

The Extraction of Affecting Processes on the Management of Health, Safety and Environment (Case Study Mapna Group MD 2 in 2016)

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ABSTRACT

Nowadays, the change and dynamism of organizations are the basic principles; therefore, managers should modify the goals, plans and work procedures so that they can be compatible with the environment condition. The management of HSE is not excepted from this principle. The aim of this study was to evaluate the processes affecting HSE.

This study was a cross-sectional and applied study using the review of relevant documentation, interviews and brainstorming with experts, and the reviews of Best Practice to identify the HSE's processes.

After checking the HSE activities, the 5 processes of HSE training, managing the risks, events, emergencies and contractors and any changes in the other processes of the organization were also suggested.

The results showed that a process approaching the form of an intervention program can be provided in order to have a better interaction between the HSE activities and organizations processes and workplace health promotion for the HSE activities.

Key words: Process, HSE, Organizational Structure

INTRODUCTION

Organizational structures play a central role in the planning process and reveal the current operational activities. The organizational structure and staffing are the main pillars of an organization. The organizational structure of each organization plays an important role in the efficiency and proper planning structure will improve workforce performance and it will increase in productivity [1]. Nowadays, the change and dynamism of organizations are the basic principles; therefore, managers should modify the goals, plans and work procedures so that they can be compatible with the environment condition [2].

Organizations have found that the functional approach in business removes flexibility and dynamism over time and through experience. For this purpose, the approach against the functional approach recommended to organizations is the process approach. Business processes are the main activities

of the organization that is not confined to the boundaries duty. Human resources link management skills and technology in order for the organization to focus on the strategy of creating value for beneficiaries and particularly customers. Since the staff in the process-based organizations do a whole process and not a small part of the work, they are more satisfied [1, 2]. It is essential for organizations to turn to the process approach so that they can grow and survive in this changing, dynamic, and competitive environment [1]. The process approach provides the assessment of the quality of data and obtaining feedback in order to carry out the necessary reforms for the growth and development of the organization [3]. One of the things affecting the success or failure of a complex is the interaction between processes. The HSE unit is one of the most effective and important parts in the organization

requiring effective planning to set appropriate communication with other units in order to achieve the objectives of the organization. Arranging processes and using standard methodology for designing processes in large organizations lead to achieving strategic business objectives such as reducing the total cost, risk control and the protection of intellectual property [4]. HSE management influences the processes and input so that it can also play a role in increasing productivity. The health of human resources, protecting and improving the efficiency of equipment and installations, and protecting the environment is factors effective in the continuous improvement of the processes in an organization, its productivity, and profitability. So, any situation that could lead to the preservation and protection of these cases, in fact, increases the efficiency of the organization [5].

A study about the performance criteria considers the number of events related to safety, health and environment as one of the six organizational performance criteria. [6] that shows the need for designing process and strategic systems, and generally the management about the HSE [7].

Therefore, this study was done with the aim of extracting processes affecting HSE in Mapna Group MD 2.

MATERIAL AND METHODS

In this research, the following actions were taken in order to identify the related processes to HSE.

First, procedures and guidelines of HSE, organizational processes, plans, goals, and other related documents were examined and a set of process were considered to cover the matters.

At the same time, the writing process instructions of American Productivity and Quality Center (APQC) were studied as the best practice and a set of processes, sub processes and activities was extracted.

The next step was studying the brainstorming sessions and interviewing the experts of HSE and QA, and the combination was removed. In addition, a number of activities are obtained by the intervention in other processes.

A researcher-made questionnaire was used in the research to collect the data on the importance of the process activities.

This questionnaire was designed by using the results of the meetings with the experts and the study of the HSE section, 12 categories of Process Classification Framework (PCF) guidelines including the organizations and companies giving services, manufacturing and public companies provided by the APQC for various organizations including 23 questions on a Likert scale. Each question contains 5

options. (Option 1 = of very little importance, 2 = of little importance, option 3 = moderately important, 4 =very important, 5 = extremely important)

Cronbach's alpha was used to assess the reliability. The Cronbach's alpha was 0.72 that was acceptable. Regarding the face and content validity, the perspective of, the experts was used. As a result, the opinions of five experts in the field of HSE about the questionnaire was received and finally confirmed by the experts.

The questionnaire was distributed to 40 specialists in HSE having at least 5 years of experience and being a manager or supervisor. 35 of the questionnaires were filled in and returned and all the 35 questionnaires were valid.

Selecting individuals was purposeful in a way that the available sampling method was used during the study. Then, according to the snowball method, the selected individuals were requested to introduce other people according to the same criteria.

To determine the degree of importance, the frequency of the processes and activities chosen by the participants was calculated. If the number of participants selecting options 4 and 5 was more than the first 3 options, after the feasibility of repairing the items, it is considered as the first priority in designing the process. The data were descriptively analyzed through SPSS16 software.

This cross-sectional and applied study was carried out in Mapna Group MD 2. The studied population includes the experts in HSE, quality assurance (QA), process, and related documentation to HSE.

RESULTS

During the study, the data resources, documents, interviews with the staff, relevant authorities in the organization, existing processes and required processes were extracted to better achieve the objectives of the HSE Unit. The number of the extraction processes was 13 cases.

Part of the extracted processes was done according to the needs and requirements expressed in the strategy and policy of the organization. Thus, during the review of the strategy map and Company regulations, 7 processes were recommended including:

1. Developing policy and strategic goals
2. Organizing and providing resources for the successful HSE management in the organization
3. Assessing and managing the risk in the field of HSE
4. Designing program and system for establishing HSE in the organization
5. Managing contractors
6. Auditing and improving HSE performance metrics

7. Implementing and monitoring the HSE designed systems

In addition to the points made in the strategy and organization policy, by reviewing Best Practices and interviewing relevant experts, another group of processes were recommended for the proper implementation of HSE operations as follows:

1. HSE Training
2. Emergency Management
3. Incident investigation and the management of accidents
4. Change management
5. Risk management
6. The promotion and qualification of HSE personnel.

In order to validate the proposed processes extracted, interviews and brainstorming sessions were held with the experts having the following objectives:

- The possibility to enforce the process of the organization
- Understanding the importance of HSE in the organization better and highlighting its role in the administration
- Involving other units of the organization in the HSE activity
- Reducing the high volume of activities of this unit

In addition to the results of the meetings to recognize the importance of HSE activities, the extracted set of processes of interviews and Best Practice in the form of a questionnaire were prepared to assess the importance of each of the expert's opinion.

The results of the questionnaire of setting priorities and the importance of processes and activities are given in the Table 1.

Table 1. Determine the importance of the processes and activities related to HSE

Items	1	2	3	4	5
Establishing the enterprise risk framework and policies				62%	38%
Identifying and allocating resources			23%	44%	33%
Identifying and implementing appropriate tools to manage risks				65%	35%
Determining the risk tolerance of the organization		3%	17%	65%	15%
Follow-up corrective measures and updating risk management activities			35%	50%	15%
sharing the information related to HSE in the units of organization			32%	47%	21%
Internal and external auditing and reporting performance (identifying strengths and weaknesses)			6%	44%	50%
Developing enterprise compliance policies (determining the limitations or accepted scores)		3%	35%	47%	15%
Change management			18%	47%	35%
Identifying weaknesses and Implementing controls		6%	23%	60%	15%
Checking legal aspects related to HSE			29%	52%	18%
Creating reconstruction programs				50%	50%
Communicating and consulting the experts			23%	50%	27%
Investigating and determining the causes of accidents and incidents				41%	59%
Developing the business resilience strategy			17%	62%	21%
Creating policy in managing the improvement of activities		3%	26%	56%	15%
Regular business planning and maintenance			9%	44%	47%
The regular inspections of business operations			3%	44%	53%
Contractor management			3%	38%	59%
Assessing the needs, planning and implementing HSE training				30%	70%
HSE follow-up activities carried out by other units		3%	23%	53%	21%
Emergency Management		3%	20%	59%	18%
Costs and benefits			15%	38%	47%

The option of “extremely important” for the item of HSE training is (70%) being the most important, it is (59%) for managing contractors and investigating events, it is (53%) for the regular inspection of business operations, it is (50%) for creating reconstruction programs and internal and external auditing, and it is (47%) for business planning,

regular maintenance and cost and benefit management.

the option of “very important” for identifying and establishing the appropriate tools for risk management and risk tolerated is (65%), it is (62%) for resiliency strategies, it is (62%) for policies and objectives, it is (60%) for identifying weaknesses and

establishing controls, it is (59%) for Emergency Management, it is (56%) for creating policies in managing activity improving, it is (53%) for HSE follow-up activities that will be performed in other units, it is (52%) for legal aspects related to HSE, it is (50%) for the follow-up corrective measures, communicating and consulting the experts, and Creating reconstruction programs, it is (47%) for change management, sharing the information related to HSE activities in the organization units and the Developing enterprise compliance policies (determining the limitations or acceptable scores), and it is (44%) for recognizing and allocating resources.

Therefore, all the items of the two options of “extremely important” and “very important” gained more than (50%) on the whole. Thus, according to the results of reviewing the processes and activities, all the items needed to be handled. None of the items gained the option of “of very little importance” and half of the items gained the option of “moderately important” being approximately (30%).

In examining the feasibility of repairing the items in brainstorming sessions with the members of the HSE and QA units, regarding the available infrastructure for the two items of cost-benefit management and organization resiliency strategy, now there is no chance to respond and design process. To cover some items, the five items of process including HSE training, emergency management, contractor management, risk management and its effects (HEMP) and events management process were proposed for designing. To cover other remaining and important items, they should be considered in combination and under a host of other processes, templates, procedures, and guidelines.

DISCUSSION

Based on the results of this study it can be concluded that the process approach is very important in implementing HSE affairs.

In this study, 4-member team of experts in HSE and Quality Assurance used for extracting the processes so that the finding can be more close to reality.

In this regard, a study shows that extensive studies on the problems are required to solve the problems in the HSE, and after forming an investigation team of experts in different fields, the interventions are designed and the potential of the organization are measured for implementing the interventions [8]. Another study also shows that most of the organizations tend to use simple safety and health systems [9] which is in line with the implementation and goals of this study.

The results of analyzing the interviews and meetings indicated that all the items need to be handled and the items of training, contractor management, accident investigation and regular inspections, auditing and cost-benefit management had the option of “extremely important” and other items had the option of “very important”; therefore, it was tried to be answered as a processes to cover the items of “very important”. It is necessary to design processes to do activities the importance of which is considered as “very important”.

HSE Training was the most important and the results of the meetings revealed that it requires special attention, representing the great importance of this issue to prevent and control risks. Previous studies suggest that training is an effective factor in safe conditions and safety conditions plays a significant role in management of construction safety [10, 11].

The next priority is to manage the risk and incidence. Dozen, in his research, indicates that the prevention of accidents needs the development and accreditation of the issue more and also mentions that the risk analysis is as an important tool in the safety management for prioritizing actions and programs in his research [9].

The third priority is to manage contractors and emergency situations in this regard, Rubin in his study, concludes that for removing failures in major industries, comprehensive integration activities such as commitment to implementing safety processes, risk management, emergency situation management programs, learning experience, change management, eligibility determination for employees and contractors, determining the risk tolerance of the organization, and measuring performance by determining indicators are required [12] which is in line with the results of the present study.

A study on the factors affecting the implementation of the safety management system considers two factors and sub-factors. About the factors, personal factors and about the sub factors, safety awareness is the most effective in the success of implementing Safety Management System [13]. Two factors mentioned in this study can be considered as a subset of the training process because education affects knowledge, attitude, and ultimately behavior; therefore, it is in line with the results of the present study.

The results of a study about investigating factors affecting the implementation of safety programs showed that 16 factors are effective in implementing safety; the first three items are as follows according to the managers of the project and safety personnel: 1. Management supports 2. appropriate safety training 3. Team work [14].

In general, the above cases were seen in the present study, for example, it is shown that management support approved of implementing the proposed processes, and the items of teamwork, delegation, monitoring and evaluating programs, etc. are solved. Furthermore, employee motivation in the training process and Welfare Committee are followed. However, in prioritizing items, there is not complete consistency with the current study, for example, in this study, management support is considered as the first priority and education is the second priority, while the present study considers HSE education as the primary priority. The differences could be due to the cultural differences in Iran and Thailand, the topics of study, and the method of data collection. Since the present study considers the Safety, as well as Health and Environment. In addition to previous studies, the opinions of HSE experts, quality assurance, and APQC guidelines are also examined. After the review, it is clear that both items of cost-benefit management and resiliency strategies now cannot be handled now. As the resiliency of the organization is a very wide subject and has many indicators and due to the largeness of the company of Mapna Group MD2, it has not been investigated. A number of clauses in contracts can be linked to the resilience, for example, the employer is responsible for increasing the safety coefficient of the constructions of power plants against earthquakes in earthquake-prone areas in some international projects regarding the available conditions of providing the security of work site just before the main operation and also receiving a part of the contract amount according to the progress of the project.

About cost-benefit management, currently, since projects are short-term, and all the designing affairs, providing equipment and manufacturing are assigned to the contractor. In addition direct and indirect costs of the events are not calculated by the contractors exactly; therefore, presently, the profits of HSE activities cannot be obtained. The company takes measures to manage the costs. A study also states that due to the lack of a dedicated section to the HSE costs in the reports of the contractor, it is not possible to measure the cost up to now [15].

CONCLUSION

This study, integrates the former structures and it can also help to understand the importance of HSE better, stop thinking of that as an imposition, and provide efficient suggestions about effective interventions in the construction projects having a changing nature. In this regard, Götze in his research shows that well-designed and well-implemented programs about promoting the health of the workplace can lead to

good results in the field of health and finance, and the success of these programs depend on the objectives, design and its implementation, and more importantly, how to evaluate the program [16].

ETHICAL ISSUES

The study results will be published with the consent of the relevant authorities and Ethical issues have been completely observed by the authors.

CONFLICT OF INTEREST

The authors declared no competing interests

AUTHORS' CONTRIBUTIONS

All authors participated in design and conduct of the study. All authors have made contributions in drafting, revising, and approving of the manuscript.

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