The Use of Project Management Information Systems in the Monitoring of Projects

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Abstract:

It is always difficult for projects to be implemented as planned; this is as a result of the unexpected events or happenings that usually diverts project course. Such diversion, if not properly handled can eventually lead to project failure. In order to avoid such circumstances, it is incumbent on the project manager to institute robust monitoring and controlling system that will provide relevant and accurate project information for adequate project decisions.

Such system will enable the project manager to correctly supervise every aspect of the project. However, the monitoring and controlling system provides the following benefits to the project:

- *Ability to check project progress and make necessary amendments as and when needed in the project environment*
- *Keeping all key stakeholders informed about the implementation of the project*
- *The project manager is able to make better trade off decisions especially with respect to scope, schedule, budget and quality of the project.*
- *Ability of the project manager and team to learn from previous mistakes*
- *Proper assessment of project performance with respect to cost and schedule constraints*
- *Put the project manager and team in pole position to address risks arising during the implementation of the project*

It is worth noting that, there are several systems that can aid the project manager and team in ensuring that monitoring and controlling is efficiently done. For instance, the PMIS is one such tool that helps in facilitating the monitoring and evaluation process of project. It is imperative for project managers to adopt such system in order to carry out an accurate and timely monitoring exercise. This system provides project managers with the skills and knowledge required to appropriately manage projects.In essence, monitoring provides management with useful information needed for decision making. Such decisions will help restore sanity to the projectespecially when the project has strayed from it plans.

Keywords:

Monitoring; Project Scope; Project Stakeholders; Project manager; Computerized Systems

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Introduction

Monitoring and information systems play a pivotal role in the management of project. Even though, some project personnel tend to underestimate it significance in the entire process; yet it provides useful information that helps direct the project manager in executing the project when embraced.The direct goals of the project which are schedule, budget and scope are critical for projectsuccess and must not be overlooked. Thus, the project manager must ensure that a robust monitoring plan is developed going forward with the project. Such plan should dictate the monitoring process by identifying key project targets that should be carefully observed to ensure project management compliance and completion.

Nevertheless, project management is not different from other disciplines that have been affected by computer systems. With the adoption of such system, the project manager can now implement complex projects with relative ease. The project management Information System (PMIS) is one that has enabled project managers to overcome the several challenges faced with the manual system of implementing projects.

What is monitoring in project management?

Every project is initiated to solve a particular problem. In doing this, there are several stages involved in accomplishing the goal of the project. Monitoring is one of these strategies employed to ensure that project is implemented as planned. (International Federation of Red Cross and Red Crescent Societies, 2010) refers to monitoring as the art of gathering, analyzing and reporting project information for management decision. Such report enables the project manager to better supervise the project and make necessary amends as and when needed to ensure project success. Monitoring helps project stakeholders to keep track of project progress and compliance in order to assess the project.

(ESCAP, 2010) defined monitoring as the steadily assessment of project activities to ensure its successfully achieve its set objectives. In essence, it is the step by step process involved in gathering and analyzing information about a project while it is still ongoing.

Monitoring should not be overlooked in any projectrather proper monitoring plans should be established during the planning phase of the project to ensure project compliance, track progress, keep management and other key stakeholders abreast with project status and learning from past experiences.However, the monitoring of factors not properly stated in the activity plan makes monitoring difficult. Nevertheless, it is incumbent on the project manager to undertake robust monitoring exercises in order to track project progress and report accordingly.

It is difficult for the project activity plan to include the attitudes and behaviors of clients, project team staff and even key project stakeholders. The series of change requests made during project implementation are mostly due to the unpredictable behavior of clients which in most cases is difficult to monitor. In order to cope, the plan must be flexible enough to accommodate such unexpected behavior. This makes it difficult to monitor because it is not part of the project activity plan that serves as an input for the monitoring plan. In addition, having a well-motivated staff with high team spirit is crucial in the monitoring process but yet difficult to monitor. Even though it boosts the overall performance of the project but yet it's not mirrored in the project's action plan.

However, monitoring as an activity is accompanied with evaluation and controlling. Monitoring serves as the basis for both evaluation and controlling. Data collected through thorough monitoring exercise are properly evaluated and control measures instituted for the project to meet client's requirements.

Considerations in setting up an effective monitoring system

Setting up an efficient monitoring system is central to the projectthus, making it a core component of the implementation of project. However, monitoring brings the following to the project; creates effective learning platform suitable for project decision making, strengthens stakeholder's confidence in the project, serves as an effective tool used in achieving project objectives and its impact on potential beneficiaries and serves as checks and balances to both project manager and team.

The key aspects that must be considered in setting up a monitoring system are thus:

Project performance: The performance of the project plays a significant role in the design of its monitoring system. In order to setup an effective monitoring system, the following should be considered under performance:

- The scope or boundaries of the project should be clearly delineated; in order to avoid misunderstanding and possible conflict situation. This helps in the design of the monitoring system because such system should capture the entire project for it to be effective.
- Specific project targets or milestones should be set. It is easy for project personnel to say the project is almost completed when in actual fact a significant target is yet to be achieved. Such targets aid the entire monitoring process and usually serves as performance benchmarks for the project.
- Development of a comprehensive action plans. The action plans are the basis upon which the project is implemented; without such it becomes cumbersome for systematic implementation. Performance can be well-known when there are proper plans to be executed.
- Customer satisfaction is also significant in the design of project monitoring system. Projects are monitored to ensure that requirements set initially are achieved as planned. Thus, making customers the direct object of the whole monitoring system.

Project cost: One of the most common ways of monitoring project costs is to compare the cost of producing a deliverable at a time to that budgeted for at the same point. Thus, implying that the deliverable is produced in line with the schedule. However, the earned value method can be used to overcome such challenges. This method takes a three-way approach of planned achievement, cost with actual achievement and cost. Every project must be accompanied by budget or cost for it to be implemented. In estimating project cost, there is always the tendency for over-budgeting or under-budgeting. Over-budgeting is not too serious as when you under-budget for a project. Under-budgeting can lead to the following:

- Inability to complete project tasks on time
- Having project workers who are less motivated and hardly meet project deadlines
- Significant delay in supply of project resources including materials, equipments and other instruments that are necessary for the smooth implementation of the work

Therefore, cost should be seriously considered in designing an effective monitoring system. Suitable monitoring of project costs is relevant for the following reasons; ability to keep track of the project expenses relative to budget, aligning expense and actual budgets performance between projects and parent organizations.

Project schedule: Project should be bounded by time. Thus, making schedule an essential ingredient of the monitoring system of project.

- Several change requests during project implementation can hinder progress significantly especially when such requests are coming at a time when the project is near completion.

- Delay in doing the necessary project documentations such as procurement plans, staff contract letters, contracts between the project and its suppliers etc. The monitoring plan should ensure that proper timelines are stated to avoid such delays; in order to meet project objectives within its timeframe.

However, every monitoring system should consider the following as stated by (PRADHAN , 2017); explain monitoring responsibilities, identify areas to be monitored, establish monitoring indicators, clear lines of information flow, costs and risks estimations.

Moreover, the monitoring system should encompass all the fine details of the project. In addition, this system should pay attention to the ability of project staff to deliver the project on time. Staff incompetence is a serious challenge in project monitoring and it is easy for project managers to overlook that aspect of the project that usually proves to be central to project success.

Why monitoring is needful in projects

Monitoring involves series of processes or activities that enables the project manager tracks, analyses and brush-up the project in order to generate project deliverables that will eventually meet project objectives. Project which is temporary in nature, requires monitoring and controlling exercise that produces reliable performance reports that informs the implementation of project change request. Project requires more in terms of monitoring than the functional unit for the following reasons:

- Projects are implemented to solve a particular problem, thereby bounded by time. Clients are expecting the project personnel to deliver the project within stated timeframe. On the other hand, the organization is mostly occupied with routine activities that are not strictly time bound.
- Significant costs, facilities, materials, equipments are committed by the parent organization in the implementation of projects. Organizations are making such commitments to meet their goals and objectives. Hence, project is one of the tools used by organization to gain competitive advantage over rivals.
- Most projects are run as separate entity of the organization. As such, the organization does not have the luxury to properly supervise the project; thus, the need for management to hire a project manager and team to adequately manage the entire project. The project manager reports to senior management on project status.
- No organization can accept a failed project. Therefore, robust steps are taken by the organization in order to provide the project with all the necessary resources needed to succeed. Project is like a baby to the parent organization, so all what is required for the baby to survive and grow fast should be made available by the organization.

The significance of project management information system (PMIS) in projects

PMIS is the comprehensible collection of the information needed by the organization in order to ensure smooth project implementation process. However, the PMIS which is a software application varies in design and structure based on the functioning requirements of the organization. However, the PMIS focuses on the following:

- Ensures the proper management of the project throughout the lifecycle.
- Enables the use of automated system to support the delivery of project management tasks.
- Provides project manager and team with adequate tools and techniques needed to meet project objectives within schedule.

- Is a multi-user application that can be cloud based or hosted on premises? designed to support project management implementation.

However, computerized system has affected every sphere of life including the management of projects. This system has tremendously improved the manner in which projects are implemented. Nevertheless, this effect has come with numerous merits and demerits.

The benefits of using computer systems in project management are:

- Improved project communication and information sharing: There are several stakeholders and staff involved in a project. In order for these parties to be comfortable with the implementation process, there must be an efficient mode of communication. With a computerized system, project managers are able to design a better and effective means of communicating project progress and status with team members as well as key project stakeholders. There is a popular adage which states that "Information is power"; because of the advanced tools and techniques provided by computerized system it's absolutely clear that such will significantly reduce the level of misunderstanding and possible confusion that usually emerges in projects. The communication plan developed in the planning phase of the project, will be easily executed with such computerized system in place.

- Helps in the management of project resources such as costs, scope and time: A good project manager is one that has the capacity to manage project appropriately. The management of project is so involving that project managers must be disciplined enough to ensure quality output. The project manager should ensure that staff are well paid and motivated to work in the interest of the project, sufficient budget is allocated for the successful completion of each task, budget is well managed in order to prevent issues such as underbudgeting; that can lead to significant project delay and changes to the scope of the project are seriously handled. Such change requests are bound to come up especially towards the end of the project. The project manager should be smart enough to address such request so as to minimize delays. Project delays can have negative impact on project schedule, budgets and scope. In fact, the more delays you encounter during the project, the more cost incurred and less likely for the project to meet its deadline.With the computerized system, most of these challenges arising during project implementation can be easily resolved. Project managers will have a system to track project spending and other resource usage that were difficult to manage using manual system.

- Better project risks approaches: Risk is unavoidable in project management, but with a computerized system; its identification and accurate analysis is guaranteed. Such system enables the project manager to easily identify risk and predict it likelihood of occurrence and possible impact when it occurs. This knowledge guides the project manager as to which intervention strategies should be employed to tackle the most probable risk. Some software can flag up warnings or alerts; that are useful for the proper management of the project.

- Accurate and timely project reporting: Report plays a pivotal role in the management of project. In fact, it is incumbent on project personnel to periodically report on the status of the project. Such reports are needed by key project stakeholders such as project manager, senior management and even team members to enable them keep track of the project. Sometimes, project tends to divert from the client's requirements; in such instance, the project manager should direct it towards accomplishing client's requirements.

- Computerized system helps to provide better project planning techniques.

- Improved ways of handling project problems than the manual system.

- It minimizes project errors emanating from human mistakes.

The challenges of using computer systems in project management are:

- Computer systems can be expensive and difficult to maintain: Most software is costly to purchase especially when the cost is not commensurate with the project benefits. For large and complex projects, having such system is justifiable because such projects are tough to manage. In addition, maintaining the system is another challenge faced by project managers. Every software has a lifespan, and project managers must understand that in order to avoid errors and possible malfunctioning of the system. When the system malfunctions; it produces wrong information that misleads project managers and team into making the wrong decision. Thus, making the maintenance of this system as important as buying it.

- The use of some systems requires additional training for project personnel. This provides project managers and team with the requisite knowledge needed to use such system effectively and efficiently to accomplish project objectives.

- All computerized systems are prone to possible failure. Such failure can cause significant damage to the project especially when the project manager is over reliant on the system for the management of the project.Significant reduction in project progress which arises when there is an issue with the system. Software systems are prone to errors due to malware infection; and as such, the project will delay because the system is unable to deliver in time.

- Having a computerized system to manage project can lead to possible laziness on the part of project team especially when they depend on the system for every bit of the process. Such dependency can prevent project manager and team from paying attention to minute project details that are pertinent to the success of the project.

- The use of computer system in the design of project can make simple and easy project looks difficult and complex. Even though, it helps in the neat presentation of such project but yet brings in additional features that will not be included under normal circumstances. In situations, where the system isused improperly, it makes the work more difficult for project stakeholders.

Rationale for setting up PMIS for a project

It is crystal clear that precise, timely, and appropriate information is central to the decision-making process of a project and that relying on an insufficient information system puts a project at risk. Information is one of the most valuable resources for project managers. In spite of this, project managers often flop to deliver the types of information required to ensure project success. Employing PMIS is one way to address critical project information needs. In addition, here are some of the rationale for setting up PMIS as put forward by (PRADHAN , 2017):

- PMIS design schedules, costs and implement work to be achieved in the management of project.
- Helps plan, execute and close project management goals.
- Provides a standard tool for Project Managers to enable project planning, execution, and management in harmony with the Project Management Business Process (PMBP).
- Timely and accurate delivery of project information
- Keeps record of project status, resource management, costs allocations and milestone reached in the project.

PMIS and the project lifecycle

PMIS provides the tools and techniques required to deliver information in a project. It is used in every stage of the project from initiation, planning, execution and closure.

In initiation, the PMIS support in information gathering, integration and dissemination for management decisions.

In planning, PMIS provides the following:

- Development of appropriate work breakdown structure
- Concise budget framework used in cost estimation
- Assigning and scheduling of tasks for efficient management
- Supports the development of the various project management plans such as communication plan, financial plan, procurement plan etc.
- Defining scope baseline

In execution, PMIS:

- Helps in managing project resources such as materials, equipments, facilities in order to accomplish the project
- Enables the project manager to keep track of project tasks that are implemented by assigned personnel
- It creates the relationship that exists among project tasks during the execution process
- Compares project baseline with the actual accomplishment of each tasks
- Keeping project data and records for reporting purposes

In closure, PMIS:

- Review of project tasks to ensure project goal is met
- Helps in preparing project final report
- Support in closing down the various project activities

In essence, PMIS serves as the hub in the efficient management of project.

The benefits of accurate and timely information to the management of projects

Information is an effective tool used by senior management in making appropriate decision. However, it might come from diverse sources that are not necessarily reliable. These sources should be identified and properly scrutinized to ensure quality, appropriateness and reliability. Good and bad decisions are made every day by individuals, businesses, governments and other entities as a result of the information received on that particular issue or subject. Thus, making information the backbone of power and influence in any society.Detailed and reliable information is what everyone seeks but then such can be considered not useful especially when presented at the wrong time. The timing of an information is so crucial in its appropriateness and relevance. An untimely information stands the chance of losing its reliability and relevance in the organization.Some of the benefits of timely and appropriate information as stated by (Eslake, 2006) and (Meredith & Mantel (Jr.), 2009) are thus:

- Better cooperation and coordination among project team members: People are willing to cooperate in any endeavor they fully understand the objectives and roles they should play. Therefore, making project objectives simple and clear for all to understand is pivotal in mitigating misunderstandings and possible confusions that might arise. Once, team members are of the right mindset; project tasks can be accomplished easily. Appropriate decisions are taken and followed by all.

- Effective planning strategies employ: With adequate and timely information; project managers and team are better positioned to adopt the right planning strategy in order to ensure project success. Realistic times are set for project tasks and these tasks are fragmented and assigned to staff for effective implementation. Planning forms the nucleus of every successful project; therefore, the correct planning tools and techniques should be employed.

- Enables project managers to fully understand the status of project implementation: Most project managers spend time implementing without looking back or having feedbacks. Monitoring report is a useful document that aids project managers in knowing how far the project has been implemented and whether the implementation process is going as planned. Such vital knowledge is needed in tracking project progress and bringing the project on track if there is a deviation from the normal.

- Proper and adequate information captures the attention of senior management: They tend to focus their attention when reliable information is provided about a particular undertaken. They are decision makers that always want to make informed decision based on consistent and appropriate information. Inadequate or wrong information leads to bad decision; which is not good for the interest of the organization. Appropriate information can also direct management attention to the immediate needs of the project.

- Keeping clients and other stakeholders abreast with project status: Project stakeholders are interested in knowing what is happening with the project, especially in terms of budgets, significant targets reached and other prominent deliverables achieved so far in the project. This gives confidence and helps reassure stakeholders that the project is going as planned.

It is worth noting that not all information is in numeric forms or data. Information such as 'staff morale', 'perception of stakeholders', and even staff capacity is difficult to quantify. Nevertheless, such parameters can be measured using adequate indicators. It is believed that 'value can be given to anything measurable and if not, then no value assigned'. This statement is a myth especially in our days of Information and Communication Technology, where parameters are easily measured.

Conclusion

Project management is a discipline that requires dedication and commitment from its personnel in order to meet its client's requirements. There are several tasks and activities that must be completed in time by various project staff. Significant budgets, resources and time are allocated to this exercise by the parent organization; thus, making it imperative on project managers to ensure that the desired objectives are met. Due to the immense contributions of ICT[1] to project management, organizations are adopting information systems in nowadays project management. Such adoption has enabled these organizations in meeting their goals and objectives using projects.The PMIS has led to improve ways of managing projects, enhanced project performance, achieving project deliverables in a timely manner, efficiently breaking down project tasks to aid the implementation process and accomplishing client's requirements.Therefore, with such system in place, the goals and objectives of the project will be realized within the available resources provided by the parent organization.

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