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Machinery Maintenance as Part of Facility Management

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Abstract

In general, all organizations, whether public or private, use buildings, properties and services (support services) in order to support its core activities. By coordination of these assets and services; use of management skills and incorporation of various changes in environment; facility management (FM) affects its ability to act proactively and ensure all its requirements. The aim of FM is to strengthen (in terms of main production flow) boundary processes and systems, to allow workers (with their help) give better performance and contribute to overall success of business organization. Present article deals with economic evaluation of effective CAFM software implementation in manufacturing company. In first part shortly introduces the problematic of Facility Management. Then it analyses machinery maintenance as crucial part of FM in industry. Final part of the article summarizes pros and cons of FM utilization.

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1. Facility management

Facility management deals with synchronizing activities supporting main company activity by managing staff administration, auxiliary work activities and business environment - activities related to care of real estate, building and selected employee administration. According to IFMA association definition, FM is “Method, of organizations alignment of work environment, workers, and work activities. It incorporates principles of business administration, architecture, humanities, sciences and engineering” [2, 3, 6]. It is a broad field covering full range of specific activities from cleaning, security, safety to maintenance, inspection, repair planning, purchasing new equipment and construction activities. For this software support is widely used –where crucial role is played by information systems

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that provide comprehensive offer covering all areas of administration, operation of buildings, as well as various office applications, CAD tools and wide range of small, individual applications, especially for recording various services and activities - comprehensively described as CAFM - Computer Aided Facility management. “Facility management is integration of activities within the organization to ensure and develop agreed services which support and enhance the effectiveness of its primary activities.” [4]

Definition of IFMA association can be expressed in graphical form (see Figure 1). In this diagram, it is evident that facility management can be characterized by three areas that are interconnected.

- People area, i.e. HR and sociological aspects
- Processes area, i.e. performance and funding
- Place area, i.e. architecture and engineering.

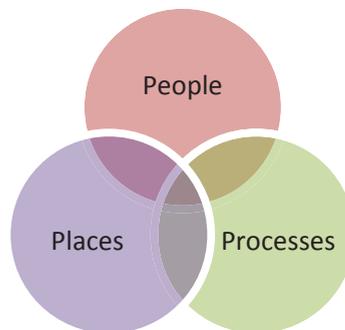


Fig. 1. 3P.

First two areas (people and processes) are the same in all fields of management, as management is common factor. It is a set of activities arranged for a group of people. For facility management is specific third area, designated as a “place” (or area). Facility management manages actions utilizing optimal space designed for in the building. It does not mean all activities, are connected with space, but activities that can increase the quality of space, and promote their optimum use. From above statements it is possible to define the basic objective of facility management: “The aim is to strengthen those organization processes by which work and workers by their best performance, ultimately contribute positively to economic growth and overall organizational success” [1].

2. Machinery maintenance as part of facility management

An important part of facility management, which is involved in full and professional support organizations' main activity is operating machinery maintenance. An environment that is an object of inquiry, is manufacturing part of mechanical company in Czech Republic. Means which are used for this purpose are monitoring, data collection, analysis and implementation of following measures. Their use is very important area. Only accurate and timely implementation, results implementation lead to improvement work and improving results not only maintenance of the machinery, but also improving the performance of the company. [5]

2.1. Data monitoring

Activities that can be carried out to detect weaknesses and provisions to streamline support activities must be based on real data, values and realism. The use of outdated and inaccurate data is not corresponding. The absence of a long-term perspective in developing expert analysis can result in a biased decision. This may affect Facility management both in short and long term. Monitoring data and their use is therefore one of the main and priority areas and activities. It has an undeniable influence on management, scheduling overheads and improving business

performance. Monitoring is nowadays mostly handled electronically, software, data is stored for subsequent analysis. Many companies have been developing these programs and then create their updates. Monitoring data, storing them and work with them at a much higher professional level. In many cases, it's not just about data usage solving current problem. These data information is processed and used in creation of various plans. It can be short-term plans, medium-term or long-term plans. Finally, this data is used to perform different analyzes of the past. The result is a quality of future plans with regard to errors and inaccuracies of the past. [5]

2.2. Maintenance strategy in manufacturing companies using IS (information system)

Successful suppliers of information systems for asset management and maintenance of machines provide its customers not only with their own information system, but also expertise and experience of its optimal use for purposes of a maintenance strategy. The correct definition of possibility of using an information system may also become an important motivating factor for enhancing attention to goals and strategies of maintenance in manufacturing companies.

Objectives and maintenance strategy

The goal of maintenance is derived from overarching goals of production company. Although the range of possible targets is fairly wide, they can be formulated as a dominant part of achieving desired output in efficient use of resources. Derived maintenance targets are then:

- achieving required availability and reliability of production equipment,
- effective use of maintenance resources.

For both objectives is need to set specific objectively measurable indicators and their target values. The choice of these indicators is an individual matter, and most common include OEE, MTTR, MTBF, reaction time, performance of terms, inventory parts, etc. of selected targets for whole maintenance can then deduce the sub-goals for department of electrical maintenance, mechanical maintenance, instrumentation , individual production centers, or specific personnel. Maintenance strategy sets out specific methods and procedures that we want to achieve planned goals maintenance. Among the chosen method typically includes TPM, RCM, or just their parts, such as a transfer of maintenance work on the machine operators, 5S, creation of clear policies and procedures for preventive maintenance, the introduction of diagnostic maintenance, optimization of warehouse of spare parts, training, maintenance workers, etc.

2.3. Energy management

It deals with power management to reduce energy consumption , reduce energy costs and reduce CO2 emissions .

Energy management is an imperative of our time. The costs associated with the supply of energy in office buildings can be relatively easily reduced by a fifth, without major investments . Disproportionately difficult can reduce specific energy consumption in the building and complex measures , which usually require some investment.

CAFM software, energy management is a simple tool for the evaluation and optimization of energy and spending decisions to eliminate unnecessary consumption and reducing consumption. Unlike alone spreadsheets or financial software , energy management helps users correlate consumption with changing environmental conditions to collect extensive data on costs and consumption in real time. Analyses performed upon collected data in correlation with the area provides prerequisites to obtain preferred bargaining position in negotiations with energy suppliers and achieve real savings , but also allow comparison and evaluation among buildings based on metrics used in energy sector.

Benefits:

- Reduce annual energy costs usually about 5 %.
- Provides audit function for easy access , aggregation and evaluation of consumption by negotiating better rates equivalent to consumption of the energy providers .
- Reduces business risk posed by changes in energy costs or regulatory measures carbon emissions through questioning "what happens if a " evaluation and analysis.

- Improves decision making standardization and distribution of consumption, use , allows you to compare and evaluate and easily directed efforts where they will bring the highest effect.

Energy costs represent average 13 % of total annual costs. Today's organizations are increasingly aims to reduce costs, energy consumption and emissions. It turns out that similar tasks are tables and accounting software suitable tool. Mapping the historical and current energy consumption , its division into individual components (heating , cooling , lighting , operation of each technology) in time, scenario modeling and remediation measures based on periodic changes and for comparison with normative standards and Facility indexes , it is possible in special programs collect all the data in one central repository. As written above , these programs help of analytical tools can reduce energy costs by 5 % . Return is usually less than one year [8] .

2.4. Preparedness for emergencies

Ensures continuity of business processes and disaster recovery . Natural or man-made disasters affect millions of people each year and cause chaos organizations and huge financial losses. CAFM software that includes this module to prepare for emergencies , respond effectively and quickly map out if they actually occur. It helps provide access to all necessary information on buildings , equipment and people so that we are respected safety procedures , protection of property and disruption to normal operation is minimized . The module can also serve as the primary tool to provide accurate information for those who are most in need during disasters .

Benefits:

- Responsible for management of such emergency measures that can potentially save lives , protect property and reduce insurance costs .
- Allows quick access to accurate information when making decisions saving lives and property
- Organizes information for the implementation of contingency plans and rapid recovery of normal circulation of the organization.
- Helps speed up the processing of claims and in negotiating favorable insurance conditions. [7]

2.5. Health and Safety

Comprehensive security management work serves to protect individuals against the dangers and health risks that may arise at work . The overall results may be very important for organizations . Modules dealing with this theme allows managers to quickly assign incidents in their place , a particular device , the participants of the incident and easily assign and schedule staff training. It provides a simple and clear records of medical examinations and their implementation dates . This module is an essential tool that helps to document evidence of compliance to internal standards and external regulatory requirements . This documentation can significantly minimize both spent working on compliance, as well as monetary costs of the organization of training and medical examinations .

Benefits:

- Provides proactive process of identifying, correctly assessing health and safety risks in the workplace
- Enables cost reduction due to injury , increase productivity, to reduce injury or illness in the workplace.
- Provides effective monitoring events and make correct and effective measures to protect health and safety in order to minimize the risk and responsibility of the organization.
- Reduces total cost of administration regarding health and safety at work.

Software that contains this module is designed especially for workers health and safety and facility managers and provides the desired and its documentation. It also allows to minimize health and safety risks employees and limit the liability of organizations for damages resulting from errors , omissions or accidents.

Serious breach of health and safety or incorrect categorization of work and the subsequent omission of mandatory reporting of local health station may result in very high fine although it may be caused unintentionally . Accurate records of work-related accidents , workplace categorization and subsequent export to a predetermined and required forms provided by state organizations provide reduced time demands on administration. The module also allows significantly minimize the frequency of fines from non-compliance with laws and regulations, accident and loss of productivity due to sick leave of employees . [10]

3. Conclusion

The ever increasing demands for environmental quality in buildings, as well as the quality of the surrounding external environment trigger the need for properly design buildings that would fit and meet the standard requirements for indoor environments. Facility management is a profession that involves multiple disciplines to ensure functionality of the built environment by integrating people, place, processes and technology. To control the quality of support processes is still current and comprehensive agenda key issues. Processes supporting activities are always built on the data about space, property, or may involve the various components and parts of objects. Now modern software easier, simplify and streamline management structures and help to maintain the standards of FM. The present article summarizes the use of FM in manufacturing companies. It shows the pros and cons of using it, focuses on maintenance part of FM. To sum up, use of FM helps modern manufacturing companies work more efficiently and better.

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