

Cost Management and Information Technology Control Systems Design Efficiency in Nigeria: The Task-Technology-Fit Approach

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Abstract- *The teething problems associated with cost management as a crucial aspect of management control system has been surmounted in developing countries as a result of integrating IT control systems. This paper utilised the task-technology fit framework to provide evidences on the significance of cost management and IT control systems design efficiency in Nigeria. Applying the cross-sectional survey design, data were gathered from 206 operational managers, selected from accounting and IT resource units in the 103 selected firms listed on the floor of the Nigerian Stock Exchange between 2006-2010 accounting periods. The data collected were analysed using the descriptive and inferential statistical tools. The descriptive analyses revealed the extensiveness of costing system design as moderate represented by total mean scores of 3.65; the task requirements and functionality (fit) of the information technology applications had overall mean perception of fit as 4.095 indicating very good fit. The result from the regression analysis showed that the efficiency of IT control applications on cost management systems was significant ($p < 0.01$) explaining about 47.7% variation ($R^2 = 0.474$) of non-financial performance. The paper concluded that effective utilisation of IT control applications in cost management system design would enhance performance if a fit exist between cost management system and information technology control applications.*

Keywords- *Cost Management; IT control applications; Task – Technology fit; IT Innovations; Performance*

1. INTRODUCTION

Firms have been beleaguered with unpredictable operating environment and wild competition. The situation has being counteracted by several management innovations and strategies. However, a remarkable area observable, is the implementation of management strategies on information technology (IT) platform, which researchers opined has advanced firms' efficiency (Granlund, 2007; Surmen & Dastan 2008). In developed countries, management strategies' efficiency has been linked with IT control system. Several researchers have attested to this fact (e.g., Ittner & Larcker, 2001; Chenhall, 2003; Hyvonen, 2008; Alves, 2010). It was argued by Olsen and Cooney, (2000) that firms are faced with the challenge of integrating information technology into management controls. A gray area of management control is cost management. Cost management is challenging due to difficulty of separating controllable and uncontrollable cost. Some costs cannot be controlled at lower management levels. Horngren, Datar & Foster, (2006) argued that non-controllable costs may be controllable at a higher level of management. For example, a responsibility centre manager may have no control over the number of supervisors employed in his department, but his superior may make this decision. Hence the supervision costs will be a non-controllable cost on the responsible manager's performance report, but it will be a controllable

cost on his superior performance report. This form of classification would entail a detailed analysis of controllable cost so that the responsibility centre manager and his superior can pin-point those costs that do not conform to plan. In the United States of America (USA) and the United Kingdom (UK) for example, researchers have reported on the effectiveness of cost management systems (Drury & Taylor, 1994 and Reid & Smith 2001; Encyclopedia of Business, 2010), with the introduction of IT control system. Findings have shown that IT brought about an automated revolution in management control and reports with benefits ranging from shortened production times, improved quality and reduced variability of output, decreased scrap and rework levels. IT has also been reported to bring about substantial reductions in number of labour hours workers are required to achieve in producing desired output level; resulting in productivity gains and cost reduction (Rayburn 1989; McNair, Moseni & Norris 1998). Chan, Huff, Barclay & Copeland (1997) and Chan, Sabherwal & Thatcher, (2006) studied American financial services and manufacturing firms and found that strategic alignment of information systems and cost information system efficiency, has positive impacts on firms performance. These changes in developed countries are filtering into developing countries being initiated by multinational investors (e.g., Prasad, 2008 & Roztock, Pick & Navarrete, 2004). In Nigeria for example, the

application of advanced technology in all areas of business operations is relatively a new concept as compared with developed countries. This paper attempts to provide evidences on the significance of cost management and IT control systems design efficiency in Nigeria, within the Task-Technology fit framework. The Task-Technology fit framework (Goodhue's theory) argues that there is a correspondence between task requirements, functionality of technology, actual usage and individual performance which translate into long-run firms' performance (Goodhue, 1995; Goodhue and Thompson, 2005). The specific objectives therefore are to: (i) ascertain the extensiveness of the cost management system design. (ii) evaluate the extent of IT control applications' utilisation (iii) ascertain how managers perceive the task requirements and functionality (fit) of information technology applications (iv) ascertain the effect of different IT control application in cost management system on performance (non-financial performance and turnover growth rate). The following operational research questions would guide the study: (i) how extensive is the cost management system design? (ii) what is the extent of usage of IT controls applications? (iii) How do managers perceive the task requirements and functionality (fit) of the information technology applications? (iv) What are the effects of different IT control applications in cost management system on performance (non-financial performance and turnover growth rate)? To properly capture the essence of the study a null hypothesis was tested: The effect of different IT control applications in cost management system has no significant difference on firms non- financial performance and turnover growth rate.

This paper is sub-divided into five sections, inclusive of introduction. Section two is a brief conceptual review and theoretical consideration; methodology; analysis of data and discussions are in sections three and four while findings, conclusion and implication for practice are in section five.

2. BRIEF CONCEPTUAL REVIEW AND THEORETICAL CONSIDERATION

The concepts of cost management and information technology control applications were examined along with the theory of task-technology fit.

2.1 COST MANAGEMENT

Cost management from Barfield, Raiborn, & Kinney (2001) perspective, embraces the whole cost control system, defined as an overall organisation decision support system. That means, there is no decision making without cost implication and the best way to make a sound and informed decision is to have a good and effective cost management system in place. Cost control or management according to Beyer & Trawicki, (1992), is the process of curtailing cost to pre-determined norm or standard, usually

involving techniques such as budgetary control. It is a system of managing forecast on the different activities of the industry and applying financial cost to each forecast. Cost control by cost reduction; minimise cost by comparing actual cost with budgeted cost as well as taking corrective action. Kishore (2004) described cost management as a procedure whereby actual results are compared against set standard so that waste (redundancies or idleness) can be identified and measured with a view to taking corrective action to rectify the anomaly. In the measurement of scope of cost management system design, Kaplan and Cooper (1998) distinguished four different stages in the integration of costing systems: Stage one systems: systems which are inadequate for financial reporting; Stage two systems: financial reporting driven system; Stage three systems: customized, managerially relevant, but stand-alone systems; Stage four systems: integrated cost management and financial reporting systems. The fourth stage depicts a level where cost and performance measurement information become integrated into the main stream fabric of organisational reporting and managerial process.

2.2 IT CONTROL APPLICATION

Information technology can be defined as the modern handling of information by electronic means which involves its access storage, processing, transportation or transfer and delivery (Ige, 1995 cited in Leckson-Leckey, 2011). Information technology is a key component in managing organisations and provides the means to integrate processes enforce data integrity and better manage resources (Mabert, Soni & Venkataramanan, 2000). IT provides a platform for firms to develop cost accounting systems and control strategy (Olsen & Cooney, 2000). Advances in information technology have driven innovation and change in the collection, measurement, analysis and communication of information within and between organisations (Cooper & Dart, 2009). Information technology innovations such as enterprise resource planning systems, e-commerce, the internet electronic data interchange, supply chain management and customer relationship management have been implemented and provided rich source of information for costing systems (Cooper & Dart, 2009). Several IT control applications have been designed for example; Edelstein (2010) examined customer relationship management with data mining. Data mining is a process that uses a variety of data analysis and modelling techniques to discover patterns and relationships in data that may be used to make accurate predictions. Nagurney (2006) concluded that the supply chain management provides information for management and cost control. It fulfils customer demands through the most efficient use of resources, including distribution capacity, inventory and labour. Tony (2006) discussed delivery management and how from the planning stage high technical applications can be utilised to save cost.

Bianchi (2005) and Cutting (2010) examined task management/scheduling and applications available to monitor project execution and cost (Commex); with task management and time tracking (Edward and Edward, 2001) applications, tracking performance and fulfilment of assigned tasks, planning time and cost reporting are generated at high speed level.

2.3 TASK- TECHNOLOGY FIT THEORY PERSPECTIVE

Information technology plays a critical role in management control and when the process is not properly managed; it would have negative effect on long- run performance (Descow & Mourisen, 2005; Hyvonen, Jarvinen, Pellinen, & Rahko 2006; Granlund, 2007). Invariably, control cannot be studied apart from technology and context because there is need to understand the meeting point of the technology and type of control (Descow *et al.*, 2005). Information technology becomes more suitable and adaptable when the tasks are well defined and independent notwithstanding the complexity or routine nature (Kangas, 2003). The task-technology fit (TTF) theory (Goodhue, 1995 and Goodhue *et al.*, 2005) explains the need for adaptability. The TTF posit that users will adopt and utilise a particular IT system as long as the task to be performed is supported by the functionality of the system irrespective of the attitude of users. From the TTF point of view, attitude is not important as long as there is a perceived fit between task and functionality of IT system. Again, that may not always be true because system functionality minus a positive attitude may not result in system usage: the attitude of the user toward the system has been demonstrated in many instances to be a strong determinant of system adoption and usage (Usoro, Shoyelu, & Kuofie 2010). The TTF model is represented in Figure 2.1 in Appendix. In measurement of task- technology fit, literature has shown that ‘the most important determinant of performance is the fit between chosen strategy and its contextual variables’ (Jermias & Gani, 2004:3). Fit has been studied in literature from several perspectives. Jermias *et al.*, (2004), identified six perspectives of fit in terms of performance: moderation, mediation, matching, gestalts, profile deviation and covariation. The moderation kind of fit is the interest of this paper.

3. METHODOLOGY

The problem of this study was addressed using a cross-sectional survey setting. This design was considered appropriate as it allows for a randomly constituted representative to be selected from a very large group. The population of this study consists of 141 firms listed on the floor of the Nigerian Stock Exchange and actively traded during the period covered 2006-2010. It was confirmed that such firms have some form of formal structures and procedures. The target respondents in these firms are the

operational managers, selected from accounting unit and IT resource unit. A sample of 103 was selected from the population using the economic sample size formula as applied in modular grant application process (MGAP): $[n = (1+z/m)^2 \times P(1-P) \text{ FPC} = n/(1+n/N)]$ where $z = 95\%$ confidence level; $m =$ margin of error suggested at 5%; $P =$ estimated value for the proportion of a sample that respond in a given way to a survey question suggested at 50% and $\text{FPC} =$ finite population correction factor, $N =$ population (Moore & McCabe, 1999). The MGAP allows for indiscriminate selection from a large population and check duplications. This sample size was then selected from the population using stratified sampling technique. Stratified sampling technique was used since sufficient information was available to divide the selected sample into strata. The firms were separated into sectorial distribution and proportionate number taken from across the sectors ($n/\text{population} \times \text{sample}$). This method allows equal chance for members of all sectors to be selected. Questionnaire was created based on the variables in the study which were also operationalised. They are cost management, IT control applications, IT utilisation, Task-IT fit, non-financial performance and turnover growth rate. These variables except turnover growth rate, were measured using five-point likert scale adapted from the works of Reilly (1996) and Madapusi and Ortiz (2009) with the two extremes of “strongly disagree” or “not efficient” representing (1) and “strongly agree” or “highly efficient” representing (5). This kind of adaptations and modifications is however not uncommon with research works on performance (Kloopping & McKinney, 2004; Usoro, *et al.*, 2010). The measurement, structure and value connotation of the variables from the survey data are described below:

3.1 MEASUREMENT OF VARIABLES

3.1.1 Cost Management System

The questionnaire was designed to measure the extent of development of cost accounting system upon which cost management system was based. The extensiveness was determined from examination of mean scores. Costing system development scores below 4.0 were grouped as moderately developed and 4.0 and above as highly developed.

3.1.2 IT Control Applications

The questionnaire dealt with obtaining information to evaluate IT control applications on cost management in the areas of: Customer relationship management (CRM), Suppliers chain management (SCM), Material resource management (MRM), Scheduling key task-service delivery/production (TS/D) and Human resource management (HRM). IT control applications efficiency with scores below 4.0 were grouped as average level efficiency and IT control applications of 4.0 and above as high level efficiency for cost management purposes.

3.1.3 IT Utilisation

The questionnaire measured extent of information technology utilisation. A score of below 3.0 was considered as low utilisation, scores of 3.0 and less than 4.0 were regarded as average level of utilisation, while 4.0 and above as high level utilisation.

3.1.4 Task-Fit

This study identified fit as a moderating variable based on contingency perspective that operationalise fit as statistically derived interaction or relationship between two variables (IT control application and cost management systems) that predicts the third (Efficiency). The respondents were further required to rate efficiency of IT-task fit in twelve strategic areas, from one extreme, 'excellent' and the other extreme 'very poor'. A score of below 3.0 was considered as very poor fit, scores of 3.0 and less than 4.0 were regarded as good fit, while above 4.0 and less than 5.00 as very good fit.

3.1.5 Non-financial performance

Non-financial performance measured were those that can be derived from proper management of cost and information technology such as customer value: lead time delivery; defect or deficiency level and market share. Respondents were required to rate these non-financial performance. The scores were summed up and averaged to determine the scores for non-financial performances. A score below 4.0 were grouped as low non-financial performance and above 4.0 as high level non-financial performance.

3.1.6 Turnover growth rate

This was computed from the annual financial reports (2006-2010). In general usage, turnover is income received by an organisation in the form of cash or cash equivalents, income received from selling goods or services over a period of time (Williams, Susan, Bettner & Carcello, 2008). In Banks turnover refers to the amount of revenue a bank generates over a given period of time. Turnover refers to the amount of money brought into the bank (Wisegeek, 2011). Turnover was computed as a deduction of the sum of total deposits from total loans and advances. In insurance companies turnover was computed as a deduction of total subscriptions or fees received from total outstanding claims within a given period usually one year. It was considered necessary to validate the instrument in the Nigerian context. Two types of validity were assessed from the results of the pilot-testing: Content and Convergent. The convergent validity was assessed by examining composite reliability and average variance extracted (AVE) from the measures (Ferrell, 2009). The study used the Cronbach's alpha to determine internal consistency, variability and reliability of instrument. Nunnally (1978 cited in Ping, 2005) suggested minimum acceptable reliability from 0.7. The result revealed that all the variables measured are reliable as the computed figures are more than the minimum. The convergent validity was

measured by reference to Average variance extracted (AVE) with a compelling demonstration of 0.5 or above. The result confirmed the convergent validity, that all the AVE figures for the variables are above the compelling level. The validated instrument was administered on two hundred and six respondents from one hundred and three listed firms in Nigeria. The respondents were operational managers, one each from accounts unit and IT resource centre of each firm. Descriptive and inferential statistical procedures were used to examine the propositions of this study. The descriptive statistics namely the mean, standard deviations and percentages were employed. Objectives one to three were realised through descriptive analysis. A regression analysis and analysis of variance (ANOVA) was performed on the effect of different IT control application in cost management system on performance (non-financial performance and turnover growth rate) and stated null hypothesis was tested.

3.2 MODEL SPECIFICATION

The following models are specified for the study:
The Hypothesis was tested using models 1 and 2.

$$Nf\ Perf_i =$$

$$\beta_0 + \beta_1 IT\ crm_i + \beta_2 IT\ scm_i + \beta_3 IT\ mrm_i + \beta_4 IT\ tsd_i + \beta_5 IT\ hmm_i + e_i \quad (1)$$

$$TGR_i =$$

$$\beta_0 + \beta_1 IT\ crm_i + \beta_2 IT\ scm_i + \beta_3 IT\ mrm_i + \beta_4 IT\ tsd_i + \beta_5 IT\ hmm_i + e_i \quad (2)$$

Where , NfPerf = non-financial performance

TGR= turnover growth rate

IT = information technology control applications

crm = customer relationship management

scm = supply chain management

mrm= cash control management

tsd = task scheduling and delivery

hmm = human and material management

β s = these are the estimated regression coefficients

e = the error term in a regression model, and

i = index (proxy) for performance

4. ANALYSIS OF DATA AND DISCUSSION

There were only one hundred and fifty-six (156) copies of usable questionnaire, representing 76% response rate, which was analysed in this section. Individuals targeted in the survey were managers in accounts and IT resource units, some other cases were recorded, where assistant executive officers (21.2%) were delegated to complete copies of the questionnaire. All respondents had at least a degree or diploma (B.Sc/BA/HND) suggesting that respondents were sufficiently educated to correctly complete the questionnaire. Answer to Operational research question (i) on: how extensive are the cost management system design? The descriptive analysis on

costing system development, was examined based on four stages as outlined in literature: (i) Inadequate cost information (ICI), (ii) Financial reporting driven (FRD), (iii) Customized, managerially relevant, but stand-alone systems (CMSS), (iv) Integrated cost management and financial reporting systems (ICMFS). The result indicated that 64.7% of firms were in stage two and three of cost system development and using full cost approach. The average of sum of the scores obtained from each item on costing system development had total mean scores of 3.65, indicated moderately developed costing system. Table 4.1 in Appendix presents the summary panel of costing system development at 95% confidence level. Answer to Operational research question (ii) on: what is the extent of usage of IT control applications?

The regularity of IT control application utilisation, ease of usage for assigned task and prompt delivery of reports were examined. The mean score for each of the variable was above 4.00 representing high level utilisation. The overall mean score for IT control applications utilisation for cost management was 4.2564 with $\delta = 0.62084$. This represents a high level utilisation of IT control applications for cost management as shown in Table 4.2 in Appendix. Answer to Operational research question (iii) on: how do managers perceive the task requirements and functionality (fit) of the information technology applications? The suitability of information technology applications to costing task, the adaptability and flexibility of the applications to the task, and the extent to which applications usage in cost management has led to efficiency were sought. The mean perception for each of the variable was below 5.00 representing very good fit, except one variable 'flexibility' that was below 4.00 representing good fit. The overall mean score was 4.095 indicating very good fit between information technology control applications and cost management systems. Table 4.3 in Appendix presents the descriptive details. Answer to Operational research question (iv) on: what are the effects of different IT control applications on cost management efficiency? In proffering answer to research question (iv), a descriptive analysis was done and a null hypothesis was tested. The different IT control applications efficiency was measured using scores computed from questionnaire items. The overall mean score for IT control applications level efficiency was 4.0667 representing high level efficiency as displayed in Table 4.4 in Appendix. Further, Supplier chain management (SCM) control applications were found to be most effective, accounting for a mean score of 4.12 and $\delta = 0.882$ as shown on Table 4.5 in Appendix.

Test of null hypothesis: The effect of different IT control applications in cost management system has no significant difference on firms' non-financial performance and turnover growth rate. The test of significant difference in the effect of the various IT control applications in cost

management system on non- financial performance and turnover growth rate were tested using model one and two.

$$Nf\text{ Perf}_i =$$

$$\beta_0 + \beta_1 IT\text{ crm}_i + \beta_2 IT\text{ scm}_i + \beta_3 IT\text{ mrm}_i + \beta_4 IT\text{ tds}_i + \beta_5 IT\text{ hmm}_i + e_i \quad (1)$$

$$NfPerf_1 = 1.530 + 0.766\text{ crm} + 0.054\text{ scm} + 0.137\text{ mrm} + 0.053\text{ tds} + 0.85\text{ hmm} + 0.44176$$

Model 1 on NfPerf, the efficiency of IT control applications on cost control systems was significant ($p < 0.01$), with R^2 of 0.474, that is explaining about 47.7% variation of non-financial performance. With fairly high F value of 28.273; explaining the fitness of the model, as shown on Tables 4.6a in Appendix.

$$TGR_i =$$

$$\beta_0 + \beta_1 IT\text{ crm}_i + \beta_2 IT\text{ scm}_i + \beta_3 IT\text{ mrm}_i + \beta_4 IT\text{ tds}_i + \beta_5 IT\text{ hmm}_i + e_i \quad (2)$$

$$TGR_2 = 107.360 + 3.645\text{ crm} + 5.282\text{ scm} + 14.148\text{ mrm} + 4.053\text{ tds} + 3.407\text{ hmm} + 23.04765$$

The model on TGR was significant ($p < 0.01$), with R^2 of 0.237; IT control applications explaining 23.7% variation in TGR, as shown on Tables 4.6a in Appendix.

On Table 4.6b in Appendix coefficient analysis of model 1 and 2 revealed better explanatory effect of IT application control variables on non-financial performance and turnover growth rate. Model 1 showed that TDS is significant at $p < 0.01$ with t-values at .822, $\beta = 0.685$; material resource management (MRM) t-values of 0.280, $\beta = 0.057$ while supplier chain management (SCM) t-value at 0.321 and β coefficient value of 0.031. Model 2 revealed that task delivery and scheduling (TDS) is significant ($p < 0.01$), with t-values at 0.305 $\beta = 0.305$ and SCM t-value = 8.094, β coefficient value is 0.145. Task scheduling and delivery (TDS) control application was observed to be significant ($p < 0.01$), in both models. The null hypothesis was thus rejected.

5. FINDINGS, CONCLUSION AND IMPLICATION FOR PRACTICE

5.1 Results for objectives (i) in response to Research Questions (i) on the extensiveness of the cost management system design

Findings on research question one, provided solution to objective one, on the extensiveness of cost management system design: 64.7% of firms were in stage two and three of costing system development. With reference to Kaplan *et al.*, (1998) description of stages of costing system development, the analysis from this study showed responses on costing system development as moderately developed system. This result is consistent with earlier findings in Haldma and Laats, (2002) on Estonian

manufacturing companies, where the study found 74% of companies surveyed, with undeveloped cost system and had to make changes in different aspect of the costing systems. Kaplan *et al.*, (1998) confirmed that the fourth stage depicts a level where cost and performance measurement information become integrated into the main stream/fabric of organisational reporting and managerial process. A total means score of 3.6534 was recorded for cost system development, which also implied moderately developed costing system. Literature has shown that well-designed cost management system is paramount (Adeniyi 2001; Uyar, 2010); and applications for cost assignment, planning and control are essential for cost management and strategic planning (Granland, 2007).

5.2 Results for objectives (ii) in response to Research Question (ii) on extent of IT control applications' utilisation

Research question one which sought to ascertain the level of IT control applications utilisation on cost management systems in listed firms, provided answer to objective two. The overall mean score of 4.2564 represented high level IT control applications utilisation in cost management system. This finding is consistent with the study of Usoro *et al.*, (2010) where IT had high usage on assigned task.

5.3 Results for objectives (iii) in response to Research Question (iii) on how managers perceive the task requirements and functionality (fit) of the information technology applications

Findings on analysis of research question three, provided solution to objective three on how managers perceive the task requirements and functionality (fit) of the information technology applications. The mean perception for each of the twelve variables measured was between 4.01 representing very good fit and 3.98 representing good fit. This result support extant literature that system fit is necessary in the selection of IT applications and software (Vessey & Galleta, 1991; Dishaws, Strong, & Brandy, 2002; Angerer, 2006). Information technology becomes more suitable and adaptable when the tasks are well defined and independent notwithstanding the complexity or routine nature (Kangas, 2003).

5.4 Results for objectives (iv) in response to Research Question (iv) on the effect of different IT control application in cost management system on performance (non-financial performance and turnover growth rate.

The analysis of research question four, provided solution to objective four, on the effect of different IT control application in cost management system on performance (non-financial performance and turnover growth rate. Null hypothesis was tested. The study revealed that, IT control applications on cost management systems explained about 47.7% of non-financial performance; 23.7% of turnover growth rate. The fitness of the non-financial performance model was explained by F value of 28.273 ($p < 0.01$).

TDS, CCM and SCM were significant at 0.01 in the non-financial performance model; with TDS β coefficient value at 0.685, MRM β at 0.057 while SCM β coefficient value at 0.031. This result suggested a rejection of the null hypothesis of no significant difference in the effect of different IT control applications on performance. The study of Cooper and Dart (2009) and Alves (2010), similarly found the use of advanced information technology in the form of control applications such as enterprise resource planning systems, supply chain management and customer relationship management was effective in providing cost control information and had effect on performance. The seemly weak effect on performance result could be due to the moderately designed costing system which the study revealed for majority of the firms was in two and three stages of costing system development.

Conclusively, this paper has provided findings in support of the proposition that effective utilisation of IT control applications in cost management system design will enhance performance if a fit exist between cost control system and information technology system. The application of cost management system on the platform of sophisticated IT control applications has been advocated by researchers as a practicable panacea to the problems emanating from economic and financial predicaments. This study has further provided evidence that well designed costing system when enabled by advanced IT control applications would enhance performance. Information technology control applications are presumed to have grown beyond simply processing information faster to inferring greater meaning and value in support of internal firm's operations (Rondeau & Litteral 2001). This paper has shown that utilisation of IT control applications for what it is designed, would influence the fit process. The fit of cost management system and IT control applications would not only facilitate dissemination of cost management information real time but will led to better integrated processes in the form customer relationship management from a total customer perspective (Burgess, Singh & Rana 2006); supply chain management; cash control management, task management and deliveries. The major implication of these findings for the management of cost and IT control applications is that, there is need for development of costing system in organisations upon which cost control system can be built. The importance of costing system as reiterated in Uyar (2010), are due to decreasing profitability, increasing costs, competition and economic crises. A poorly developed costing system cannot anchor cost control system (Uyar, 2010). In developing costing system, IT systems should be considered in the design, as it is expected that IT platform would lead to more efficient use of the limited resources (money, man and material) at firms' disposal and ultimately lead to enhanced performance.

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APPENDIX

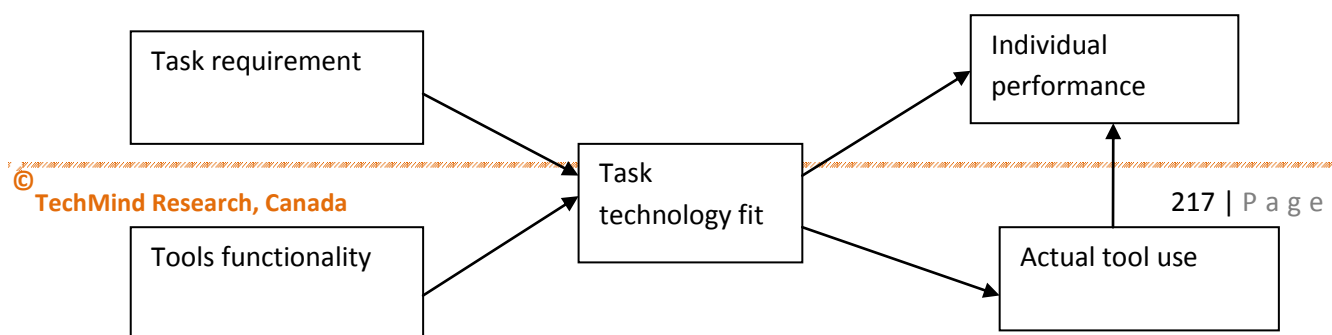


TABLE 4.1: MEAN SCORES OF COSTING SYSTEM DEVELOPMENT IN THE RESPONDENTS' FIRMS

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Moderately developed	101(64.7)	3.2326	0.26227	0.02270	3.2653	3.4783	2.53	3.66
Highly developed	55(35.3)	4.3426	0.40266	0.04421	4.5305	4.6532	4.00	5.00
Total	156(100)	3.6534	0.65762	0.05265	3.8696	4.0776	2.75	5.00

TABLE 4.2: RESULT RELATING TO UTILISATION OF IT CONTROL APPLICATIONS FOR COST CONTROL

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Low	31(19.9)	3.3065	0.33360	0.05992	3.1841	3.4288	2.50	3.50
High	125(80.1)	4.4920	0.41632	0.03724	4.4183	4.5657	4.00	5.00
Total	156(100)	4.2564	0.62084	0.04971	4.1582	4.3546	2.50	5.00

Table 4.3: RESPONSES ON PERCEIVED TASK REQUIREMENTS (COST MANAGEMENT SYSTEM) AND FUNCTIONALITY (FIT) OF INFORMATION TECHNOLOGY APPLICATIONS

S/N	ITEM	N	MEAN	STANDARD DEVIATION
i	Right Level Of Detail	156	4.12	0.770
ii	Accuracy	156	4.15	0.794
iii	Compatibility	156	4.13	0.855
iv	Traceability	156	4.11	0.816
v	Accessibility	156	4.10	0.755
vi	Meaning	156	4.12	0.811
vii	Assistance	156	4.14	0.853
viii	Ease Of Use	156	4.16	0.846
ix	System Reliability	156	4.04	0.853
x	Authorization	156	4.01	0.872
xi	Presentation	156	4.08	0.778
xii	Flexibility	156	3.98	0.912
	Total		4.095	0.691

TABLE 4.4: IT CONTROL APPLICATIONS EFFICIENCY

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Low level efficiency	1(0.06)	1.4000	1.40	1.40
Average level efficiency	65(41.7)	3.5138	0.26213	0.03251	3.4489	3.5788	2.40	3.80
High level efficiency	90(57.7)	4.4956	0.35121	0.03702	4.4220	4.5691	4.00	5.00
Total	156(100)	4.0667	0.61648	0.04936	3.9692	4.1642	1.40	5.00

TABLE 4.5: DIFFERENT IT CONTROL APPLICATIONS EFFICIENCY

S/N	IT Control Applications	N	MEAN	STANDARD DEVIATION
i	Customer Relationship Management (CRM)	156	4.01	0.811
ii	Supply Chain Management(SCM)	156	4.12	0.882
iii	Material Resource Management (MRM)	156	4.07	0.828
iv	Scheduling key task-service delivery/production (TS/D)	156	4.08	0.831
v	Human Resource Management (HRM)	156	4.05	0.760

TABLE 4.6a: THE EFFECT OF THE VARIOUS IT CONTROL APPLICATIONS IN COST MANAGEMENT SYSTEM ON NON- FINANCIAL PERFORMANCE AND TURNOVER GROWTH RATE

ANOVA^b

Model			Sum of Squares	df	Mean Square	F	Sig.
Model 1		Regression	36.686	4	9.172	28.273	.000
		Residual	39.608	151	.262		
		Total	76.294	155			
Model 2		Regression	6109.805	4	1527.451	9.629	.001
		Residual	85536.467	151	566.467		
		Total	91646.272	155			

a. Predictors: (constant), CRM, SCM, MRM, TSD, HMM;

b. Dependent variable:

1. non-financial performance

2. TGR

SUMMARY OF THE MODEL^a

		R	R Square	Adjusted R Square	Std. Error of the Estimate
Model	1	.691 ^a	.477	.463	.47176
	2	.487 ^a	.237	.049	23.04765

a. Predictors: (constant), CRM, SCM, MRM, TSD, HMM;

TABLE 4.6b: REGRESSION RESULTS OF THE EFFECT OF THE VARIOUS IT CONTROL IN COST MANAGEMENT SYSTEM APPLICATIONS ON NON- FINANCIAL PERFORMANCE AND TURNOVER GROWTH RATE

Model	1		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
			β	Std. Error	β		
		(Constant)	1.530	.367		4.169	.000
		CRM	.766	.162	.511	4.728	.013
		SCM	.054	.168	.031	.321	.000
		MRM	.137	.167	.057	.280	.004
		TDS	.053	.064	.685	.828	.000
		HMM	.085	.048	.067	1.771	.023
Model	2	(Constant)	107.360	13.723		7.823	.000
		CRM	3.645	3.552	.176	1.026	.028
		SCM	5.282	.6526	.145	8.094	.040
		MRM	4.148	.4401	.233	9.425	.000
		TDS	4.053	1.051	.305	3.856	.000
		HMM	3.407	2.056	.296	1.657	.026

1 a. Dependent variable: Non-Financial Performance

2 a. Dependent variable: TGR