Framework Model for Strategic Plan Using Dynamic Workflow

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Abstract— This paper presents a first application trial of designing a strategic plan depending on dynamic workflow. When designing such strategic plan, it is important to study carefully the organization types. The significant difference of this proposed model from previous studies is that these studies concentrate on day-to-day work while this model is applicable for long-term time strategic plan. The proposed strategic plan is analyzed against different planning parameters and showed that it is considered as a core work for different organizations instead of being a marginal work as in the traditional strategic plans. The proposed strategic planning helps planers to adjust human resources involved in that plan. Also this strategic plan is applied successfully in Free Zone Company in Jordan which is related to products with free tax.

Keywords- Workflow; Strategic Plan; Key Performance Indictor; Processes.

I. INTRODUCTION

The efficiency and performance of organizations depend on the effectiveness of the flow of information between departments of the organization. The automation of the business process and communication through adopting an automated workflow for passing of documents and tasks helps in improving the efficiency of the organization [5].The purpose of the workflow systems is to computerize the manual procedures with in mind that workflows automatically transfer tasks and work from one person to another [1, 2] and from one stage to another according to a predefined way [3]. Workflow is defined as performing work according to automated procedures in which passing documents, information and tasks among participants are consistent with precise procedural rules that aim achieving the goal of the whole business sector. Another definition of workflow system is that it is simply the movement of documents and tasks through the business processes [4]. All previous definitions fail to mention one element that the workflow should be implemented within precise plan put in advance [5]. To overcome this shortcoming by it is necessary to define the workflow as the automation of work process by assigning atomic work units (task) to participants (agents) according to workflow outline [6].

To know how the workflow works, some specialists argue that the changes in of the workflow engine are registered in a database during the implementation of the workflow. This process is considered the most important property of the work flow which, at the right time, facilitates reviewing precise and crucial information related to the operational behavior of the business project. This procedure lets the decision makers to have an opportunity to obtain reports and statistical information about individuals of the organization and its operations which help in re-engineering the processes. In order to connect between the workflow and the strategic planning it is important to explain the strategic planning concept [7].

Strategic planning is concerned with producing the proper plans to ensure the achievement of future organizational goals and vision. It includes continuous evaluation of organization's current state to improve and take necessary decisions to guide the organization in the right direction[14].Strategic planning is also concerned predicting the organization prospects in the near future in order to assist in decision making [8].The inputs of the strategic plans are vision, mission, goals, program, activity, task and performance induction. The vision is the

state that organization is eager to achieve within certain number of years. Based on that vision, the organization puts forward its mission. The mission is a detailed explanation of the vision. It contains answers to questions such as: "Who are we? How can we meet our goals? What services do we provide and to whom?" and so on. The text of the mission answers these questions briefly. The goals are what anticipated to be achieved upon the completion of the plan programs. These goals are derived from the mission. And the programs represent the business that the organization intends to carry out within plan framework. It is very important to specify the starting and the ending time for every program. Also we can say that programs are project in our company. Each program is divided into activities, if executed, would insure the completion of the program. There is also a need for evaluation indicators for each activity. The tasks are the process of breaking each activity into smaller parts to make it easier to complete, There is also a need for evaluation indicators also start and end time. Key Performance Indicator (KPI).These indicators provide information about the percentage achievement which results in full evaluation, conducting supervision and giving a feedback, which helps in making [9].

II. RELATED WORKS

In [10], a proposal for a comprehensive approach was proposed to increase the ability for the static workflow to adapt so the definition of the workflow process becomes more flexible. The basis for this suggestion lies in utilizing monitoring tools in the workflow within the process framework so it will adapt to changes in the dynamic workflow. Monitoring these changes is very crucial in modifying or improving the workflow processes. Another proposal designed tools that let the end user to modify, build and develop processes taking into account the upcoming developments in which the mechanisms that allow for adopting and improving the business operations studied at the time of implementation. This would make it easier for the end users for form business operations. Finally, the study suggests establishing a group of common and flexible elements which can be called and used whenever needed [11].

Aalst considered the topic of PBWD (Product Based Workflow Support) and proposed methods to increase the efficiency of the workflow. This proposal was built depending on previous projects that concentrate on the topic of designing paths for the workflow, improving their dynamics and increase the flexibility of the process. These tasks performed by defining a path for the next step and studied the time and the cost criteria based on the available information gathered by the

model [12]. In [13], a research examined how to improve the functionality of the workflow to see whether it depends on the research or application levels. The proposed workflow also studied the dynamic workflow and the possibility of designing a path for the process.

III. THE PROPOSED MODEL

The proposed model consists of three phases which are: strategic plan management, process creation, and employees interface.

A. Phase one:the management of the strategic plan

The strategic plan management is divided into two parts. The first part is the database and second part is the application interface.

1) Part one :database

The model proposes a database that contains data of components of the strategic plan and all related data. In addition, there are other components that interact with the database which has been built using VB.net. This database enables us to store, modify and retrieve data of the strategic plan. Figure1 illustrates the tables of the database and the relationships between them.
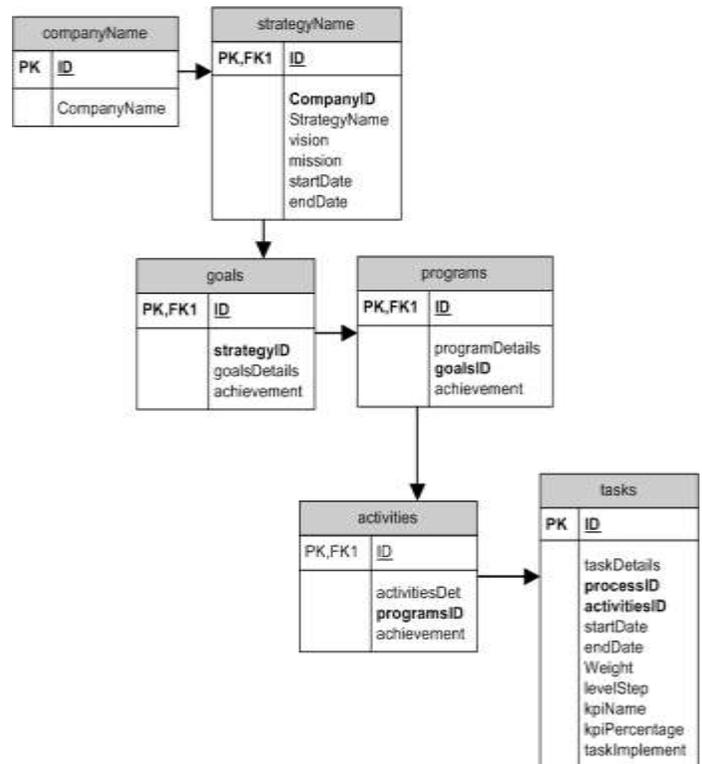

Figure 1. Database of the strategic plan.

The initiate stage in this part includes data stored in table (companyName) to enter the organization's identification (ID)

and its name. This stage allows the user to interact with other organization systems such as human resource table(strgeName) which contains important information such as vision, mission and start date and end date for interaction with that organization ID because this model interacts simultaneously with different types of organizations .Since each plan has several goals which have their own value such as achieve level field , it is necessary to store them in a separate table which is called (goals) table .The program tables relates each program ID with their corresponding goals . The output of this program evaluation should be stored in achievement level field in the goals table .Each specific activity must be related to each corresponding program's ID of that activity which requires storing (activatedDet) field and the (achievement) filed in activities table. The data of these tasks are stored in task table where each task is identified by its ID, details (taskDetails) and a start and end date. Each task is related to an activity identified by activitiesID field which in turn related to a process (processID) field. Next the task is given a weight (measured in hours) depending on the organization type and each task must be related to a specific organization. Then the task is ranked so the proposed model can determine the execution time and the proper time for sending that task to an authenticated employee. This field is called a (levelStep) field. Finally, there is an evaluation tool with an initial percentage value of zero. The benefit of this tool is that each user can access task information in task table and has the ability to modify the data using evaluation tools in key performance indictor field.

2) Part two: The application interface:

This part enables the designers to build a strategic plan and defines the interrelations between its components. This part also allows the designers to identify the processes used by each designed task.

The components of the strategic plan is designed using the top –to- bottom approach tree structure where each component is linked to the one preceding it as illustrated in figure 2. Figure 3 illustrates the algorithms for designating the strategic plan. This algorithm depends on database in part one of this step.

Figure 2. The tree structure of the strategic plan and relationships among main components.

Figure 3. Strategic plan design algorithm.

B. Phase two: Creatiog process:

Creating a process requires designing all workflows of data related to each process and assigning human resources to carry out any employee operations among workflows. This procedure can be performed by identifying each employee's location on the specified process workflow chart by using either personal information or job title of that employee. Moreover, in this part it is necessary to specify decision making function and the serial or parallel steps for that process. This step of the model includes two main parts: the database and application interface.

1) Part one:Database

In this database, the data related to the process are stored and then this database is transformed into a workflow to exchange data between users. The database of each process includes a description of that process such as start and end node in the workflow of the process, its decision node to define nodes required in that workflow and dynamic resources node for subsequent nodes in the same workflow.

The database consists of two main tables. The first table is called (processForm) which identifies each process, and the second table is called (processFlowing) which contains information related to how each process flows between workflows. Finally, this database contains a derived table called (employee).Figure 4 illustrates the construction of this database.
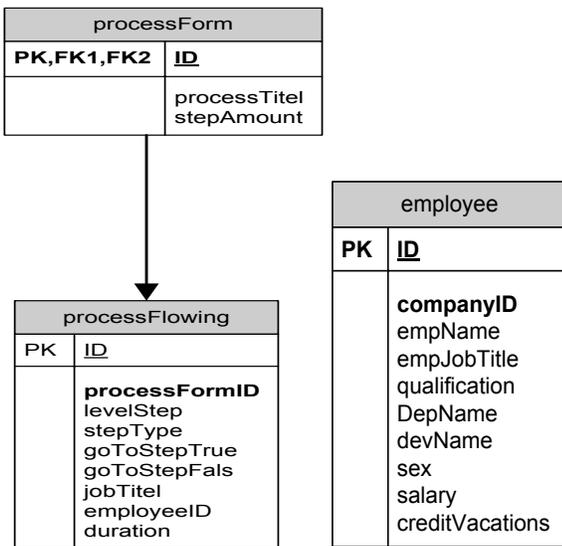

Figure 4. Database for the process.

1) PART TWO :APPLICATION INTERFACE

This part builds an application interface which enables the users to design processes, defines their nodes on the workflow, properties of the process including the human resource assigned to the process and the decision node. The subsequent

nodes represent those that are not related to a human resource which let us to direct process workflow to any suitable nodes as illustrated figure 5.


```
Create new presses
Initialization  objProsses =new processCreate  (ID,prossesTitel,stepAmount)
Insert(objProcses)
prossesID=ID
Fetch jobTitel
Levels=0
While ( there are node is not inserted)
{
Fetch depID
Fetch devID
Fetch employeeID
Initialization  ObjstepOfProcess =new
stepOfProces(ID,prossesID,levels,jobTitel,depID,devID,employeeID,duratio)
Insert(ObjstepOfProcess)
Levels ++
}
```

Figure 5. Algorithm for process design.

C. Phase three: Employees interface

This phase is dedicated to implement the proposed strategic plan and related it to corresponding processes .Then this plan is executed throw pre-defend nodes for each process from which the result of process implementation are entered to model according to the evaluation tools so further results related to the progress level of the plan can be obtained.

In this phase, the proposed model designs a database to store of all tasks as well as notes and task status of each task to indicate whether this task is executed directly or still waiting for future execution as illustrated in figure 6. Also in this step it is necessary to design an application interface in which the authorized employee logs into his/her screen and be able to find the sub-tasks he/ she wishes to implement within the a specified time frame as shown in figure 7.
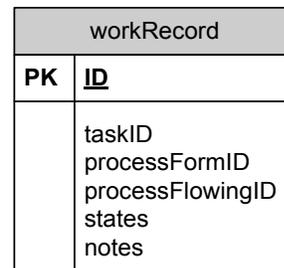

Figure 6.Database of work records.

```
If Validate (username , password)=true then
Fetch(jobTitel,depID,devID,employeeID)  from employee table
If jobTitel !=headDivision and jobTitel=manager  then
If (jobTitel  !=headDivision) then
Fetch(ID,processID,levels,jobTitel,depID,devID,employeeID,duratio)  from
processFlowing table
Where (employeeID=username  or employee=null) and jobtitel= head division
FetchID,taskDet,processID,activitiesID,startDate,endDate,Weight,levelImplementation,
kpiName,kpiPercentage,taskImplement)  form tasks table where ID=rossesID
if (real date >=startDate and real date <= end date)
Show this task in inbox
Else
Fetch(ID,processID,levels,jobTitel,depID,devID,employeeID,duratio)  from
processFlowing table
Where (employeeID=username  or employee=null) and jobtitel= head division
Fitch(ID,taskDet,processID,activitiesID,startDate,endDate,Weight,levelImplementation
,kpiName,kpiPercentage,taskImplement)  form tasks table where ID=rossesID
if (real date >=startDate and real date <= end date)
Show this task in inbox
End if
else
Fetch(ID,processID,levels,jobTitel,depID,devID,employeeID,duratio)  from
processFlowing table
Where employeeID=username
Fetch(ID,taskDet,processID,activitiesID,startDate,endDate,Weight,levelImplementatio
n,kpiName,kpiPercentage,taskImplement)  form tasks table where ID=rossesID
if (real date >=startDate and real date <= end date)
Show this task in inbox
End if
```

Figure 7. Employee Interface Algorithm.

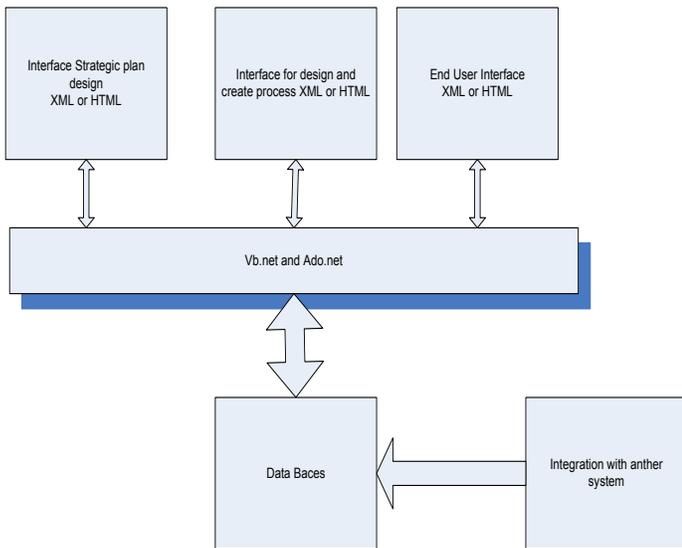Figure 8 shows the general proposed model.

Figure 8. General proposed model.

IV.   RESULTS

This model of strategic planning is implemented in different governmental organizations of the Middle East countries where these strategic plans are compatible with this proposed model.   One of these organizations is Jordanian Free Zone Company which has been chosen for the application of this model. The results of the system considers the total period of 5 years of strategic plan in Free Zone Company. The proposed model shows that the volume of utilized human resources participating in the strategic plan is not more than (7%) of the total human resources of the Free Zone Company, while the rest of human resources perform daily routine tasks that are not related to the strategic plan. So, the proposed strategic plan helps this company to adjust their strategic plan to be more effective by utilizing much more human resources in the strategic plan. The proposed strategic plan shows that the number of employees implementing the strategic plan tasks is varying for each year across a five-year strategic plan. The strategic plan shows that the above percentage of human resources indicates that this is a poor assignment of human resources and the proposed strategic plan informs managers to perform a good decision making to adjust this percentage for future planning. This important result is illustrated in figure 9.

Figure 9.Poor human resource assignment for strategic plan.

Figures (10) shows the ability of the strategic plan to represent the goals as numerical values while in traditional strategic plans ,theses goals are represented as text .This numerical representation of goals help planers to track the progress of strategic plan and to make decisions for better performance.
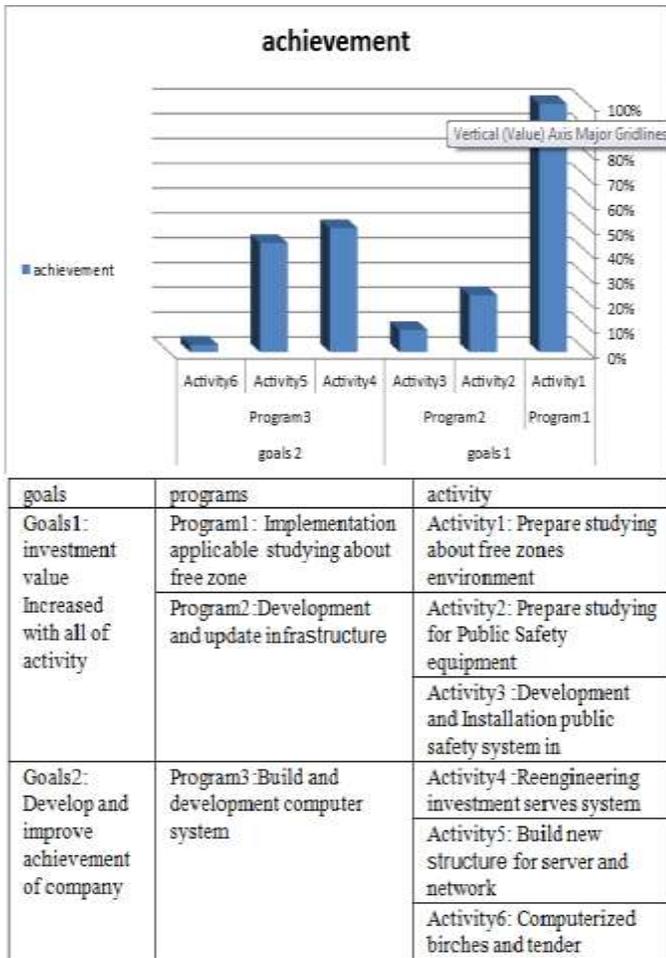
goals	programs	activity
Goals1: investment value Increased with all of activity	Program1: Implementation applicable studying about free zone	Activity1: Prepare studying about free zones environment
	Program2 :Development and update infrastructure	Activity2: Prepare studying for Public Safety equipment
		Activity3 :Development and Installation public safety system in
Goals2: Develop and improve achievement of company	Program3 :Build and development computer system	Activity4 :Reengineering investment serves system
		Activity5: Build new structure for server and network
		Activity6: Computerized birches and tender

Figure 10.Numerical representation of strategic goals .

V. CONCLUSION

The previous studies concentrate on workflows only with daily work without strategic plan implantation, while this proposed model applies the workflow proposed by these studies to design a strategic plan and implement it with long term period. So this model is the first implementation of strategic plan by using dynamic workflow.

The proposed strategic plan, when it is implemented, reveals some drawbacks in traditional strategic plans such as the poor assignment of human resources to different tasks of the strategic plan and this fact is illustrated in figure 9 in result

section. In this case, the proposed strategic plan provides guidelines to the planner for better utilization of human resources to produce effective future strategic plans. Finally, the significant property of this proposed strategic plan is that automates all parameters required to design an effective strategic plan.

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