



An Integrated Project Evaluation System

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Abstract - Many a time business administrators and even government officials face a lot of challenges trying to coordinate projects. The process of allocating, evaluating or monitoring projects and even generating or keeping project reports is very tasking and that is why it is common these days to see a good number of individual, corporate or government projects being uncompleted or even abandoned. To achieve integrated development therefore, it is imperative that an easily accessible application be developed to tackle this area of concern. The essence of this application is to automate the whole process of project management and evaluation, simplify the work of a project manager, improve the workflow and thereby reduce the number of uncompleted or abandoned projects. The Structured Systems Analysis and Design Methodology was adopted, and also PHP and MYSQL were used to build the model. The result is a simple web based integrated project management software that has the capacity to help a project manager to plan, allocate projects to clients, monitor, organize, evaluate and manage resource pool and generate online real time overall reports with ease, hence making project coordination process more robust and efficient.

Keywords- Evaluation, Project, Client, Integrated, Resource.

I. INTRODUCTION

Project evaluation is a systematic and objective assessment of an ongoing or a completed project. The essence of project evaluation is to determine the relevance and level of achievement of project objectives, development effectiveness, efficiency, impact and sustainability. Evaluation also is important for decision making process as it feeds the project stakeholders with relevant information. A project is a multitask job and a good and reliable project result depends on good and efficient evaluation technique, which creates a conducive work environment both for the staff and the project manager or administrator. Project evaluation is the whole process of planning, organizing, and managing projects. It can also extend to estimation and planning, scheduling, cost control and budget management, resource allocation, collaboration, communication, decision-making, quality management and documentation or administrative procedures. The key idea underlying project evaluation is to help those responsible for managing the resources and activities of a project to enhance developmental results. To be useful, an evaluation must respond to the needs and interests of these stakeholders and provide information that facilitates their decision-making. The Integrated Project Evaluation Management system is therefore an integral part of a project monitoring and reporting system that aids the decision-making process and supports organizational growth that in turn leads to sustainable development. The application is capable of providing the key stakeholders with the information needed to guide the project strategy towards achieving set goals and objectives. It can provide early warning of activities and processes that need corrective action. It helps empower project partners by creating opportunities for them to reflect critically on the project's direction and decide on improvements. It builds understanding, motivation and capacity amongst those involved in the project. And more so assesses progress to enable reporting requirements to be met.

II. LITRATURE REVIEW

Project management has been practiced since early civilization. Until 1900 civil engineering projects were generally managed by creative architects and engineers themselves, among those for example Vitruvius (1st century BC), Christopher Wren (1632–1723), Thomas Telford (1757– 1834) and Isambard Kingdom Brunel (1806–1859). It was in the 1950s that organizations started to systematically apply project management tools and techniques to complex engineering project [5]. The 1950s therefore marked the beginning of the modern Project Management era where core engineering fields come together working as one [2]. According to them, project management became recognized as a distinct discipline arising from the management discipline with engineering model. In the United States, prior to the 1950s, projects were managed on an ad hoc basis using mostly Gantt Charts, and informal techniques and tools. At that time, two mathematical project-scheduling models were developed. The "Critical Path Method" (CPM) was developed as a joint venture between DuPont Corporation and Remington Rand Corporation for managing plant maintenance projects.



And the "Program Evaluation and Review Technique" or PERT, was developed by Booz Allen Hamilton as part of the United States Navy's (in conjunction with the Lockheed Corporation) Polaris missile submarine program, [6]. According to [1] Project management has been practiced for thousands of years, but only recently have organizations begun to apply systematic management tools and techniques to manage complex projects. Today's approaches to project management can be traced directly to methodologies designed by the U.S. military and Department of Defence in the years after World War II. Subsequent advances in management information systems have helped to modify project management practices; most recently, the Internet has dramatically enhanced the ability of individuals, teams, and organizations to manage projects across continents and cultures in real time. "The Story of Managing Projects" showcases cutting-edge research conducted around the world on emerging practices in project management. To respond to the pressure, the organization should have control, flexibility and integration of systems, functions and communication within the system. Today, numerous computer and online based project management software exist and they are finding their way into almost every type of business [3].

A. *Project Evaluation*

Project evaluation is the monitoring and controlling of those processes performed to observe project execution so that potential problems can be identified in a timely manner and corrective action can be taken, when necessary. The key benefit is that project performance is observed and measured regularly to identify variances from the project management plan. Evaluation includes but not limited to measuring the ongoing project activities (ie current status); monitoring the project variables (cost, effort, scope, etc.) against the project management plan and the project performance baseline (the project aim); identify corrective actions to address issues and risks properly; and influencing the factors that could circumvent integrated change control so that only approved changes are implemented. In multi-phase projects, the evaluation process also provides feedback between project phases, in order to implement corrective or preventive actions to bring the project into compliance with the project management plan.

B. *Types of Project Evaluation*

All technical projects are subject to evaluation. Depending on the project evaluation plan, evaluations can take different forms - self-evaluation, internal, independent and external.

- i. *Self-evaluation*: is managed and conducted by International Labour Organisation (ILO) staff members, including project management or technical specialists.
- ii. *Internal Evaluation*: is managed and conducted by independent ILO officials, i.e., staff members who have not been involved in the design, management or backstopping of the project they are evaluating (e.g. the regional or sectorial evaluation focal person).
- iii. *Independent Evaluation*: is managed by independent ILO officials and conducted and led by external evaluators who have no previous links to the project. Other independent ILO officials may participate as team members in the evaluation.
- iv. *External Evaluation*: is managed from outside the ILO and conducted by external evaluators who have no previous links to the project being evaluated. External evaluations are usually initiated, led and financed by a donor agency. As with any evaluation, project and line management are accountable for follow-up.

C. *The Clients of Project Evaluation*

A client is a person or someone for whom a professional person or organization is providing a service to or doing some work. There can be primary or secondary clients of projects. The primary client of a project includes;

- i. *External clients*: the national constituents, project partners and the donors
- ii. *Internal clients*: the project management team and the field technical specialist.

Whereas the secondary clients of a project evaluation are the Governing Body which is not immediately involved in project decision-making but has an interest in the general results of ILO's (international labour organization) work and other units within the ILO who indirectly benefit from the knowledge generated by evaluations.

D. *Roles and Responsibilities in Manual Project Evaluation Systems.*

A clear division of roles and responsibilities for project evaluations is an important element in ensuring the integrity of the evaluation process to ensure the highest level of independence and credibility of evaluations.



Although they will be consulted during the process, neither the project manager nor any of the administrative or technical staff should carry out internal and independent project evaluations. The roles and responsibilities of persons involved in the evaluation process are explained in more detail below;

E. The Role of Evaluation Manager

The evaluation manager is responsible for managing all independent and internal evaluations. He/she should be in the sector or region in which the project is being implemented and have knowledge and experience in the management and evaluation of technical cooperation projects. The evaluation manager should have no links to the project decision-making and hence should not be the technical or administrative staff of the project. The sector or region decides on the organization of the evaluation management functions. There can be more than one evaluation manager per sector or region.

During project implementation, the evaluation manager ensures that evaluations take place in a timely manner. In preparing for an independent evaluation, the evaluation manager is required to: Determine the target audience for the evaluation and the key evaluation questions the evaluation should answer. Identify the evaluation consultant(s), and obtain final approval for their recruitment from the evaluation focal person. Ensure smooth organization of the evaluation process and proper support to the evaluation team. Ensure proper stakeholder involvement in the entire evaluation process. Ensure that gender issues are considered throughout the evaluation process. Manage the process of preparing the evaluation report (including circulating the draft report and collecting comments). Submit the final evaluation report to the evaluation focal person for final review (EVAL provides final approval).

F. The Role of Project Manager

The project manager and the project staff facilitate and support the implementation of the evaluation by: Providing information and comments. Coordinating exchanges of the evaluation team with the partners during the evaluation. Assisting in the data gathering. Supporting the evaluators, administratively and logistically, as they conduct the evaluation after an interim evaluation the project manager is responsible for preparing a plan for follow-up, taking appropriate action, and, together with the ILO responsible official, for disseminating evaluation outcomes.

G. The Role of an Evaluator

The evaluator carries out the evaluation and prepares the evaluation report according to the Terms of Reference (TOR). The team leader of an independent evaluation is always the external evaluation consultant. The evaluator should: Adhere to internationally-accepted good practices and solid ethical principles. Be skilled in implementing diverse evaluation methodologies. Ensure the evaluation is an inclusive and participatory learning exercise. Be culturally and gender-sensitive. The evaluator reports to the evaluation manager and submits the draft and final report to him/her. In finalizing the report, the evaluator should not only be receptive to comments from any of the stakeholders concerning factual inaccuracies in the report but also maintain total independence. The evaluator has sole responsibility for the final content of the report and recommendations [8].

H. Defining the Purpose, Scope and Clients of an Evaluation

Initially, the evaluation manager should determine the objectives, coverage and key clients of the evaluation. Consultation with the key stakeholders to determine the scope of the evaluation is a good way of identifying some important parameters for the evaluation. This may even include a decision on the type and timing of the evaluation. This consultation process helps the evaluation manager to accommodate the key stakeholders' priorities when drafting the TOR and avoids major revision of the draft after circulation. When determining the purpose and scope of the evaluation, the evaluation manager should also keep in mind that the evaluation itself should be effective and efficient. Project documents are not all of the same quality, and they do not always reflect the real situation at project start-up. In some cases, the strategy and design of the project is modified during the course of implementation to adapt to changing conditions. The evaluator needs to get a clear understanding of the project design, logic and strategy. Therefore, prior to writing the TOR, the evaluation manager, in close consultation with the project manager, should determine if the project document continues to accurately describe the project. Implementation planning, progress reports and project revision documents are key sources of information on modifications to the original design during the implementation process. The project manager should update the documentation on the project logic and add supplementary documentation and explanation. The evaluation manager draws on this information to prepare the TOR. This documentation is later submitted to the evaluator who considers the appropriateness of any changes in the strategy [9].



I. Preparing the Terms of Reference of the Evaluation

The evaluation manager prepares the first draft of the TOR of the evaluation, which guides the work of the evaluation consultant. In the drafting process, the evaluation manager consults with, and receives inputs from, the project manager, the ILO Office Director and the line manager of the technical unit backstopping the project. The draft TOR are then circulated for comments to the following key stakeholders: Project manager, Main national project partners, ILO field office Director, Technical staff at headquarters, Field technical specialist, Responsible evaluation focal point Donor, if required who provide comments within a specified time span. The evaluation manager integrates the comments into the draft TOR, as appropriate, and passes the TOR to the responsible evaluation focal point for approval. Copies of the final TOR are then sent to the same group of stakeholders who provide comments on the draft (www.ilo.org/wcmsp5/groups/public/wcms_172679.org).

J. Implementation of Project Evaluation and Evaluation Report

The implementation of the evaluation takes place as specified in the TOR. Project management is responsible for providing practical support in a timely and informed manner to ensure the most efficient use of resources by: Gathering relevant information prior and during the evaluation. Ensuring the efficient use of available time. Arranging for the evaluator(s) to meet the right people. Scheduling interviews and meetings with partners. Ensuring efficient logistical arrangements

III. EXISTING PROJECT EVALUATION SYSTEMS

Until recent times, project evaluation was done manually with data being stored and managed through analog-form record keeping consisting of lengthy catalogs. The first online project evaluation software was developed in the Department of Computer Science and Engineering Mahatma Gandhi University, India by the students using ASP.NET and SQL database. The developed system consisted of mainly four modules namely: Administration tasks Module, Project leader tasks module, Developer tasks modules and the Tester tasks modules. During analysis of the existing system, here are some limitations found that inhibits the system: (1) A novice might find it hard to understand the system process due to the complexity of the system. (2) Time cost in programming the system has been a big challenge, due to regarding time to deployment (an additional concern for cost,) on average, it takes twice as much code writing to accomplish something with ASP.net than PHP, and so time to deployment is faster using PHP. (3) In the system module development the client module was neglected, which makes the system isolated, which means clients can't offer new project to the administration online, is done manually. (4) In the developer's module, the system didn't advocate for complaint note option, where the developer can easily update delay details or complaint.

IV. DIFFERENT TYPES OF PROJECT MANAGEMENT SYSTEMS

There are different types of existing project management systems available and they include: Desktop project management system, Web based project management system, personal project management application, single user project management system and collaborative project management system. The desktop project management system were developed to run on desktop computers only and as such does not support many users and more or less just like the single user application. While the personal project management system was developed for an individual, the web based system was meant to support many users. This may also include the ability to use a smart phone or tablet to gain access to the application. Software as a service (SAAS) is also web-based and has become a common delivery model for many business applications, including project management, project management information system (PMIS) and project portfolio management (PPM). SAAS is a typically accessed by users using a thin client via a web browser.

V. THE INTEGRATED PROJECT EVALUATION SYSTEM

An integrated system combines the features of other project management systems. The integrated here implies that the features of other systems have been added to improve functionality. For example, projects can have bug tracking issues assigned to each project, the list of project customers becomes a customer relationship management module and each person on the project plan has his/her own task lists, calendar and messaging functionally associated with his/her projects.

A. Benefits of the Integrated Project Evaluation System

Online project evaluation systems have become very advanced and new innovations are continuously being introduced. The integrated system is a user-friendly web application that has three modules namely: Client task module, Administrator task module and Staff or developer task module.

It addresses the project evaluation process in a concise manner and makes it easy for a novice to manage the system. The new system generally intends to save cost, boost productivity, make documentation and information sharing easier.

B. Features of the Integrated Project Evaluation System

- i) *Registration Panel:* This is implemented at both the client and staff view panel. The administrator registers a new staff, while the client do his own registration from the client registration panel.
- ii) *Privacy control:* The administrator has the ability to limit the role for both the client and the staff for security purposes.
- iii) *Instantaneous Services:* The administrator is able to detect a client's newly proposed project and see the overall process of the ongoing projects.
- iv) *Automated Report Generation:* At the end of every project a report can be generated either on PDF format or MS WORD document.

VI. RESEARCH METHODOLOGY

The software development methodology adopted in this research is the Structured Systems Analysis and Design Methodology (SSADM, using PHP as the server scripting language since it creates dynamic pages with customized features and MYSQL is used as the database tool. The system comprises of three modules; the Administrator module, the client module and the staff module as shown in the diagram below:

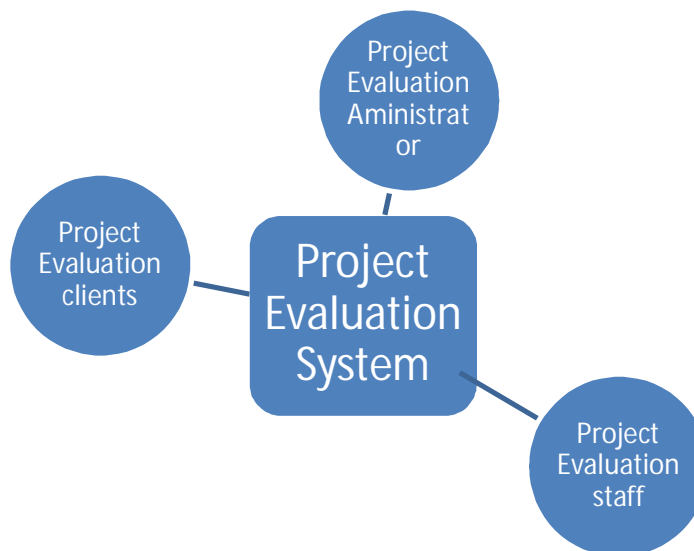


Figure 1: Different Modules of Project Evaluation system

Using the Software

The system is user friendly, and can be used by both the administrators, clients with ease. The system will be run using any preferred web browser. All that is needed is just to type the URL of the system in the web browser and the program will be displayed. For instance, to start using the project evaluation system, start a web browser e.g. Firefox. Enter the address of the website in the address bar i.e. name of the folder preceded by <http://localhost/e.g.http://localhost/projectevaluation>. The website's default page would display. You need to log in using a username and password. Navigate the pages using the mouse, by clicking on navigation buttons and hyperlinks. Immediately the web page loads, welcome page will displayed on the home page with a login button. Click on the login button and enter your username and password, if the account details are right, the Project Evaluation window loads up, else the system prompts the personnel that the password is invalid and returns back to the login window; another retry will be required. The input details differ depending on your status. For example if you are the administrator who is the overall controller of the system, your module will be different from the client and staff functions or any other person. On the Project Evaluation client and staff window, their activities will be restricted to an extent also. Every access is granted based on your status.

VII. RESULTS

The followings are some of the sample outputs/ results from the system.

Export As [CSV](#) | [PDF](#)

Projects

Filter		- Select Status -				
Name	Start	Due	Status	Project Manager	ID	
<input type="checkbox"/>	NETWORKING OF SKYE BANK	2014-08-11 18:06:44	2014-08-12 11:06:10	Active	Super User	1

Display # 20

Fig1: Output of new projects

Tasks

Filter		- Select status -		- Select quality -		
Title	Due	Task Completed	Priority	Type	Project	ID
<input type="checkbox"/>	BUYIG OF MATERIALS	2014-08-12 11:07:58	No	High	Creator NETWORKING OF SKYE BANK	2
<input type="checkbox"/>	BUYING OF CABLES AND RJ45	2014-08-12 18:06:45	No	Medium	Creator NETWORKING OF SKYE BANK	1

Display # 20

Fig 2: Output of new tasks

Project Template (Workflow)

Filter		- Select Type -	
Workflow	ID		
<input type="checkbox"/>	SWTCHE AND HOST CONFIGURATIONS	3	
<input type="checkbox"/>	BUYING OF CABLES	4	
<input type="checkbox"/>	ROUTER CONFIGURATION AND INSTALLATION	5	
<input type="checkbox"/>	CABLE TERMINATIONS	6	

Display # 20

Fig2 : Output of new workflow/project template



VIII. CONCLUSION

Project evaluation system is a software management related application developed in PHP using MySQL servers as database. It is a web application that can be used for managing and monitoring various activities related to the projects in an organization. The system was developed with objectives of automating the comprehensive process of project evaluation, improving workflow in a firm and also automating the process of project report generation in a firm and finally aiding in proper management of projects by business administrators. The availability of this software application automates this whole process and fully makes project evaluation a lot more efficient, robust, and easier for both administrators and managers.

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