A PERFORMANCE MEASUREMENT SYSTEM FOR FACILITY MANAGEMENT: THE CASE STUDY OF A MEDICAL SERVICE AUTHORITY

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ABSTRACT
The paper illustrates the results of a research carried out in the outsourced service sector of Facility Management (FM). The objective of the research was to develop a new management model for FM able to enhance the business process performance. The case study of Azienda Servizi Sanitari 1 (ASS1), a medical service authority, and of the ATI, a temporary joint enterprise which provides non-core services to ASS1 highlights a discrepancy between the level of service perceived and provided. The research focused on the in-depth analysis of the application of a performance measurement system in the FM. The authors propose the introduction of a Performance Measurement System (PMS), which shares some indicators between the FM service provider and customer in a so-called Global Service (GS) contract. The proposed PMS is an integration of the Balanced Scorecard (BSC) and Service BSC (SBC) suited for the Facility Management service industry.

Keywords: Performance Measurement System, Facility Management, Case Study

INTRODUCTION
The Facility Management (FM) was born in the United States in the 70s in the business sector of outsourced services. The objective was to answer to companies’ demand for 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. Essentially, the FM stemmed from the practitioners’ experience and practice of coordinating the physical workplace with the people and work of the organization. It integrates the principles of business administration, architecture, and the behavioural and engineering sciences to ensure the effectiveness of the built environment (Cotts, 1998). The research, which started from a previous analysis of the FM sector (De Toni et al., 2006), aims at developing a new management model for FM able to enhance the organization process performance in a so-called Global Service (GS) contract. A literature review of the PMS used in the FM sector is presented, in order to identify the models which fit well into the FM service sector. The review makes clear that a PMS able to fulfil the requirements arisen from the case study and from the FM sector in general has not been developed yet. In the following section, the research methodology is presented: the case study on Azienda Servizi Sanitari 1 (ASS1), a medical service authority, and on the ATI, a temporary joint enterprise which provides non-core services to ASS1 in a so-called Global Service (GS) contract by tender. This exemplary case study enabled us to understand and explain the main criticalities in the relationship among the actors involved, non-core service provider, customer and final consumer in the FM business sector. As a result, in the subsequent section an adaptation and a customization of the Balanced Scorecard (BSC) is presented. The proposed framework aims at improving the performance of all the actors involved in the GS contract and at enhancing integration among them.
PERFORMANCE MEASUREMENT SYSTEMS FOR THE FACILITY MANAGEMENT SERVICE INDUSTRY

To face the competitive environment, companies often opt for a business management based on past experience and intuition. However, it has been proved that companies which implement a performance measurement system (PMS) in their decision-making system obtain better results (Lingle and Schiemann, 1996). Several models for planning PMS can be found in the literature available; however, their common purpose seems to be the definition of a set of indicators for the organization objectives and their attainment degree (Neely, 1998). Nevertheless, companies that cope with performance measurement for the first time must inevitably select the framework which suits their needs: such choice is even tougher when the need for a PMS comes from a specific sector or practice.

In the Facility Management service sector, performance measurement is a fairly new idea. As a matter of fact, the literature about PMS applied to FM is poor, as only a few authors put forward such application. Although operators in the FM sector have used some measures to assess their performance for a long time, such measures often fail to be integrated indicators in a fully-fledged measurement process. A careful classification of practical applications in case studies was carried out, in order to identify the most relevant PMS model for Facility Management. Such applications can be found in the literature about company measurement systems. In the research, the leading management and measurement journals were consulted. Among the first, we find the International Journal of Operations & Production Management, the Harvard Business Review, the Management Accounting Research, the International Journal of Production Economics, whereas the latter include the Measuring Business Excellence, Performance Measurement & Metrics and finally the International Journal of Productivity & Performance Management. Furthermore, some other minor science reviews of specific sectors were viewed (health, catering and housing, facility management,…). Given the multisectorial nature of PMS, different international journals were consulted. 36% of the papers considered were taken from prominent science journals. In total, 80 case studies from 70 papers issued between 1994 and 2006 were examined.

We devised a matrix to clarify the results of our analysis. This enabled us to cross the frameworks used in the case studies (column) and the application fields or sectors related to the organizations cited (line) (table 1). For the sake of simplicity, we have divided the application fields into production, service and facility management. As far as measurement frameworks are concerned, solely the most representative frameworks were selected, in terms of quantity, effectiveness of decryption or reference to the service world to which FM belongs. The models are: Balanced Scorecard (BSC), the European Foundation for Quality Management (EFQM) Business Excellence Model, the Results and Determinants and the Performance Prism. Among the selected frameworks, Balanced Scorecard needs further distinction: beside its traditional model presented by Kaplan and Norton in 1992, you can find other versions, such as the Service Balanced Scorecard (SBS), the Business Balanced Scorecard and the Holistic Balanced Scorecard which are all specific to some fields or companies.

Table 1 – Performance measurement systems and application fields

<table>
<thead>
<tr>
<th>Performance measurement system</th>
<th>Balanced Scorecard</th>
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<th>Results and Determinants</th>
<th>Performance Prism</th>
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The traditional Balanced Scorecard model accounts for the majority of the case studies for each application environment. In total, Balanced Scorecard appears to be a reference model for performance measurement, as it accounts for 49 case studies out of 80, i.e. 61%. It is no surprise that Balanced Scorecard is so successful, since this framework raised a huge interest both amongst academics (see literature about this topic) and amongst entrepreneurs in the manufacturing, service, private, public, for- and not-for-profit sector (Kaplan, 2005). Initially, Balanced Scorecard was designed as a model for performance measurement and evaluation, whereas today it is a fully-fledged system for wide management of the organization. Balanced Scorecard is not just a theoretical model; indeed, several examples of applications in big corporations are reported in literature. World-wide companies like Pepsi (Jensen and Gerr, 1994), Apple Computer (Kaplan and Norton, 1993), Nike (Lohman et al., 2004), Metro Bank (Kaplan and Norton, 1996) and the US Army (Kaplan and Norton, 2005) applied it, just to mention a few. Due to the high number of organizations that apply this model, Balanced Scorecard has become a point of reference for performance measurement systems. Indeed, various researches have shown that Balanced Scorecard is widely applied in American and European corporations. For instance, 60% of the 1000 most successful international companies decided to implement the Balanced Scorecard system (Silk, 1998), whereas a research on management tools has proved that the Kaplan and Norton framework is used by 44% of world-wide companies (Rigby, 2001). Marr (2001) reports that over 50% of the most successful American companies used a performance measurement system before 2000, whereas 40% of the most successful American companies implemented a Balanced Scorecard system (Williams, 2001). As regards the United Kingdom, 57% of the British companies are reported to use a Balanced Scorecard, whereas 56% of the companies which do not use such model are currently envisaging its application (Speckbacher, 2003).

As regards the remaining performance measurement systems classified, their practical applications are limited in the literature available, except for EFQM Business Excellence Model (Armitage, 2002; McAdam and Kelly, 2002; Hides et al., 2004; Zhao, 2004) which accounts for 24% of company cases, with 19 applications. The case studies on Performance Prism (Neely et al., 2001), Results and Determinants (Brignall and Ballatine, 1996) and other Balanced Scorecard versions, such as Balanced Business Scorecard (Letza, 1996) and Holistic Balanced Scorecard (Sureshchandar and Leisten, 2005) gave a limited contribution.

Although Balanced Scorecard is quite popular even in the Facility Management field, its applications are still limited in literature. This proves that performance measurement in this practice is still in its infancy. Indeed, the 4 practical examples of Balanced Scorecard (Coronel and Evans, 1999; Amaratunga and Baldry, 2000; Amaratunga et al., 2002) and Service Balanced Scorecard (Brakertz and Kenley, 2002) only account for 5% of all company cases. Nevertheless, in this analysis we can note with interest that – despite its limited applications – Balanced Scorecard is a model of reference for Facility Management, as well. The review of the main journals dedicated to Facility Management (i.e. Facilities and Journal of Facility Management) has not helped to understand if other measurement frameworks are applied in Facility Management. Finally, we noted that Amaratunga and Baldry are the main authors in the field of performance measurement in Facility Management. They always stress the need of having a performance measurement system in this practice and deem the Balanced Scorecard the best solution (Amaratunga, 2000; Amaratunga et al., 2000; Amaratunga et al., 2001; Amaratunga and Baldry, 2002; Amaratunga and Baldry, 2003). They have an important influence on other authors dealing with the same topic (Steane and Walker, 2000; Brackertz and Kenley, 2001).

THE CASE STUDY

A case study research has been carried out on Azienda Servizi Sanitari 1 (ASS1), a medical service authority, and on the ATI, a temporary joint enterprise which provides non-core services to ASS1 in a so-called Global service (GS) contract by tender. Consorzio Nazionale Servizi (CNS), a leading Italian company in the Italian FM market, is the head of the temporary joint enterprise made up of five companies, Global Service contract, which refers to service outsourcing, is a contract in which the contractor (service provider) is fully responsible for results (service level).

The Global Service contract between ATI and ASS1 started on January, 1st 2003 and envisaged a total duration of 6 years, as well as a total amount of nearly 24,000,000 €. The temporary joint enterprise provides a variety of non-core services to the ASS1 included in the contract by tender. The outsourced services are six: maintenance, energy supply, cleaning, laundry, logistic and restoration. They are all
The research methodology
The aim was to study in depth the main criticalities in the relationship among the actors involved (non-core service provider, customer and final consumer) in a GS contract and to suggest business models, techniques and tools able to implement an effective integration among the actors involved, with reference to the FM business sector. Moreover, we aimed at using the results of this change to enhance operational performance. As a matter of fact, De Toni et al. (2006) highlighted that the effective integration between non-core service providers and customers in the FM business sector had been hardly studied both in theory and in practice and the single case is particularly appropriate for testing hypotheses in well-described specific situations (Meredith, 1998). Furthermore, the single case design was selected because the organization studied is both an exemplar case containing extreme circumstances and a revelatory case (McCutcheon and Meredith, 1993).

During the 12 months research project time, multiple evidence sources were used in the data collection phase to enhance both construct and content validity. The data used in the case study were collected from a combination of qualitative and quantitative evidence. The starting point for our research was to identify the outsourced services and the level of service required by the customer. As a consequence, we have carried out an analysis of the GS contract and its attachments. Semi-structured interviews were designed as a tool to understand the dynamics in the relations and requirements of both the service provider and customer. The interviews aimed at investigating the quality of the communication among the actors involved in the contract, the effects of outsourcing support services inside ASS1 in terms of changes in the organization structure, in the level of bureaucratization and in the organizational process management. The data collection phase involved several senior managers from both cases. The interviewees were selected on the basis of the managers’ experience and involvement in the project. 17 interviews with the actors involved in the GS contract were conducted with the aim to understand possible criticalities from several points of view: 9 interviews were held with the service providers’ managers and 8 interviews were held with the managers of the different offices of the medical authority.

Critical states in the GS: the level of service perceived
The case study made clear that the long-term Global Service contract envisages some regular checking between the ASS1 and the ATI, during which actors compare the data collected about their activities, about any possible change to the scheduled activities and the non-compliance warnings. Such checkings aim at constantly improving the customer service.

The ASS1 has assigned to five different offices the responsibility for monitoring the services outsourced to ATI and it is interested in the measurement of efficacy, through activities execution checking, and in assessing the quality of the service received. Regular checking are not frequent and the instruments used do not provide consistent data about the effective implementation of the services included in the contract. On the one hand, interviews have shown that the parts involved in the Global Service Contract do not share enough information; especially, ASS1 offices complain about the ATI service level. On the other hand, service providers argue that the specification does not take into account the real ASS1 needs, as the services demanded are not reasonably viable and often exceed the ASS1 needs. This fact leads to a discrepancy between the service provided by the company and the service perceived by the customer. The main criticalities arose from the interviews and are linked to the level of service perceived by the customer are in the maintenance service. As a result, only for this service, a survey has been designed. A questionnaire has been realized to distinguish between the level of the service provided and the level of the service perceived by the customer. The questionnaire requested to signal how many activities, present in the terms of contract, were executed or not. The data analysis has allowed us to quantify the discrepancy in the perception between the two actors involved (figure 1). On the one hand, the provider for maintenance services on behalf of ATI affirms that over 92% of all specification activities are regularly implemented. On the other hand, the ASS1 Technical Office perceives a much lower service level, namely less than 7% of such activities. In the figure below, the data resulting from the questionnaire analysis are reported. Moreover, the interviews unveiled many criticalities in the relationship among the actors. It has been observed that the actors own different data about the service level performance. As a result, several disputes might arise among service providers and customers.
The research has also highlighted criticalities in the ATI activity management. These criticalities, typical of many FM companies, have been solved by defining a management model which suggests the coordination and the integration of the service provider activities, the process performance monitoring and an enhanced partnership with the customer. In particular, the performance monitoring requires a PMS shared among the actors involved in a GS contract and with indicators linked to the typical services of the FM sector. CNS, the head of the ATI, wants to know both the efficiency and efficacy of its processes in order to assess the level of service provided in the light of the resources allocated. The critical states highlighted in the case study analysis require the introduction of a PMS with indicators for the different services and partially shared among the actors involved. As a matter of fact, the level of service perceived by the customer and provided by the FM company are misaligned because of a lack of information sharing. This fact gives rise to several criticalities which affect the level of customer satisfaction. The introduction of a shared performance measurement system could reduce the gap in the assessment of the service level. Through shared measurements, actors will be able to objectively evaluate the performance of the service provided.

THE PROPOSED PERFORMANCE MEASUREMENT SYSTEM
On the basis of the above-quoted reasons, we opted for the Balanced Scorecard and its service-oriented version, i.e. the Service Balanced Scorecard. Both act as reference models for planning a performance measurement system related to the case study and generally applicable to FM companies. Especially, they have several applications in the service sector, together with Results and Determinants by Fitzgerald et al. (1994). However, the problems arisen in the case study cannot be solved through the two models available in literature. Therefore, hereunder follow:

- Criticalities of the traditional PMS models according to the contract characteristics;
- The PMS model developed for the ASS1-ATI case and the characteristics needed to solve the above indicated criticalities.

Hereunder follow the criticalities arisen from the BSC and SBS models applied to the FM sector and the case study:

1. Lack of a shared financial perspective
During interviews, the need has arisen to share PMS with the customer, in order to set up a good partnership among all actors involved in the contract. Such need is fundamental in the FM sector. Therefore, the measurement system would be a useful tool for the customer to assess his/her provider performance. However, the CNS aims at proving not only that the service provided complies with the contract terms but also that a Global Service contract is cost effective for the customer. Through this financial dimension, both the contractor (ATI) and the customer (ASS1) will be able to monitor the financial trend of the GS contract. On the basis of the system feedback, they will be able to take the appropriate measures. Neither BSC, nor SBS give such an opportunity.

2. Presence of two different clients: community and customer
In the Facility Management sector, two heterogeneous customer groups can be identified: the customer company and the final consumer. The customer, here referred to as ASS1, is the public or private
company which contracts out the management of its non-core activities. This customer type has two main needs:

- compliance with the contract (observance of the contract terms by the provider);
- fulfilment of final consumer community needs.

The final consumer refers to the group of people that benefit directly from the services supplied by both the provider and the customer. The final consumer in the case study is:

- the ASS1 employees;
- benefit recipients.

The terms community and final consumer will be used as synonyms. The main need for the community is to receive a satisfactory service level. Such need may not be related to the contract terms, as terms compliance does not always imply the community satisfaction. BSC does not distinguish between customer and final consumer, whereas SBS does.

3. Companies with different service perspectives within the ATI

Companies operating in the FM sector offer a wide range of outsourcing services. Within the ATI we can find syndicated companies with different service perspectives, in particular CNS and four companies which provide:

- Technical services: maintenance service (company 1) and energy service (company 2);
- Auxiliary services: catering (company 3) and logistic, laundry and cleaning (company 4).

The BSC does not distinguish between the two sectors, whereas the SBS makes a distinction between the building (technical services) and the service (auxiliary services) perspective.

4. Lack of learning and growth perspective

In the Facility Management sector development may depend on the service itself or the supply process and it may imply brand new services or just little innovations that are able to modify and improve current services and supply systems. CNS aims at proving that a Global Service contract can somewhat improve the service provided. As a consequence, a perspective to assess the provider knowledge and abilities needs to be added to the performance measurement system. Such dimension can be found in the BSC, whereas it was not considered to be necessary for SBS.

Table 2 sums up the inapplicability causes for BSC and SBS in the ASS1-ATI case. However, the two models act as a reference for PMS, thus the following modified structure partly stems from the Balanced Scorecard and partly from the Service Balanced Scorecard. Indeed, the two models characteristics suit the Facility Management sector and therefore the resulting framework appears to be a synthesis of the two models.

<table>
<thead>
<tr>
<th>Balanced Scorecard</th>
<th>Service Balanced Scorecard</th>
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<tbody>
<tr>
<td>Lack of customer’s financial perspective</td>
<td></td>
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<tr>
<td>Presence of two different clients: community and customer</td>
<td></td>
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<tr>
<td>Companies with different service perspectives within the ATI</td>
<td>Lack of learning and growth perspective</td>
</tr>
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</table>

The Balanced Scorecard is the reference model and our starting point for structuring the PMS; in particular, we retain the general principles that made it known:

- development of the measurement system starting from a strategy;
- definition of performance indicators from different balancing perspectives;
- relations cause-effect between the different measures within the PMS;
- distinction between lead (future development) and lag (past performance) indicators.
As regards the balancing perspectives, we deemed necessary to ensure the visibility of the ATI financial dimension and the future potential development of the Balanced Scorecard. As far as Service Balanced Scorecard is concerned, we referred to the Building, Service and Customer/Community perspectives. The first two dimensions are coupled in this paper and can be found under the perspective named *Facilities*. It includes those measures dealing with both the service business and technical dimensions. Finally, from the Service Balanced Scorecard the *Community/Customer* perspective can be referred to for the Community/ Customer perspective to assess the degree of satisfaction by the different actors of a Global Service contract. In a few words, the PMS model suggested for the ASS1-ATI case is almost entirely based on the Balanced Scorecard structure, though it envisages four slightly different balancing dimensions which share some measures among the actors involved in a FM contract:

- Financial perspective;
- Community/Customer perspective;
- Facilities perspective;
- Learning and growth perspective.

The first innovation in this model lies in the so-called *Facilities* perspective which groups all services provided by the ATI. This perspective is a mix between the SBS building and service perspectives and the BSC internal process perspectives. It involves characteristics and measures from the technical services field (SBS building perspective), the auxiliary services field (SBS service perspective) and the different syndicated companies’ internal processes (BSC internal process perspective).

However, a distinction needs to be made between the technical and the auxiliary services fields, since contract terms differ a lot and therefore indicators in these fields must be different. To solve this problem, the BSC model was “trickled down” to the syndicated companies. As a result, for instance the *Facilities* perspective is tailored to each syndicated company, to which specific measures from the technical or auxiliary services will be regularly sent. In the learning and growth perspective, as each syndicated company is responsible for its employees’ professional growth. The same idea applies to the other two perspectives. After outlining the perspectives tailored to each syndicated company, they are assessed through specific indicators that provide some figures. Such perspectives can be found at a lower level of the organization structure, since they are only applied to the single companies, called business units in the BSC. However, to assess the ATI performance results a “group” perspective is needed, i.e. the *Facilities* perspective on the one hand and the learning and growth perspective on the other hand. In order to obtain a performance measurement for the ATI, a weighted mean of the results stemming from the lower level perspectives will be carried out. It will take into account the importance of the services provided by each company in the Global Service contract.

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*Figure 2 – Balancing perspectives in the ASS1-ATI case*
The second innovation regards the sharing of some measures among the parties involved in a FM long term contract. In fact the PMS is designed in order to provide characteristic measures applicable to a particular company (which provides a peculiar service), general measures applicable to every company and shared measures among the parties involved. The shared measures will enhance the level of integration among the parties towards a new form of partnership which will allow an improvement in the level of service provided and perceived. The idea of developing a PMS to share some measures among the parties – though letting a single referent manage others - is groundbreaking in the FM sector. It is groundbreaking as well as necessary to improve GS contract management and raise both the performance level and all parties’ satisfaction. Interviews and questionnaires enabled us to identify the contract services with a major discrepancy between the service perceived and the service provided (i.e. maintenance), as well as the services needed to improve the partnership of the contract actors. Such a partnership is necessary to further improve the FM companies service supply.

The model suggested here enables to overcome the four criticalities and to show the opportunities identified in the FM sector and in the exemplar ASS1-ATI case study:

1. **A shared financial perspective.** The indicators inside this perspective will highlight the savings for both ATI and ASS1 starting from the costs specified in the contract by tender.

2. **Two user classes** (Community/Costumer). The distinction between community and customer is made within the Community/Customer perspective, in which the satisfaction degree of the two classes is considered separately. However, in the field of the community services, the customer satisfaction will be partly influenced by the community satisfaction.

3. **Different service perspectives.** This makes it necessary to distinguish between the services of the technical field and those of the auxiliary service field. To solve this criticality, the perspectives were “trickled down” to each syndicated company and a global assessment of the Global Service contract was made through a weighted mean of the lower level perspectives.

4. **Learning and growth perspective.** This criticality was solved by introducing the learning and growth perspective which was already present in the Balanced Scorecard.

**CONCLUSIONS**

The paper presented a performance measurement system designed as an integration of the Balanced Scorecard (BSC) and Service BSC (SBS), suited for the Facility Management service industry. The PMS is able to:

- measure the effectiveness, check the execution of the activities in order to assess the quality of the service received by the customer,
- measure both the efficiency and effectiveness of the outsourced processes in order to evaluate the level of service provided,
- enhance the level of integration among the FM actors (service provider and customer) towards a new form of partnership which will allow a continuous improvement in the level of service provided and perceived,
- overcome the criticalities and to show the opportunities identified in the FM sector and in the ASS1-ATI case study,

by using an innovative approach which shares some indicators among FM services provider and customer.

The limits of this research lie in the fact that the PMS have been designed for a single case study. Despite this consideration, the PMS can be easily adapted for a wide application inside the FM business sector. Indeed, the PMS based on BSC and SBS has a wide applicability in the FM service sector. This type of PMS could be integrated in FM software allowing a better integration and coordination of the actors involved in the GS contract. As a matter of fact, the introduction of a shared PMS will give the actors involved in the Global Service contract a groundbreaking tool. It will enable them to deal with shared performance measures and to work on them, thus improving the actors’ partnership which is fundamental in the Facility Management Service Sector.
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