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## **BENEFITS OF INTEGRATING THE TOTAL QUALITY MANAGEMENT AND MANAGEMENT INFORMATION SYSTEM INTO PROJECT MANAGEMENT**

*The paper is devoted to determining if there are benefits associated with integrating the Total Quality Management and Management Information Systems into Project Management. In order to answer this question, the paper first formulates the problem, provides an analysis of recent research, and formulates the answer to a research question. After a review of some secondary sources, it is found out that the integration of these two methods into Project Management is indeed useful for the process of Project Management. It is stated that successful project implementation and at the same time taking into account the interests of different stakeholders can only be achieved through Quality Management.*

**Keywords:** *Project Management, Total Quality Management (TQM), Management Information System (MIS), management technology, management tool, integration.*

**Formulation of the problem.** Project Management refers to the application of experiences, skills, knowledge, methods and processes to attain the objectives of the project. A project is a unique endeavour that is normally undertaken to achieve a given planned goal that could be defined in terms of benefits, outcomes or outputs. To be considered a success a project has to achieve the planned goals according to the acceptance criteria of the goals within an established budget and timescale [4]. Project Management has always been regarded as being separate from the day to day activities of a business. However, it is currently being accepted increasingly as a comprehensive concept that is integrated in the organization's general undertakings to equip consumers with better quality via adequate intra-organizational assimilation and optimal scarce resources use. As such it positions itself among organizational processes like kaizen, organization learning or TQM which assures the highest balance between an organization's emerging strategies and internal organization design [10]. For instance, the process of strategic alliance creation, such as acquisition and merger, is currently being managed as a project and other initiatives of organization development also take the form of projects. To ensure the success of a project, a number of tools, processes and techniques can be employed in the Project Management process. These tools can help in effectively and easily managing a project as well as increase overall productivity, happiness level and performance in the workplace. Some of these techniques processes and tools are Management Information and Total Quality Management Systems. This paper therefore seeks to determine the benefits that accrue from integrating Total Quality Management and Management Information Systems into Project Management.

**Analysis of recent research.** According to a study of Qureshi et al [6] on the significance of Project Management Performance Assessment, for a projects success, the satisfaction of the various stakeholders can only be attained through quality management. When integrated from the start of a project, TQM enhances the involvement of employees and their focus on customers, serves as a guideline to quality management in Project Management [6]. It also issues the track to develop the standards of Project Management that proposes the Project Management outcome and process quality.

In a study on an integrated approach to the implementation of Project Management information system in an extended enterprise, the authors established that management information systems allow teams or individuals to keep track of projects from beginning to end [1]. Hence it provides the project manager and team members with important information like collaborative tools, documentations, quality control, task assignment, time management, supplier management, budget management and resource scheduling. Therefore, the objective of MIS is to enhance efficiency through making the development cycle visible by making it possible for users to keep track of particular tasks and have a good understanding of the progress of the project.

**The purpose of the article.** Project Management is normally faced with the problem of not meeting specification requirements, budget and time within a projects scope. However, these obstacles can be overcome through TQM awareness which can help in overcoming the outlined obstacles is integrated in the culture of the organization and the practices of every individual in a project. This is achieved by providing

good leadership, employee care and development, error prevention via systems of quality assurance as well as integrating external and internal supplier-customer chain. Management Information System on the other hand is beneficial to a project in the fact that it equips management with relevant information within the necessary time frame. In doing so it speeds up the process of decision making and actions needed to ensure a project remain on track with regards to objectives, budget and time. This paper will therefore discuss in details the above benefits that accrue when Management Information System and Total Quality Management are incorporated in Project Management.

**The main part of material.** High customer satisfaction levels and superior product quality have earned a number of foreign industries a large market share over the years. In a study done by Rego at al [8] for every 1% improvement in customer satisfaction a 12% growth in profitability is expected [8]. As a result, many corporations have attempted a lot of quality improvement processes to expand their market share. The attempts have not always been successful and this is because of the corporation's tendency to focus on individual processes and failure to see the entire system [9]. Therefore, a Project Management approaches to Total Quality Management is the best approach for implementing a comprehensive program of quality improvement. Total Quality Management has the opportunity to be integrated and flourish into every level of an organization as it is supposed to. However, this is only possible if Project Management implementation of TQM uses the seven steps of TQM.

Total Quality Management is a method of quality improvement and control that is customer based which was derived from the Japanese industry from the 1950's. TQM offers a unique way of managing process or product quality while relying on consumers as the key source of the definition of quality. In essence, the principles of TQM are based on the standards and requirements of customers in establishing a dynamic and continuous process for the improvement of products. It is a strategy or technique of Project Management which is implemented to ensure that quality awareness is entrenched in every phase of the project from the beginning to the end of the project [5]. Practices of TQM allow that efforts and processes involved in a project are managed and linked with the goal of seeing that the projects aim is monitored continuously for validity and clarity throughout the life cycle of a project and the expectation of client is met fully [10]. Used by multiple industries, Total Quality Management involves a consistent and careful review of every phase of a project and coordinated effort of every person involved. Therefore, in Project Management TQM allows for the creation of an effective working environment in which every individual seeks to consistently improve the process or product in addition to ensuring quality. Since it is a methodology that is customer oriented, TQM requires that every member of the project team be fully committed in the process of improvement. While attempting to better their individual productivity, all the employees are expected to focus on improvements. When used as a technique in Project Management, Total Quality Management emphasizes communication, development of standards, procedures that are well defined and the strict adherence of all individuals involved to the plan in place to ensure that the project meets the expectation of customers.

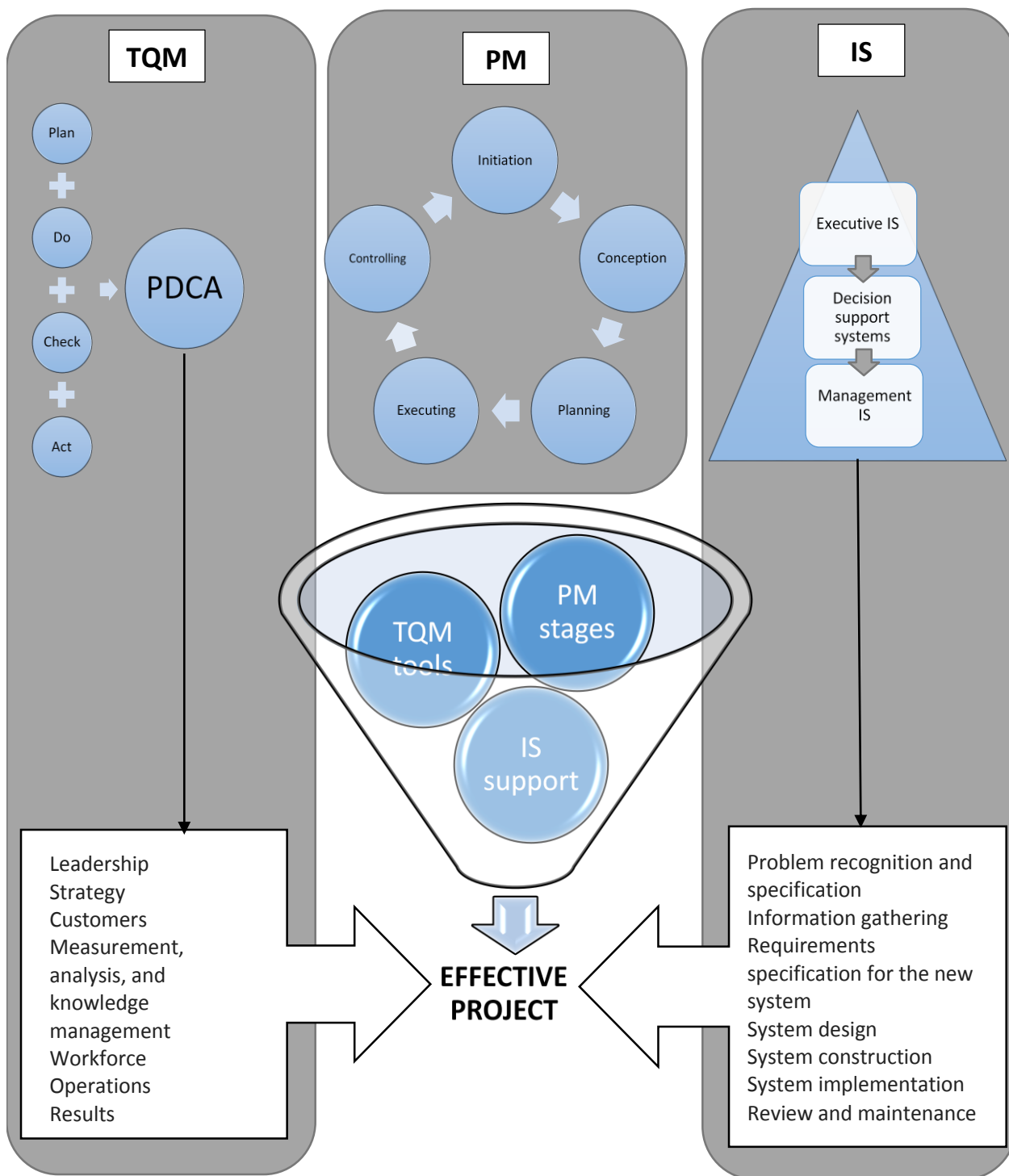
Further, the initial paradigm of Total Quality Management technique is total which calls for consolidated system of variables that are dependent. In this stage, the most important thing is planning and in this stage of planning, barriers to success are identified, then confronted and overcome. In facilitating this, the procedures for evaluating, inspecting, rectifying and reporting anomalies are put in place which will ensure that quality and consistency is developed as well as implemented [4]. Every involved party from the management to workers have to familiarize themselves with the process and commit to the process success so that all the people involved in the project will see that all the anomalies that may interfere with quality are eliminated. The second TQM strategy paradigm is quality which requires that the moment a standard is established; it should never be tampered with. The same calls for a particular level of cross training so that one individual in the Project Management chain can identify the errors which may have arisen at a previous stage in the process. Doing so not only ensures quality but also inspires significant conscientiousness and commitment among the involved parties in a project. Total Quality Management's third paradigm is management [4]. To facilitate success, TQM has to function as a uniting element that merges the individual effort of every involved party. A project has to be properly managed to ensure the strategy's quality. Thus, it is Project Management role to manage the training of everyone who is involved in the process to establish whether there is strict adherence to the process as well as come up with and implement remedial measures meant to correct any issues which might deflect the TQM strategy from the eventual goal of a project.

Additionally, the Total Quality Management is beneficial to Project Management since it determines the quality assurance of a project under situations of uncertainty. The ISO 9000 quality model for instance ensures the satisfaction of customers. In environments that are uncertain, organizations have to develop capabilities which allow them to rapidly adapt to the business environment which is changing rapidly [7]. This is attainable through continuous improvement approaches like PDCA that is very effective and appropriates the contemporary society. When used with PDCA sequence, the principle of TQM enhances the possibility of the success of quality improvement significantly since it allows for avoidance of common mistakes of management. This is because the project manager receives a set of tools that they can use in the solving of possible issues, monitoring and planning. Total Quality Management improvement requires the use of a repetitive four step process of management for monitoring and planning service/product quality in Project Management. The process is referred to as PDCA (Plan-Do-Check-Act). The process is a sequence of improvement to be employed in Total Quality Management. Under plan, the problem and the possible reasons behind the problem is determined and then the potential alternative problems and the reason behind them is evaluated [7]. Afterwards a plan which describes the problem, the reasons for the problem, and the effects of the problem and courses of action for dealing with the problem is developed. Under do, the plan is implemented and in doing so, the team is involved and an improvement process is started. In check, information is gathered on the observed impacts of the problem after and during implementation. The goal in this case is to identify the improvement solutions that were successful. In action which is the last step, the objective is to see that the process of improvement has been implemented so that the problem is solved successfully and the quality of the product is improved.

On the other hand, there is Project Management information systems which are the software applications that assist managers in keeping track of projects from conception to execution. They equip managers with tools that are collaborative and information that is pertinent [1]. Connection between all elements is shown in Figure 1.

Just like TQM, these Management Information Systems are also very important in Project Management. The contemporary corporate environment is very complex and managers have to make decisions fast, efficiently allocate resources and maintain a focus that is clear. For organizations which engage in multiple projects simultaneously, the management faces a lot of challenges such as throughput time and resource conflicts. Failure to adequately balance resources that are scarce can translate into information that is poor quality and project lead time that is longer [2]. Management is also faced with the challenge of interaction and interdependence between projects as well as project and information overload. They are likely to be overwhelmed by the volume of information at their disposal for decision making and this may cause them to lose sight of the relevant information or be oblivious to inaccuracies. The use of management information system is beneficial to project managers under the outlined circumstances due to its contribution towards the success of a project and decision making that is timely. Management Information System enhances decision making within a multi project environment since it generates information that is reliable, relevant, accurate and comprehensible [2]. When it supplies management with high quality information, management information system assists them in making decisions that are sound thereby enhancing the work performance of managers. For instance, management information systems can be used in the controlling, tracking and analyzing risks associated with a project thereby aiding in making decisions related to risk management [2]. Also, in Project Management MIS can assist in detecting inherent issues beforehand, easier and greater collaboration as well as meeting deadlines. The resultant gain efficiency can translate into a lot of cost savings and enhanced return on investment for large and small businesses. Aside from the cost benefits, MIS keeps the involved parties informed making it possible for proper countermeasures when there are delays or failures, delegate tasks as well as develop work-packages and work profiles for assigning the right tasks to the right individuals through proper resource management [1].

**Conclusion.** That said, it is pertinent to assert that TQM and MIS should be integrated into Project Management since they create benefits that are key to the success of a project. For instance, TQM ensure that quality awareness is entrenched in every phase of the project from the beginning to the end of the project thereby contributing to the expectations of customers. Also, it allows for the creation of an effective working environment whereby every individual seeks to enhance the process or product in addition to ensuring quality. MIS on the other hand enhances decision making by providing information that is reliable, assist in identifying issues before they occur and keeps members updated on the information of the project.



**Figure 1 – Integrating Total Quality Management and Management Information System into Project Management**

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### **ПЕРЕВАГИ ІНТЕГРАЦІЇ СИСТЕМИ УПРАВЛІННЯ ЯКІСТЮ ТА ІНФОРМАЦІЙНОЇ СИСТЕМИ УПРАВЛІННЯ В УПРАВЛІННЯ ПРОЕКТАМИ**

Стаття присвячена визначенню, чи існують переваги, пов'язані з інтеграцією систем управління якістю та управління інформацією в управління проектами. Для того щоб відповісти на це питання, стаття спочатку формулює проблему, дає аналіз останніх дослідницьких робіт і формулює відповідь на дослідницьке питання. Після огляду деяких вторинних джерел у статті встановлюється, що дійсно інтеграція двох методів в управління проектами є корисною для процесу управління проектами. Зазначено, що успішна реалізація проекту та водночас врахування інтересів різних зацікавлених сторін можуть бути досягнуті лише завдяки управлінню якістю. Стаття акцентує увагу на тому, що дослідження інтегрованого підходу до впровадження інформаційної системи в управління проектами в розширеному підприємстві дає можливість стверджувати, що інформаційні системи управління дозволяють командам або окремим особам відстежувати проекти від початку до кінця. Згідно з дослідженнями інформаційна система менеджменту є корисною для проекту в тому, що вона надає керівництву відповідну інформацію протягом необхідного часу. Крім того, показано, що комплексне управління якістю передбачає послідовний і ретельний огляд кожного етапу проекту та скоординовані зусилля кожної залученої особи. Таким чином, в управлінні проектами TQM дає змогу створювати ефективне робоче середовище, в якому кожна людина прагне послідовно вдосконалювати процес або продукт на додаток до забезпечення якості. Крім того, акцентується увага на тому факті, що загальне управління якістю є корисним для управління проектами, оскільки воно визначає забезпечення якості проекту в ситуаціях невизначеності.

**Ключові слова:** управління проектами, комплексне управління якістю (TQM), інформаційна система управління (MIS), управлінська техніка, управлінський інструмент, інтеграція.

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