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A Conceptual Model for Visual Monitorting Information System (VMIS) for the Strategic Plan

Mohamed Abd El-Fattah*
Information System department ,Faculty of Computers and Information,
Benha University,
Egypt

A. A. Salama
Department of Mathematics and Computer Science, Faculty of Sciences, Port Said University,
Egypt

Abstract—Strategic planning is most effective when implemented as an integral part of institutional decision-making, not as a separate formal, comprehensive activity. Measuring and managing performance is a challenging enterprise and seen as one of the keys to managing change and thus gaining competitive advantage in organizations. organizations need to assess and enhance their activities, in order to provide a monitoring the strategic planning , and to measure future capability as well as past performance. The efficiency of organization have given rise to new models and systems aimed at facilitating strategic decision making, primarily concerned with strategic planning assessment In this direction the design and adoption of a well-informed strategic management will increase the overall quality of those services. This paper suggests an information system for managing strategic planning that is highly quality-assured., by using of dynamic real-time visual representations in the strategy monitoring .AVMIS information system allows efficient decision making to be made at appropriate level of management. A prototypical web-based implementation is presented and discussed.

Keywords-Gap analysis; VMIS; Fuzzy Traffic Light Method(FTLM) .

I. INTRODUCTION

Organizations are complex enterprises requiring careful leadership to achieve their missions and objectives. In an uncertain environment, characterized by increasing competition for scarce resources, the time allowed to management to make decisions has shortened while the need for timely and meaningful information has increased [1]. As a consequence, accountability and performance measurement have become paramount for organizations.

Strategic planning is most effective when implemented as an integral part of institutional decision-making, not as a separate formal, comprehensive activity. Creating a plan that is flexible and individually designed helps institutions achieve many benefits: the creation of a vision, programs, services, and the acquisition of greater financial strength. Strategic plans also provide important process benefits: improved institutional cultures or climates, better communication among units, and an increased understanding and consensus [2].

A strategic evaluation process needs to be decided so that the organization can monitor performance and take corrective action. Strategic evaluation and control is defined as the process of evaluating strategic plans and monitoring organizational performance so that actual performance can be compared with desired performance and corrective action taken if needed[22]. Evaluating the results of strategic plan implementation can demonstrate how well the strategic plan is fulfilling its stated purpose. The results from the assessment of the strategic plan can empower and inform the next round of strategic planning and the setting of future priorities. The cyclical sequence of the strategic planning process can thus help an institution reach its full potential.

the objective of monitoring and evaluation that help improve performance and achieve results and the measurement and assessment of performance in order to more effectively manage the outcomes and outputs known as development results. Performance is defined as progress achievement of results.

Decision making processes in strategic planning are usually very complex and are frequently portioned into sub problems. One of the main problems is to find a method to automate the process as much as possible . particularly so as to obtain automatically coordination among decisions made locally by different levels. The objective of the system is to support managers in creating strategic scenarios and assessing the performance of strategic plan.

A great strength of a carefully constructed visualization is that it can employ engaging images and inspiring symbols to trigger positive emotions and motivate a workforce. The ability to visualize progress in real-time, and highlight areas where the strategy implementation process may not be going smoothly, allows managers to track its progress visually and identify deviations from the plan quickly. The use of a common visualization by managers from different functional areas can promote an understanding of the 'bigger picture' and build a sense of common purpose, while ensuring that individuals know where their own activities and goals fit in [17].

The project management systems currently employed in the organization can be divided into two types. The first one is off-the-shelf commercial software, where projects are managed using Gantt Charts, the Program Evaluation and Review Technique (PERT) [1] and the Critical Path Method (CPM) [2]. These management techniques have quickly spread into

many private enterprises. Thus, a lot of the related commercial software packages cater for the aforementioned techniques; examples include Microsoft Project, Primavera Project Planner and SAP. The second type of project management system is custom in-house software, when commercial software does not meet the particular requirements of firm; some firms will develop custom in-house project management software to meet their needs.

Traditional project management systems mainly provide text, basic graphs, and complicated network schedules for controlling projects and making decisions. Today's projects are becoming ever more complex and time driven, especially as the amount of project information and active project participants increases. Thus, we require more effective project tools for monitoring and managing projects .

A VMIS model is focused on strategic planning. Although schematic performance evaluation through gap analysis has the qualities of performance measurement, the continuous improvement of performance during the plan, as well as the practical association among the departments in the organization should progress toward the co-ending of the goals [21]. The concept of strategic planning indicates the daily management of the issues and activities and is focused on decision making and performing important activities on the basis of their priority. The essential assumption of this management is that the environment is always changing. Therefore, strategic management implies the continuous evaluation of the strategic plan based on the stated priorities and the modification of this plan on the basis of new environmental conditions [21].

The model aims to further develop the linkages between strategic and operational plans, budget allocation and decision-making. Key aspects of model include:(1) integration of strategic plans in terms of timing, resourcing, monitoring and reporting (2) produce performance reporting depend on relevant, current data and embrace tools such as key performance indicators , trend analysis and benchmarking.

This research shows how visualization can be used in the strategic-planning monitoring , by examining the use of real-time, interactive visual charts in the business strategy process. Starting with a review of literature, we assume that visualization can improve the quality of the strategic planning monitoring by addressing the strategic plan progress for decision makers challenges. and use this structure to group and position interactive visual representations of information along the strategic-planning assessment and monitoring . We highlight the benefits of VMIS for strategizing, and illustrate them with higher education case study . and we consider some of the challenges involved in employing graphic means in strategy work, and how to address them. In this paper, in order to design a VMIS that takes into account the relation among the variables in the strategic planning of an higher education institutions .The rest of this paper is organized as follows. Section 2 discusses Literature reviews about strategic planning monitoring models ; Section 3 presents a formulation and requirement analysis of VMIS model. in Section 4 describe the architecture of conceptual VMIS model , A prototypical web-based implementation is presented and discussed in section 5. Section 6 implement a case study on higher education. In section 7 discusses the effectiveness of VMIS then Benefits and values of the VMIS are summarized in section 8.

II. STRATEGIC PLANNING MONITORING : LITERATURE REVIEWS

Strategic planning is intended to help organizations deal with and adapt to their changing internal and external circumstances. researchers involved in strategic management have devoted increasing attention in the recent decade to the influence of information systems on organizational performance and strategic planning.

the efficiency of organization have given rise to new models and systems aimed at facilitating strategic decision making, primarily concerned with strategic planning process. Effective management depends on the measurement, evaluation, and improvement of the organizational performance. Therefore, lots of efforts have been made in order to present models and patterns in this regard during the previous decades [3] .Evaluation is regarded as an inseparable part in any executive activity or work because by using measurable data, the improvement of executive activities, which is the main goal, in followed, and without demanding or suggesting more resources, it is focused on efficiency, suitable outcome and expected productivity.

How can an organization know that it has achieved its goals? It is for this reason that measurement and evaluation are developed. In order to answer this question, the best way is defining benchmarks that are able to measure the progress of the organization. These benchmarks possess a gauge that illustrates the extent of successful achievement of the goal. Evaluation of the performance from an organizational perspective is usually synonymous with the efficiency of the activities. Some experts have considered the evaluation of the performance of the organization being equal to the evaluation of effectiveness, and some other experts also observe it as a necessary tool for answering questions regarding productivity.

Strategy evaluation or monitoring can be a complex . Too much emphasis on evaluating strategies may be expensive. No one likes to be evaluated too closely! The more managers attempt to evaluate the plan , the less control they have. Yet, little or no evaluation can create even problems. Strategy evaluation is extremely important to ensure that stated objectives are being achieved. While performing their activities, managers should examine the extent of progress every once in a while, or at decisive stages. top management authorities of organization can play a very important role in planning the strategic control system. The two major Points that are put forward regarding the strategic monitoring are[21]:1)Has this strategy been performed the way it had been planned? 2) Does this strategy lead to its designated results?

Over the past decade, performance measurement in public organizations has gained a lot of interest among researchers and practitioners in various fields, such as the design of the measurement system, its implementation, the use of the system, and the content of the measurement systems [23].

Even though balanced performance measurement is applicable in both private and public organizations, there appears to be a general view that public and private organizations are different from a measurement point of view [24]. This could be mainly due to the fact that, in the public sector, there are many stakeholders that have different and conflicting requirements [24],[25]. This creates two problems for the performance measurement system. First, taking account of all stakeholders may result in producing a multitude of performance measures that satisfy no one [25]. Second, it may be difficult to set targets or to make decisions based on the measurement results because some of the stakeholders have conflicting objectives [26]. In addition to the two fundamental problems, other specific challenges have been identified. For example, Pollanen"s (2005)[27] study showed some obstacles that can hamper the acceptance of performance measures in the public sector.

These are mistrust of measurement; lack of credibility and usefulness; lack of standards and timeliness; substantial investment of time and resources; and resistance by public officials and employees. In addition, Bourne, Mills, Wilcox, Neely and Platts (2000)[33] have identified three challenges in the implementation of performance measures. These are: the resistance to measurement; IT infrastructure support; and distracted top management commitment occurring between the design and the implementation phases. Despite the previous challenges and problems, a number of benefits are expected to emerge from aligning performance management systems with organizational strategy. These benefits have been highlighted by a number of authors such as (Dyson, 2000; Kaplan and Norton, 1996b; Simons, 2000)[30, 32].

Some of these benefits are: communicating strategic priorities; monitoring and tracking the implementation of strategy; evaluating outcomes; alignment of short-term actions with long-term strategy; and promoting integration among various organizational processes. Moreover, performance measurement system is expected to focuses change efforts and permits organizational learning[33].

Significant progress has been made in the area of linking the design and development of performance measurement systems with organizational direction through the employment of a particular approach such as: the balanced scorecard approach [33]; the results and determinants framework [46]; the performance prism [34]; and strategy maps [37]. There is also a recognition in the literature that, as strategy changes, whether deliberate or emergent whether driven by changes in the external or internal environment, performance measures need to be reviewed and if necessary changed to ensure alignment with strategy [29].If this is not done then there is a danger that performance measurement could become irrelevant or counterproductive[47].

Strategic management is an organized development of the resources of the functional areas; financial, manufacturing, marketing, technological, manpower etc. in the pursuit of its objectives [41]. As Peter Drucker once said: if you can't measure it ,you can't manage it . organizations should measure the success of their strategies and make corrections to get desired outcomes. Strategic Performance Measurement (SPM) is vital for all organizations. Some authors indicate that SPM can be both functional and dysfunctional for organizations. Since SPM can help managers to define and achieve their strategic objectives, plans and critical decisions. Despite the increasing interest in organizational effectiveness there is little consensus over what constitutes a valid set of effectiveness criteria [32]. This is somewhat surprising given that the effectiveness of the overall planning process may be as important as formalization and comprehensiveness [38]. The traditional approach which involves measuring effectiveness in terms of objectives poses a number of problems. For example, effective performance must be determined, in part, by the objectives of the organization itself rather than by an externally imposed standard [39].

The effectiveness of the nature of strategic planning in firms, as opposed solely to performance outcomes has been highlighted as a major problem, (e.g. Dyson and Foster, 1980)[30] Some writers, have proposed methods to evaluate the strategic planning system (SPS), (e.g. Kotler, 1977; Heroux, 1981; Meidan et al., 1992; Foster 1994)[46-48],[39].

There are two main approaches to evaluate the effectiveness of a strategic planning system - process and ends-oriented (Foster, 1994)[39]. The process approach considers the whole system and provides users with a means of identifying weaknesses, while end-oriented focuses on the outputs of the system. While Foster recommends the sole use of the first approach, Phillips and Moutinho (2000) [43] have shown that perhaps the best measure of effectiveness is to include a combination of both approaches.

Organizations can enhance their planning effectiveness by using management and planning tools that make the details of their plans visible [42]. This visibility facilitates vertical integration, horizontal, and cross functional alignment. However, initiating, managing and sustaining a corporate transformation requires close attention to: top-down direction setting; horizontal process redesign, and bottom-up performance improvement[43].

Evaluating the results of strategic plan implementation can demonstrate how well the strategic plan is fulfilling its stated purpose. The results from the assessment of the strategic plan can empower and inform the next round of strategic planning and the setting of future priorities.

The assessment activities are guided by the articulation of certain goals and objectives [8],[9] Goals express the intended results in general terms, whereas the objectives describe the concepts. Objectives specifically state what needs to be assessed, and therefore guide what tools are most accurate and suitable for the measurement [10].

The type of desired outcomes will determine the assessment method that is most appropriate, and the method depends on whether the data are quantitative or qualitative. An extensive range of possible assessment techniques exists. The instrument chosen needs to yield results that can be statistically analyzed, are valid and reliable, have norms against which an institution's results may be compared, and are easily taken, scored, and analyzed. If such an instrument is not available then one must be developed [9].

To date, no clear models have been found that adequately evaluate strategic planning in an organization . Measuring and managing performance is a challenging enterprise and seen as one of the keys to managing change and thus gaining

competitive advantage in organizations" [11]. As Niven (2003)[1] observed "organizations today face increased pressure to implement effective performance management systems and improve operational efficiency, while simultaneously remaining focused on fulfilling their missions "Different evaluation models have also been used to develop and implement strategic performance evaluation that facilitate managers' strategic decision-making, planning and control. As Norton (2002)[12] observed "the essence of strategy is to define the outcomes that are desired and to identify the assets (tangible and intangible) and activities required to achieve them" .

Evaluation models also constitute powerful tools for organizational evaluation by providing managers with information about "what performance is required at the organization, process, and job/performer level, what performance to measure, what questions to ask about performance deviations, and what actions to take to modify performance" [14].Another use of organizational evaluation models is to help organizations focus not only on traditional performance areas, which tend to look at financial, operational, or functional efficiency, but also focus on non-traditional measures which tend to relate to intangibles such as an entity's marketplace, stakeholders, strategic implementation, and resource management .Ideally, non-traditional measures are usually predictive in nature.

In the implementation of strategic plan need to be visualized. Actions may be strategic initiatives of a business unit, or the individual employees, and their results are typically captured in key performance indicators, providing valuable feedback to management on whether strategic progress is made or not. While there are cognitive benefits of visualization connected to the tracking of progress in this stage, the impacts of visualization (in particular motivation) also come to the fore.it is important to recognize that traditional performance measurement practices are usually inadequate . The measurement of performance should be oriented toward the search of "improvement opportunities," where all the contributories are actively involved in the improvement effort .Once the strategies have evolved their performance in the likely future environment needs to be evaluated. This in itself becomes an important activity, with four methods generally used, namely expert opinion, direct measurement, analytical modelling and system simulation. Usually the direct measurement of the performance in the operational environment is prohibited by cost. Analytical modelling becomes extremely tedious and if simplified becomes unrealistic. Expert opinions about the performance of a strategy in the likely scenarios are normally vague, confusing and fuzzy. However, expert judgements are important and can be used if they are quantified.

III. REQUIREMENTS ANALYSIS OF VMIS

Strategic planning involves defining a mission, establishing goals and objectives in support of that mission, and creating strategies to attain established goals and objectives Fig(1) . A strategy is a long-term plan of action designed to achieve a particular goal, as differentiated from a tactic or immediate action to be pursued with resources on hand. The development of a strategic plan requires detailed information gathering and analysis, and must be developed to match the desires of the leadership team responsible for the plan with the realities of the current situation both internal and external to the organization. Once the plan is completed and appropriate strategies for the organization to pursue have been determined, careful implementation of the plan and periodic evaluation of the results of the organization should be conducted.

Monitor progress, compile information for managers, and keep the Strategic Plan on track is a great challenges for top management. Tracking the implementation of Goals and Objectives will normally be the responsibility of the individual or team responsible for completion of the Action Plan.

VMIS Model will be a tool that management will use not only to evaluate Goals and Objectives – but also to react quickly and effectively to the unexpected. Report progress to date on steps in the Action Plan that are completed ahead of schedule and that are on schedule. If things are not progressing according to the Action Plan, report the reasons, as well as what is being done, to get implementation back on track. organization need to develop their own methods of tracking implementation of their Goals, Objectives, and Action Plans. The system needs to track the status of each Action Step. managers should be encouraged to include as much or as little comment as is necessary to give complete information to top management.

The hierarchal structure of an strategic plan shown in Fig [1] is defined as follows:

Figure 1 the structure of strategic plan

Strategic plan performance can be thought of as a sort of" black box" for processing information , where inputs are masses of objectives , projects and activities , and the output is problem discovery of balance between the targets of objectives and the current states of objectives and tracking the progress of monitoring of departments projects .

The workings of the black box are extremely complicated, and to make matters worse, it is constantly being redesigned. There is a need to standardize the design of the process to make it more efficient, transparent and flexible. The first step in doing this is to find a way to describe the inner working in a simplified modular way. In practice however the quantity of raw data is usually overwhelming .

IV. THE ARCHITECTURE OF A VMIS MODEL

VMIS model consist of four modules shown in figure 2 database module , rule reasoning base module, gap analysis model , and FTLM module.

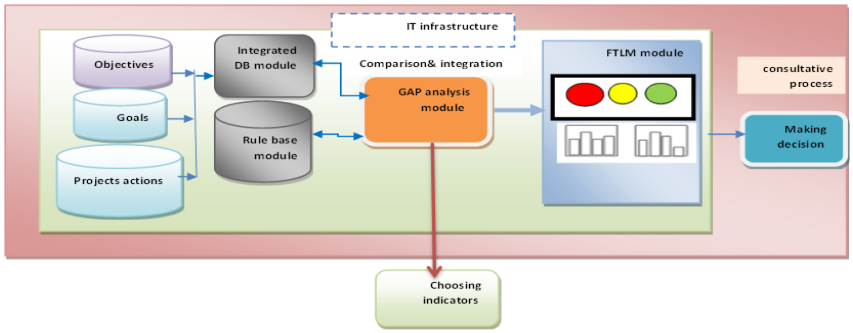


Figure 2 the architecture of a VMIS

A. Gap Analysis Module

Gap analysis is a technique for discovering any kind of shortcoming is processes and characteristics. This technique is often used when the organization tries and conducts researches in order to discover some fields to improve. The gap analysis technique is the nucleus of the result-oriented view for changing the fields where dissatisfaction is expressed as the difference between the current status and the ideal future which extracts strategies for closing the "gap". These differences should both illustrate the structural or performance characteristics, and also form a basic for the change-plan as a gap between the present and future [16]. If the gaps are not connected (are not built as abridge), then the programming team should go back in the programming stages and revise the program. Maybe the future perspective should be revised or the expectations should change so that the results would be accessible[16].

Gap analysis (figure 3)is an assessment tool that enables comparison between actual performance of activities progress and potential performance. At its core are two questions: Where are we? Where do we want to be? Once a vision or set of expectations for desired performance is understood, it is possible to compare that expectation with the level of performance at which an organization or system currently functions.

The process of GAP analysis has been broken into two parts; first the assimilation and interpretation of raw data to provide meaningful indicators of the quantities that the data measure, and second the comparison and integration of these indicators to understand their implications for strategic plan performance. The output of this analysis provides the input to the consultative process which provides advice to management.

The next step in understanding the system is to look inside the black box Labeled "Comparison & Integration" in information flows between nodes at which information is combined, compared, and integrated. These nodes will be referred to as Characteristics in keeping with usage in the Traffic Light Method, and additional arrows from the external indicators should be included to represent the inputs.

the identification of gaps between the current state and the future or desired state is the beginning point for implementation of a university improvement process. When the process of identifying gaps includes a deep analysis of the factors that have created the current state, the groundwork has been laid for improvement planning. The gap analysis process can be used to ensure that the improvement process does not jump from identification of problem areas to proposed solutions without understanding the conditions that created the current state.

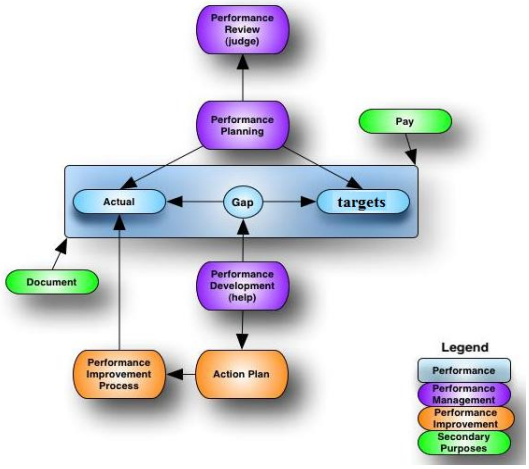


Figure 3 Performance Gap analysis

B. Fuzzy Traffic Light Method(FTLM)

Gap Analysis module use traffic Light Method FTLM that to show performance status and gap between current status and the desired goal for each strategic planning projects . The Traffic Light Method is an elegant way of presenting complex data in a graphical and easily understood form, but by requiring that all indicators be represented by one of only three discrete "lights" it suffers from a significant loss of potential information. It is not clear whether a yellow light is "almost green" or "almost red".

The three fuzzy sets in the Fuzzy Traffic Light Method(FTLM) are represented by three colors of lamps, and can be described verbally as:

- The set of unsatisfactory indicator values (red),
- The set of marginal indicator values (yellow), and
- The set of satisfactory indicator values (green).

Thus instead of just using a single light that is either red, yellow or green to indicate whether the indicator status is unsatisfactory, marginal or satisfactory, we need to show partial memberships in the three sets.

C. Rule Reasoning Module

Weighted model is constructed to enable a decision maker to assign numerical values to the criteria via the model interface . This model access the model base because there is no mathematical formula that is used during the analysis process. The criteria ranking analysis is performed by the evaluator judging the relative importance of each progress ratio with respect to all the criteria used in the evaluation process.

The scale of values that is used while judging the criteria is based on the percentage (%) of criteria that are specified in a certain evaluation problem. For instance, if there are four criteria, the scale will be 1% to 100%. The total of four criteria should be 100% not less and more than that figure. Value '1%' represents the lowest priority, while value '100%' is the highest priority. Once all the criteria in the Weighted model have been initialized, the values are saved in the system database. Then, the evaluator can proceed to VIS for detail evaluation of criteria.

The evaluation rule is that if the section under a subheading is well prepared and well written, then the indicator is marked as Green. If missing, it will be Red. Some incomplete description will result in a Yellow.

V. A WEB –BASED EXAMPLE IMPLEMENTATION USING VMIS

The recent development of the web generates further momentum to the design and implementation of a support system. Web-based is to provide a way for storing, presenting, gathering, sharing, processing, and using information. Web-based IS also to provide a distributed infrastructure for information processing, interaction and tool with user-friendly interface. This allows user to access the system remotely and instantly at anytime, anywhere. Fig. 4 shows the system architecture for a case study of Islamic University in Medina , KSA .

Currently IU has a good network infrastructure connected all campuses through the Intranet/ Internet. Hence, Web-based IS application is a good solution as intelligent web application can be useful for the case of study to implement its application on Islamic University(IU) network. Colleges of IU can be applied the progress of strategic plan projects and activities . chosen solution is a database-enabled web application since it best fulfils **t**he requirements of application with high availability and a differentiated multi-user access. The system runs completely server-side (dynamic content is generated by C#) so that all a client needs to access it is just a web browser and a network connection.

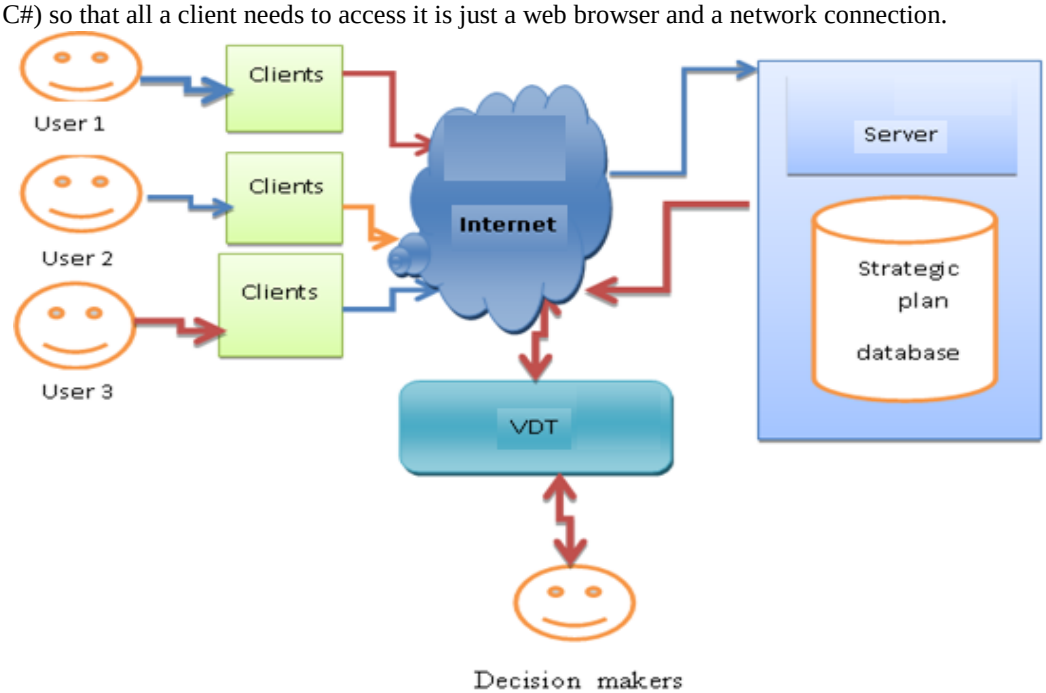


Figure 4 the system architecture for a Islamic university case study

DESIGN AND IMPLEMENTATION OF VMIS

A prototype implementation described below will serve as proof of concept for VMIS . In this simplified prototype, We use as a case study the realistic example of the monitoring the progress of the Islamic university strategic plan . The following screen shots (Fig. 5, 6,7) are screen shots of prototype for implement a proposed model in Islamic university strategic plan which shows the status of objectives and detailed goals and projects.

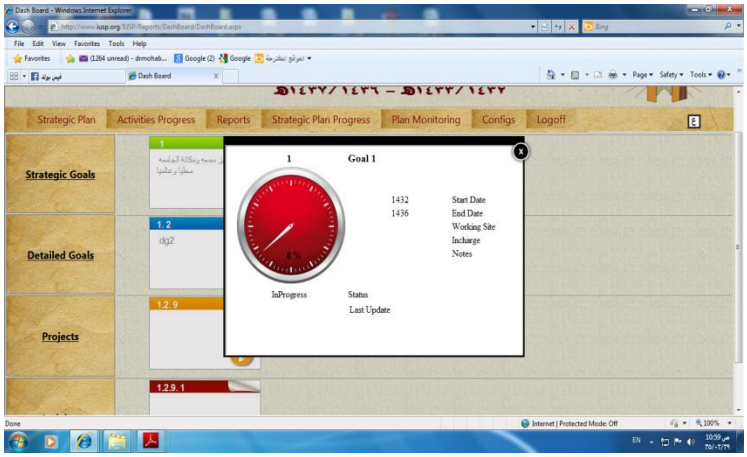
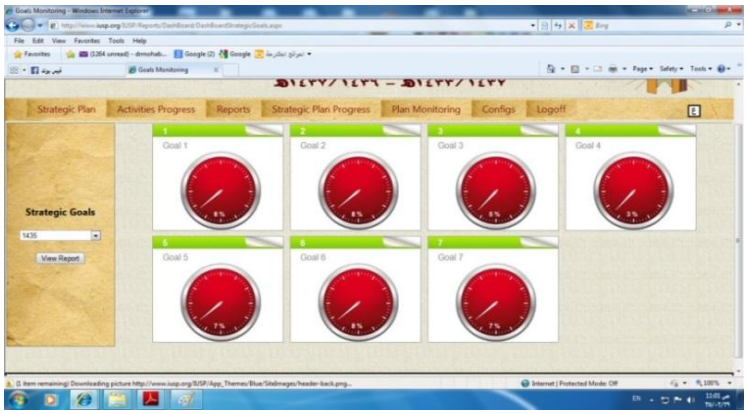


Figure 5 Strategy map for strategic planning



Traffic light and gauges for strategic goals that show the overall status of our strategic plan

Figure 6 Fuzzy Traffic light method for the status of objectives

down details:

An executive can drill down the details on why a particular activity of the project s/he is sponsoring has a Red or Yellow status by clicking on the gray button (link to activity details). Figure 7 shows activity Work Items in which the Red status was marked due to Missing Project Estimates and Schedules. By clicking the gray button on a project window (Figure 8),

Figure 7 Monitoring the progress of objectives and sub-objectives

A complete list of capabilities provided by the prototype is summarized below:

- on-line submission of review reports with complete editing capability: conceptualization documents such as requirements definitions, design specifications can be prepared, placed online and linked to on-line approval and control of process by virtual meetings: physical meetings for managing the projects can be minimized as the online application allows timely reporting and action to be taken
- access and action control by appropriate management level
- automatic roll-up status and drill-down details as shown in details in the previous sections
- reports on outstanding items (status, schedules, issues, actions): the reports can be automatically published with and without notifications to all personnel parties involved

VI. TESTING THE EFFECTIVENESS OF VMIS

The data collected through pre- designed questionnaire which was directed to the Mangers and strategic planners of Islamic University in medina ,KSA . A self-administered questionnaire was used to collect the required data from the population of the study. Using the drop and collect method, 100 questionnaire delivered by using a comprehensive survey method, and then collected it within one month. The highly controlled data collection procedures ensured returned back 80 questionnaire with 80% response rate.

A. Methodology of the Study

Research Objectives

This study attempts to Present the components of VMIS as well as Decision Making and to explore the proper role of Visualization; what managers do and what information they need for monitoring the strategic plan . This study is cause and effects in nature and seeks to answer the following research question: To what extent is the well-designed information system support managers who deal with very complex, non- routine problems to take the right corrective actions .

Significant of The Study

The study is expected to make recommendations to managers on the role of VMIS in doing their business in the area of Monitoring the strategic plans.

B. Problem of the Study

Monitoring the strategic plan always involves complex process since it is concerned with the effectiveness of the strategic plan outcomes and events, that is a VMIS function. The function of VMIS is to provide decision makers with timely and accurate data to allow implementing the strategic plan to optimize the interrelationships most effectively reach the organizations predetermined goals.

C. Variables of the study

Independent Variable*:* VMIS, Visualization

Dependent Variable: The level of strategic plan monitoring which concerned with deciding on the objectives, resources and policies of the organization

Hypotheses of the Study

In order to investigate the effectiveness of VMIS and designing many possible solutions to the problems (monitoring). Related to the components of VMIS criterion, the researcher proposed the following hypothesis:

H1: There is a significant relationship between visualization and the right Monitoring strategic plan.

H2: There is a significant relationship between VMIS and the right Monitoring strategic plan.

D. An Applied Section:

The statistical package SPSS was used to analyzed data. Descriptive analysis and one-way ANOVA were used. A Descriptive analysis for Independent and dependent variables, shows that the range means value was (3.72 –4.49).

Hypothesis Testing

This study aims at exploring the effect of utilizing and adopting VMIS components on the right Monitoring strategic plan

The Main Hypothesis

There is a significant relationship between VMIS, and the right strategic plan monitoring . This was branched to four sub-hypotheses, which was:

H1: There is a significant relationship between visualization and the right Monitoring strategic plan.

H01: There is no a significant relationship between visualization and the right Monitoring strategic plan.

To investigate this hypothesis, descriptive statistics of variables were computed, table (1):

Table (1): descriptive statistics for adopting visualization

variable	mean	Std.deviation
Visualization	04.20	0.4179
right strategic plan monitoring	04.05	0.4592

Descriptive analysis for the variables of the first hypothesis, Shows that the mean value of adopting visualization was (4.20) with std. deviation value (0.4179), and the mean value for the right strategic plan monitoring was (4.05) with std. deviation value (0.4592).which means that there are positive relationship between visualization and the right strategic plan monitoring, because their means are above the mean of the scale (3). Simple regression analysis was applied, table (2) shows that:

Table (2) regression analysis for visualization

Model	r	R2	B	T	F	SIG	H. Result
Visualization and right strategic plan monitoring	0.438	0.191	0.491	6.308	39.791	0.00	Reject H01

The table shows that there is a relationship between visualization and the possibility of the right strategic planning monitoring where as: r. Value reached (0.438), F. Value Reached (39.791) by significant (0.00), this indicate that there is a significant relationship between adopting the concept of visualization and the possibility of the right strategic planning monitoring. Therefore the hypothesis No.1 (H1) is true and Null hypothesis (H01) was rejected.

H2: There is a significant relationship between VMIS and the right Monitoring strategic plan.

H02: There is no a significant relationship between VMIS and the right Monitoring strategic plan.

To investigate the fourth hypothesis of the study, descriptive statistics analysis for variables were computed, as shown bellow, table No. (3):

Table (3) descriptive statistics for vmis.

variable	mean	Std.deviation
VMIS	04.19	0.4478

The mean value of adopting and utilizing VMIS in taking the right Monitoring strategic plan was (4.19) with std. deviation value (0.4478), which means that there a significant relationship and positive attitudes toward VMIS variables because their means are above the mean of the scale (3). To investigate this hypothesis, simple regression analyses was applied; table (4) shows that:

Table (4): regression analysis for vmis

Model	r	R^2	B	T	F	SIG	H. Result
VMIS	0.442	0.196	0.463	6.390	40.827	0.00	Reject H02

The table shows that there is a relationship between VMIS and the possibility of the right Monitoring strategic plan where as: r. Value reached (0.442), F. Value Reached (40.827) by significant (0.00), this indicate that there is a significant relationship between adopting the concept of VMIS accepted, and Null hypothesis (H03) was rejected

VII. VMIS MAKES A DIFFERENCE - CONCLUDING REMARKS

We have discussed and implemented as prototype the functionalities of our hierarchical, quality assured VMIS. The pilot implementation has revealed many benefits. In fact, with a web-based application, all reports submitted online with pre-formatted forms can be easily accessed by authorized personnel at anytime from anywhere. This minimizes the need to hold physical meetings (hence virtual meetings) between the parties involved unless it is really necessary. Each responsible party will work on its own time to report progress and status on its own tasks Since the Red, Yellow and Green status reported at the bottom level of task hierarchy is rolled up automatically to the highest level of management: executive, the executives may make strategic and tactical decisions or override the status with proper justifications recorded and undeletable.

The overriding notifications are automatically forwarded to responsible parties involved. The executives may drill down the task hierarchy to examine any details for proper action items. Different and special reports on outstanding items can be generated and separated by project, owners, and other types of grouping.

In summary, the paper proposes a VMIS as solution to the issues cited in section 1. As described in the sections 3, the making of our decision model relies on the mapping between development process and the hierarchical organization supporting it. The key to the mapping is the set of goal-directed indicators targeted at the completion of tasks and deliverables by each task. The creation of these indicators is completely within the control of the organization units in charge.

The VMIS model described in this article thus offers the software development organization a decision-assisted management scheme with high practicality, simplicity and flexibility via the use of a hierarchy of goal-directed indicators. The indicators have a direct relationship to metrics and quality of process, deliverables, resources supporting them and environment. The organization may make use of any existing measurement techniques and metrics associated with them, and any decision making schemes. From the management organization perspective, any organizational structure can be mapped.

The prototype VMIS was evaluated internally by a mix of Managers and decision makers of IU . Overall findings were quite positive, with several general comments on good features:(1) The “active” display is also intuitive to understand and allows rapid characterization of the success of planned operations. (2)Supporting the mix/match of indicators and subordinate operations is flexible and supports real-world needs. (3)Controls and displays for assessed values, confidence, weights, and age are clear to understand and easy to use.

There are suggested opportunities for improving VMIS that will be Develop new visualization and tabular representations of the measures and metrics data that improve communicating a Strategic planning .

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