

Study to Proposed Methodology on Improving growth in Industrial Performance Rating by Integrating Management Information System and Safety Management

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Abstract— The Industrial performance varies according to time by time a tactical process of implementing of upgrading methodologies can produce more and more performance of any industries. Now a day for better performance rating industries are using some technologies such as Six Sigma, Kaizen, TQM and they are all about taking about Production and the Quality but no equally thinking level is available for the safety Management of the company.

Safety is the prior and one of the most necessary factors for the industrial performance it is one of most helping factor to increase Productivity, Quality, Maintenance and Rating of the company. Flow of information in a systematic manner can play a very important role in industrial performance and in performance rating. This paper work is prepared to design a Management Information System along with Periodic Upgraded Safety Management. In previous research, there is approx negligible work found in combination of safety management and management information system, which approach to industrial growth and performance rating. This research work has done to focusing on some initial and important points like how safety management and management information system can be used simultaneously.

Keywords — Safety Management, Management of Information, Industrial Performance, Industrial rating, Evolution of MIS, Functioning of MIS, Role of planning, Work System.

INTRODUCTION

A well-designed information flow process from its origin to destination will lead to increase the accuracy of the production and quality including growth and performance of industry. The combination of Safety Management inbuilt in Management Information System can give a specious result to increasing the Industrial Performance Rating and overall growth. This paper contains the systematic study of safety management and management information system and approach improvement in industrial growth and industrial performance rating. The work explains, what the changes and care may be done to get the better result, how the related activity can be controlled, and how these activities may conducted with cooperation in all over organization, what the advantages over traditional method can be observed after applying this new methodology. The paper work also contain the expected barriers and problems which may occur in the implementation of this suggested methodology, and also the list of limitation is provided which are bounded with existing or previous methodology, after implementing this new methodology numbers of dimension will be effective which will produce desirable results in field of Industrial performance and rating.

PROBLEM FORMULATION

Problem in developing an effective MIS:

Following points are major barriers in growth of MIS

1. Indifferent behavior and response of higher management for new implementation of any kind of new system.
2. There is no direct production benefits in the production of any product.
3. There is no profit from the first day of implementation starting.
4. Lake of freedom for new experiments and constraint space for the new development expensive.
5. No guaranty for 100 % efficient or desire result system at first attempt may take place number of changes for desire result.

Deficiency of Management Information System:

In Indian small and micro scale industries major percentage despite the availability of technology there is missing of a well MIS (Management Information System). The MIS system which have the capability to integrate over all organization functioning for a smooth flow working and full proof planning of the organization to utilize the maximum efficiency of the system. A well developed MIS system is required for regular growth strategy preparation.

But in fact most of micro industries are not aware for the MIS and some them are aware but do not have the equipment and system and well designed coerce pattern to follow for the development or maintaining of error free MIS system.

Issues Related to safety management:

1. Lack of awareness in small scale industry: as the management does not recognized the direct and instant benefit of safety management so generally they do not pay as required attention to implement and research in the field of safety management.
2. No educational literature is available at industrial level to aware the people about human fatigue and relation of human fatigue to accident.
3. No industrial level research is available in most of small-scale industry to analyzing the accidents, frequency of accidents, causes of accidents, cost finish accidents versus cost of loss after occurring accidents.
4. Absence of the team which should search for the probable causes of any accident may occur in the industry.
5. Apathy of safety activities, Educating employee, safety programs, safety instruction and training. in small scale industries.
6. Regular development of for safety consciousness is not found in general.

PROPOSED METHODOLOGY

To improve the performance rating of any industry, safety performance rating play a very important role, but in most of the cases it has been observed that the companies management doesn't concern the safety performance in their prime concerns. the process industries must ensure Safety Information Management (SIM) is implemented satisfactorily.

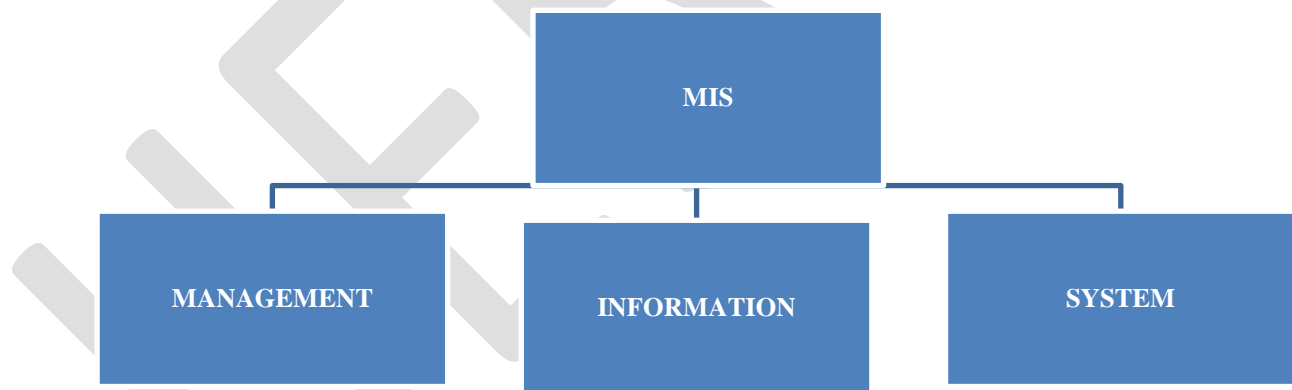


FIGURE 1: SHOWING THE COMPONENTS OF MIS

The solution for many of the current problems in an industry is actually quite simple and logical, When MIS (Management Information System) is applied in an appropriate format. In addition a company having efficient safety management system also has ability to bypass many of the problems before occurring in form of any difficult situation. This methodology suggests combining both MIS and safety management. The basic concept is that an industry having healthy working environment and control on accidents and undesirable situation can produce more effective work and can increase the productivity of the plant in different departments of an industry, and all these will lead the Improving Industrial Performance and performance rating of the industry. As reduced or zero frequency of accidents leads the continue production, work satisfaction in employee, generate the feeling of safety and motivate the

employees to give them maximum focus on the work so in this methodology, it is suggested to develop a stronger safety management system based on MIS. A effective MIS can make safety management system more effective and quick responsible.

Such a combined MIS and safety management system must be user-friendly, users (staff concern with safety issues) current and historical data must be instantly available. There must be support from all over the industry as one unit and also from different departments as a sub unit of industry. It will also suggest for some of Job-redesign, because the implementation of MIS will change the tasks of employees.

The adequate combination of the MIS and safety system will make the problem solution simple, but it does require certain changes in working culture and considerable time and support from the top management to shoe the favorable difference in various factors. The use of MIS can ensure much easier solution and activate the predictive alert. The use of MIS based databases will results in required data being instantly available. Simple user interfaces should be created, and queries and suggestion providing approach should be available to the various users without too much complexity. The effectiveness and adequacy of the safety management system should be upgraded at regular basis. Different evaluation methods should be used including the MIS feature for assessing the different aspects of the safety management system. It is also important to build up a good team of members with the appropriate skills in the project team. In the MIS team, there should be different expert employees in field of different tasks.

The MIS should be used to accomplish the following steps in safety system:

- (A) Policy Making
- (B) Organizing the System
- (C) Planning & Implementing
- (D) Measuring Performance
- (E) Management Review

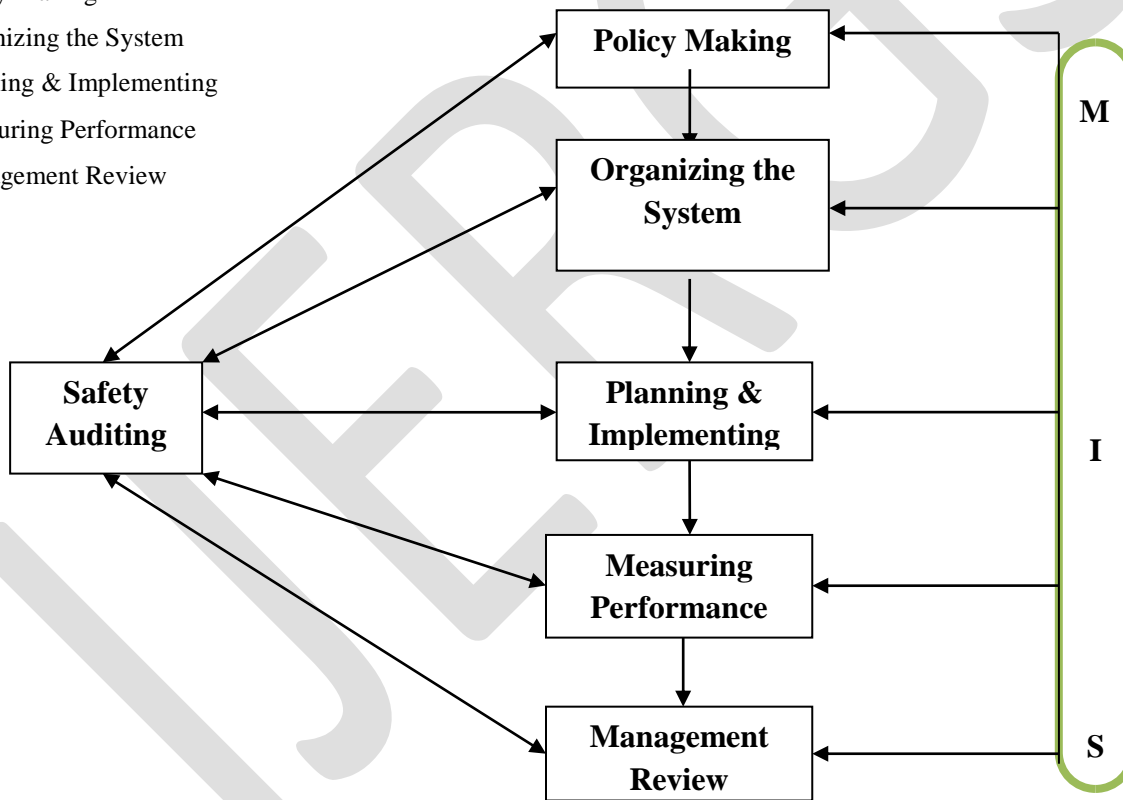


FIGURE - 2: REPRESENTING THE COMBINE STRUCTURE OF SAFETY COMPONENTS WITH MIS

In any industry there must be safety manager, who should be responsible with his or her team to arranging the meetings with the actively participating members. The safety management team should firstly prepare a safety policy.

In this phase the safety department requires the commitment and endorsement of the employer and employees to present a successful safety policy.

(A) Following steps should be taken in a safety policy:

1. Policy Statement - Commitment for managing health and safety and the goal of the policy
2. Responsibility – Pre-deciding responsible person for specific action.
3. Establish the procedures - Outlines the details of procedures.
4. Employee training
5. Use of administrative controls, hazard isolation, locking, warnings, signs and symbols marking hazards, etc.
6. Use of personal protective equipment (PPE)
7. Removing hazardous materials or replacing such materials with less harmful alternatives
8. Improved lighting and working environment
9. Prevention of slip-trip-fall

(B) Organizing the System: A systematic organized working system should be developed After making the safety policy, for setting the responsibility of all the action being taking place in an industry and may become helpful for industry or employees, training of employees should be at regular basis and in a preplanned schedule which ensure all the related and required advance training for employees. Establishment of the procedures, administrative controls should be there to observe and maintain the safety regularity like hazard isolation, signs and symbols marking hazards and harmful chemicals, warnings, locking etc. All the industrial employees and outside contractual basis labor should be trained and motivated to use the personal protective equipment (PPE). Limiting and finishing the use of hazardous materials or replacing such materials with less harmful alternatives. Maintain comfortable lighting and working environment. Search and finished out the all possible causes of slip-trip-fall.

(C) Planning & Implementing: For executing and managing the safety policy, the safety department firstly needs to prepare a plan which have the ability to detect the steps and procedure in enough detail for executing the efficient safety policy and implementing the policy in different departments of the industry. The safety plan should also be present in all occasions of the industry and after a fix interval of weeks or months.

(D) Measuring Performance: It is also very important to check the established system of safety is working properly or not. The observation and feedback should be collected to judge the efficiency of the system, Moreover, this process also is like an evaluation process. Implementation process is required to monitor and check the feedback in order to control the quality of the system's outcome.

(E) Management Review: Organizational working can smoothly flow only if the management system of the organization is working efficiently, taking right decisions and control the factors relating to the organization interests. So in the case of safety management it is also important act of top management to o the managerial review of the safety system and its alignment with the overall organization to ensure the required level of performance of the safety department.

(E) Safety Auditing: The safety audit is the checkup of all above detected points and examinee the correlation among various departments of the industry and check out the ground level activity with documental presentation of the safety plan and safety manual. Following important steps should be follow for safety audit of an Indus\try.

1. Initial research prior to arriving on site, the auditor must decide whether to run a formal or informal audit. In a walkthrough inspection, a very experienced auditor requires an informal approach this is where the auditor identifies deficiencies. Initial research also includes sending a pre-audit questionnaire. This can be a summary of the items to be reviewed or it may include sending the audit in its entirety.
2. Opening meeting and walkthrough - "This is a very important process because one of the things that you need to take into any opening meeting is that most companies aren't happy to have an audit performed at their facility," During the opening meeting, it is important for the auditor to stress that he or she is there to help and not to point fingers. It take only notes to get an idea of problem areas, and not a full-fledged walkthrough.
3. Review of programs and records - it contains information on serious accidents and injuries that have occurred It is most vital steps. As for example review of the last five years of injuries and accidents, it contains - Looking for excess injuries like Fire accidents, Chemicals effects on human health, serious cuts etc. Review insurance claims, first-aid logs and accident investigation forms if available. Then see what written programs or plans are in place and which ones must be added. Almost every employer needs an emergency action plan and a hazard communication plan with proper training.
4. Walkthrough in detailed – This step contains the audit of housekeeping, electrical wires, exits, stairs, fall protection and ladders. These are numbers of such areas that need to be checked for unsafe conditions. Exits, Walkways and work place should be cleaned,

dry and cleared so that employees can work their job safely. All electrical equipment must be protected by a fence or wall with visible warning signs present. Electrical wiring should not have extension cords and exposed should be intact to the ground. In addition splice-free probability should be finished, platforms and floor openings must be guarded by railings. Stairs must be stable with handrails and kept clean and dry. An emergency escape stairwell should not be used for storage. Ladders should be permanently attached with clean, sturdy rungs. At the workplace the auditor may have to question employees about the handling, cleaning and storage of this equipment. However, employee involvement in safety at the facility is usually apparent through other avenues.

5. Review findings - In the closing conference, the auditor should view the significant findings. "This doesn't mean that each individual item need to be gone over line by line but items that are going to result in significant time or costs or could be seen as systemic must be reviewed. A corporate attorney can review the report from a legal standpoint but the auditor should not allow anyone to significantly change or hide any findings.

6. Follow-up – Once the written report has been issued there are many ways to monitor audit follow-up procedures. These columns might include who has been assigned the responsibility for correcting the item, the date that the item is expected to be corrected by and verification by another person that the items have indeed been corrected. Some of the auditing software available has the ability to do this type of tracking. More often than not, workplace injuries and citations come from minor issues that would have been picked up during a normal audit. Effective auditing protects both the employees and the organization by reducing citations and injuries, and result in reducing operating costs.

RESULT

The suggested methodology will make organization more aware for the importance of health and safety at work compare than before. Clear development stages can be found in the process of improving the management of safety. In this proposed methodology origins of the problems are analyzed. A systematic method is developed for identifying and controlling hazards. Safety tasks and responsibilities are defined and communicated. Continuous improvement addition to previously available system, improvement is encouraged through management review.

Following results become:

(A) Following results obtained and forecast to be happened in future by suggested safety policy:

1. Commitment of management for health and safety is developing more stronger and the goal of the policy is more determined.
2. Responsibility – Pre-decided responsibility for each job fix the related employee responsibility and sincerity about the job due to this the hazards and undesirable situation will reduced.
3. Established procedures and Outlines of the details of procedures will also supports the new joining and the staff with some missing of knowledge; result will be more confident working environment and believe system will be developed.
4. A repetitive and after a fix interval Employee training system will leads the skilled employee and all of staff will continually trend about the advance safety system it will reduced the probability of the accidents in industry and even employees personal life.
5. Use of administrative controls, hazard isolation, locking, warnings, signs and symbols marking hazards, will be continuously managed and improved through MIS system.
6. Use of personal protective equipment (PPE) and observation the employees are using correctly or not will be easy to Surveillance and mistake will be caught by in minimum time by the use of MIS.
7. MIS will help to all the levels of management and workers concern to the matters like removing hazardous materials or replacing such materials with less harmful alternatives simultaneously and regularly it will upgrade the safety system continuously no one person mistake or missing of data will cause the major accident.
8. Improved lighting and working environment is developed full Prevention against slip-trip-fall is becoming possible.

(B) Organizing the System is becoming less complex through MIS involvement: A systematic organized working system will be developed, by setting the responsibility of all the action being taking place in an industry is helpful for employees. Training of employees will be held at regular basis with a preplanned schedule. All the industrial employees and outside contractual basis labor will be trained and motivated to use the personal protective equipment (PPE). Limiting and finishing the use of hazardous materials or replacing such materials with less harmful alternatives will ensure for safety. Maintaining lighting and Prevention against slip-trip-fall will finish the all possible causes of slip-trip-fall.

(C) An adequate Planning & Implementing system is delivered: Suggested methodology can sustainably execute and manage the safety policy. The safety plan will be presented in all occasions of the industry and after a fix interval of weeks or months.

(D) Measuring Performance: The observation and feedback of planning and implementing steps will be collected at regular basis to judge the efficiency of the system it is an evaluation process. Implementation process monitoring and will control the quality of the safety system's outcome.

(E) Improved Management Review: Organizational working will be smoother and organization is working will be more efficient, decisions making and controlling the factors relating organization safety will be easy and faster.

(E) Safety Auditing:

1. Initial research will able to detect all about the ground level condition as MIS system is implemented so it will show even the latest changes and actual situations.
2. Opening meeting and walkthrough – A MIS based safety system will reduce the complexity of the meeting and it will become easy to detect the condition and preparation of the safety department.
3. Review of programs and records - Written programs, plans data will be available online which is easy to handle and show, also easy to understand. Such system will also assist an emergency action plan and a hazard communication plan with proper training.
4. Review findings - In the closing conference, the auditor should view the significant findings. "This doesn't mean that each individual item need to be gone over line by line but items that are going to result in significant time or costs or could be seen as systemic must be reviewed. A corporate attorney can review the report from a legal standpoint but the auditor should not allow anyone to significantly change or hide any findings.
5. Follow-up – by the online MIS safety system it will easy and faster and convenient to take and judge the follow-up of the improvements being running for safety management efficiency.

CONCLUSION

The current MIS consist of people who manually transform raw data into management reports and the proposed work support the electronic revolution in MIS. There is too much manual involvement required in the process of management reporting. The way they currently make management reports is extremely outdated, and you would not expect this from an organization. The current situation is mainly a description of what they do not have and actual solutions require perhaps more technical knowledge than I have. The proposed methodology suggest to make the information system in any industry more advance and efficient it will be more rapid responsive in any emergency situation. The flow of information will take place at the moment and employees will be always aware for the real time situation and updates. A well developed and setup MIS have only the ability to serve real time information, and exact information regarding any situation and problem help to take the correct and efficient decision.

In industries where nonstop works are going on in regular format the possibility of accidents also enhanced, but in industries accidents are controlled or finished through an affective work system and by the awareness of employees for nature of work and probable dangers. So in condition of any emergency or accident or controlling the occurrence of a major accident the well developed Management information system can play a very important roe. It can make the situation easy to handle, provide real time data and ability to handle the situation efficiently. .

In this research such a system is advice to develop in an industry, where every develops and maintains its own information and have access to real time information also capability to explore the information within seconds to all concerns of the matters, as and when required

The largest problems of current MIS, producing the reports and the fact that reports are static which limits management in in-depth and historical analysis should be automatic and easy to maintain, control and distribute. The main reason of any safety related loss is the gap in availability of management information in reference of time, which is mostly caused by the lack of automation.

It could be beneficial to identify success keys of safety system MIS system due to the fact that these success factors can play a role as the criterion to guide the successful safety policy implementation process.

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