

Strategic Maintenance Management of Built Facilities in an Organisation

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Abstract—Maintenance management is no longer a stand-alone activity. It has now assumed a strategic position in many organisations that have recognised its importance in achieving primary goals and a key aspect of effective management of facilities. This paper aims at providing an understanding of the role and function of strategic management in creating and sustaining an effective maintenance management system in an organisation. The background provides an articulated concept and principles of strategic management. The theoretical concepts paved way for a conceptual framework for which strategic management can be integrated into the maintenance management system of an organisation to improve effectiveness in the maintenance of facilities.

Keywords—Facilities, maintenance management, organisations, strategic management.

I. INTRODUCTION

THE importance of facilities maintenance management to most organisations in today's highly industrialised world cannot be over emphasized. There has been a paradigm shift in the concept of maintenance over the years; from a reactive and pure technical support to facilities to an operational but very strategic function. Maintenance management for today's newly-built facilities requires strategic management skills which go beyond the capability of conventional maintenance works that identify a failure in a built facility or its part and then carries out repairs.

The design and construction of built facilities have changed over decades and are still changing. In addition, user requirements and occupancy ratio, in the case of public buildings, have also changed, and as a result, the conventional maintenance management strategies for built assets are no longer effective. Factors such as changes in technology, the lean production concept, and competition and sustainability issues have forced senior managers to recognise maintenance as a key management function.

According to [1], "Strategic management is a process that includes top management's analysis of the environment in which the organisation operates prior to formulating a strategy, as well as the plan for implementation and control of the strategy. Strategic management is in the domain of executive management of an organisation. Its main function in relation to maintenance management is the formulation of

maintenance policies that will guide maintenance managers in preparing programmes and choice of maintenance strategy [2]. In line with this, the modern maintenance approach integrates several management skills, of which strategic management is a key aspect. Strategic management skills are crucial in developing an effective maintenance management system that will align with the primary goal and vision of an organisation. Therefore, the integration of strategic management in the maintenance management process plays a major role in establishing a sustainable maintenance management system for built facilities. Principal managers in many organisations consider maintenance of their valued facilities and are changing from the conventional technical maintenance to a dynamic strategic maintenance management technique that will enable longer life of the facility, without compromising cost efficiency, safety of the users or environmental impact.

This paper argues that the conventional approach to facilities maintenance, especially in the built environment is no longer effective and efficient. Therefore, a strategic and systematic approach is crucial to align the objectives of facilities and maintenance units/departments in an organisation with the primary goal, vision and mission of the organisation. Maintenance management is in the domain of facilities management; a multi-disciplinary field within the built environment. Facilities management is described as a vector for change because the different disciplines must all operate within a strategic framework to enable integration of operational and tactical decisions for effective management of facilities in an organisation [3].

II. THEORETICAL CONCEPTS OF STRATEGIC MANAGEMENT

Strategic Management (SM) is a universally sought-after emerging skill because it contributes to coherence and direction of organisational affairs [4].

The perceptions of the term 'strategic management' includes:

- A game plan for business operations built on the theory of 'strategy science', that integrates both science and art in its development [4];
- An iterative process that uses a systems approach to identifying a need for change, make necessary changes and measures performance of all aspects in line with the vision of an organisation;
- A means of drawing the attention and focus of senior management to any unit or process that requires strategic direction [5];
- A process that frequently generates contests or debate over significant ideas and controversial opinions; creating

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disagreements and conflicts among decision makers. Strategic decisions are extremely sensitive tasks that can make or mar an organisation [6] because the decisions have major consequences on an enterprise [7].

III. PRINCIPLES OF STRATEGIC MANAGEMENT

Most strategists are executive managers because they have better orientation and understanding of the business goal and vision [6], [7]. Strategy formulation, implementation and evaluation are the main stages of the strategic management process [7]. These stages are discussed under the following sub-sections:

A. Strategy Formulation

A long-term plan is developed at this stage for the effective management of environmental opportunities and threats, in light of corporate strengths and weaknesses. It includes defining the corporate mission, specifying achievable objectives, developing strategies, and setting policy guidelines [8].

An effective strategic plan maintains consistency with core mission and goals of an organisation [1]. Formulating alternative strategies give managers comparative advantage of strategies for their business operations [7]. It is important to provide an operations programme and evaluate any strategic plan before implementation [1].

B. Strategy Implementation

The developed and evaluated strategic plans are executed at this stage. The implementation process involves carefully allocating roles and responsibilities among managers (typically through the design of the organisational structure), allocating resources, setting short-term objectives, and designing the organisation's control and reward systems [1], [9].

Strategy implementation includes developing a strategy-supportive culture, creating an effective organisational structure, redirecting marketing efforts, preparing budgets, developing and utilising information systems, and linking employee compensation to organisational performance [7].

C. Strategy Evaluation

At this stage, effectiveness of the strategy is evaluated to locate shortfalls of the plan for necessary adjustment or change where the desired results are not achieved [1].

Formulating alternative strategies give managers comparative advantage of strategies for operations [7].

IV. MAINTENANCE MANAGEMENT IN THE DOMAIN OF FACILITIES MANAGEMENT

The study of maintenance management necessitates an understanding the term "facilities management" as a discipline and how maintenance management relates to this discipline. Within the context of Built Environment and management of built assets, facilities management, the definition several authors have adapted is the definition given by British Institute of Facilities Management (BIFM), stating that the term 'Facilities management' integrates several processes within an

organisation to enable sustenance and further development of essential services that support and improve the effectiveness of the primary activities of the organisation. However, facilities management as a multidisciplinary function encompasses all functions that relate to asset management [2]. It is a key function in the management of resources, support services and the built and work environment, acting as a major support function for the core business of an organisation. It has a major impact on the success of the organisation, because it covers a wide range of services and management. It also deals with building performance issues; hence, performance management is a core function in the context of facilities management [2]. Facilities management is a major function that encompasses all property related functions and supporting activities, of which maintenance, performance and strategic management are three of the numerous functions [2], [3].

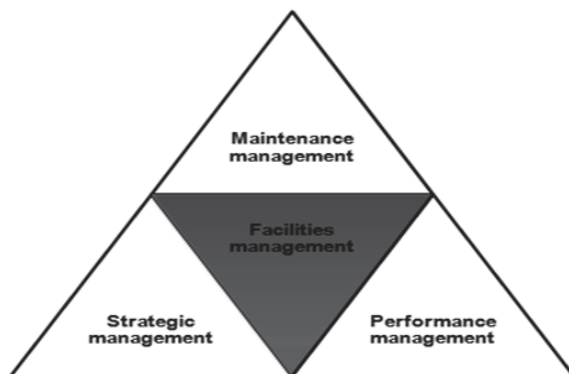


Fig. 1 Maintenance management in the context of facilities management

V. FACILITIES MAINTENANCE MANAGEMENT

Maintenance management of built facilities is a value-adding initiative in every organization [10] because, it impacts majorly on the reliability and safety of facilities which are necessary for productivity [11]. The maintenance management process consists of various tasks which defines its complex nature and as such, a framework is necessary to provide a scaffold for complex management process [12].

The traditional approach to maintenance of built facilities were mainly corrective and less preventive because the maintenance systems are more reactive, hence they are non-value adding undertakings in an organisation [10]. A proactive maintenance system adopts a variety of techniques to optimise the life of a facility and minimise rate of failure [13]. However, there is a growing realisation that there is a link between efficiency of maintenance management systems for built facilities and productivity across many industries. As a result, the perception of maintenance in many organisations is changing and top management are seeking more proactive maintenance approaches.

Management deals with strategic planning of maintenance strategies based on goals set by an organisation relative to maintenance objectives/standards. This function employs basic management principles (planning, controlling, co-ordinating and organising) to harness the various loose

maintenance components through sub-functions (such as developing programmes, communication, budgeting). This aspect is also concerned with achieving efficient allocation and utilisation of resources [14].

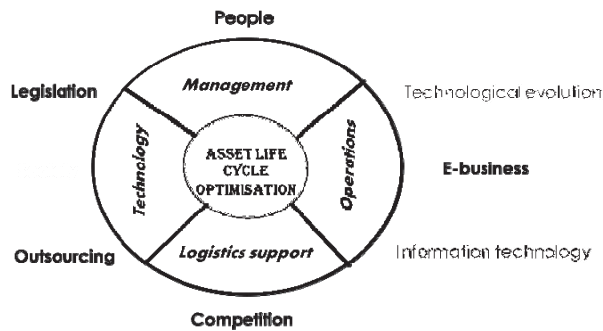


Fig. 2 Maintenance in context [16]

Maintenance management has evolved from a stand-alone technical function to a multi-functional process that involves key management units (strategic and performance managements) of an organisation [15].

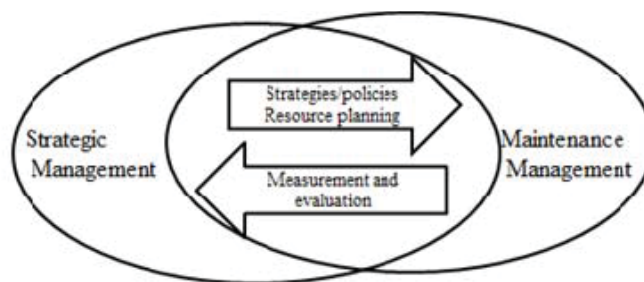


Fig. 3 Interrelationship of Strategic Management and Maintenance Management

Strategic management principles are adapted at various phases of the maintenance management process of built facilities. Formulating maintenance strategies is the first task of strategic maintenance managers, and this they do based on clear understanding of the primary goal of their organisation. There are various methods for strategic decision making such as, Environmental Complexity Analysis (ECA) and 'SWOT' (Strengths, Weaknesses, Opportunities and Threats). These are methods for studying both external and internal environment of an organisation to enable understanding of the behaviour of environmental factors and their impact on the facilities management process at any given time. Information generated from this exercise are analysed in the light of the prime goal of the organization, on which strategic decisions and plans are produced. Identification of the environmental factors (both internal and external) sets the parameters within which maintenance is to be managed; and their analysis provides a clear basis for forming maintenance objectives and consequently, the planning and control of maintenance.

The implementation of strategies is required to be closely supervised by the strategic planners to ensure proper implementation and monitoring of the process. Performance

Fig. 2 depicts the management framework within which the complex and dynamic activities of maintenance have to be co-ordinated and therefore an organisation needs to consider the environment in which it exists and its related strategic plans for the maintenance management of its facilities.

VI. STRATEGIC MANAGEMENT FUNCTIONS OF MAINTENANCE MANAGEMENT

Strategic management has a major influence on the maintenance management processes in an organisation because the maintenance objectives must align with the main objectives of the organisation [15]. The position of a maintenance department within an organisation is dependent on the strategic objectives of that organisation and the importance it attaches to the condition of its buildings [17].

Strategic management skills guide the formulation of maintenance policy, determine the strategic direction, enable realistic preparation of budget and other necessary resources for efficiency in the maintenance management process [18].

measurement and evaluation of post maintenance is important for assessing the effectiveness of maintenance strategies and identifying areas for improvement.

VII. CONCLUSION

Maintenance management of built facilities must be regarded as a strategic issue that requires strategic management's active involvement in developing maintenance strategies and plans to support moves towards a sustainable built environment.

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