of IT Division in financial management at the PUPR. The perspective used is the perspective of Budget/Goods User as

user of IT services, internal process perspective, as well as learning and growth perspective.

The perspective of Budget/Goods User is used to determine the values expected by Budget/Goods User from IT Division. Budget/Goods User expects IT Division to provide information system, database and IT infrastructure that can be used to achieve their strategic objectives.

IT Division determines strategic objectives toward Budget/Goods User expectation. Table 6 shows strategic objectives of IT Division in Budget/Goods User perspective.

Table 5: Strategic Objectives of IT Division in Budget/Goods User Perspective

SO	Strategic Objectives
SO1	Availability of information system and database which are according to needs
SO 2	Availability of integrated information and database system
SO 3	Availability of a secure information and database system
SO 4	Availability of adequate IT infrastructure

The internal process perspective describes what processes that must be done well in order to provide value to the Budget/Goods User. The prioritized internal processes to be implemented are namely: 1) analyzing the information system requirement, data and infrastructure; 2) developing information system, 3) collecting data; 4) organizing IT infrastructure; and 5) implementing IT operation. IT Division determines strategic objectives toward internal process which is important to be implemented. Table 6 shows strategic objectives of IT Division in internal process perspective.

Table 6: Strategic Objectives of IT Division in Internal Process Perspective

No	Strategic Objectives
Internal Process Perspective	
SO 5	Analyzing the needs of information system, IT infrastructure data which are according to needs
SO 6	Developing information systems with good development standard
SO 7	Collecting and verifying data
SO 8	Implementing the right IT infrastructure
SO 9	Carrying out effective and efficient information technology operation

Learning and Growth Perspective explains the resources that IT Division must have in order to be able to carry out internal processes perfectly. IT Division must have HR, training, lesson learned and follow technological development. IT Division determines strategic objectives toward resources that

must be owned. Table 7 shows strategic objectives of IT Division in Learning and Growth Perspective.

IT Division compiles a strategy map to describe process to achieve mission, values and vision of IT Division in financial management at PUPR. On the strategy map of IT Division in financial management at PUPR, there is causality between each of the strategic objectives in the strategy map. This relationship illustrates the process on how IT Division can achieve their mission, values and vision in implementing financial management at PUPR as it is shown in Figure 2.

Table 7: Strategic Objectives of IT Division in Learning and Growth Perspective

No	Strategic Objectives
Learning and Growth Perspective Perspective	
SO 10	Having competent human resources
SO 11	Having sufficient amount of training
SO 12	Record, analyze, and use lessons learned
SO 13	Having a study of information technology development

b. Performance Measures of IT Division in Financial Management

IT Division sets performance measures for strategic objectives to be achieved. Performance measures are used to measure performance of IT Division towards strategic objectives to be achieved. as it is shown in Table 8.

Table 8: Performance Measures of IT Division in Financial Management at PUPR

SO	Performance Measures / Data
Customer Perspective	
SO1	Level of participation in IT forums, Budget/Goods User Satisfaction / IT Forums Report, Budget / Goods User Satisfaction Survey
SO2	Number of stand alone information system, total number interface / Information system and database architecture
SO3	Number of IS and database infiltration incident, percentage of corrupt IS and database / Information system and database operation report, information system error report and database corrupt report
SO4	IT infrastructure index / report of IT infrastructure needs, and report of available IT inventory

Internal Process Perspective	
SO5	Percent of IS projects with a negotiated plan with Budget/Goods User / Business Case
SO6	Percent resources devoted to applications development / Schedule data and Budget data
SO7	Data entry error rates, age data / Database, Data warehouse
SO8	Project performance meets or exceeds baseline expectations / Scope performance data
SO9	Total number of direct labor hours, cost/unit of service / Employee assignment report, IT cost report
Learning and Growth Perspective	
SO10	Number of employees with certification / Employee expertise certification
SO11	IT training and development budget as a percent of overall IT budget, Percent of technical training goals met / IT Budget, training report.
SO12	Percent of projects with lessons learned in database / database
SO13	Number of new IT study / IT study document.

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4 CONCLUSIONS

After carried out all stages of this study, several conclusions can be conveyed by the researcher are: 1) organization must have good mission, values and vision before developing organizational strategy; 2) strategy and performance measures of IT Division must be derived from strategy and performance measures of organization.; and 3) strategy map can be a tool for compiling, implementing and communicating strategy.

Several suggestions can be conveyed by the researcher are: 1) preparation of strategy and performance measures require commitment from all parties; 2) preparation of strategy and performance measures should use benchmark with similar organization; and 3) performance measures that are already been prepared are followed up with determining right objectives and activities to achieve performance measures target and strategic objectives target.