INFORMATION SYSTEMS IN PROJECT MANAGEMENT AND THEIR ROLE IN DECISION MAKING

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Abstract- Enterprises use projects that are vital to their everyday work and their performance. The enterprises manage the projects and regarding this, they plan, organize, choose the staff, monitor, control, and evaluate the process. The projects of the enterprises must be on time. The budget and objectives must be meet, to succeed. Projects must be well managed in enterprises to meet their objectives in the performance. The use of this Information Systems for management of the projects is widely spread in many enterprises. Designing, reviewing and implementation of Project Management Information Systems in different enterprises is a very crucial issue. We live in the era of knowledge, information and unbelievable changes in technology and innovation. Organizations must run up more quickly to be better than competitors. Information is one crucial factor in decision making process. This study aims to investigate the significance and exigency of these systems. In enterprises, a precise, information will accelerate the process of decision making.

Keywords: Project, Management, Information System, Information, Decision.

1. INTRODUCTION

The PMIS industry has many software enterprises, such as Oracle, Microsoft, etc., also several small independent enterprises. Demand is supposed to grow up notably soon. Project Management Information Systems will change and will be more integrated when manage projects and cloud computing will be used also. In this context data management is very important. Most enterprises use different tools. They use excel format or collect the data in paper-based way. This are not created for managing the composite projects. Many project managers use Project Management Information Systems, but are not aware of all the benefits they could launch. Mostly this is because they don't know what is this software and its impact in the projects from their first phase in the beginning to their end phase. Sometimes managers are dissatisfied. They have problems when they work in a collaborative environment. This evidenced several problems. The lack of consistency in the information that has one expert and the team usually creates added expenditures if it needs to be redone [1-7].

This occurs many times when the design is changed many times but communication of changes is inefficient. Integrated systems and the implementation process of this systems have been tested in many processes in industry and allow several fascinating outcomes and helps in the reduction of errors. They are time saving in the approval process also and in the control of activities in real time. They improve the communication and have a role in doing better the phases of project. They build an environment that is collaborative. The new modern system that is needed will use integrated tools for managing the project. Organizational knowledge will be created with this information and by accomplishment of several projects over the time. This system facilitates affairs of the project.

Interdependence between information technologies and project management is sensitive. It depends in the number of tools for project that are managed and use of management systems like: Decision Support Systems (DSS), Executive Support Systems (ESS), Management Information Systems (MIS), Knowledge Management System (KMS), Supply Chain Management (SCM), Virtual Reality (VR), Risk Management (RM), Business Intelligent Systems (BIS), etc.

The project is defined and discussed by many literatures. Some of them define projects as "A temporary endeavor undertaken to create a unique product or service". Other authors described Project Management tools as "software for project management". Some authors found that very important factor for the managers in process of decision making is information. The use of Project Management Information Systems is spread in many enterprises [8-15]. Another research work has declared that information technology uses many projects. Also, they are used for the reorganization of processes in business, software development, also the research and development [12, 16-20].

It has been adopted and explored the case of an enterprise that had many challenges in the environment and must change its processes in the information systems [1]. Information technology had big impact and solved many difficulties jobs, during the project lifecycle phases. They presented an application software for project management, that will be used in planning the time, planning the cost of the project phases [1].

Other researchers, after collecting questionnaire data, they saw a positive relationship, between information output, quality, use of PMIS and performance of project [15].

Another research in the industry of information technology, estimates that 3/4 of projects managed by using and support the project management information systems that will succeed, and 3/4 of projects without this help will fail [4]. It has been found that most of the managers of projects are not satisfied with the information of PMIS [9]. They examined using a survey with 101 project managers the interaction between Project Management Information Systems quality and the effect on decision making. In [21] it has been used the interviews to understand better the role of project management office. They found that 'light' project management office can be implemented successfully. Most enterprises use formal metrics, and they do not rely on indicators that are subjective on the success of project management office. It appeared that these tools need a culture that has been established in order to be implemented.

Other conceptual models are presented by other literatures as can be seen at [7]. The literatures have some examples in the use of the systems, but it is very important if they can recommend the tools that are more suitable for each phase in the project management, in order to have an efficient decision-making.

2. MATERIALS AND METHODS

2.1. PMIS Strength and Weakness

There are many Project Management Information Systems in the market. They can be used in industry based on the scope of the projects and their necessities. In some cases, it can be used by the enterprises specifically solutions tailored for them. PMIS can vary depending on the enterprise and the project. The projects include some elements important for the systems: Scope, Resource allocation, Time, Deliverables, Assignments, Risk management, Quality Control, Monitoring, etc. Most companies use different tools, relational databases, spreadsheets, and documents that are paper based. The members of a team may use different tools to share information on their work. The files must be sent and received by e-mail regularly, to have an effective communication. When the spreadsheet contents are changed by many people and communication is not well done this can create problems. When project managers must track multiple resources, there are problems and inefficiencies, it has been defined by time and cost constraints, and a significant loss of performance [12].

The correct use of Project Management Information Systems has several benefits: integrated applications; task assignments created, updated, tracked; direct access to all project documents; updated documents, last releases; full access for teams; tasks are timely updated after modifications, all stakeholders are informed quickly; the progress can be reported easily, and team members can understand better the project; re-scheduling of the project will be more easy; communication will be real-time.

With the project management tools, the involved managers can increase efficiency and can act proactively if resources are behind the schedule. This will complete the project yon time and in a more profitably way. PMIS are important when teams have people in many locations. It gives them access to an information database that is centralized and is updated in real-time. They are used also in an effective way in case of work on multiple projects. Also, in projects completed after the deadline or suspended many times. It will help when budgets often are exceeded. When there are difficulties to track the tasks and deadlines or unable to start new task. In cases of frequent re-scheduling and adjustments, and poor planning. When there are overbooked the resources, or we have miscommunication.

PMIS can help solving the situation when communication is incomplete. PMIS can be as stand-alone, or cloud based. Centralized servers usually host stand-alone applications. Team members can collaborate more easily with these solutions very fast response times and very standardized interfaces. For the small enterprises they can be unaffordable. Regarding cost, cloud-based solutions are more effective for small enterprises because they are maintained on remote servers. They offer many features like task assignments, tracking the budget, schedules, tracking the time, resource allocation, risk management, templates [19].

The use of the information system in Albanian enterprises, compared to other European countries is growing but it remains at relatively lower levels. A significant part of small and large businesses does not understand the importance of investing in technology and its use. Albania is a developing country and the information and implementation of such works that demonstrate the importance of information systems is seen as important in the context of faster developments and the promotion of the globalization process.

3. RESULTS AND DISCUSSION

3.1. Proposed System Analyzing

This research study has been done at project office of the Polytechnic University of Tirana. We have analyzed two different projects that were running by asking the working group and also by our experience working in the management and coordination of this projects. We compared them and here are the advantages and disadvantages. The First Project has Six Phases/ Work Packages (1 Preparation WP, 2 Development WPs, 1 Quality Plan WP, 1 Dissemination and exploitation WP, 1 Management WP). The Second Project has Seven Phases/Work Packages (1 Preparation WP, 3 Development WPs, 1 Quality Plan WP, 1 Dissemination and exploitation WP, 1 Management WP).

The first project has an advantage regarding the equipment purchased. The second project has one partner that has not yet finished with purchasing the equipment, so it is a disadvantage for this project. The first project has a disadvantage regarding the quality plan that is not yet done. In the second project the quality plan is created on time and mechanisms are created, so it is an advantage for this project.

Regarding the information system and tools, they use the first project has created a reserved area with username and access for each partner, where all the information is added. In the second project is used google drive space where folders and files with information are uploaded. The first system with reserved area was time consuming in the first place when it was created but now is more organized and separated from other information. The second system was easier to start to use but now the information is together with other information on google drive. Regarding the dissemination both of the teams of project has created the documents and performed many activities. Also, the development work package has work done from both projects. The management has run from time to time in some problems regarding information, documents to be created and receiving the information

Systems analyzation that we propose, analyses the problem that the enterprise is trying to solve. This is done with an information system. The analyzation defines the problem, identifies which has caused it, define the solution and identifies the information requirements that must be fulfilled by this solution. It is created a plan of the enterprise and existing platforms, are identified the key people that use them, also the hardware and software in the platforms. Our proposed research study method is more reliable and accurate in comparison to the [21] which was based on formal interviews and not in real indicators that are subjective on success of project management office.

The problems of the platforms can be identified from the experts that are dealing with this. And also, some other procedures like reviewing of the documents, procedures, working papers; monitoring operations in the system; interviewing specialists of this platform. The expert identifies the problems and creates some objectives that need to be achieved. Sometimes is required a new information system to be build or the existing system to be improved. Also, it is included the feasibility study to see whether the solution is feasible, ad can be achieved, from different perspectives: financial, technical, organizational point of view. The preliminary study is needed in order to see if the proposed system is going to be a good investment, whether they can have the technology required for the system and if it can be used properly specialist of information systems in the enterprise, and whether the enterprise can handle the changes done by the system.

This analysis of systems identifies some alternatives that the enterprise can follow and is evaluated the feasibility for them. All the advantages, disadvantages, benefits, etc., are described for each solution. The managers determine what are the most desirable alternatives to be combined and implemented together.

Some objectives of domain of knowledge in Project Management Information Systems can be used for several functions: Control and improve existing systems for project management; It requires different training in order to increase the skills of the persons working in project management team in order to utilize them more properly. Optimization of the organizational process assets using Project Management Information Systems; Establishment and implementation of Project Management Information Systems as u culture in project or enterprises, see Figure 1 [1, 22-26].
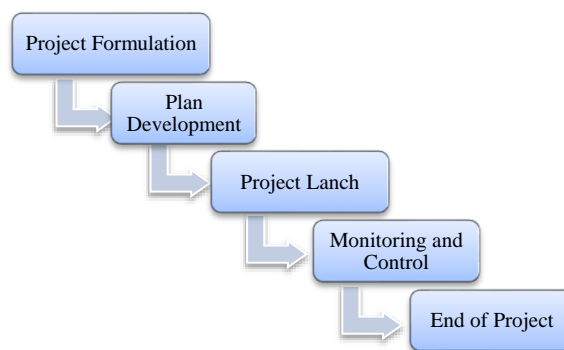

Figure 1. Five phases of the project [1]

3.2. The Responsibility for Completing an Activity and the System Solution

There is a tool that assigns the responsibilities that identifies how the participants in the project interact with project activities and within them. The type which is used mostly is for the interaction and for the responsibility for completing an activity. Also, other issues are considered. Some of them are: the need to consult with different experts for many activities, the approval by senior management that is required, initiation of specific activities, which project manager has to initiate them, the notifications of representatives of customers or the community representatives for some activities, etc.

3.3. Benefits from the Software for Enterprises

Some benefits from the enterprises will be, the number of projects and jobs that are processed at the same time. If the team works in 5 projects in the current working conditions with PMIS it will work on 20 or more projects at the same time which is reflected in the increase of the company capacity or in the reduction of basic costs. Also maintaining history and issuing daily, weekly, and monthly reports, which helps the company make an effective work plan by detecting weaknesses and finding the fastest possible way to correct them. It brings information security by avoiding its loss or damage by technical or human problems. It reduces the time to perform lengthy procedures is accomplished using optimized algorithms in data processing.

The enterprise database is kept online away from individuals and the data is never deleted but simply new data is created. Backups are made every night in other facilities for catastrophic cases. Every action performed by the team for each project is stored in a database. There are standard reports which the system implements and other can be added based on specific customer requirements for a fee. Analyzes and statistics are implemented based on customer specifications and requirements for a fee. The client will have a panel in which he manages, books, and sends every action of the system user is stored in a database in log form. From login, logout, opening a case, inserting data, changing data, etc. Administration panel for creating / managing working groups and assigning agents to working groups and defining working hours in each group.

Manufacturer Benefits of this system is related with economic profit based on potential customers. It brings technological innovation. It can expand in the market where it operates. Also, the opportunity to create a good name in the market because of technological innovation that the application will bring. It can benefit from other projects and opportunities to expand the company and the market where it operates [15, 27-30]. Figure 2 depict our successful building activities.

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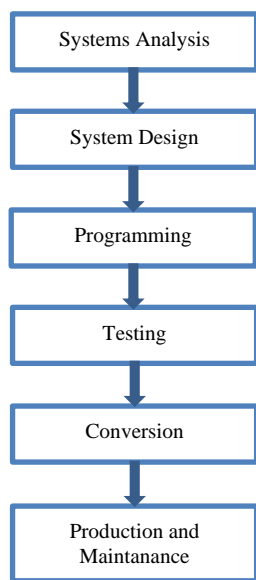
Figure 2. The activities of building a system

Project and Project Management Information Systems have interacted with each other. System has information about the project, and this information can affect other parts of the project. The project influences the design of system so that can benefit from new advantages. Managers decide how a system should be implemented in order to achieve what they have planned and, in the process, taking into consideration management decisions, structure, culture, politics, project environment. This adds value to information and effects decision in enterprise [10].

Information is a factor of power to manage. We can say that the manager has access to important information and can use this to achieve the enterprise goals. Project Management Information Systems can prepare timely and accurate information help the manager with the decision-making process the phases of planning, control. A good information system implemented can improve the relationship and the exchange of information, but also reduces the redundant administrative tasks, eliminates some operations that are unnecessary, and also can im prove the performance and can improve the control of the project.

4. CONCLUSIONS

This paper describes the enterprises that compete globally in local, regional, or international markets, and must have some of the main elements of an IT infrastructure and project management tools. Innovations in this field are developing very intensely where every innovation created enables enterprises to carry out their activities in more efficient ways. Based on this they can manage also the projects in a better way using this technology.

Project Management Information System is not just an information system, but it is system of project management that will manage the information of the project and also will use in a proper way the tools in order to have a much more efficient project management. To meet information requirements, the analysis of the systems describes what a system must do. Then the system design describes how the system will meet this objective. The model or the plan for the system is represented by the design of an information system. It gives of all the specifications that shaped and structure the system. The expert that designs the system, implement the details and the specifications of the system that will do the process for each phase and give the results required. The specifications are for different components of the enterprise. They include technology, management, organization of the system solution.

Information system for projects can have many different designs, in the same way that are created the buildings with different structures. Each of these designs represents a combination of technical, organizational components. One design can be better than the others when it is easy to use and also is more efficient in the way it meets requirements of the user. The design has a set of organizational, technical, financial, specific requests and time limits, in order to have a good performance in the end.

NOMENCLATURES

1. Acronyms
PMIS   Project Management Information Systems
ICT   Information and Communication Technology
WP   Work Package

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