

**PERFORMANCE MEASUREMENT AND BENCHMARKING
IN FACILITIES MANAGEMENT: A SURVEY OF NORTH
AMERICAN UNIVERSITIES**

A Thesis Submitted to the
College of Graduate Studies and Research
in Partial Fulfilment of the Requirements
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ABSTRACT

Traditionally facilities management (FM) performance has not been analyzed extensively by FM professionals, especially in educational institutions. Performance management mostly focused on quantitative financial and operational measures. However, given the increased emphasis on customer orientation and optimum utilization of scarce resources it has become necessary to have a balanced view of FM performance.

This study attempted to examine the performance indicators for FM operation in universities from Balanced Scorecard perspective. It collected data on the key performance indicators tracked by FM in North American (Canada and United States) universities. It also sought organizational issues that hindered benchmarking to other organizations.

A survey was administered via four modes—mail, fax, e-mail and the internet (on-line completion) to FM directors in 200 North American universities seeking information on perceived importance of various performance indicators, and their measurement and usage. A response rate of eighteen percent was attained.

The results indicated that although benchmarking and performance management is slowly gaining acceptance in universities there was an imbalance in the use of key performance indicators by FM professionals. Most of the indicators perceived important, measured, and/or used, were lag measures. Use of financial and operational indicators was also predominant. The study revealed that the association between measurement of performance indicators and their perceived importance was not always positive as anticipated. With respect to financial and customer perspectives there was a statistically significant negative correlation whereas for the other two perspectives the relationship was positive. The study also found no significant relationship between strategic development of FM departments and their drive towards CQI initiative. Relationship between strategy, and measurement and use of performance indicators were also unsubstantiated.

The results also indicated that the influence of the respondent universities' background on their FM performance could not be properly explained. In future studies, case analysis may be performed to examine the effect of this variable on FM performance. Furthermore, BSC assertion that strategy-driven organizations would have performance indicators in place to track the progress towards the goal—needs to be revisited as well.

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*Dedicated to the loving memory of my grandmother, Syeda Ashrafunnahar,
whose blessings has been with me all my life. It would have made
her proud to see me graduate. May her spirit live among us forever!*

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PERFORMANCE MEASUREMENT AND BENCHMARKING IN FACILITIES MANAGEMENT: A SURVEY OF NORTH AMERICAN UNIVERSITIES

CHAPTER 1

INTRODUCTION

1.1 Organizational Challenges and Solutions

In an increasingly competitive business world, organizations are constantly striving to identify ways to enhance the value that they provide to customers. Often, this translates into improved quality and service, and a lower price. In pursuit of the above objective of providing value to customers, organizations appear to focus on one or more of the following, as suggested by Boone *et al.* (1999):

- Emphasis on quality as a crucial business goal,
- Investments in technology that speed up business operations, reduce costs, and allow people with diverse skills to work together,
- The possibility of forming strategic alliances with other firms to create competitive advantages,
- The need to make effective use of people through teamwork, empowerment, and training,
- Balancing the performance expectations of different stakeholders,
- The growth of outsourcing—providing opportunities to both save money and venture into new businesses,

- Balancing short-term results against long-term capabilities and growth opportunities, and
- The need to maintain and improve performance on a continuous basis.

All areas within an organization are prone to these challenges; the facilities management (FM) function is no exception. The British Institute of Facilities Management defines facilities management as “the practice of coordinating the physical workplace with the people and work of an organization” (Atkin & Brooks, 2000, p.3). It refers to the continuous management of the workplace and operating environment of the organization at all levels with the purpose of providing user satisfaction and the attainment of the organization’s primary objectives. In a broad sense, the FM function includes property management, construction management and asset management, all related to the facilities/buildings of the organization. The facilities/buildings serve multiple purposes within the organization, thereby dictating that the FM function be carried out in close relationship with the organization and its core business (Svenson, 1998).

Operational spaces, in and around buildings provide a framework where work and other human activities take place. The costs related to the usage of buildings have come into focus during the last decade due to factors such as increasing pressure for cost-efficiency and a slump both in the economy and the facilities sector. The total cost of premises is often second only to the labour costs of various organizations. In order to improve the productivity and efficiency of the premises, organizations are taking a strategic approach towards managing the FM function, which is based on a holistic view of the organization and is increasingly expected to be more successful than the

traditional way of focusing on reducing running costs (Svenson, 1998).¹ Both the owners and the users of the facilities expect to have a more complete and compatible technical and functional output from their financial investments. Therefore, the FM function must be incorporated into the core business and be performed at a strategic level. Facilities managers need to broaden their focus from the purposes and requirements of the core business and work proactively to achieve maximum benefit from the corporate resources (Svenson, 1998).

1.2 FM Performance Management

FM entails cross-functional activity geared towards interpreting the needs of the core business. This infers a strategic role, which involves:

- Recognition of shareholder needs, corporate values, culture and creativity of people;
- The strategic management of resources and formulation of supply chain strategy;
- Development and communication of FM policy, standards and systems; and
- Planning and implementation of continuous improvement, including the management of strategic change.

FM aims not only to optimize the running costs of buildings, but also to raise the effectiveness of the management of space and related assets for people and processes so that the mission and goals of the organization may be achieved at the best combination of efficiency and cost (Spedding and Holmes, 1994).

¹ Running cost refers to cost of operation and regular maintenance.

The measurement of FM performance has three main components, namely, physical, functional and financial (Bernard Williams Associates, 1996). Physical performance relates to the behaviour of the building's fabric and embraces physical properties such as structural integrity, heating, lighting, energy efficiency, maintainability, and durability. Functional performance concerns the relationship of the building with its occupiers and includes issues such as space, layout, ergonomics, image, ambience, communications, health and safety, and flexibility. Finally, financial performance arises from the physical and functional performance of the building and comprises capital and recurrent (life-cycle) expenditures, depreciation, and efficiency of use. By far the greatest influence upon an organization's core objectives is the functional performance of its property, which can account for 80-90% of its total costs (Valins and Salter, 1996). This presents challenges in measuring performance because it is notoriously difficult to measure the impact of buildings upon the emotions, attitudes and behaviour of those who use them.

Sustaining a satisfactory performance level is essential for ensuring growth of the organization in the long run. To attain this objective, organizations continually seek ways to monitor performance vis-à-vis best practice in the areas of concern to them. Management has control over relatively few factors—for example, they do not control the economy, their customer, their competition, their suppliers, government regulations, and the stock market. The only things that management can change are the organizational processes that they control. In order to bring about sustained performance improvement within an organization, management seeks to change the organizational processes within the organization that impacts the desired results. It is therefore

extremely important to identify these key organizational processes. Strategy theorists also attest the importance of sustained, superior financial performance as a strategic imperative, and this goal can be achieved through a sustainable competitive advantage in the marketplace (Hunt, 1999). Although this is generally applied to businesses, it may be extended to other organizations as well.

To address the pressing issues of sustained performance imperative and resource constraint, organizations may resort to various solutions like Business Process Re-engineering, Benchmarking, Total Quality Management (TQM), and Competitor Analysis (Atkin & Brooks, 2000). Solutions such as the above are abundant; the challenge is to habitually seek and adopt them. Benchmarking within and outside one's industry allows organizations to get the information they need to set goals, and to find ways to achieve them. Identifying, analyzing, adapting, and sharing best practices allow organizations to do more than simply improve a particular business process (APQC, 1993); they promote the emergence and evolution of a "learning culture" throughout the enterprise.

Performance management in organizations can be viewed as a framework for developing and implementing performance measures, comparing those with best-in-class, suggesting means of improving performance and monitoring progress. As such, it combines aspects of both performance measurement and benchmarking. Figure 1-1 provides an outline of a typical performance management framework.

Performance measurement provides the basis for an organization to assess how well it is progressing towards its predetermined objectives, helps to identify areas of strengths and weaknesses, and decides on future initiatives, with the goal of improving

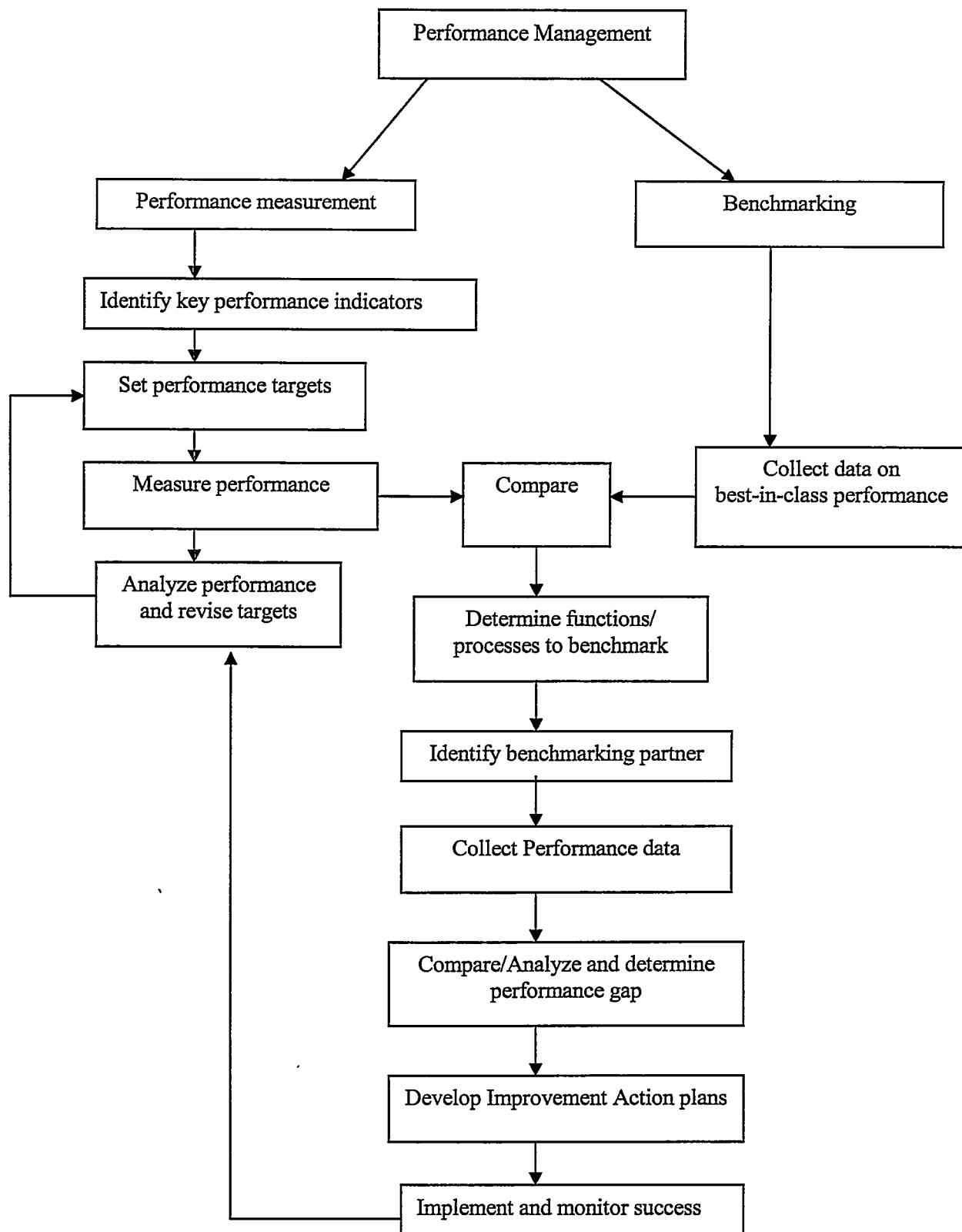


Figure 1-1: Performance Management Framework

organizational performance. Measurement is not an end in itself, but a tool for more effective management. Performance measures indicate what happened, not why it happened, or what to do about it. In order for an organization to make effective use of its performance measurement outcomes it must be able to make the transition from measurement to management. It must also be able to anticipate needed changes in the strategic direction of the organization and have a methodology in place for effecting strategic change. Benchmarking organizational performance would satisfy that need.

Benchmarking provides a framework for assessing how an organization's business practices compare with those of world-class organizations. These comparisons are likely to benefit an organization; the reasons behind the benchmark partner's superior performance may be analyzed and improvements implemented. Benchmarking information can be used in comparing products and processes, including performance in activities such as strategic planning and forecasting marketing trends, or for comparing internal operations.

Camp (1989) identified five important benefits of benchmarking, which are equally applicable to FM as to any other area of business:

- Meeting end-user requirements more closely,
- Establishing goals based on a concerted view of external conditions,
- Defining better measures of productivity,
- Improving the competitive position, and
- Increasing awareness of best practices in the industry.

Despite widespread use of benchmarking in the manufacturing sector, this tool has not been as well adopted in other areas, especially FM (Tarricone, 1998). In FM, it

is used more for performance measurement purposes than to address process related issues (Hinks, 1999).

1.3 Objectives and Focus of the Study

This study aims to address the following issues:

- Development of performance management systems for FM in universities,
- Identification of the key performance areas in FM for benchmarking purposes, and
- Identification of the organizational issues that make benchmarking performance management difficult in universities.

More specifically, this study attempts to answer the following research questions using a survey method:

RQ 1: What are the metrics or indicators tracked by facilities management divisions across North American universities?

1a. Is the adoption and use of these metrics tied to the facilities department's strategic development?

RQ 2: What organizational characteristics make it difficult to benchmark the facilities management function in North American universities?

2a. What causes the difference in the charge out rates among North American universities?

1.4 Motivation for the Study

Research in performance measurement of manufacturing and service industries has evolved in a scientific and rigorous fashion. However, the study of other areas, particularly in public services, has not evolved in a similar fashion. One of the problems facing these public service providers seeking to improve facilities management quality is that, as yet, a body of meaningful performance measures do not exist. Therefore, the need for effective benchmarking both within the specific sectors and against other sectors is of paramount importance. Still, benchmarking efforts have not flourished in the public sector for a number of reasons (Bogan and English, 1994):

- Financial restrictions in carrying out such a study,
- Fear of failure and wasting precious public money,
- Lack of constant pressure to improve,
- Absence of adequate quality initiative and data analysis processes to initiate a benchmarking study, and
- Lack of objective standards.

This study is motivated by a number of factors:

First, the researcher was inspired by the efforts of the University of Saskatchewan's Facilities Management Division (FMD) effort to introduce a performance management system aimed at improving its operation and ensuring greater customer satisfaction. Second, there is a lack of benchmarking data in service industries. Despite widespread use of benchmarking in manufacturing there have been few studies on benchmarking practices in the service sector, especially in universities (Tarricone,

1998; Bogan & English, 1994). Finally, there is a scarcity of comparative performance data in Canadian higher educational institutes (CHEMS, 1998).

1.5 Organization of the Thesis

Chapter 2 illustrates the concept of facilities management (FM) and describes its importance and presents the FM practice at the University of Saskatchewan. Next, Chapter 3 elaborates on the idea of performance management and benchmarking in FM in universities, and develops a benchmarking methodology to be used in FM. Then, Chapter 4 discusses the research methodology to be used for the study. Finally, Chapter 5 presents the results of the study, and Chapter 6 summarizes the conclusions and suggests avenues of further research.

CHAPTER 2

FACILITIES MANAGEMENT

2.0 Introduction

The previous chapter introduced the study. It briefly described the role of performance management in facilities management. It also provided the objective and motivation behind the study. This chapter explains the role of facilities management in an organization. It also outlines the performance management system at the facilities management division (FMD) of the university of Saskatchewan.

2.1 Defining Facilities Management

Facilities management (FM) exists to support the core business (Simpson 1996). There are a number of descriptions of FM (e.g. Mole & Taylor, 1992; Barrett, 1995; Atkin, 1997); however, there is no standard definition of the term. The British Institute of Facilities Management (as quoted in Amaratunga and Baldry, 2002, p.332) defines FM as “the practice of coordinating the physical workplace with the people and work of an organization.” Atkin and Brooks (2000, p.1) define FM as “an integrated approach to operating, maintaining, improving and adapting the buildings and infrastructure of an organization in order to create an environment that strongly supports the primary objectives of that organization.” Yet others view FM as:

The practice of co-ordinating the physical workplace with the people and the work of the organization, integrating the principles of administration, architecture, and the behavioural and engineering sciences (US Library of Congress, 1983 as quoted in Svenson, 1998, p. 8).

...responsible for co-ordinating all efforts related to planning, design and managing buildings and their systems, equipment and furniture to enhance the organization's ability to compete successfully in a rapid changing world (Becker, 1987, p.82).

The practice of FM is concerned with the delivery of the enabling workplace environment—the optimum functional space that supports the business processes and human resources (Then, 1999, as quoted in Tay & Ooi, 2001, p.358).

According to the above definitions, the aim of FM should be not just to optimize the running costs of buildings, but to raise the effectiveness of the management of space and related assets for people and processes so that the mission and goals of the organization may be achieved at the best combination of efficiency and cost (Spedding and Holmes, 1994).

2.2 Importance of FM

FM is responsible for co-ordinating all efforts related to planning, designing and managing buildings and their systems, equipment and furniture to enhance the organization's ability to compete successfully in a rapidly changing world. It is based on the premise that the efficiency of any organization is linked to the physical environment in which it operates and that the environment can be improved to increase its efficiency.

The relevance of FM to organizations in all sectors of the economy is now increasingly being recognized; it is continuing to grow in importance because of the flexibility it brings to organizations in a continually changing climate. In order to respond to changing operating environments, the range and scope of FM activities extends beyond merely providing technical solutions to problems that arise, to ensuring

that the facility's effectiveness is maximized and occupancy costs are minimized. Furthermore, FM decisions could have a significant impact on the financial performance of the organization that owns or uses the assets. This holds for universities as well. From a service delivery point of view, and from one of public accountability, the effective and efficient management and use of the property resource is imperative for all organizations in the public sector. Proliferation and diversity of technology, the adoption of flexible facilities, and greater emphasis on quality in the workplace are some of the forces driving the change.

Closer integration of facilities and a more appropriate focus on user and strategic needs brings important business advantages—a more cost-effective operation, and the avoidance of redundant and underused facilities—to provide a competitive edge.

Strategic benefits of Facilities Management include:

- Improved business focus,
- Access to world-class capabilities and technologies,
- Availability of capital funds,
- Acceleration of re-engineering efforts and benefits, and
- Infrastructure and operational risk reduction.

2.3 Facilities Management Strategies and Structures

The way in which facilities are controlled within organizations has changed considerably since the 1970s when most organizations had a direct labour force of engineers and technologists responsible for running and maintaining an organization's

premises and business support services (Bernard Williams Associates, 1996). By the mid-1980s most large public and private organizations had embraced outsourcing in an attempt to cut overhead and maintenance costs, address skills shortages and meet the increasingly specialist skills needed to respond to technological complexity. Initially, only non-engineering services such as cleaning and security were outsourced, while technical tasks such as physical building maintenance were retained in-house. However, during the 1990s outsourcing became more widespread in practice and scope to the extent that facilities management services were also often outsourced. This assisted the development of facilities management as a profession in its own right, performing the integrating role across an increasingly fragmented facilities organizational structure. While the outsourcing trend has produced many advantages, there are also many risks. For example, many organizations outsourced activities that were already performed cost effectively and found that service quality suffered. Others experienced cultural conflicts through the choice of inappropriate outsourcing partners. As a result of these problems, facilities managers have begun to search for techniques to effectively manage the disparate array of outsourced organizations which often do not understand the core business of the outsourcing company and may not have its interests in mind. Within this context, the concept of performance management has been embraced by facilities managers who increasingly use key performance indicators (KPIs) as benchmarks against which effectiveness is measured (Varcoe, 1996). However, there is a danger that these KPIs reflect the business needs of the servicing organizations rather than the strategic needs of the outsourcing organization whose business relies on those facilities. In other words, the performance of the outsourced organizations can become the focus

of attention rather than how this translates into the core performance of the customer. The irony is that the use of effective KPIs is even more important in this outsourced setting. Furthermore, the only meaningful performance measure of a facility is how it supports the activities taking place within it (Osland and Willis, 2000).

2.4 Strategic Integration of FM Function

For the FM function to be effective it is imperative that there is strategic integration within the organization. Just as every organization will have an end objective or goal, it is equally important that the FM function should have end objectives and goals germane to those of the organization. A lack of the strategic integration of the FM function within the host organization could result in contradictory organizational and facilities objectives and goals. For example, in the case of the Community Health Trust, the ultimate goal should be the effective delivery of community health services. Strategic alignment of the Health Trust's FM function will maximize the potential for effectively delivering the community health-care services through an inherent understanding on the part of the Health Trust's FM function of the core aims of the Trust. This may in turn lead to the effective application of a number of strategic and tactical FM techniques within the Trust.

Strategic appreciation and development of FM function are therefore the cornerstones of any FM strategy. Hinks and Hanson (1998, p.30) state that:

Ignorance of the strategic worth of FM represents a clear risk . . . it is not a simple issue to do with the direct costs of the built asset or other support resources . . . The greater business issue is how well the scope for business agility is provided by FM . . . if FM is to contribute more

strategically to the business decision-making process, it will be necessary for a clear FM process to be defined which supports the integration of business processes and FM processes. This takes FM into business dimensions beyond the conventional core competencies and into the management dynamics of business decision making ± the definition and analysis of problems, the strategic analysis of options, and the implementation and monitoring of the business facilities management process. To complement this, facilities managers must explore the world of business strategy so that they have a better understanding of corporate values and their relationship with FM . .

Hinks and Hanson (1998, p.31) further state:

FM as a whole needs to be strategic about its business future . . . facilities management has to establish its strategic distinctiveness by demonstrating its potential relevance to the overall business process.

This philosophy is as applicable to the facilities management function in universities as in other organizations.

2.5 Measuring the Performance of FM

The measurement of FM performance has three main components, namely, physical, functional and financial (Bernard Williams Associates, 1996). Physical performance relates to the behaviour of the building's fabric and embraces physical properties such as structural integrity, heating, lighting, energy efficiency, maintainability, and durability. Functional performance concerns the relationship of the building with its occupants and embraces issues such as space, layout, ergonomics, image, ambience, communications, and health, safety and flexibility. Finally, financial performance arises from the physical and functional performance of the building, and includes factors such as capital and recurrent (life-cycle) expenditures, depreciation and efficiency of use. By far the greatest influence upon an organization's core objectives is the functional performance of its property, which can account for 80-90% of its total

costs (Valins and Salter, 1996). This presents challenges in measuring performance because it is notoriously difficult to measure the impact of buildings upon the emotions, attitudes and behaviour of those who use them. Chapter 3 discusses performance management in greater detail.

2.6 Facilities Management at University of Saskatchewan (U of S)

FM's mandate at the U of S is to support the university's teaching and research mission through efficient and effective stewardship of all campus buildings, lands and utilities infrastructure. In fulfilling this mandate, the university's Facilities Management Division (FMD) provides planning, engineering, architecture, and operations and maintenance services to the university community, thereby ensuring a safe, clean and comfortable environment. Apart from performing its stewardship responsibility, FMD also provides services to the campus community on a fee-for-service basis. This makes it necessary for it to be operationally excellent in terms of client service, be market competitive for all services and to implement cost savings measures.

With respect to the scope of operations, FMD is responsible for the smooth operation of the following:

- 58 academic core buildings with 407,000 gross square metres of floor area (current replacement value \$1 billion),
- 766 hectares of campus area with 313 hectares serviced academic core,
- 24 km roads and walks,
- 54 km water and sewer lines,