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A performance measurement system for facility management

A performance measurement system

The case study of a medical service authority

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Abstract

Purpose – This study sets out to introduce an innovative performance measurement system (PMS) for business process outsourcing in facility management (FM) industry and analyse, comprehend and explain the main criticalities in the relationship among the actors involved in an outsourcing non core services contract, which is typical of the FM business sector. The aim of the tool is to improve performances and enhance their integration towards a partnership.

Design/methodology/approach – A case study research has been carried out on a medical service authority and on its FM service provider in order to investigate, understand and explain the main criticalities in their relationships. Starting from a literature analysis on empirical applications of PMS, an adaptation of a balanced scorecard (BSC) has been realized to exceed the criticalities of the case study and to propose a PMS for facility management.

Findings – As highlighted in the case study, the need for an improved actors' partnership has been fulfilled through an innovative approach, i.e. a performance measurement system which shares some indicators among FM service provider and customer.

Research limitations/implications – The limitation of this research lies in the fact that PMS has been designed from a single case study. Despite this fact, the PMS can be easily adapted for wide applications inside the FM business sector.

Practical implications – The PMS allows a better integration and coordination of the actors involved in an outsourcing services contract. It could be implemented in FM software tools.

Originality/value – The proposed performance measurement system is an innovative integration between the balanced scorecard and service balanced scorecard (SBC) for the facility management service industry. Furthermore, it shares some indicators which solve the main criticalities in the relationships among the actors involved in an outsourcing services contract and enhance partnership.

Keywords Performance measures, Balanced scorecard, Facilities

Paper type Research paper

1. Introduction

Facility management (FM) is gaining an increasing importance in the sector of business processes outsourcing. Nevertheless this practice, stemmed from the practitioners' experience, lacks of a significant theoretical foundation based on empirical evidences about the performance measurement.

This research proposes a new performance measurement system for facility management. The model rises from an empirical analysis of a global service (GS) contract by tender in the Italian National Health Service. The PMS, which has been called facility management balanced scorecard, is an adaptation and a customization of the balanced scorecard.



In the following second section the case study on “Azienda per i Servizi Sanitari n° 1” (ASS1) – a medical service authority – and on the “Associazione Temporanea di Impresa” (ATI) – a temporary joint enterprise which provides non-core services to ASS1 in a GS contract by tender – is presented. This case study enabled us to understand and explain the main criticalities in the relationship among the actors involved, thus non-core service provider, customer and final consumer.

In the third section, a literature analysis on empirical applications of PMS is presented, in order to identify the models which fit well into the FM service sector. The review highlights the non-availability of a PMS able to fulfil all the requirements arisen from the case study.

Finally, in the fourth section, we proposed a measurement framework which fills the gap and that aims at improving the performance of all the actors involved in the GS contract and at enhancing integration among them towards a partnership.

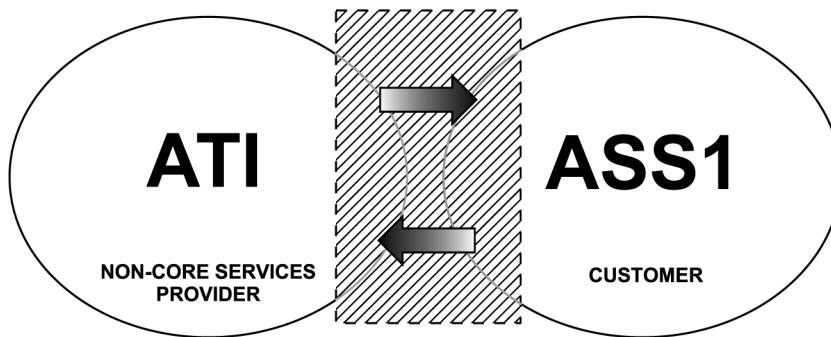
2. The ASS1-ATI case study

Private and public organizations decide to outsource more and more often all the activities concerning the management of non-core internal processes which support the business organization. Facility management is a managerial practice which integrates the principles of business administration, architecture, and the behavioural and engineering sciences to ensure the effectiveness of all these processes (Cotts, 1998).

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

The global service contract between ATI and ASS1 started on 1 January 2003 and envisaged a total duration of six 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. There are six outsourced services: plant and building maintenance, energy supply, cleaning, laundry, logistic and restoration. They are all provided by the five service companies. As a result, there are more than two actors involved in this GS contract; furthermore, the ASS1 has different offices responsible for the different outsourced services.

As highlighted in Figure 1, the aim of the research 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 was 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 a representative case containing extreme circumstances and a revelatory case (McCutcheon and Meredith, 1993).



2.1. Data collection in the case study

The starting point for our research was the identification of the outsourced services and the service level required by the customer. So, we have carried out an analysis of the GS contract and its attachments. Subsequently semi-structured interviews have been designed 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 organizations. The interviewees were selected according to the managers' experience and involvement in the project. A total of 17 interviews with the actors involved in the GS contract have been conducted with the aim of understanding any given criticalities from several points of view: nine interviews were held with the service providers' managers and eight interviews were held with the managers of the different offices of the medical authority.

Although interviewees provide useful information, they are also subject to bias as a result of flawed questions, response bias, poor recall, and articulation (Yin, 1994, p. 85). Consequently during the project period (12 months), multiple evidence sources have been used in the data collection phase to enhance both construct and content validity through a data triangulation. The data used in the case study have been collected from a combination of qualitative and quantitative evidence.

The main criticalities resulted from the interviews were linked to the level of service perceived by the customer are in the maintenance service. As a result, only for this service, a questionnaire has been designed to confirm this criticality and to evaluate the difference between the level of the service provided and the level of the service perceived by the customer. The questionnaire asked the subjects to signal how many activities, present in the terms of contract, were executed or not.

2.2. Critical states in the case study

The case study has shown 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.

Undoubtedly, changes are occurring in the customers' needs and therefore a higher service level is required. However, service providers' needs have changed according to the evolutions in the managerial and technological solutions. Nevertheless, the GS contract is not flexible enough to allow a "partnership strategy" between the contractor and the customer. Usually, public organizations, such as ASS1, do not agree on flexible contracts, which would allow modifying some elements of the contract, in order to meet and align the needs of the facility management company and customer.

The ASS1 has appointed five different offices to monitor the services outsourced to ATI; ASS1 is interested in the measurement of efficacy, through activities execution checking, and in assessing the quality of the service received. Regular checkings 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 customer needs. This fact leads to a discrepancy between the service provided by the company and the service perceived by the customer.

The data analysis of answers to the questionnaire has allowed us to confirm and to quantify the discrepancy in the perception between the two actors involved (Figure 2). On the one hand, the provider for maintenance services on behalf of ATI affirms that over 92 per cent 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 per cent of such activities. In Figure 2, 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.

2.3. The need of a performance measurement system

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

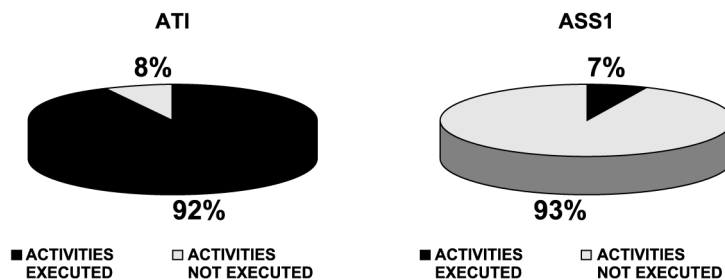


Figure 2.
Discrepancy between
maintenance service
provided and perceived

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 effectiveness 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, which are 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 is misaligned because of a lack of information sharing. This fact gives rise to several criticalities which affect the level of customer satisfaction.

The innovative PMS should fulfil the following requirements arisen in the ASS1-ATI case study:

Need of sharing the cost-effectiveness of the contract. During interviews, the need has arisen to share some performance measures 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 corrective actions.

Management of two different clients: customer and final consumer. 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:

- (1) compliance with the contract (observance of the contract terms by the provider); and
- (2) 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; and
- benefit recipients.

As a matter of fact, the objective of performances assessment should be much more focused on the different facets of the final consumers' requirements than on a single community of people in abstract terms. The major need of final consumers is to receive a satisfactory service level. Such need may not be related to their compliance with contract terms, as compliance is not always associated with satisfaction.

Management of different services supplied by ATI's companies. Companies operating in the FM sector offer a wide range of outsourced services. Generally, they are temporary joint enterprises. As a matter of fact, 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); and
- *Auxiliary services*: catering (company 3) and logistic, laundry and cleaning (company 4).

Need of learning and growth perspective. In the facility management sector, development may depend on the service itself or the outsourcing process and it may imply brand new services or just little innovations, which are able to modify and improve current services and outsourcing processes. CNS aims at proving that a global service contract can somewhat improve the service provided. As a consequence, a perspective to assess the provider's knowledge and abilities needs to be added to the performance measurement system.

A literature analysis on empirical applications of PMS has been performed in order to comprehend the right framework on which design a PMS that satisfies the requirements identified. In the following section, the analysis is described.

3. Literature analysis on PMS application

The literature on performance measurement is wide and multi-sectorial (De Toni and Tonchia, 2001). The performance measurement is a growing importance topic among the academic field as well as in the practice since the '80 (Neely, 1998). On the other hand, 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 companies' measurement systems. Given the multi-sectorial nature of PMS, different international journals were consulted. In the research, the leading journals about management and performance measurement systems were consulted (see Table I and Figure 3).

In total, 102 case studies from 85 papers issued between 1993 and 2006 were examined. 83 papers have been found from the international journals selected and two from conference proceedings. All the references of the case studies are quoted in Table I and Figure 3.

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 their application fields or sectors related to the case studies quoted (line). 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 description or reference to the service world to which FM belongs. The models are: balanced scorecard, 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 (1992), you can find other versions, such as the Service Balanced

International journal	Number
<i>Accounting, Auditing & Accountability Journal</i>	1
<i>Accounting Horizons</i>	1
<i>Across the Board</i>	1
<i>American City and County</i>	1
<i>Bank Accounting & Finance</i>	1
<i>Benchmarking; An International Journal</i>	1
<i>British Accounting Review</i>	1
<i>Burns</i>	1
<i>Business Process Re-engineering & Management Journal</i>	1
<i>California Management Review</i>	1
<i>Cornell Hotel and Restaurant Administration Quarterly</i>	2
<i>Critical Perspectives on Accounting</i>	1
<i>Decision Sciences</i>	0
<i>Employment Relations Today</i>	1
<i>European Journal of Operational Research</i>	2
<i>European Management Journal</i>	0
<i>Facilities</i>	2
<i>Financial Management</i>	4
<i>Harvard Business Review</i>	1
<i>Health Forum Journal</i>	1
<i>Health Manpower Management</i>	1
<i>Healthcare Financial Management</i>	1
<i>IIE Transactions</i>	0
<i>Interfaces</i>	0
<i>International Journal of Business Performance Management</i>	0
<i>International Journal of Contemporary Hospitality Management</i>	1
<i>International Journal of Health Care Quality Assurance</i>	4
<i>International Journal of Information Management</i>	1
<i>International Journal of Operations & Production Management</i>	3
<i>International Journal of Production Economics</i>	1
<i>International Journal of Production Research</i>	0
<i>International Journal of Productivity and Performance Management</i>	6
<i>International Journal of Public Sector Management</i>	1
<i>International Journal of Service Industry Management</i>	1
<i>International Review of Retail, Distribution and Consumer Research, The</i>	1
<i>Internet Research: Electronic Networking Applications and Policy</i>	1
<i>Journal of Facility Management</i>	2
<i>Journal of Health Care Finance</i>	2
<i>Journal of Healthcare Management</i>	1
<i>Journal of Management Information Systems</i>	1
<i>Journal of Manufacturing Technology Management</i>	1
<i>Journal of Materials Processing Technology</i>	1
<i>Journal of Operations Management</i>	0
<i>Long Range Planning</i>	4
<i>Management Accounting Research</i>	2
<i>Management Decision</i>	1
<i>Management Sciences</i>	0
<i>Managerial Auditing Journal</i>	3
<i>Managing Service Quality</i>	3
<i>Measuring Business Excellence</i>	8
<i>Omega</i>	0

(continued)

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Table I.
International journals
selected for literature
analysis and number of
papers found

Table I.

International journal	Number
<i>Performance Measurement and Metrics</i>	3
<i>Planning Review</i>	1
<i>Production and Operation Management</i>	0
<i>Production and Inventory Management</i>	0
<i>Property Management</i>	0
<i>Quality Assurance in Education</i>	1
<i>Strategy & Leadership</i>	1
<i>Technovation</i>	1
<i>TQM Magazine, The</i>	1
Total	83
<i>Conference proceedings</i>	
AAPPA Conference, 1999, Melbourne (AUS)	1
EUROMA conference, 2006, Glasgow (UK)	1
Total	85

Scorecard (SBS), the Business Balanced Scorecard and the Holistic Balanced Scorecard which are all specific to some fields or companies (Figure 4).

The traditional balanced scorecard model accounts for the majority of the case studies for each application environment, as highlighted in Figure 5. In total, balanced scorecard appears to be the reference model for performance measurement, as it accounts for 76 case studies out of 102, i.e. 74.5 per cent.

It is no surprise that balanced scorecard is so successful, since this framework has raised a huge interest both among academics and among entrepreneurs in the manufacturing, service, private, public, for- and not-for-profit sector (Kaplan, 2005). Initially, BSC was designed as a model for performance measurement and evaluation, whereas today it is a fully-fledged system for wide management of the organization. BSC is not just a theoretical model; indeed, several examples of applications in big corporations are reported in literature. Worldwide 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.

As regards the remaining performance measurement systems classified, their practical applications in the literature available are limited, except for EFQM business excellence model (Armitage, 2002; McAdam and Kelly, 2002; Hides *et al.*, 2004; Zhao, 2004) which accounts for 20.5 per cent of company cases, with 21 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 four practical examples of balanced scorecard (Coronel and Evans, 1999; Amaratunga and Baldry, 2000; Amaratunga *et al.*, 2002) and service balanced scorecard (Brackertz and Kenley, 2002) only account for 4 per cent of all company cases. Nevertheless, in our analysis we noted with interest that – despite its limited applications – BSC is a model of reference

		Performance measurement system							Total
		Balanced Scorecard			Holistic Balanced Scorecard	EFQM Business Excellence Model	Results and Determinants	Performance Prism	
		Main Model	Service Balanced Scorecard	Business Balanced Scorecard					
Business Industry	Manufacturing	[11][21][16][188][198][200][201][202][203][204][205][206][207][208][209][210][211][212][213][214][215][216][217][218][219][220][221][222][223][224][225][226][227][228][229][230][231][232][233][234][235][236][237][238][239][240][241][242][243][244][245][246][247][248][249][250][251][252][253][254][255][256][257][258][259][260][261][262][263][264][265][266][267][268][269][270][271][272][273][274]	0	[60]	[74]	[58][81][89][158][185]	0	28	
	Service	[71][100][131][141][151][152][153][154][155][156][157][158][159][160][161][162][163][164][165][166][167][168][169][170][171][172][173][174][175][176][177][178][179][180][181][182][183][184][185][186][187][188][189][190][191][192][193][194][195][196][197][198][199][200][201][202][203][204][205][206][207][208][209][210][211][212][213][214][215][216][217][218][219][220][221][222][223][224][225][226][227][228][229][230][231][232][233][234][235][236][237][238][239][240][241][242][243][244][245][246][247][248][249][250][251][252][253][254][255][256][257][258][259][260][261][262][263][264][265][266][267][268][269][270][271][272][273][274]	41	2	[68][78]	[81][201][208][230][237][244][165][179]	2	55	
	Facility Management	[3][4][17]	1	[11]	[84]	8	5		
	Total	65	1	3	1	14	2	88	

- [5] same paper with 1 case study of EFQM in manufacturing and 1 in service industry
- [6] same paper with 2 case studies of Results and Determinants in service industry
- [18] same paper with 3 case studies of BSC (main model) in manufacturing
- [37] same paper with 3 case studies of BSC (main model) in manufacturing
- [41] same paper with 1 case study of BSC (main model) in manufacturing and 1 case study of BSC in service industry
- [80] same paper with 2 case studies of BSC in manufacturing and 1 in service industry
- [89] same paper with 3 case studies of EFQM in manufacturing
- [78] same paper with 2 case studies of BBSC in service industry

Note: The list of the paper classified in the table are available on request to the authors

Figure 3. Literature analysis of PMS implementation in case studies

		PMS frameworks								
		Balanced Scorecard				EFQM Business Excellence Model	Results and Determinants	Performance Prism	Total	
		Main Model	Service Balanced Scorecard	Balanced Business Scorecard	Holistic Balanced Scorecard					
Business industry	Manufacturing	25	0	2	1	12	0	0	40	
	Service		41	0	3	0	8	3	2	57
		Facility Management	3	1	0	0	1	0	0	5
Total		69	1	5	1	21	3	2	102	

Figure 4.
Number of case studies on PMS implementation

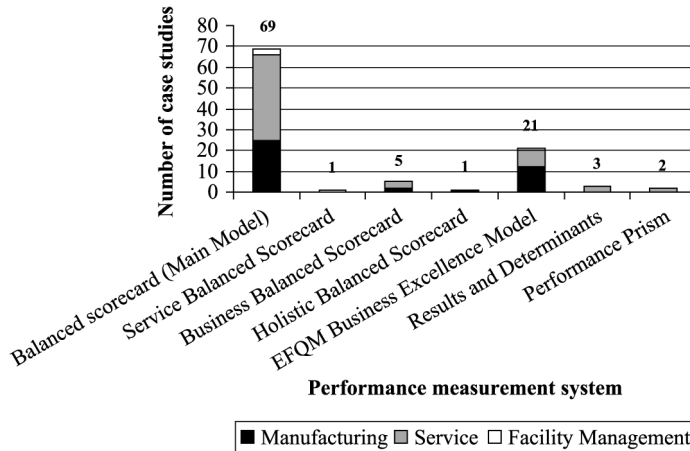


Figure 5.
Distribution of the PMS models among the case studies

for FM, as well. The review of the main journals dedicated to FM (i.e. *Facilities* and *Journal of Facility Management*) has not enabled us to understand if other measurement frameworks are applied. Finally, we noted that Amaratunga and Baldry are the main authors in the field of performance measurement in this sector. They stress the need for a performance measurement system in this practice and deem the balanced scorecard to be the best solution (Amaratunga, 2000; Amaratunga *et al.*, 2000, 2001; Amaratunga and Baldry, 2002, 2003). They have a great influence on other

authors dealing with the same topic (Steane and Walker, 2000; Brackertz and Kenley, 2001).

In summary, the literature analysis on PMS application has demonstrated that:

- the performance measurement in the FM is still in its infancy;
- the BSC is the reference model for all application environments;
- the BSC is the most popular in the facility management field; and
- the BSC is probably the best solution for facility management even if its applications are still limited.

4. The proposed performance measurement system

On the basis of the case study requirements and on the literature analysis, we opted for the balanced scorecard and its service-oriented version, i.e. the service balanced scorecard, for structuring a performance measurement system for facility management named facility management balanced scorecard (FMBSC).

4.1. The need of new balanced dimensions

Both BSC and SBS could act as reference models for designing a performance measurement system related to the case study and generally applicable to FM companies. Especially, they have several applications (as highlighted in the literature review) in the service sector (e.g. Kaplan and Norton, 1996; Urrutia and Eriksen, 2005), together with results and determinants by Fitzgerald *et al.* (1994). However, the requirements that arose in the case study, cannot be managed by the two models available in literature, in particular:

- *Need of sharing the cost-effectiveness of the contract.* Neither BSC, nor SBS give such an opportunity.
- *Management of two different clients: customer and final consumer.* BSC does not distinguish between customer and final consumer, but only among different types of final consumer (e.g. Kaplan and Norton, 2001). On the contrary, SBS makes this distinction. Hereafter the term “final consumer” will be account as synonym of SBS’s “community”.
- *Management of different services supplied by ATI’s companies.* BSC does not distinguish between the two perspectives (technical and auxiliary services), whereas the SBS makes a distinction between the building and the service perspective.
- *Need of learning and growth perspective.* Such dimension can be found in the BSC, whereas it was not considered to be necessary for SBS.

Table II sums up the inapplicability causes for BSC and SBS in the ASS1-ATI case.

4.2 The framework of the facility management balanced scorecard

Nevertheless, as asserted above, the two models act as a reference for PMS and the following modified structure partly stems from the balanced scorecard and partly from the service balanced scorecard. Indeed, the characteristics of the two models suit the FM sector and therefore the resulting framework appears to be a synthesis of the two models. The balanced scorecard is the reference model and our starting point for the

facility management balanced scorecard (see Figure 6). In particular, we retain the general principles that made it known:

- development of the performance measurement system starting from a strategy;
- definition of performance indicators from different balancing perspectives;
- relations cause-effect between the different measures within the PMS; and
- distinction between lead (future development) and lag (past performance) indicators.

As regards the balancing perspectives, we deemed it necessary to ensure the visibility of the cost-effectiveness of the contract and the future potential development of the balanced scorecard. As far as service balanced scorecard is concerned, we referred to the building, service and final consumer/customer 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 final consumer/customer perspective can be referred to the community/customer perspective to assess the degree of satisfaction by the different actors of a GS contract. Briefly, 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:

- (1) financial perspective;
- (2) final consumer/customer perspective;
- (3) facilities perspective; and
- (4) learning and growth perspective.

4.3. Innovation in the facility management balanced scorecard

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

Table II.
Features required and managed by the proposed PMS model applied to the FM sector

	Balanced scorecard (BSC)	Service balanced scorecard (SBS)	Facility management balanced scorecard (FMBSC)
Need of sharing the cost-effectiveness of the contract			✓
Management of two different clients: final consumer and customer		✓	✓
Management of different service perspectives within the companies		✓	✓
Need of learning and growth perspective	✓		✓

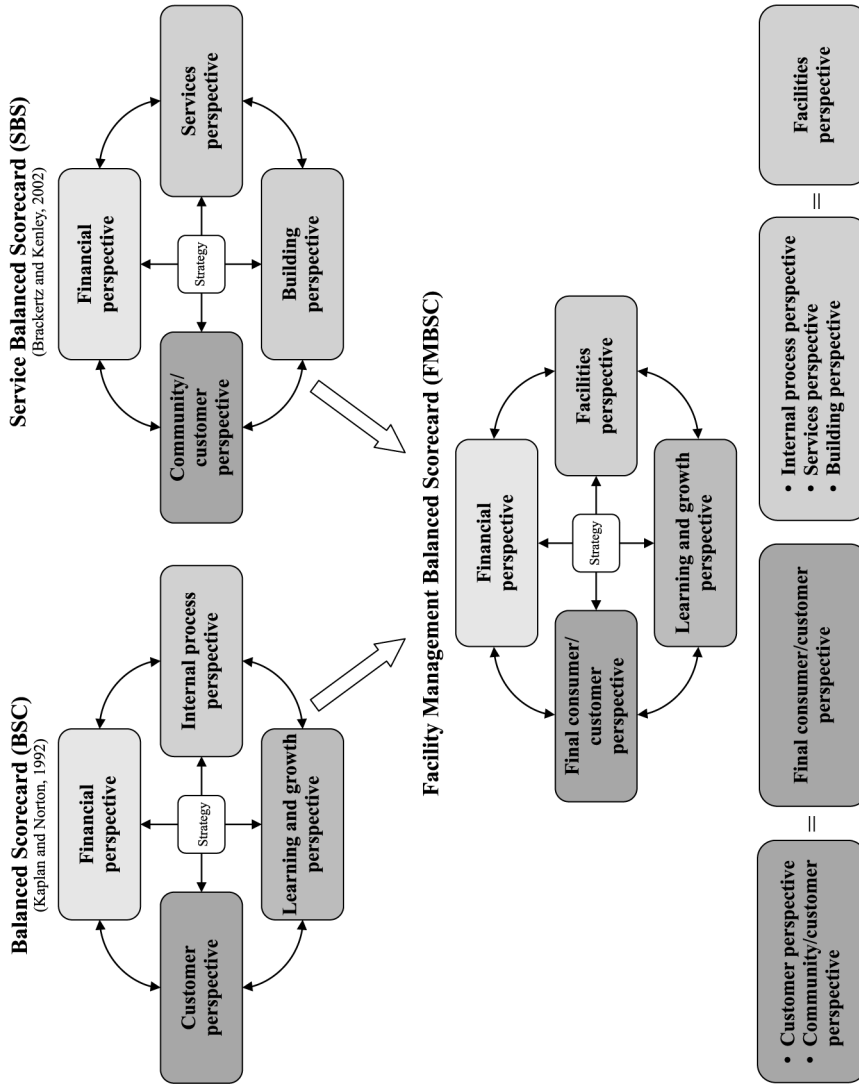


Figure 6. The proposed model of balanced scorecard for facility management

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 their 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. For instance, the facilities perspective is tailored to each syndicated company, to which specific measures from the technical or auxiliary services are regularly sent. In the learning and growth perspective, each syndicated company is responsible for its employees' professional growth. The same idea applies to the other two perspectives. Once perspectives for each syndicated company have been outlined, they are assessed through specific indicators. 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. 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.

The second innovation, the most important, regards the sharing of some measures among the parties involved in a FM long term contract. Indeed, the PMS is designed in order to provide not only characteristic measures applicable to a particular company (which provides a peculiar service), but also general measures applicable to every company and shared measures among the parties involved. The FMBSC has been designed starting from the service provider's perspective. As previously highlighted, the lack of a partnership strategy among the parties, due to the fact that the ASS1 belongs to the public sector, has not enabled the definition of a common strategy for the proposed performance measurement system. Furthermore, CNS has stressed the need for assessing the evolution of the global service contract. As a consequence, the proposed model, which is an innovative integration of the BSC and SBS frameworks, starts from the strategy defined by the service provider. The FMBSC (Figure 7) is composed by 25 indicators: 16 measures are shared between ATI and ASS1 and nine are available solely for the service provider. The indicators in the four perspectives are distributed as follows:

- (1) *Financial perspective*: 1 indicator.
- (2) *Final consumer/customer perspective*: 8 indicators.
- (3) *Facilities perspective*: 11 indicators.
- (4) *Learning and growth perspective*: 5 indicators.

Among the above-mentioned indicators, 16 are shared with the customer (ASS1) and distributed as follows:

- (1) *Financial perspective*: no indicators.
- (2) *Final consumer/customer perspective*: 4 indicators.
- (3) *Facilities perspective*: 11 indicators.
- (4) *Learning and growth perspective*: 1 indicator.

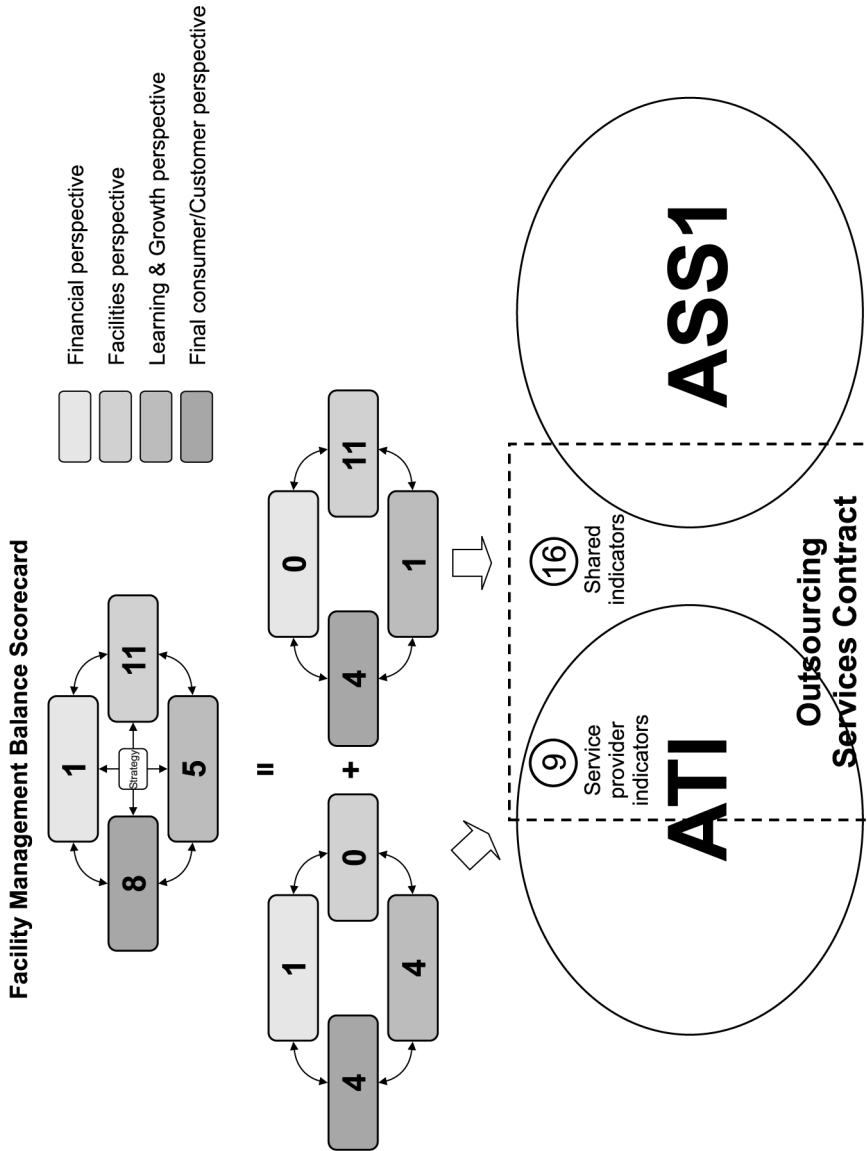


Figure 7. The four perspectives and indicators in the facility management balanced scorecard

4.4. Advantages of the facility management balanced scorecard

The shared measures will enhance the level of integration among the parties and possibly lead to 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 displaying 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 enables to overcome the four criticalities and to show the opportunities identified in the FM sector and in the representative ASS1-ATI case study:

- (1) *Sharing the cost-effectiveness of the contract.* Two different financial indicators are needed to share one measure which shows the contract cost-effectiveness. As a matter of fact, the financial indicator of ATI will remain within in its financial perspective, while the financial indicator of cost-effectiveness will be inserted in the final consumer/customer perspective. The last indicator will help to assess customer satisfaction as far as the financial aspects of the contract are concerned. The indicators inside this perspective will highlight the savings for both ATI and ASS1 (the customer), starting from the costs specified in the contract by tender.
- (2) *Two user classes (final consumer/customer).* The distinction between final consumer and customer is made within the final consumer/customer perspective, in which the satisfaction degree of the two classes is considered separately. However, the customer's satisfaction will be partly influenced by the final consumers' 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.

5. Conclusions and further research

The paper presented the facility management balanced scorecard, a performance measurement system designed as an innovative integration of the BSC and SBS, suited for the facility management service industry. In this context, the main criticalities can be found in the relationship among the actors involved in an outsourcing non-core services contract. The main objective was to propose an innovative PMS which aims at improving their performances and at enhancing the actors' integration towards a partnership. As a matter of fact the FMBSC is able to:

- measure the effectiveness and 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 identified in the ASS1-ATI case study and, in general, in the FM sector.

This is achieved by using an innovative approach which shares some indicators among FM service provider and customer.

The major limitation of this research is the fact that FMBSC was designed for a single case study. Despite this consideration, this PMS can be easily adapted for a wide application. Indeed, the proposed model could be applied to all long-time business outsourcing contracts where there is the necessity (and the will) to enhance the partnership among customers and service providers. As a matter of fact, the introduction of a shared PMS will give a groundbreaking tool to the actors involved in this kind of contract.

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. Actually, they will be able to deal with shared performance measures and to work on them, thus improving their partnership, which is fundamental in the facility management and in general to business process outsourcing sector.

This type of PMS can be implemented in FM software tool, thus allowing a better integration and coordination of the actors.

Further research should focus on the development of a performance measurement system based on the balanced scorecard, which starts from a common strategy among the parties involved in an outsourcing services contract. This model might notably enhance the level of partnership through a wider number of shared indicators selected by the organizations.

References

- Amaratunga, D. (2000), "Building performance evaluation in higher education properties: a facilities management approach", *Research Papers*, Vol. 3 No. 14, pp. 1-21.
- Amaratunga, D. and Baldry, D. (2000), "Assessment of facilities management performance in higher education properties", *Facilities*, Vol. 18 Nos 7/8, pp. 293-301.
- Amaratunga, D. and Baldry, D. (2002), "Performance measurement in facilities management organisations: transition from measurement to management", *Proceedings of the CIB W070 Global symposium, Glasgow, UK*.
- Amaratunga, D. and Baldry, D. (2003), "A conceptual framework to measure facilities management performance", *Property Management*, Vol. 21 No. 2, pp. 171-89.
- Amaratunga, D., Baldry, D. and Sarshar, M. (2000), "Assessment of facilities management performance – what next?", *Facilities*, Vol. 18 Nos 1/2, pp. 66-75.

- Amaratunga, D., Baldry, D. and Sarshar, M. (2001), "Process improvement through performance measurement: the balanced scorecard methodology", *Work Study*, Vol. 50 No. 5, pp. 179-88.
- Amaratunga, D., Haigh, R., Sarshar, M. and Baldry, D. (2002), "Application of the balanced scorecard concept to develop a conceptual framework to measure facilities management performance within NHS facilities", *International Journal of Health Care Quality Assurance*, Vol. 15 No. 4, pp. 141-51.
- Armitage, A.M.D. (2002), "The implementation and application of the business excellence model in SMEs", *Managerial Auditing Journal*, Vol. 17 Nos 1/2, pp. 26-35.
- Brackertz, N. and Kenley, R. (2001), "Evaluating community facilities in local government: managing for service enablement", *Journal of Facility Management*, Vol. 1 No. 3, pp. 283-99.
- Brackertz, N. and Kenley, R. (2002), "A service delivery approach to measuring facility performance in local government", *Facilities*, Vol. 20 Nos 3/4, pp. 127-35.
- Brignall, S. and Ballatine, J. (1996), "Performance measurement in service businesses revisited", *International Journal of Service Industry Management*, Vol. 7 No. 1, pp. 6-31.
- Coronel, P. and Evans, A. (1999), "The balanced scorecard in facilities management", paper presented at AAPP Conference, Melbourne.
- Cotts, D.G. (1998), *The Facility Management Handbook*, 2nd ed., Amacon, New York, NY.
- De Toni, A.F. and Tonchia, S. (2001), "Performance measurement systems: models, characteristics and measures", *International Journal of Operations & Production Management*, Vol. 21 No. 1, pp. 46-71.
- De Toni, A.F., Fornasier, A. and Nonino, F. (2006), "A taxonomy of the outsourced services industry: towards a definition of facility management", *Proceedings of the 13th EUROMA Conference: Moving up the value chain*, University of Strathclyde, Glasgow, UK.
- Fitzgerald, L., Johnston, R., Brignall, S., Silvestro, R. and Voss, C. (1994), *Performance Measurement in Service Business*, CIMA, London.
- Hides, M.T., Davies, J. and Jackson, S. (2004), "Implementation of EFQM excellence model self-assessment in the UK higher education sector – lessons learned from other sectors", *The TQM Magazine*, Vol. 16 No. 3, pp. 194-201.
- Jensen, B. and Gerr, G. (1994), "Seismic shifts in HR management: a case study in mapping radical change at Pepsi", *Employment Relations Today*, Winter, pp. 407-17.
- Kaplan, R.S. (2005), "How the balanced scorecard complements the McKinsey 7-S model", *Strategy & Leadership*, Vol. 33 No. 3, pp. 41-6.
- Kaplan, R.S. and Norton, D.P. (1992), "The balanced scorecard: measures that drive performance", *Harvard Business Review*, Vol. 70 No. 1, pp. 71-9.
- Kaplan, R.S. and Norton, D.P. (1993), "Putting the balanced scorecard to work", *Harvard Business Review*, Vol. 71 No. 5, pp. 134-41.
- Kaplan, R.S. and Norton, D.P. (1996), "Linking the balanced scorecard to strategy", *California Management Review*, Vol. 39 No. 1, pp. 53-79.
- Kaplan, R.S. and Norton, D.P. (2001), *The Strategy Focused Organization. How Balanced Scorecard Companies Thrive in the New Business Environment*, Harvard Business School Press, Boston, MA.
- Kaplan, R.S. and Norton, D.P. (2005), "The office of strategy management", *Harvard Business Review*, Vol. 83 No. 10, pp. 72-80.
- Letza, S.R. (1996), "The design and implementation of the balanced business scorecard: an analysis of three companies in practice", *Business Process Re-engineering & Management Journal*, Vol. 2 No. 3, pp. 54-76.

-
- Lohman, C., Fortuin, L. and Wouters, M. (2004), "Designing a performance measurement system: a case study", *European Journal of Operational Research*, Vol. 156 No. 2, pp. 267-86.
- McAdam, R. and Kelly, M. (2002), "A business excellence approach to generic benchmarking in SMEs", *Benchmarking, An International Journal*, Vol. 9 No. 1, pp. 7-27.
- McCutcheon, D.M. and Meredith, J.R. (1993), "Conducting case study research in operations management", *Journal of Operations Management*, Vol. 3 No. 11, pp. 239-56.
- Meredith, J. (1998), "Building operations management theory through case and field research", *Journal of Operations Management*, Vol. 16, pp. 441-54.
- Neely, A.D. (1998), *Measuring Business Performance*, The Economist Books, London.
- Neely, A.D., Adams, C. and Crowe, P. (2001), "The performance prism in practice", *Measuring Business Excellence*, Vol. 5 No. 2, pp. 6-12.
- Stean, P.D. and Walker, D.H.T. (2000), "Competitive tendering and contracting public sector services in Australia – a facilities management issue", *Facilities*, Vol. 18 Nos 5/6, pp. 245-55.
- Sureshchandar, G.S. and Leisten, R. (2005), "Holistic scorecard: strategic performance measurement and management in the software industry", *Measuring Business Excellence*, Vol. 9 No. 2, pp. 12-29.
- Urrutia, I. and Eriksen, S.D. (2005), "Application of the balanced scorecard in Spanish private health-care management", *Measuring Business Excellence*, Vol. 9 No. 4, pp. 16-26.
- Yin, R. (1994), *Case Study Research: Design and Methods*, 2nd ed., Sage Publishing, Beverly Hills, CA.
- Zhao, F. (2004), "Siemens' business excellence model and sustainable development", *Measuring Business Excellence*, Vol. 8 No. 4, pp. 55-64.

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