

User Activity-Based Decision Support For Cost Optimization of Cyber Cafe Investment

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Abstract: This study was to investigate how user activities influence Decision making on cost optimization of investment on cyber café business. This was primarily to support acquisition of cyber café system for use in an organization. This is by bringing objective and subjective costs and benefits into the same model and prescribing a unique approach to determining system utility, it demonstrates how the proposed model can be applied for objective evaluation of display interfaces for a decision support system. In order to come up with this evaluation this study was carried out using the following objectives. First was to determine the challenges facing investment on cyber café business in Kenya. Secondly to examine if user activities have cost implication on cyber café investment in Kenya. Thirdly to design user activity-based decision support model for cost optimization of cyber café investment in Kenya. Fourthly to evaluate the developed user activity-based decision support model for cost optimization of cyber café investment in Kenya. In achieving these objectives the researcher adopted questionnaires as Data collection instrument because of the target population for this study. In the conclusion of the research the researcher came up with a model that will enhance decision making when one wants to invest in cyber café business considering the user activities.

Keywords: Activity –based costing, Decision Support, investment, Technology.

1. Introduction

Decision making is a day to day activity especially on investment. Various models have been developed in supporting decision making on cost of investment. One of this is the use of Activity-based costing (ABC) which is a method for calculating costs and counts the user activities such as products, processes, functions or tasks that occur over time and produce recognized results. These user activities consume assigned resources to produce products and services. One of the techniques used to achieve this is ABC because it is useful in costing as a common denominator between business process improvement and information improvement across departments. Rather than allocate the total indirect cost of a system across a range of services according to an allocation formula, ABC calculates the amount of time that system was spent supporting a particular activity and allocates only that cost to that activity (Herger, m. *et. al.*, 2011). Due to this the evaluation of cyber café investment against implicit or explicit criteria is always being carried out to find the value of individuals, objects, situations and outcomes every day of our lives (Legge *et. al.*, 2009). This though does not make it a trivial activity. Harrison states that decision making is an integral part of the management of any kind of organization, and more than anything else, competence in this activity differentiates the manager from the non-manager and, more important the effective manager from the ineffective manager (Harrison *et. al.*, 2011) It is difficult to identify and measure the potential benefits and costs of an IT investment (Serafeimidis *et. al.*, 2008). It is also true that IT evaluation is complex and elusive (Dhillon *et. al.*, 2012). According to Dhillon (2012), a phenomenal amount of money is lost because of inability of organizations to realize IS/IT benefits. Figures coming from the United States suggest nearly \$ 59 million in cost overruns and some \$ 81 million in cancelled IS/IT projects (Johnson, *et. al.*, 2013). In Kenya, IT investments seem to have run into difficulties with the latest being the cyber café business investment. This business has been hatched by many people but its benefits have not been realized. The owners often face information overload when they have to decide whether to invest in new IT projects. The existence of a simple and

easy to use Decision support system for evaluation would greatly reduce this information overload.

2. Methodology

The collected data was associated with variables in order to achieve the set objectives in this study. The questionnaire was used to collect the data that related to the research objectives.

2.1 Cyber café business investment

The essential questions are how and when to evaluate cyber café business investments. There are three inter-related questions. How does decisions made improve cyber café business performance? How do we decide the cyber café system in which to invest? How do we assess the performance of the cyber café system after their implementation? The use of different evaluation techniques to answer these questions varies from organization to organization. Research into the use of these techniques and their value to different organizations provides varying responses (Farbey *et. al.*, 2012). Stresses that not all organizations face an identical challenge, their business sectors differ, the competitive forces they combat vary, their histories are not alike and they make different strategic choices. In addition, organizations must evaluate where in their evolution of IT developments they stand so as to ensure that they are able to make and manage the appropriate degree of strategic change. (Farbey *et. al.*, 2012) argue that the search for a single technique for evaluating investments in IT is fruitless. The range of circumstances that one technique would have to be applied to is so wide that no single technique is likely to be applicable. (Berghout *et. al.*, 2007) concludes that a mixture of both qualitative and quantitative methods should be used.

2.2 Developed Model

After analysis of the independent variables and dependent variables, other models such as Benefit cost analysis (BCA) and Task analysis model (TAM) the researcher came up with a simplified model called Nyamoko Decision Support Model (NDSS) which illustrates the decision a user need to make before making a decision on which project to invest.

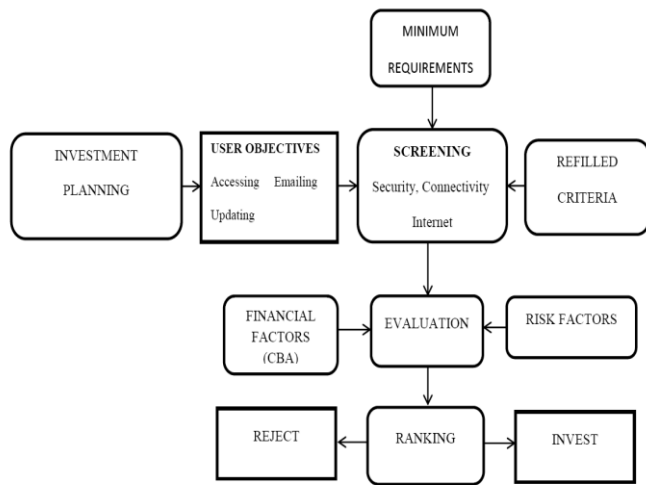


Fig 1. Nyamoko Decision Support Model

2.2.1 Benchmarking and Screening

Having accepted the premise that resources consideration is the most significant factor when making project selection decisions, organizations often require to conduct an in-depth analyzing and screening before evaluating the projects. Such pre-evaluations would be of important task as they use the appropriate judgment on the basis the role they are supposed to play in business. Furthermore, it is necessary to classify the investments appraisal before evaluating and ranking the projects. Screening the projects investment requires a true perception of the overall prospective of business development, plus the realistic appraisal of each proposed project, to ensure that the benefits can be achieved at an acceptable level of cost. Besides, minimum requirements as well as new refined criteria should be applied in both screening and evaluation of investment for making go/no go decisions. The requirements and criteria may be documented for projects through a checklist that provides the general criteria to be met by project such as: (1) control whether the project is being reviewed at the right level of organization; (2) control whether projects meet the minimum acceptance criteria; and (3) control what level of management scrutiny is available, given the project's size, type and risk.

2.2.2 Evaluating and Selecting Projects

Evaluation is a critical step in project selection as it incorporates wide range of factors that contribute in overall weights of the options. The screened proposals are to be evaluated on the basis of financial and non-financial measures. These measures may be tangibles and/or intangibles with different units, types and scales. Thus it is utmost important the factors are set and adjusted in terms of magnitude and commensurability to prevent the likely flaw raised within the process. Depending on whether there is any interdependency between factors or attributes, the tools of analysis can be chosen appropriately. For the simple process without any interrelated factors, the ABC is preferred. No matter what technique is implemented, the weighted attributes can be then combined to generate the real ranking in regard to contributed factors whether to invest or reject the project.

3. Discussion

Shortcomings in evaluation of cyber café investment were identified. Critical variables in cyber café evaluation were identified for inclusion in a decision support system. Four different research methodologies were investigated taking into account the suitability or goodness of the framework, bias, focus and complexity. The decision support system Methodology was found to be the best as the others had serious shortcomings. The literature review highlighted the fact that depending on the background of the manager, they would use a different evaluation method. This means that there is no common platform or communication language for managers to communicate their decisions and the reasons as to why they arrived at particular decisions. This study made an attempt to provide that common platform by presenting Decision support Systems for evaluation of Cyber café business investment. The Decision support system runs with a maximum of six variables. When the system is run it shows us a peek into the future of what our policies and actions can do without taking the real risk of trying them out in the real world. These can be changed until a satisfactory mix of policies and actions are arrived at. This research makes a significant contribution to the literature in terms of bringing together disparate areas of IT evaluation in a coherent and systematic way. The Decision support System of IT investment evaluation constitutes a novel source of new knowledge and provides an understanding of the area to both researchers and managers. The system helps in understanding the patterns of change that a system exhibits over time and identifies the conditions that cause these patterns to be stable or unstable. This knowledge of the system can then suggest what kinds of prescriptions for governing it will work and what kinds may not.

4. Conclusions and future work

The main contribution of this paper is a tool that will help managers cut down on time spent debating investment decisions, cut down on costs, reduce information overload and help researchers evaluate related problems. The Decision support system was used as a tool for evaluating the benefits derived from cyber café investment using different variables like cost, benefit, accessing, updating, emailing, security, connectivity and internet. It was possible to calculate and observe the total benefits, user satisfaction and cost of investment as well as intention to use. It was observed that the combination of cost of investment, total benefits and user satisfaction provided the best combination for cyber café investment success. Decision support System demonstrates how most of our own decision-making policies are the cause of the problems that we usually blame on others, and how to identify policies we can follow to improve our situation (Morecroft *et al.*, 2009). The purpose in applying Decision support system is to facilitate understanding of the relationship between the behavior of the system over time and its underlying structure and strategic policies or decision rules (Caulfield & Maj, 2012). Taking a close look at the variables at play, it is evident that only a strong interaction of people, information, and technology can improve business performance, and consequently lead to cyber café investment success. Further research will be necessary to improve the tool in order to assess the theoretical content of

the model. Another area that could be investigated could be the inclusion of the cost of the resources like equipment, software and people as a variable to be modeled along with the original variables in the model.

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