

EurOMA

European Operations Management Association

13TH INTERNATIONAL CONFERENCE

MOVING UP THE VALUE CHAIN

A taxonomy of the outsourced services industry:  
towards a definition  
of facility management

De Toni A. F. (University of Udine)  
Fornasier A. (University of Udine)  
Nonino F. (University of Udine)

28th April-1st May 2006  
University of Strathclyde  
Heriot Watt University  
University of Glasgow, Glasgow (UK)

# A TAXONOMY OF THE OUTSOURCED SERVICES INDUSTRY: TOWARDS A DEFINITION OF FACILITY MANAGEMENT

Alberto Felice De Toni<sup>\*</sup>, Andrea Fornasier<sup>#</sup> and Fabio Nonino<sup>+</sup>

*Management Engineering Laboratory, University of Udine  
via delle scienze, 208, 33100 Udine (UD), Italy*

*\*Email: detoni@uniud.it - Tel. +39 0432 558330*

*#Email: andrea.fornasier@uniud.it - Tel. +39 0432 558330*

*+Email: fabiononino@uniud.it - Tel. +39 0432 558273*

## ABSTRACT

The paper presents a comprehensive taxonomy for the Facility Management (FM) service sector and a definition of Facility Management to enable a comparison among the different outsourced service companies. The existing taxonomies within the literature available were inadequate for strategic research purposes. The proposed framework provides a correct and complete positioning of the different outsourced services. Furthermore, the authors propose an evolution of the managerial approach for the FM companies, the Open Facility Management. This approach comes from a research conducted in the Italian FM industry and suggests the service operation management as a conceptual and practical framework.

**Keywords:** Taxonomy, Facility Management, Outsourcing services.

## INTRODUCTION

The Facility Management (FM) was born in the United States in the 1970s in the business sector of outsourced services. The objective was to answer to companies' demand to have a qualified and specialized single-handed point of reference able to optimize all the activities concerning the management of auxiliary internal services which support the business organization. Starting from an evolution of single service outsourcing, FM has developed with the aim of integrating and coordinating more than one service and achieving cost-efficiency for the customer.

The aim of the research is to give to the FM a greater theoretical coherence. The paper starts from a literature review in order to provide a clear definition of the term "Facility Management". Subsequently, a comprehensive taxonomy of the outsourced services industry is proposed with the aim to offer a correct and a complete positioning of the companies. Finally, the present work considers the service operation management as a theoretical framework containing concepts and techniques that can enhance the efficiency and the efficacy of the FM activities in the service sector.

## A LITERATURE OVERVIEW OF FACILITY MANAGEMENT

Facility Management is frequently considered synonymous of outsourcing. This misunderstanding is due to the association of Facility Management to activities granted to external providers (Lindberg *et al.*, 2002). The change occurred throughout time in the interdisciplinary nature of FM (Nutt, 1999; Green e Price, 2000; Nutt e McLennan, 2000) and the main activities related to it, engender several misunderstandings of FM definition. The continuous and rapid evolution of the FM boundaries has generated a "language chaos" in the meaning of FM. Indeed, the most important international FM associations - like the International Facility Management Association (IFMA), the British Institute of Facility Management (BIFM), the Chartered Institute of Building (CIOB), the Center for Facility Management (CFM) and the Building Owners & Managers Institute International (BOMI) - have coined several and different definitions of the term Facility Management.

A possible approach to come to a definition of Facility Management is the etymological analysis. For instance, Mazzarotto and Traverso (2003) analyze the etymologic meaning of the following two words, in order to exactly understand the meaning of this term:

- facility:
  - ✓ *a place or building used for a particular activity or industry, or for providing a particular type of services;*
  - ✓ *part of a system that implements management objectives for both its internal integration issues and external survival issues. Facilities factors include products, activities and the system that implements them (Normann, 1991);*
  - ✓ *a physical structure or installation, including related site works, serving one or more main purposes.*
- management:
  - ✓ *the act or skill of directing and organising the work of a company or organisation.*

However, the etymologic analysis is not enough to understand the intrinsic meaning of the FM definition because concepts such as integration and coordination of the service are not acquired by analyzing the two terms separately. Moreover, international FM literature provides valid definitions from a general point of view but they are contradictory and questionable when they try to specify the activities and the contents.

It is possible to state that the main definition of FM is the one proposed by Cotts and Lee (1992) and promoted by the International Facility Management Association (IFMA):

*“Facility Management is the practice of coordinating the physical workplace with the people and work of the organisation; it integrates principles of business administration, architecture and the behavioural and engineering sciences”*

In this definition, the concept of service integration emerges. Indeed, the know-how of a FM enterprise is the ability to integrate the services with features, technological contents and organizational modules that differ for each customer. Regtrschot (1988) affirms that the integrated management of buildings, services and resources consists of planning and monitoring the operations in order to support the customer strategy. In this sense, FM becomes responsible for the coordination of the efforts in planning and managing the buildings and their plants, the systems and the furnishings in order to support the customer in the ever changing competitive environment (Becker, 1990). In their definition of FM, Barret (1996) and the *German Facility Management Association (GEFMA)* claim that the function must be achieved through the maintenance and the adaptation of buildings, the improvement of flexibility and the productivity of the customer work.

The definitions proposed below do not stress the important concept of no-core business services. For instance, Curcio (2003) defines Facility Management as:

*“The integrated management of all no-core business services (for buildings, space and persons) in order to run and maintain the real estate.”*

He introduces the focus on no-core customer activities; the term no-core refers to all the complementary activities needed for the realization of an organization core business. In particular, the core business is the set of activities necessary to achieve the mission of the firm. On the other hand, the no-core activities have a marginal role in attaining the enterprise objective but are necessary for the firm running. Among the no core activities, it is possible to include a wide range of services, on the basis of the customer requirements. This set of activities is frequently divided into three groups of services (Salaris, 2002):

- buildings;
- physical space;
- people.

Facility Management can be considered as the function that coordinates the physical resources and the work space, provides supporting services to the people and the processes necessary for the organization core business (Chotipanich, 2004). The management and the coordination of the no-core

services is addressed not only to the buildings, but also to the systems, the informative tools and the office equipment necessary for the organization to achieve its strategic objectives. (Owen, 1994)

Therefore, the management of the activities supporting the customer core business is relevant to the FM; indeed, there are several authors that support this theory (Kincaid, 1994; Klee, 1994; Alexander, 1996; Van Krimpen, 1997; Maas e Pleunis, 2001). From the analysis conducted so far, the definition of FM proposed by Chris (2003) correctly resumes the idea of integration and management of the no-core business of the customer:

*“FM is an activity that encompasses several subjects with the aim of granting functionality to the environment through the integration of people, physical space, processes and technologies of the customer”.*

Although all definitions found in the literature available suggest valid concepts, we believe that none of them is complete. As a matter of fact, the different authors mentioned conducted distinct studies and have their personal entrepreneurial experience; this affects the way they look at the FM, as they focus on the topics they are interested in. Therefore, they risk missing other important and qualifying aspects. For this reason the definitions of FM seem very different at first sight, but at a closer look they appear to have some common features. For instance, Grimshaw (2003) suggests to separate the concepts in the following functions:

1. Technical, it is concerned with maintaining the practical utility of the physical infrastructure to ensure that it supports the core activity of an organisation (operational maintenance);
2. Economic, it guarantees the efficient use of physical resources by controlling cost (financial control);
3. Strategic, it is concerned with the planning of physical resources to support organizational development and reduce the risk for the client (change management);
4. Social, it is concerned with the physical infrastructure which must meet the user needs within their organizational roles (user interfacing);
5. Service, it is concerned with the provision of non-core support services (support service);
6. Professional, it indicates social responsibility for people in the workplace (advocacy).

The aim of coming to the main issues in the literature on the FM led the authors to conduct some research on the most important definitions from which the most used keywords are to be selected. The results are shown in Table 1 and are distinguished by authors and organizations. The keywords, instead, are clustered as follows:

- ✓ Identification terms, distinctive headwords that characterize the FM;
- ✓ Distinctive activities (service provider), actions undertaken during the services provision
- ✓ Object of the service provision (customer), features of the customer that affect the service provider

While analyzing the table, a discrepancy arises among the authors and the organizations about the underpinning topics of the FM. However, the management activity is common to the majority of the definitions found in the literature and the keyword “no-core activity” is also frequently used. By summarizing and integrating the definitions given, the authors present a new definition of FM that encompasses all the main concepts pointed out by the experts and the organizations working on FM:

*“Facility Management is a multidisciplinary approach for designing, planning and managing in an integrated and coordinated way all non-core support services necessary for an effective and efficient execution of the company’s core activities”*

Starting from this analysis, the necessity has arisen to define a taxonomy of FM services that will be proposed in the next paragraph through a framework able to classify the service providers.

Table 1 - Keywords in the Facility Management definition

|              |   | Facility Management         |            |          |                    |   |            |          |           |             |                |                             |  |                |          |        |                     |   |
|--------------|---|-----------------------------|------------|----------|--------------------|---|------------|----------|-----------|-------------|----------------|-----------------------------|--|----------------|----------|--------|---------------------|---|
|              |   | Identification terms        |            |          |                    | Distinctive activities (service provider) |            |          |           |             |                |                             | Object of the service provision (customer) |                |          |        |                     |   |
|              |   | practice / profession / art | discipline | function | process / approach | coordination                              | management | planning | supplying | integration | cost reduction | maintenance and improvement | strategic support                          | physical space | building | people | non-core activities |   |
| Authors      | Akhlaghi F., (1994)                           |                             | ✓          |          |                    |   | ✓          |          |           |             |                |                             |  | ✓              |          | ✓      |                     |   |
|              | Alexander K., (1996)                          |                             |            |          | ✓                  |   |            |          | ✓         |             | ✓              |                             | ✓  |                |          |        | ✓                   |   |
|              | Barret B., (1996)                             |                             |            |          | ✓                  |   |            |          |           | ✓           |                | ✓                           | ✓  |                |          |        |                     |   |
|              | Becker F., (1990)                             |                             |            |          |                    | ✓   | ✓          | ✓        |           |             |                | ✓                           |  |                |          |        |                     |   |
|              | Chotipanich S., (2004)                        |                             |            | ✓        |                    | ✓   |            |          |           |             |                |                             |  | ✓              |          | ✓      | ✓                   |   |
|              | Cotts D. e Lee M., (1992)                     | ✓                           |            |          |                    | ✓   |            |          |           |             |                |                             |  | ✓              |          | ✓      |                     |   |
|              | Curcio S., (2003)                             |                             |            |          |                    |   | ✓          |          |           | ✓           |                |                             |  | ✓              | ✓        | ✓      | ✓                   |   |
|              | Grimshaw R. W., (2003)                        |                             |            | ✓        |                    |   |            | ✓        |           |             |                | ✓                           | ✓  | ✓              | ✓        | ✓      | ✓                   |   |
|              | Kincaid D., (1994)                            |                             |            |          |                    |   |            |          |           |             |                |                             |  |                |          |        |                     | ✓ |
|              | Klee H. L., (1994)                            |                             |            |          |                    |   | ✓          |          | ✓         |             | ✓              |                             |  | ✓              |          |        |                     | ✓ |
|              | Laird S., (1994)                              |                             |            |          |                    |   |            |          |           |             |                |                             |  | ✓              |          | ✓      |                     |   |
|              | Maas G. W. A. e Pleunis J. W., (2001)         |                             | ✓          |          |                    |   | ✓          |          |           |             |                | ✓                           |  |                |          |        |                     | ✓ |
|              | Nutt B. e McLennan P., (2000)                 |                             |            |          |                    |   | ✓          | ✓        |           |             |                |                             |  | ✓              | ✓        | ✓      | ✓                   | ✓ |
|              | Owen D., (1994)                               |                             |            |          |                    | ✓   | ✓          |          |           |             |                |                             |  | ✓              | ✓        | ✓      | ✓                   | ✓ |
|              | Regterschot J., (1988)                        |                             |            |          |                    |   | ✓          | ✓        |           | ✓           |                |                             |  | ✓              | ✓        | ✓      |                     |   |
|              | Salaris A., (2002)                            | ✓                           |            |          |                    |   | ✓          |          |           |             | ✓              | ✓                           | ✓  | ✓              | ✓        | ✓      | ✓                   | ✓ |
|              | Thomson T., (1991)                            |                             |            |          |                    |   | ✓          | ✓        |           |             |                | ✓                           |  |                | ✓        |        |                     |   |
|              | Van Krimpen, J., (1997)                       |                             |            |          |                    |   |            |          | ✓         |             |                |                             |  |                |          |        |                     | ✓ |
| Associations | De Britse Association for Facilities Managers |                             |            |          |                    |   | ✓          | ✓        |           |             | ✓              |                             |  |                | ✓        | ✓      |                     |   |
|              | European facility management network          |                             |            |          |                    | ✓   |            |          | ✓         |             |                |                             |  |                | ✓        |        |                     |   |
|              | German Facility Management Association        |                             |            |          | ✓                  |   |            | ✓        |           | ✓           |                | ✓                           |  |                | ✓        |        |                     |   |
|              | International Facility Management Association |                             | ✓          |          |                    | ✓   |            |          |           |             | ✓              |                             |  | ✓              |          | ✓      |                     |   |
|              | RICS FM Skills Panel                          |                             |            |          |                    |   | ✓          |          |           |             |                |                             |  |                | ✓        |        | ✓                   |   |

**TAXONOMY OF OUTSOURCED SERVICES**

The analysis of the literature and of the Italian FM sector has allowed us to define a comprehensive taxonomy necessary to position service provider companies. In this section, two frameworks will be presented. The first one aims at classifying the service providers on the basis of two major dimensions: level of integration in the service provided and outsourced service typology. The latter focuses on the level of integration and the contractual responsibility with the aim of highlighting the evolution in the management approach in the business sector of the FM.

The first framework proposed (Table 2) is realized on the basis of two major dimensions: level of integration and outsourced service typology.

Level of integration

The integration indicates the approach adopted to manage the services provided. It is possible to identify:

- ✓ *outsourced services not integrated*: a single service or several services are managed by the service company without coordination and integration;
- ✓ *integration among outsourced services*: the services are managed in a coordinated and integrated manner by using principles of service management.

Outsourced service typology

The outsourced services (non-core services) could be grouped in the following homogeneous categories:

- ✓ *Auxiliary services*, which could be addressed to:

- *building*: building maintenance, cleaning, industrial waste disposal, gardening, etc;
  - *physical space*: space allocation, utilization and relocation, space configuration and reconfiguration, space use audit and monitoring and in particular support services for office activities, manage of archives, offices layout, office equipment, etc;
  - *people*: reception, restoration, courier service, post and mail distribution, business hospitality, etc;
- ✓ *Technical services* support the production and service processes which are the non-core activities directly or indirectly oriented to the customer as industrial maintenance, system maintenance (like heating, electric), repair and operations, industrial transportation, technical assistance, office equipments maintenance, etc.
  - ✓ *Utility services* cross the business units' boundaries and are finalized to the management of the utilities like water, electricity, telecommunications, gas, etc.
  - ✓ *Application services* maintain, enhance and manage all the information systems and application software, for example– Application Service Provider, licences, etc.
  - ✓ *Financial services* which are all the services linked to financial flows like budget allocation, cost accounting, financial forecasting, contract payments, taxes, etc.
  - ✓ *Real estate services* are the services linked to the management of the real estate with the aim of maximizing the portfolio value through purchase, selling operations valorisation. Moreover, we consider the management of the locations, people and assets associated with the customers' portfolio.

Table 2 - Classification of services providers

|                      |                                       | OUTSOURCED SERVICE TYPOLOGY           |                |        |  |                           |                               |                             |  |
|----------------------|---------------------------------------|---------------------------------------|----------------|--------|--|---------------------------|-------------------------------|-----------------------------|--|
|                      |                                       | AUXILIARY                             |                |        | TECHNICAL                                      | UTILITY                   | APPLICATION                   | FINANCIAL                   | REAL ESTATE                            |
|                      |                                       | BUILDING                              | PHYSICAL SPACE | PEOPLE |  |                           |                               |                             |  |
| LEVEL OF INTEGRATION | OUTSOURCED SERVICES NOT INTEGRATED    | <b>AUXILIARY SERVICES MANAGEMENT</b>  |                |        | <b>OPERATIONS &amp; MAINTENANCE MANAGEMENT</b> | <b>UTILITY MANAGEMENT</b> | <b>APPLICATION MANAGEMENT</b> | <b>FINANCIAL MANAGEMENT</b> | <b>ASSET &amp; PROPERTY MANAGEMENT</b> |
|                      | INTEGRATION AMONG OUTSOURCED SERVICES | <b>FACILITY MANAGEMENT</b>            |                |        |  |                           |                               |                             |  |
|                      |                                       | <b>FACILITY MANAGEMENT (EXTENDED)</b> |                |        |  |                           |                               |                             |  |

The literature supports the structure of the proposed taxonomy. Finally, from this analysis several definitions are proposed; they are used to describe the service companies operating in the FM service industry:

- “*Outsourcing service companies*” provide all non-core support services through a building management, space management, move management, contract management, plant management, utility management, financial management, property management, asset management.
- “*Facility Management companies*” provide all the auxiliary and technical services in an integrated and coordinated way; the service provider is able to satisfy several and different needs of the firm.

- “Total Facility Management companies” provide all the business support services in an integrated and coordinated way. In addition to the typical services of facility management, this kind of companies provides also the utility, application, financial and real estate services (facility management extended).

This framework allows a company positioning which provides services in outsourcing and highlights the company strategy of benchmarking the services provided with the competitors.

FM often uses long term contracts which are not able to follow the dynamics of the customer need and the general evolution of the organizational and technological solutions. Starting from this consideration, there is the need to introduce a new management approach able to better satisfy the customer requirements. The second framework (Figure 1) allows to classify the management approach in the FM by focusing on the relations between the actors involved and to propose an evolution of the FM which we call Open Facility Management. This framework is based on the contractual responsibility and the level of integration with a new stage: integration among service providers and customers. This type of integration requires the service providers and the customer to find an agreement on the service level and to move towards a partnership. The contractual responsibility refers to the object on which the customer controls the service execution:

- ✓ *Control on the processes*: traditionally, the contract indicates the modality for execution of the services.
- ✓ *Control on the results*: a so-called Global Service (GS) contract indicates the responsibility to reach the objectives in terms of pre-established performance levels.
- ✓ *Control of the results with Service Level Agreement (SLA)*: the GS contract could be integrated with an appendix containing the SLA. The SLA is a formal written agreement between service provider and the customer containing the target level of service; it could be modified periodically.

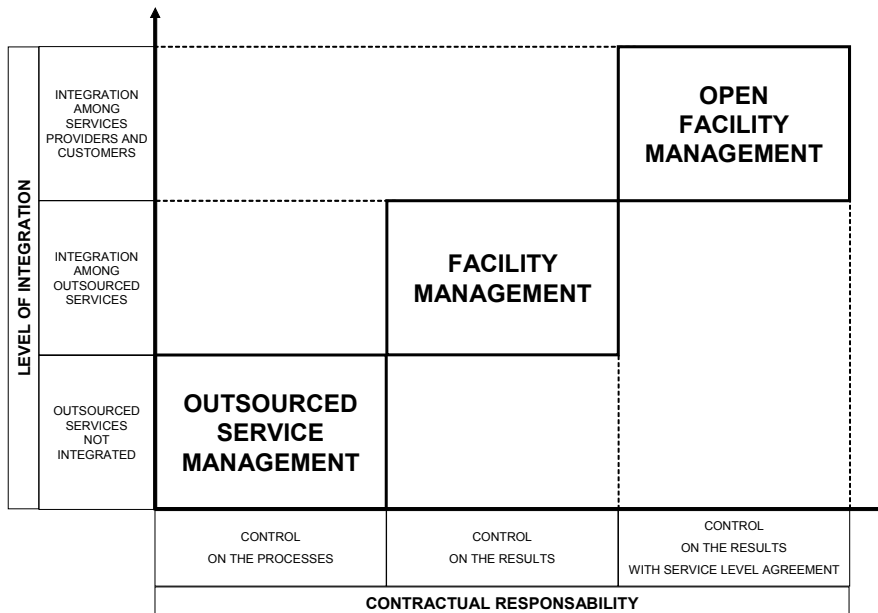


Figure 1 - Management approaches in the Facility Management

## THE EVOLUTION OF FACILITY MANAGEMENT

Many authors (e.g. McLennan, 2004) state that there is a lack of theoretical management framework in the FM sector. Essentially, the FM service sector remains a discipline for practitioners and there is a lack in the use of service operation management practices. Furthermore, FM requires knowledge, concepts and

techniques which allow a coordinated and integrated management of all services coming from traditional operations management discipline.

Up to date, the Facility Management has not a service operational management approach but it builds on the solid practitioners' experience. To improve the efficiency and the effectiveness of FM, we suggest a model able to enhance the performance processes and reduce the gap between facility management and service operations management. We named this approach Open Facility Management. This new approach is to solve several intrinsic criticalities of the FM:

- ✓ change in the customers' needs;
- ✓ change in the service providers' needs;
- ✓ higher service level required;
- ✓ evolution of the technological solutions;
- ✓ evolution of the organizational theories and management practices.

In order to overcome the criticalities, a service operation management suggests an analysis of the processes, a design of the service model and a measurement of the level of service provided in order to have a feedback with the aim of enhancing the company performance. Another fundamental issue in service management is the understanding of the customers' real needs. If we focus on the juridical area of the contract, it is possible to affirm that the characteristics of a typical contract are static; otherwise, the elements introduced previously are dynamic. The new contract forms allow a sort of "partnership" among the service provider and his customer to meet the needs of both and envisages a measurement system to monitor the quality of the service.

The Open Facility Management can solve the criticalities described above with the introduction of three instruments coming from three areas (Figure 2):

1. Juridical area: the flexible contract (within SLA);
2. Management area: the shared Performance Measurement System (PMS);
3. Organizational area: the partnership table

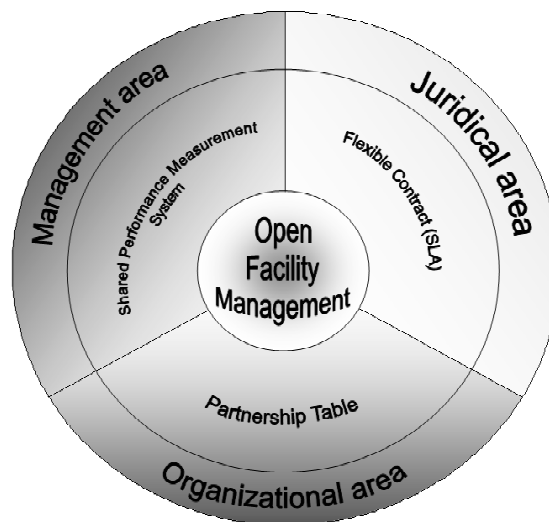


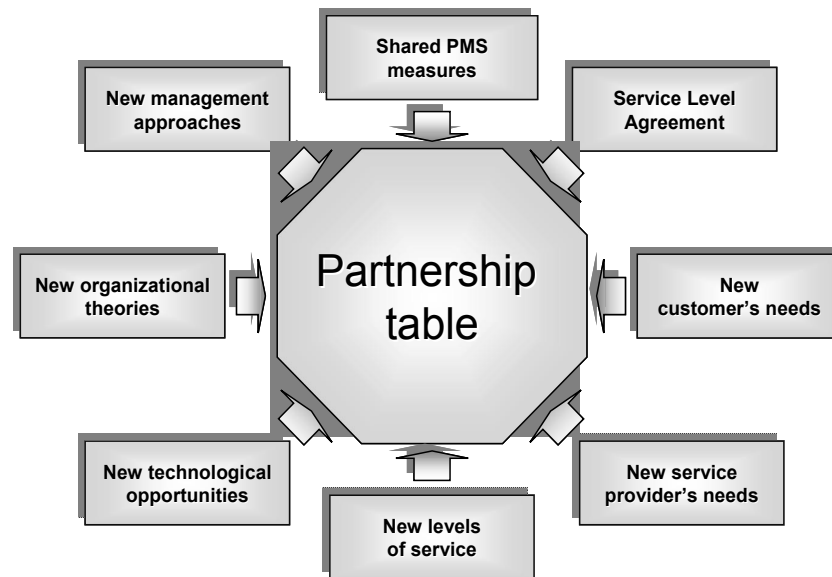
Figure 2 - The instruments and areas of Open Facility Management

1. Flexible contract with SLA. As described above, this type of contract contains the target level of service which could be modified periodically. The flexible contract will allow to change the contractual elements with the aim of meeting and aligning the needs of the Facility Management company and customer. The SLA defines the service parameters and the quality of services through



Key Performance Indicators (KPI) jointly decided by the actors involved in the contract. A PMS is necessary in order to obtain a valid reporting system to understand the level of service provided. Moreover, it needs a periodical revision during meetings with all the parties, according to the new service requirements.

2. Shared Performance Measurement System (De Toni *et al.*, 2006). The PMS provide shared data between the actors involved in the contract with the aim of measuring the efficacy and the effectiveness of the contract. The PMS has been mainly used to monitor the internal processes of a firm. The introduction of some shared measurements will permit to improve the performance of the FM processes. The shared PMS will guarantee a decision making process in the SLA through sharing data. Moreover, it allows information to circulate around the partnership table about the key processes; it monitors the performance progress and finally compares the results with the targets defined in the contract.
3. Partnership table. This organizational instrument aims at solving all the typical criticalities of a FM contract, evaluating the progress of the activities and planning the future ones and finally redefining the KPI of the SLA. The partnership table is made up of the customer delegates, the facility management company and sometimes by other professionals, technicians, academics and consultants. They include universities, research centres, laboratories, suppliers, communities of practice, communities of interest, trade associations and consulting societies. The meeting is arranged by the parties. This instrument aims at improving the quality of the supplier-customer relationship, thus attaining a partnership which is profitable for both of them.



*Figure 3 – Source of Information in the partnership table*

Thanks to these juridical, organizational and managerial instruments, the facility management becomes open; it is the so-called Open Facility Management. This model is open to change in the customer's needs and the service providers' needs, which are shared around the partnership table. Moreover, it is open to possible change of the terms of contract using the Service Level Agreement. Finally, it is open to new organizational theories and management practices and technological solutions, thanks to the involvement of external expertise that can suggest how follows the dynamics of the outsourced services business environment.

## CONCLUSIONS

The research presented in this paper constitutes a first step in the analysis of FM industry at the strategic and operational level, which aims at closing a gap towards the service operation management. The integration and coordination approach used in the FM allows to achieve cost-efficiency for service providers and customer. The literature overview allows to have a deep understanding of the FM term, while the classification of service providers allows to define the boundaries of the FM industry. Starting from this analysis, the authors proposed a new approach to FM, the Open Facility Management. The long duration of the FM contracts, the need for change and the evolution of technologies and of the service operation management make it necessary for the FM approach to evolve. The Open Facility Management aims at providing effective operational instruments in different areas of FM, in order to shorten the distance among service provider and customer. The advantages of this model are a better control, a clear and complete vision and an enhanced quality of the service processes with an adaptation to the real needs of the customer towards a continuous improvement of the performances in terms of level of service provided and perceived.

## REFERENCES

- Akhlaghi, F., (1994), *History and development of facilities management from the Definitive document of the postgraduate programme in facilities management*, Sheffield Hallam University.
- Alexander, K., (1996), *Facilities management: theory and practice*, E & FN Spon, New York.
- Barret, B., (1996), *Facilities management: towards best practice*, Blackwell Science Ltd., Oxford.
- Becker, F., (1990), *The total workplace*, Van Nostrand Reinhold, New York.
- Chotipanich, S., (2004), "Positioning facility management", *Facilities*, Vol. 22, No.13/14, pp. 364-372.
- Cotts, D. and Lee, M., (1992), *The facility management handbook*, American Management Association, New York.
- Curcio, S., (2003), *Lessico del facility management*, Il Sole 24 Ore, Milan, Italy.
- De Toni, A.F., Fornasier, A., Montagner, M. and Nonino, F., (2006) "A Performance Measurement System for Facility Management: the case study of a medical service authority" *Proceedings of the 13<sup>th</sup> EUROMA Conference*, Glasgow, UK.
- Green, A. and Price, I., (2000), "Wither FM? A Delphi study of the profession and the industry", *Facilities*, Vol.18, No.7/8, pp. 281-292.
- Grimshaw, R. W., (2003), "FM: the professional interface", *Facilities*, Vol.21, No.3/4, pp. 50-57.
- Kincaid, D., (1994), "Integrated facility management", *Facilities*, Vol.12, No.8, pp. 20-23.
- Klee, H.L., (1994), "Facility management basiswiel", in De Jong B., *Handboek facility management*, Arko Ltd., Nieuwegein, Holland.
- Laird, S., (1994), "Total facilities management", *Facilities*, Vol.12, No13, pp. 25-26.
- Lindberg, P., Pettersson, K. and Svensson, S., (2002), "Support service in facilities management", Master Thesis, Chalmers University of Technology, Department of Service Management, Sweden.
- Maas, G.W.A. and Pleunis, J.W., (2001), *Facility management*, Kluwer, Holland.
- Mazzarotto, M. and Traverso, E., (2003), "Il facility management", in De Toma F. (Ed.), *Facility management e global service: opportunità e prospettive per l'innovazione dell'impresa sociale e marginale*, Franco Angeli, Milan, Italy.
- Normann, R., (1991), *Service management, strategy and leadership in service management*, John Wiley and Sons, Chichester, UK.
- Nutt, B.L., (1999), "Linking FM practice and research", *Facilities*, Vol.17, No.1/2, pp. 11-17.
- Nutt, B.L. and McLennan, P., (2000), *Facility management: risks & opportunities*, Blackwell Science, Oxford (UK).
- Owen, D., (1994), "Contracting out in a facilities management context", Master Thesis, University di Salford, Salford (UK).

Regterschot, J., (1988), *Facility management: het professioneel besturen van de kantoorhuisvesting*, Kluwer Bedrijfswetenschappen, Deventer (Holland).

Salaris A., (2002), "Le opportunità del facility management", *I Quaderni Edilforma*, No.2, Rome, Italy.

Thomson, T., (1991), "Matching service to business needs", *Facilities*, Vol.9, No.6, pp. 7-13.

Van Krimpen, J., (1997), *Facilitaire dienstverlening doorgelicht: een contingentiemodel voor organisatie en transformatie*, Lemma, Utrecht, Holland.

#### *Facility Management Associations and Organizations*

Center for Facility Management – <http://intranet.scpm.salford.ac.uk/cfm>

Chartered Institute of Building – <http://www.ciob.org.uk/ciob>

De Britse Association for Facilities Managers – <http://www.fmn-vereniging.nl>

European facility management network – <http://www.eurofm.org>

German Facility Management Association – <http://www.gefma.de>

International Facility Management Association – <http://www.ifma.com>

RICS FM Skills Panel – <http://www.rics.org>