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Problems and Solutions for Project Management Information Systems

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Abstract- In Project Management Information System, there are different challenges while using this project management software. Project Management Information System (PMIS) is the mixture of the Technology and Project Management. Project Management Information System uses one or more software(s) to collect, organize and utilize the project information. Nowadays, to achieve the goals and objectives of the project is efficiently being done using the various PMIS tools. The important feature of the PMIS is that the scope, design and other features differ as per the requirements of the operational activities of the organizations. We can perform various operational activities which saves a lot of paperwork and it helps the project manager to get all the information in one place. When it comes to large-scale projects, there are lots of different work activities which can be done efficiently and accurately with the help of computers. If the computers are being used in the project to handle data, diagrams and such different activities, chances of making mistakes and inaccuracies are much lower than human work.

The traditional approach to a whole project increases the time of work and all processes, where using computers saves time. During the project, periodic follow up is as important as other activities. Hence, using software for managing the project also does the periodic review of the project and helps to go through all processes during the project smoothly. Project Management Information System uses different software to manage the project like MS Project, Smartsheet, Accelo, Function Fox, and many more.

Keywords- PMIS, Project Management Information System, Mistakes, Inaccuracies, Software.

I. INTRODUCTION

The mass implementation of Information Technology in the past 2 decades in the companies is a major event of an upgrade. The much-needed change needs a big investment. Hence, companies are trying to upgrade the systems little by little. It is very demanding to keep up with the current developed systems coming in the market as they are getting expensive or cheaper but hard to implement and use (Irani, 2010).

The software companies are making constant upgrades in their software which are making them large and bulky in size. Previously installed hardware systems are trying to keep up with the latest upgrades but sometimes it lags or finds in a situation to change. One-time investment is not enough for Information Systems in the company. Companies must keep investing for better performance and to provide better service to the customers (Wasil & Assad, 1988).

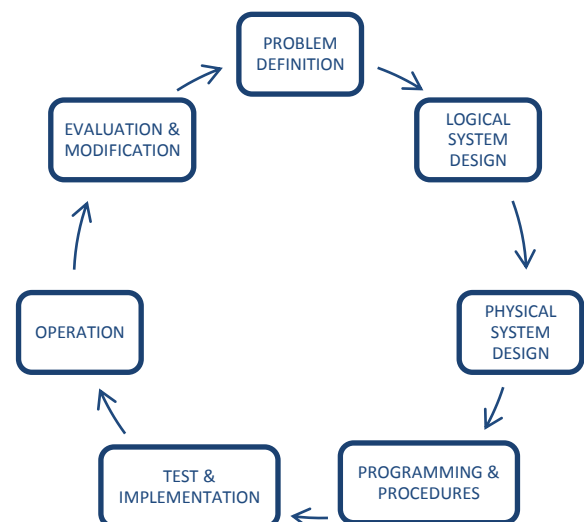


Figure 1. The life cycle of the Project Management Information System (Snyder & Cox, 1985)

II. FINDINGS

Project Management Information System is managing the overall project with the help of technology to improve. Here is the model stating the challenges faced by the Project Manager while using PMIS. As the author (Louis Raymond, 2008) states, project managers use information system for decision-making.

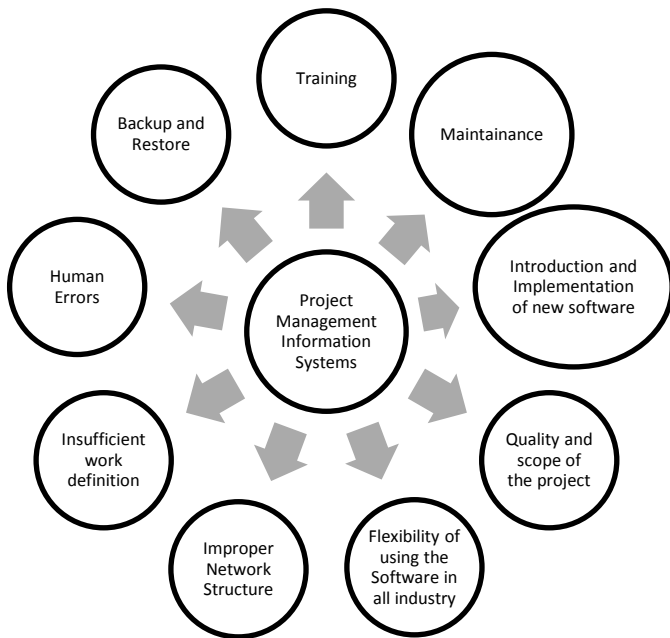


Figure 2. Challenges in Project Management Information System

A. Training

Implementing new software in the company is challenging in its own way. There are a few factors which we need to take into consideration while executing the newly introduced software in the organization. The software which employees are going to use on the complex projects, software needs to be illustrated in such a manner which will highlight the substantial value of the software for that project in a simple descriptive form. Sometimes the user manuals which are provided with the software are written in challenging, ambiguous terms (Kydd, 1989).

In order for the employees to work on the project with this software, he needs to understand and get acquainted with its features and tools (Ravichandran & Rai, 1999). The most effective way is to train the employees with hiring professional trainees provided by the software companies. The author (Rob Delaney, 2015) states that training the existing employees can be not only time-consuming but also expensive. Whereas in these alike conditions, hiring new skilled employees for that project, who is already familiar with that software can save time. Also, the efficiency of the project work will be improved.

The author (Burbridge, 2002) researched the state employees, one of the key problems is the poor knowledge of the computers to the staff. A lot of employees were computer illiterate. They needed to hire new employees or needed to train their existing employees from scratch. In such situations, it is very important to consider the existing employees training costs and time or cost and time investment in the new employees who are at least computer literate.

Employers should enumerate the employees, what outcome they are expecting with the use of the software. Also, providing the timeline to complete the expected work. The employer should form a few teams, each to work on a specific module of

the project. So, the workload will be distributed among the teammates following, the intensity of error will reduce greatly. This will lead to error-free project files, which will enhance the progress of the current project.

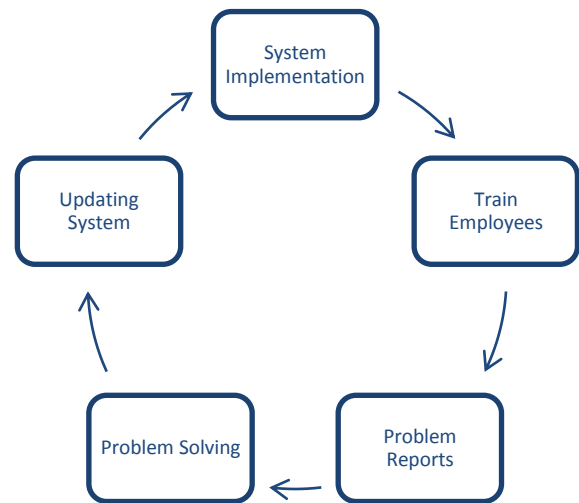


Figure 3. Training Problem Cycle of Project Management Information System

B. Maintainance

It is very important to keep the software in check. Because this software is being used on a very large scale, and to solve very complex problems. Time and check-ups of the implemented software are very necessary to be undertaken because we are relying on this software to analyze our data and provide us with accurate solutions. There will be multiple updates for this software, which will enhance the output of the project. The accuracy is more important, so it is vital to keep the software updated. The software could undergo some changes in its feature and its operations, we need to train the employees to work in teams on this software.

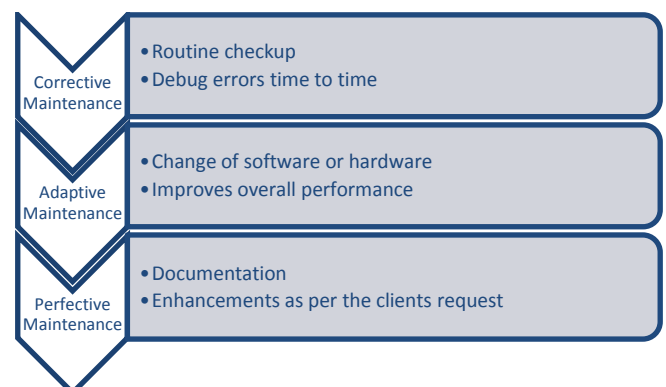


Figure 4. Types of Maintenance

It is possible for the software to crash suddenly. In some situations, it cannot be avoided at all. In these situations, we need to have backup software to save our work otherwise there is a high risk of losing all the data. After that, the next step should be that the software should be taken immediately to the error bugging and fixing.

As the author (Sjøberg) has described, the maintenance can be divided into 3 parts:

1. Corrective Maintenance
2. Adaptive Maintenance
3. Perfective Maintenance

In corrective maintenance, routine checkup of the progress is done. It is necessary for the team members to keep it maintained and debug the errors from time to time to get desired results.

In Adaptive Maintenance, the change in software or hardware is done when needed to improve the performance of the project activities.

In Project Management, it is important for the company to provide complete and neat documentation. Some other enhancements in the project must be done to complete the project as per the customer's desire. All this improvement and enhancement are done in Perfective Maintenance (Edwards, 1984).

C. Introduction and Implementation of the new software

As the author (Kornkaew, 2012) stated that, in this twenty-first-century technology is improving every single year. We find new technology rapidly rising in all aspects of not only industries but also our daily lives. It can be great difficulty of a challenge to face such a change and getting used to it.

Introducing a new kind of software in a company is a challenging and tedious job. First and foremost, we need to gather the team and explain to them the project they are going to be working on. And then lightly introducing the new software we need to let them know how and why we need to use this particular software for the project we will be working on. We can use software manuals provided by the company which made the software (Weiser & Morrison, 1998). Or one of the options is to employ someone who is familiar with this software and knows his way around it, to train the current employees. Make a few easy simplistic and descriptive PowerPoint presentations for the employees to understand.

The author (Mehdi Babaei, 2013) described it as when the employees are newly introduced to the software, they need to learn regarding all the tools and feature and any other special functions basically the capacity of the software, and how accurate it is. It is considered a better practice if small groups are formed in the team to work on different modules so that it won't be difficult for the employees to deal with the software. This method will also help the team to debug small errors which will occur during simulating the output. In this manner, the team will not only learn to handle the software smoothly and efficiently but also, they will be able to work together and faster as a team.

D. Quality and Scope of the Project

A most important part of any project is its design and the software it uses to achieve the design conditions. We cannot compromise on either the design or the design software, any harm to these is going to hamper the overall project and all the related aspects to it. The author (Sifri, 2008) define the scope as considering the project constraints and assumptions for which we need to perform a range of operations. A quick and better way to get desired results is to keep checking for any errors after every module is created in the project. Instead of checking at the end of the project it is advisable to keep on checking errors when the modules are small and can be modified instantaneously. Now, for the software part, we should be able to combine all the modules from different computers into a single module to compute the errors in the program. The software should operate on multiple user interfaces and should be easy to work with and debug.

As the author (Konsynski, 1984) states, time is one more constraint on the designing of the product. To save time we have to come up with more time-saving ideas, such as the parallel working of the modules will lessen the time required for each module which we will be working on. Also, a grave focus on the features which are extensively used in the product will give us an idea to work on them more efficiently than the others. An understanding of exactly which features are going to be tested will lead us to form a better design which will focus on those features intensively.

The design of the products decides the quality of the product. Quality plays a very important role in any product development. In the product quality is all that matters. The product should be cost-effective, durable, reliable and should be easy to fix if any issues occur. Product quality depends on manufacturing. If the product is manufactured with a faulty wiring, or a missing connection then that product is as good as failed. To avoid the simple mistakes in the manufacturing part, only a few products should be produced in the beginning and then put to test for faults and defects. Speaking of testing, it is the utmost crucial part of any product designing. The testing engineer should be aware of what exactly needs to be tested. There are a few features of the product which are used more frequently than the others. In such a manner, we will be able to reduce the excess cost to recall the products from the customers if any grave errors existed.

E. The flexibility of using the software in all Industries

According to the author, it is hard to find an appropriate software tool for the construction project. But this is the problem in all other industries too. The author (Lydon, 2015) describes that the software developers and the management of such software sell lie about fits-in-all project compatibility and a lot of times some software are not that compatible with the project we are doing. The systems used by the project members to develop a project is not flexible and the employees have to face the restrictions of the software from time to time.

As an author (Subramanyam, Ramasubbu, & Krishnan, 2012) describes, the PMIS software is that when different departments are working together in the project, each department has its own workflow and software platforms. One

software fits all approach is harder to implement in such cases. Employees will not show much interest in working and it may ultimately affect the project.

Introduction and implementation of the software in Project Management also give them access to the IT department to control the software as all the software are controlled by the IT department. IT department often lock down all the software restricting the use of the software for other employees. Every time if the employees working on the project software, need to ask for the permissions to get access to all the features of that software and it may take a longer time. Sometimes the approval may get delayed.

After buying expensive PMIS software, companies think it is the most compatible and appropriate software to do the job (Lederer et al., 1990). But sometimes the price of the software does not matter, and the project manager should analyze the requirement of the project and category of the project and plan to buy software accordingly to get the desired output and satisfaction. Price is not the only factor to consider while buying the project management software. Sometimes even excel does the job perfectly.

F. Improper Network Structure

Working on a project can be painful if another team member cannot see what changes you have made in the files and transferring the same files again and again may confuse which file is the final file with all changes. Hence, it is important to keep all terminals, computers/laptops in the same network so that all the group members can see the files and communicate with each other (King & Cleland, 1975). Using network also has its limitations. Security can be breach easily by one of the team members. Connectivity issues may occur. Multiple handling of the same file at the same time may end up with some error.

The author (Cox & Clark, 1984) suggests, Employees working on the project should be connected to a centralized system which will allow other team members to analyze, update and manipulate data. But appropriate personals should get the access as per their position. Giving full access to the employees is not appropriate and all controls should be in the hands of project manager. Manipulation of the data may require the prior permission of the project manager to secure the progress. Appropriate coordination between using files is important. As the author (Bisk) suggests, there should be no communication gaps between employees to complete the work.

G. Insufficient Work Definition

To expect a high output result, it is crucial at the beginning of a project to clearly define the project goals, project deadlines, project material, teams which will work on projects. The author states (MacDonald, 1974) that a project truly comes through if it has a good client and contract management policies. If in case we are unaware of the requirements of our clients, such as in the case of adding more features to the project or making the project more cost-effective, we could lose our clientele.

As the author (Markgraf) suggests that we should clearly understand the objective of the design and set our agendas

according to it. Also, every agenda should be unique to the situations. If we fail to apply a better agenda in this project the whole project could break down. Later we need to focus on the design of the project. Designing a project focuses on the requirements of the client's needs. The project must fulfill the condition in which it is set up. We need to fortify a formula or a guideline according to which we are going to operate on this design.

The author (Wrigley & Dexter, 1991) describes, we need to assess the budget, the project cannot exceed the budget otherwise the company may face a loss. In order to prevent that, the design of our product should be as compact as possible. The project code and cost need to be estimated. This has been a problem for the company for decades. The product should also well working and should not cause any errors while operating in harsh conditions. We need to introduce success criteria and follow through.

In conclusion, insufficient work definition can cause issues if not taken into consideration. Laying out a master plan and providing the teams with all the data they need to fulfill the project demands will support the completion of the project faster. Furthermore, setting up definitive guidelines and working along with them will create efficient results (Aladwani, 2002). Planning on the budget and the design will enhance the outcome.

H. Human Error

The occurrence of the human error in the information system must be avoided as these mistakes could cost the company on either small scale or large scale. There are various reasons behind human errors in the Project Management Information System, but the negligence of the employees is one of the big reasons behind these errors. No matter how accurate your computers and software are, the wrong input will give the wrong output and it will cost the company in different forms like monetary, time, etc. Complex projects need highly skilled employees who will not make such silly mistakes during the use of Project Management software and tools (Barki & Hartwick, 2001).

Above described as one of the major factors producing an error in the output. Similarly, the other factor which contributes to the errors is, if the program is not proofread it can cause minor mistakes such as spelling mistakes or typing mistakes. One of the vital factors which contribute to the better outcome is having a creative working environment for the workers. The employees who are forced to meet the tight deadlines are more prone to making mistakes than the ones who are given some slack.

At first, this idea may not sound budget friendly, but adding new and comfortable chairs and spacious desktops can instantly lessen the stress from the employee and will result in a better outcome. In conclusion, there is no single problem which can cause an error in the software, but a combination of multiple issues. Furthermore, a human error which can greatly influence the outcomes is a strong-but-now-wrong error, according to the humans they tend to work in the same way in which they have been doing things previously, it would have been useful then but it's not useful now. Issues with rising

complexity, as soon as the program starts becoming complex in nature it becomes prone to lots of mistakes and errors, due to its difficult nature (Zhao & Olivera, 2006).

I. Backup and Restore

As the author (Yevics, 2000) explains, the necessity of data backing up cannot be more emphasized as it's the most important thing to have. Backing up and restoring the data has never been an easy thing to do, we have lots of data and, so we need equal memory to store that data, which is costly and difficult to implement. Here are a few reasons due to which our data can be at the stake of loss.

The author (Davey, 1999) focuses on hardware failure, it is the most evident form of data loss. We cannot completely rely on the machines to operate for many years without any failures. Mechanical failure is bound to occur, but the only way to protect our data is to frequently backup the data to a more secure host. This operation is high in cost, but eventually very necessary for the company to work. Once, a machine failure occurs it is impossible to recollect the previous data. To protect the company's privacy these measures are necessary to take.

Another risk factor to the data is the unpredictability of nature, we all have experienced the wrath which nature can bring upon us. During the disaster, it is highly possible that the backup hardware might damage along with the original files.

Sometimes the restoration of the data is very hard as compared to backup. In such conditions, the company needs to hire an authorized technician to restore the data. If the technician is not available right away, this can create a halt to the ongoing project. It might delay the timeline of the project as well as add up the unnecessary costs to the project.

III. CONCLUSION

Even though there are many problems in the project management information system, if a project manager takes proper remedies, these problems can be overcome before they arise. There are various problems related to the project management information system which includes technological problems as well as managerial problems. This research paper is concentrated on the issues faced by the project manager and the solutions for the issues which arise while using the Project Management Information System. Human mistakes are also part of the problems in the project management information system and it is difficult to search and solve the human mistakes as the data is in vast amount. Due to different technological problems, it is important to take a backup of the files and store it in a couple of different places. Cloud backup is the most convenient option as it does not take much space in your hardware and the data can be viewed from anywhere in the world. The project manager must be cautious with these problems as this can cost the project on the large or small scale. Project Management Information System is the better way to analyze, manipulate and use the data of the project. Including Information System in Project Management provides accurate processed data. Implementing Project management Information System can be costly, but if the company do more research and proper study about implementing or introducing the project

management information system to save some money and get a better output. The error stated in this research paper are the most common errors which may arise due to the negligence and nothing else. If proper maintenance has been taken by the company for the machines, then they are less like to give wrong outputs. Including Project Management Information System in the project has more benefits over its problems. Project Management Information System is more efficient in all ways than the Traditional Project Management System which involves a lot of documentation and other stuff which is hard to maintain for a longer time period.

IV. RECOMMENDATION

The Project Management Information System is developing at a very fast pace. There are various software and hardware are available specifically for Project Management Information System. Prior to select the desired software or hardware for the Project, appropriate research must be done by the project manager. Project Manager should check for other options also. It is important to get the software which is made with the perspective of the nature of the project being made. Doing so provides the maximum compatibility to utilize the software at its full. Project Manager should take care of the privacy settings of the network very carefully. Because giving full access to the wrong personals can be very harmful to the project. In all the projects, risks are like each other. Hence, it is useful to watch over these common problems and be ready for them to lower the damages. Before starting the project, the Project Manager should analyze whether they have all the required information from the client or not. Because it may increase the work and it also increases the duration of the project. After implementing new software in the project, it is very important to train the employees on that software. Due to the new concepts and new user interface, it is more likely for employees to do mistakes. Hence, for the first few months, time to time checking is important to get the desired output. This way, in a few months the employees will be trained and skilled to work on that software and there will be no need to check all the aspects of the project thoroughly. Proper maintenance is mandatory to keep your project working. If some problem arises in the system, then it may disturb the schedule and work breakdown structure of the project. Scope and quality should be defined at the start of the project to achieve goals and objectives in a defined time structure without delaying the project.

V. LESSONS LEARNED

During the research of the Project Management Information System, I learned that the software used for project management is very effective if used with some care and precaution. Even if the software and hardware are powerful tools for managing the project, it has some problems and it can harm the project in small or large proportion. Project Management Information System is managing the project using software, hardware and another device instead of going with the traditional process. Project management information system helps to reduce the total duration of the project. Using software and hardware saves a lot of manual work which

people used to do in traditional project management. It is important to keep all the hardware and software maintained with periodical updates and servicing. It is important to back up the data. So that, after losing the primary file you don't have to start with a scratch. Analyzing the scope and quality requirement as per the clients' need is necessary to give the optimum results to the client. Training the current employees is important after implementing new software by providing them the user manual afterward. It will help them to solve small errors using the user manual and training. Always take human errors into consideration while analyzing the data to correct the mistakes at each step's tollgates to go further and before working on the next thing. It saves time to go through all thing again and again. Network structure should be designed carefully to give appropriate access to appropriate people. The use of software should be flexible and the full access to the desired software tools should be given to the employees working on a project to save time. Each time asking for permission to the IT department takes time and it may increase the duration of the project.

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