

Evaluation of Barriers and Opportunities for Integrated Management System Implementation in Construction Industry of Pakistan

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Abstract: Construction industry not only improve the infrastructures of the country but also increase the overall economy of the country by increasing the gross domestic products GDP. Almost 60% to 70% of the overall GDP of the country is dependent on the construction industry. This industry deals with the construction of small structures like houses, apartments, offices to multistory buildings like shopping malls, skyscrapers and institution buildings. It also covers the infrastructures like dams, roads, airways railways and motorways. The integrated management systems cover the management of quality, environment effects and health and safety of crew workers during and after the construction projects. This trend got significant increase in the interest of researchers to work over this topic. In this research various models of integration of management systems from academics and construction industry of Pakistan were used and then the barriers were identified in the implementation if integrated management system in construction industry of Pakistan. The results show that only few organizations are using integrated management systems for the betterment of organization and other organizations are not using any well-known management system. Similarly, smaller organizations do not have integrated management systems and these organizations are not even willing to adopt the management system rather these organizations refer only quality management system to satisfy the client. Only few large organizations are providing trainings to their worker and trying to implement integrated management systems along with quality management systems while the medium scale organizations are only focusing the safety and quality management systems and not willing to use integrated management systems. It is recommended that the governing bodies must force the organizations to implement these integrated management systems to save the workers as well as environment. Timely trainings must be provided to the staff for the betterment of industry and country.

Keywords: Integrated Management System, , Construction Industry In-practice Procedures, Improvemnet in Construction Quality and Standards Procedures.

I. INTRODUCTION

Construction industry is considered as one of the largest industries in the world and it contributes a lot in the development of countries and world from last three hundred years. The betterment of this sector is highly associated with the quality, environmental effect, health and safety of worker and other aspects. For this purpose, many standards and management systems were prepared and under consideration in different countries while some experts are still working on the improvement of these current systems and also preparation of new systems that will cover all the aspects and issues of construction projects and industry.

For this purpose, there is a need to evaluate the currently applied management systems in construction industry and there impacts on problem solving of the industry. Similar attempt has been made in this research to find out the currently used and implemented management systems in construction industry and their effect on industry. For that purpose, organizations were divided among large, medium and small organizations as per data provided by Pakistan Engineering Council and then evaluate the management systems that have been used in these organization. The basic objective of the research work is to find out the management systems used in industry, its effect on problem solving and need of new management systems for the betterment of construction industry.

II. LITERATURE REVIEW

The proper management system that improves the standards of any organization is a combination of structure of organization, practices, activities, useful resources, responsibilities and standard procedures for the implementation, maintenance, improvement, development and achievements of the organization's policies, reforms and objectives (API Publication, 9100). This system will help the organization in getting the right information at right time so that organization can make right decisions at right time to save the time cost of the project and make project successful (Graetz & Franks, 2016).

The integrated management systems cover many business aspects including environmental aspect of projects, health and safety of crew workers at site and other important issue that effect the reputation of any organization (Patil, Grantham, & Steele, 2012). For this purpose, a technique named as integrated management systems (IMS) has getting reputation day by day in many researches by take case study of researcher's countries. The IMS covers quality management at site, environmental aspect of projects and health and safety of workers working at site. (Eriksson & Hansson, 2006) found that after the integration

of ISO 9000 and ISO 14000, the IMS was discussed and standards were written for the improvement of both sectors including quality sector and educational sector (Thais Vieira Nunhes, Ferreira Motta, & de Oliveira, 2016) and it will be beneficial for integration of management systems and hindrances to integration of these management systems (Simon, Karapetrovic, & Casadesus, 2012).

For the implementation of IMS in construction industry, number of surveys were conducted to find out the barriers in the implementation of the system. But contrary to this this systems and other standards are not focusing to resolve the corporate cultural problems and issues which are very critical for the improvement of quality and performance of organizations (Mohammed & Knapkova, 2016). In the construction industry of Pakistan, there are many problems about services and product quality, working environment and safety health practices. Quality Management System, Environment Management System and Safety Management System have been implementing the separately in the different organizations. But this research is depended on the pure management system only for construction works which is depended on all the management system related in one framework known as Integrated Management System (IMS) (Salim et al., 2018).

Among the other critical issues, health and safety is also the major issue in the construction projects during and after the projects. It is because there are lots of innovation in the technologies that is why safety of workers at workplace became the major issue for the stake holders. Projects and equipment are changes with the time and their use becoming complex that is why on site work safety issues are increasing and must be resolved (Thais Vieira Nunhes, Motta Barbosa, & de Oliveira, 2017). For this purpose, organizations must have some type of management systems and legislations that deals with these issues in detail. For this purpose, some standards like ISO 9001 and ISO 14401 have been developed which look after these matter up to some extent but still there is a need to studies these issues in detail and develop new guidelines or systems to resolve and illuminate these issues of health and safety and environmental effect of projects. In late nineteens a management systems for occupational health and safety was developed named as BS 8800 but due to lack of experience and professional knowledge of the team, the systems was not met the requirement for which it was prepared (Rebelo, Santos, & Silva, 2016).

III. RESEARCH METHODOLOGY

In order to fulfill the research requirement and to meet the objectives of the research, two methods were used simultaneously. One method is desk study to find out the management systems that are currently in use and second method is questionnaire study to find out the real time data from construction industry of Pakistan. Some interviews were also conducted to validate the collected data from the filed experts. The questionnaire was developed to find out the relationship between integrated management systems and corporate cultures in the construction industry of Pakistan. There are two main and basic objectives of the desk study of this research including evaluation of environmental impact of construction projects along with the management systems to control or reduce those impacts and to evaluate the level of implementation of IMS in construction industry of Pakistan along with their out comes in the betterment of organizations. A healthy literature review has also been carried out to find out the factors effecting in implementation of corporate culture in construction industry of Pakistan.

The population for this research is contractors and consultant organization of construction industry of Pakistan. As the scope of study is limited to Punjab only that's why organization who belong to this province were considered as population. Among the contractors C-A and C-B were selected as they are big organizations and consultant firms have no such category except, they are local and foreign. On the website of Pakistan Engineering Council (PEC), the list of organizations is provided that contains type, province and contacts of organizations.

There are total 61 contractor firms that belong to C-A category while number of C-B firms is 42. This makes 103 total contractor firms. Number of registered consultant firms is 649 in Punjab. Hence overall total population of the study sums up to 752. Hence sample size is 88 which means total 88 valid responses are required for this research. As the questionnaire were sent through emails which has low response so 280 total questionnaires were emailed to randomly selected sample. Out of these 280 questionnaires, only 108 filled questionnaires were received and out of these 108 filled questionnaires 86 questionnaires were selected which were completed in all aspects. It is around 42% which is well above the threshold level of data collection check. Some organizations refused to provide the data by writing the letter that they are not allowed to share these types of information of organization.

IV. RESULTS AND DISCUSSION

The objectives were set for the research and healthy literature review was carried out to get the feed back from previous researcher and to develop the questionnaire. Desk study was carried out and questionnaires were circulated to get the responses from the major organizations of construction industry of Pakistan. The data from the respondents showed that there were only few organizations which were using IMS or some other management systems for the improvement of organization and industry. In order to achieve first objective, following figure indicates the relationship between implementation of management systems and corporate culture in construction industry.

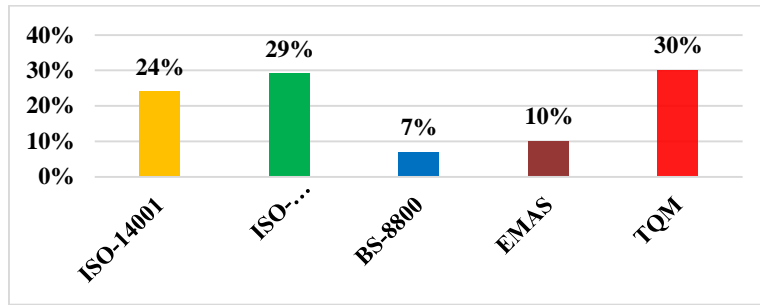


Fig. 1: Type of certification and Management System

It is clear from the figure that 53% organizations were got ISO 9000 and ISO 14001 which showed their intend in the betterment of environment of country while 37% organizations were suing different quality management systems to satisfy the client. Still some organizations were using BS-8800 standards and EMAS systems for the quality control of their projects. The next 2 questions were about the certification year and time it took for building a system required for attaining ISO certification. The year ranges between 2016 and onward while respondent showed harmony about the year it takes for building a management system gaining ISO certification which is five years. The respondents showed differing results about setting up environmental policy in their organizations as shown in figure 2.

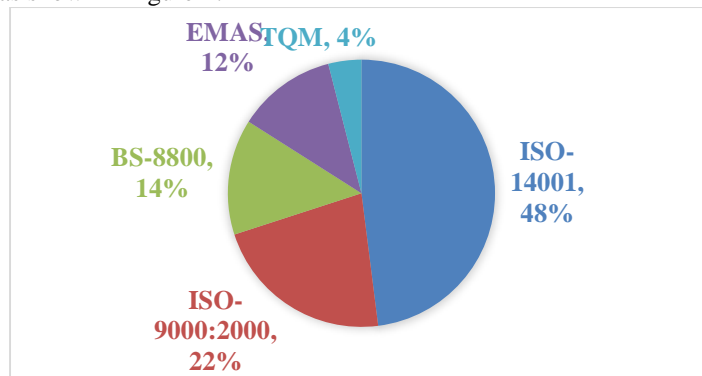


Fig. 2: Way of implementing Environmental Policy in organization

The above figure clearly indicated that majority of organizations of Pakistan are willing to get certifications from ISO and hence have some positive impact of construction projects on environment. Which shows the trend of organizations towards IMS and next few years almost all the organizations will get IMS systems certification. Few organizations are still using old management systems because the top management are not sure about the suitability of IMS for their organization.

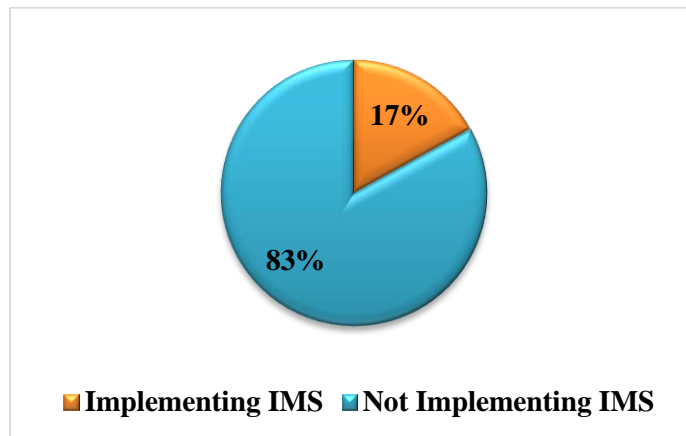


Fig. 3: IMS implementation within Pakistan construction industry integrated

It is clear from above figure that only 17% organizations are using IMS systems directly or indirectly and remaining all 83% organizations are not using this system and few of them are using other older quality management systems rather than IMS. The one issue for implementing the IMS is corporate cultural issues. Therefore, there is a need to provide suitable corporate culture to all organizations so that they will prefer to use and implement IMS systems for the betterment to construction industry and environment of country. Some strict by laws should also be developed to force the organization to provide fruitful occupational health and safety training and drilling to the construction staff not only to those who are working at but also to those who are working in offices of organizations.

V. CONCLUSIONS

The major objectives of the research have been achieved by following the designed methodology. Questionnaire was designed to get the implementation score of level within construction firms of Punjab and also to get the responses of implementation of corporate culture within the organization in the implementation of IMS. The data collection domain was limited to only construction organizations within Punjab region. Some organizations have refused to provide the data. Only 42% responses were collected and data was analyzed to get the suitable results. Majority of organizations replied that they were facing corporate cultural problems in implementing the IMS systems in their organization. Following are the major conclusions of this research.

- 1- Many organizations have different types of projects but only have single manager who was dealing with all the matters related to quality of production, environmental impacts and occupational health and safety. This is against the IMS standards according to that there must be separate manager technical for different types of projects.
- 2- Majority of organizations have created their own model of implementation of IMS and other quality management systems. In data collection over all five newly created models and one standard model have been obtained. Therefore, the single platform for the analysis of implementation of IMS was difficult to get.
- 3- Majority of organizations are quite new in implementing the IMS systems that is why they replied that it is quite early to investigate the level of implementation of quality management systems in Pakistan.
- 4- Large organizations are using IMS and other systems for the betterment of organizations while medium level organizations are using old system just to fulfill the legislation requirement and the small organizations are not using any quality management systems.

VI. RECOMMENDATIONS

For this research, after reviewing the literature, questionnaire was development and data was collected from construction sectors of Punjab, Pakistan to evaluate the interrelationship between implementation of IMS systems and corporate cultural. Following are the major recommendations of this research work.

- 1- The entire culture of all the organization is same that is why a detail studies should be conducted to for similar types of countries to get the barriers and opportunities in implementation of quality control systems.
- 2- Future research can be conducted on the human resource management to get the barrier in implementing the quality systems within organizations as human resource are the key in implementing any system within organization.
- 3- Similar studies should be done by considering other industries and then compare them to get the better path for implementation of IMS.
- 4- For providing the guidelines to mega companies where culture is different among the human resource, a suitable research should be conducted for finding out the smooth pathway for implementation of different systems within organizations.
- 5- Future research can be conducted by considering organizations working in multiple countries where economic condition, human resource, legislations and cultures are entirely different which oppose the implementation of IMS systems in the multinational organizations.

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