

EVIDENCE ON IMPLEMENTING A BALANCED SCORECARD SYSTEM AT THE PORT AUTHORITY OF VALENCIA

José Antonio Aparisi-Caudeli, University of Valencia
Arturo Giner-Fillol, Autoridad Portuaria de Valencia
Eva María Pérez-García, Fundación Valenciaport

ABSTRACT

This paper examines the implementation of a strategic management system at the Port Authority of Valencia, a government body managing and controlling the ports of Valencia, Sagunto and Gandia in Spain. The methodology used is a case study, a method that has grown increasingly popular in this field of research. The analysis of this implementation process has included a study on the design and implementation of the balanced scorecard model, as well as research on how a strategy map was drawn, performance measurement software applied and a strategy management process implemented in the organization. This research provides further knowledge of the changes that an organization undergoes to implement a strategic management system.

JEL: M14, M40

KEYWORDS: balanced scorecard, port authority, Valencia, strategic management system

INTRODUCTION

AIMing to meet the challenges of a common European and globalized market, the Spanish State-Owned Port System (Sistema Portuario de Titularidad Estatal in Spanish, hereafter referred to as SSOPS) has over the last decade carried out its activity following the guidelines of a strategic framework (Puertos del Estado, 2001). In doing so, the foundations have been laid for a participative model. This model would make port authorities meet the SSOPS' legal requisites and face business challenges in a sector where understanding, adjusting and developing according to the market requirements calls for ports to anticipate future scenarios to carry out their work as effectively and efficiently as possible. Several port authorities have consequently drawn up strategic plans to advance their development, thereby increasing their efficiency and global connectivity as a way of enhancing the wellbeing of society as a whole (Ripoll et al., 2005; AECA, 2006). The port authorities' efforts in designing such strategic plans have also resulted in an obligation of ensuring that these plans are correctly implemented and monitored while making sure that they improve their performance (Benders and van Veen, 2001; Malmi, 2001; Speckbacher et al., 2003; Braam and Nijssen, 2004).

This situation has made it necessary for the SSOPS to develop a project of strategic implementation based on the balanced scorecard (BSC) model as a strategic management system (Kaplan and Norton, 1996a, 1996b, 1996c, 1996d, 2000, 2001a, 2001b, 2001c, 2001d and 2004; Malmi, 2001; Nilsson and Olve, 2001; Speckbacher et al., 2003). Such a strategic performance measurement system describes the strategy by means of cause-effect relationships while implementing the organizational strategy by establishing objectives, action plans and results and by linking incentives to BSC measures.

Bearing in mind the situation illustrated above, the goal of this study is to analyze the strategic planning process and the implementation of BSC in one of the SSOPS' business units. This research applies a case study methodology, providing evidence of the implementation of BSC in an organization as a result. Several authors have stressed the importance of developing empirical research on the innovations in

management accounting, among them: Brewer and Hunter, 1989; Bryman, 1989 and 1992; Otley and Berry, 1994; Chapman, 1997; Hoque and James, 2000; Brignall and Ballantine, 2004; Lillis and Mundy, 2005; and Tuomela, 2005.

The remainder of the paper is organized as follows. The next section reviews the literature. Section III contains the methodology applied. Section IV discusses the process to design the strategic plan of the Port Authority of Valencia (PAV). Section V presents the PAV's strategic management system, analysing in-depth the BSC implementation project, the design process of the PAV's strategy map, the technology implementation of BSC in the organization and its strategic management structure and systems at present. The final section concludes with a summary and suggestions for further research.

LITERATURE REVIEW

Management accounting evolved significantly during the nineties (Bromwich, 1990; Ezzamel, 1994; Roslender, 1996; Vaivio, 1999). Key developments centered fundamentally on changing from an approach based on planning and control processes and further cost reductions to a stronger strategic emphasis on value creation within organizations (Kaplan and Norton, 1996d; Otley, 2003). This was achieved by identifying, measuring and managing the principal financial and non-financial drivers of strategic success and shareholder value (IFAC, 1998; Ittner and Larcker, 2001).

Long-term survival within this context required organizations not only to consider the technical aspects of the design of management systems but also the organizational environment in which they develop and interact (Lowe and Puxty, 1989; Otley, 1994; Langfield-Smith, 1997; Baines and Langfield-Smith, 2003; Maiga and Jacobs, 2003). This implied adapting the design and utilization of such systems to their environment, business strategies and organizational structures. The process exerts an influence on the companies' organizational culture and interrelation with human resources (McNair et.al., 1990; Fitzgerald et.al., 1991; Lynch and Cross, 1991; Libby and Luft, 1993; Lebas, 1994 and 1995; Kaplan and Norton, 1996d; Foster and Young, 1997; Atkinson et.al., 1997b; Parker, 1998).

In this respect it is worth pointing out that the BSC model has aroused the greatest interest among academics and professionals working in business management (Norton and Kappler, 2000; Ittner and Larcker, 2001; Bourguignon et.al., 2004). It was seen as the most fitting tool to integrate financial and non-financial performance measures in an integral management control system (Atkinson et.al., 1997a; Ruhl, 1997; Shields, 1997; Hoque and James, 2000; Simons, 2000; Malina and Selto, 2001; Bisbe and Otley, 2004).

As Kaplan and Norton (1996a) claim, BSC resolves a deficiency in traditional management systems: their inability of linking a company's long-term strategy with its short-term actions. Indeed, this tool provides a structured methodology to select multiple performance measures focused on critical business aspects. It also provides a link between performance measures and business strategies (Banker et.al., 2001 and 2004). This is why it is fundamental for managers to analyze their markets and strategies to obtain and/or develop their own business model reflecting truly the interrelations (cause-effect relations) between the different business components (strategic objectives). Such efforts will result in the selection of the model (strategic map) that will prove more successful with respect to its implementation while permitting the selection of the corresponding BSC performance measures.

According to Kaplan and Norton (1996d and 2001c), the BSC concept should evolve from a strategic measuring system towards a strategic management system. To this effect, a fully developed BSC should not only describe the strategy of organizations (through cause-effect relations) but should be used rather to implement organizational strategies (Kaplan and Norton, 1996d).

It is worth highlighting therefore that the main advantages of the BSC methodology as a tool to implement strategies are several. In first instance, it provides an integral vision of organizations from different perspectives. It also allows companies to know their current situation by measuring the elements considered vital to fulfilling their visions. It enables organizations to look forward proactively by focusing on the internal aspects that are essential to creating value for clients and shareholders in the future in a sustainable manner. It facilitates organizational alignment and strategic prioritization by setting the entire organization to meet objectives, linking the relations between the efforts and/or actions being made and the results being obtained. Finally, it influences the behavior of key staff, aligning their actions to fulfilling objectives resulting from a collective process in which they have participated and are involved in assuming responsibilities to obtain specific goals.

The BSC as a strategic management system can therefore be defined as a strategic performance measurement system that describes strategies by means of cause-effect relations and implements business strategies by defining objectives, action plans and results as well as linking incentives to BSC measures (Kaplan and Norton, 1996a, 1996b, 1996c, 1996d, 2000, 2001a, 2001b, 2001c, 2001d and 2004; Malmi, 2001; Nilsson and Olve, 2001; Speckbacher et.al., 2003).

Strategic management control systems have specifically benefited from the implementation of strategies focused on creating business value (Kaplan and Norton, 1996d; Otley, 2003), thereby enabling strategies to be linked to organizational performance and providing rational support to business decision making. Such integral strategic management is based on a model that combines and integrates strategy planning, implementation, follow-up, learning and feedback (Shank and Govindarajan, 1993; Kaplan, 1994; Hood, 1995; Merchant, 1998; Simons, 2000; Ittner and Larcker, 2001; Laitinen, 2002; Chenhall, 2005) with the purpose of improving organizational efficiency (Otley, 1999). It is necessary therefore for businesses to have a much wider management control perspective with an active participation of all their staff. Stronger emphasis must be made on the organizational and social context, on psychosocial and cultural factors, on the flexibility to use management accounting, on assessments as a learning mechanism and on the implementation of management accounting as a model for organizational and cultural change.

METHODOLOGY

This research applies a case study methodology. This method has allowed us to understand how different accountancy techniques, procedures and systems are used in practice (Ryan et.al., 2002). The unit of analysis in this study is the Port Authority of Valencia (PAV), a government body that manages and controls the ports of Valencia, Sagunto and Gandia. The PAV has grown a leader in trade flows in Spain, essentially in container imports and exports, making the organization not only a key player for the internationalization of the economy of the Valencian region but also the maritime gateway for the entire Iberian Peninsula. The organization under study is strategically positioned (Bobrovitch, 1982; Fleming and Hayuth, 1994) having consolidated a solid portfolio of customers located in its hinterland, developed good inland transport connections and attracted leading shipping lines offering inter-ocean services.

Furthermore, the organization chosen complies with the typical characteristics of cases studied in the field of accounting referring to BSC management. According to the research by Hoque and James (2000), Speckbacher et.al. (2003) and Rigby and Bilodeau (2005), large organizations are among those that most use BSC. The PAV is a business unit of the SSOPS and according to Kaplan and Norton (1996d) and Speckbacher et.al. (2003), BSC is often implemented at a business unit organizational level.

The main reason for choosing the PAV as the business unit under study results from its development of a project of BSC implementation at the highest level (within the strategic framework of the PAV). This makes it a critical case since an important event has occurred arousing the interest of the researcher in examining it (Yin, 1994); apart from being a great opportunity to learn about this research field (Stake,

1994). Moreover, it is worth indicating that this work has used an interpretative approach to accounting research (Hopper and Powell, 1985). This implies placing current management accounting practices within their historical, economic, social and organizational background. Consequently, this approach provides a theoretical framework aimed at understanding how management accounting practices are both the means and the result of social structures (Burns and Scapens, 2000).

STRATEGIC PLANNING TOWARDS 2015 OF THE PORT AUTHORITY OF VALENCIA

Internationally competitive ports must become large logistics centers in which freight concentration, distribution and personalization activities take place. These services and activities enable ports to integrate fully into global supply chains (Santos, 2001; Malchow and Kanafani, 2004). To this effect the PAV released in 2002 the 2002-2015 Strategic Plan. This plan strives to define and integrate basic strategic pillars along with projects capable of satisfying sustainable and competitive port capacity supply, in terms of quality and price, and port, maritime, intermodal and logistics infrastructures and services. In doing so, the PAV would foster the economic and social development of its area of influence in the Western Mediterranean. The PAV followed a five-stage process (Table 1) to design its Strategic Plan (Giner et.al., 2007):

Table 1: Stages of the Design Process of the PAV’s Strategic Plan

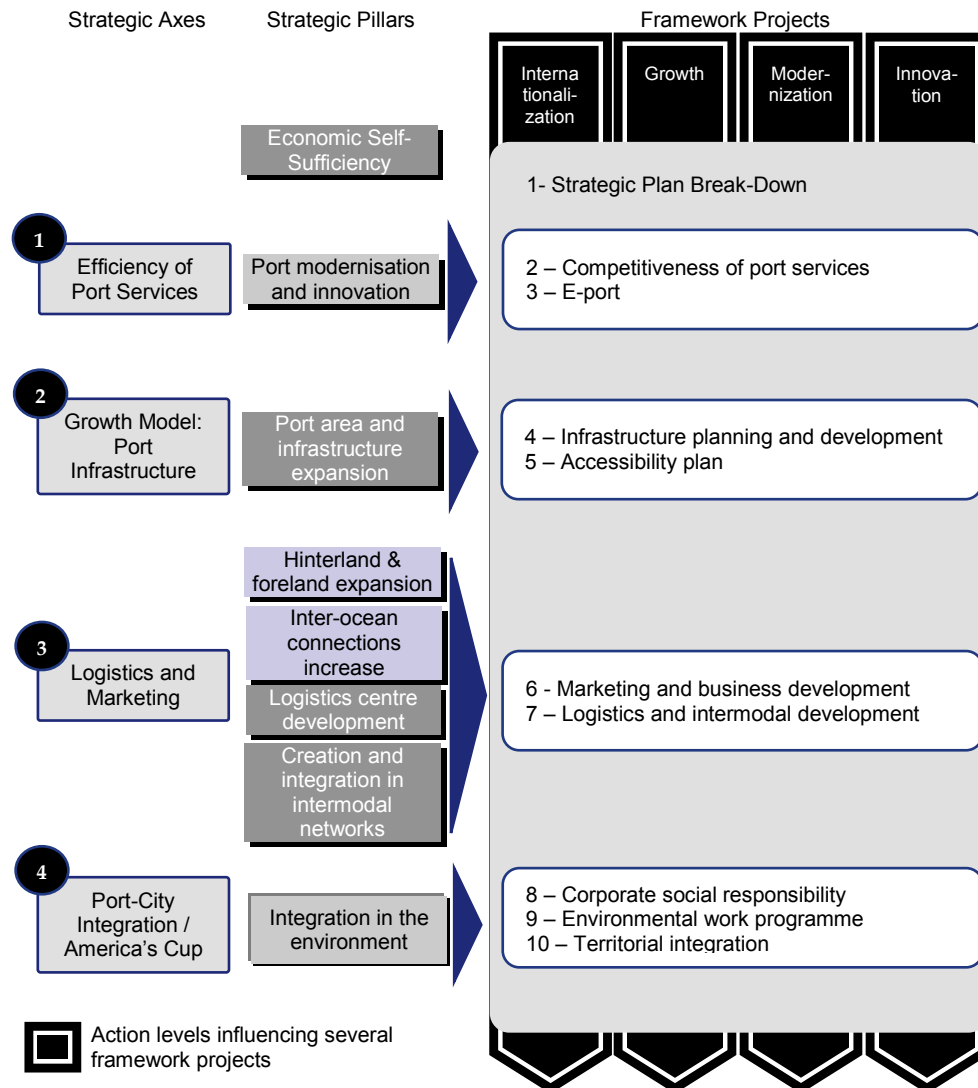
STAGE		ACTIONS INVOLVED
Business vision	environment	Following an analysis of the trends and challenges for the port environment (public and legal framework, clients, competitors, etc.), it was possible to establish the strategic scenario in which the PAV’s activity takes place (institutional policies, logistics, ocean carrier and port features, etc.)
Diagnosis of competitiveness	of	Using the analysis of key drivers for competitiveness (infrastructure, freight concentration and port and logistics services, among others) as a basis, the PAV established the corresponding strategic framework.
Framework for action		The PAV formulated the first level of the strategy and subsequently defined the business vision in line with the mission, organizational values and strategic position (establishing as well strategic pillars and objectives).
Strategic pillars for action		The formulation of the second level of the strategy made it possible to establish the strategic pillars for action within the Strategic Plan. These pillars aimed to fulfill the business strategic objectives. Nevertheless, in 2006, as part of the ongoing review of its Strategic Plan, the PAV grouped the eight strategic pillars into four core strategic development axes, all of which were based on developing and managing the economic self-sufficiency pillar.
Strategic program	development	The implementation process design was the basis for the strategic development program. The PAV established priority projects, an execution framework and schedule as part of a plan of action.

This table displays the five stages of the design process of the PAV’s Strategic Plan. Source: Port Authority of Valencia

These strategic projects are currently being developed under the umbrella of 10 framework projects (Figure 1) aiming to foster leadership and allocate responsibilities among the PAV’s executives. Moreover, these framework projects have been further broken down into a set of projects and subprojects, allowing the involvement of the PAV’s top-level management team in promoting the Strategic Plan. The PAV created a working structure and put it in charge of implementing and monitoring the strategic development program. This structure included a Commission of Representatives of the Board of Directors formed to monitor the implementation of the Strategic Plan, a Strategic Plan Development Office and the organizations linking and bringing together the port community. These included the

Quality Council and the Commercial Councils of the ports managed by the PAV. In summary, the PAV’s Strategic Plan has sound foundations to face up its present and future development. This solid basis has enabled the PAV to design and implement a formal tool for strategic thinking, to start a strategic planning process, to share a vision on the future of the port with all stakeholders, to develop a set of priority actions and to establish an adapted organizational structure.

Figure 1: Core Strategic Axes, Strategic Pillars and Framework Projects of the Port Authority of Valencia



This figure shows the PAV’s core strategic axes, strategic pillars, framework projects and their inter-relations. These framework projects aim to foster leadership and allocate responsibilities among the PAV’s executives. Source: Port Authority of Valencia

STRATEGIC MANAGEMENT SYSTEM AT THE PORT AUTHORITY OF VALENCIA

Following the presentation of the PAV’s process of strategic planning, we have carried out a detailed analysis of a series of issues considered fundamental in the PAV’s BSC implementation project. This analysis is justified by the PAV’s peculiarities, including the availability of a strategic plan, the size of the three ports run by the PAV and their types of traffic, among others. These characteristics gave rise to a series of PAV-specific aspects in the BSC implementation project when compared to the “standard”

implementation process used in other port authorities belonging to the SSOPS. In this sense, we have structured the study of this implementation process in four parts: a) the BSC implementation project; b) designing a strategy map; c) applying performance measurement software and, d) strategic management.

Implementation of the Balanced Scorecard Project at the Port Authority of Valencia

Despite having publicly presented its 2002-2015 Strategic Plan in November 2002, the PAV was unable to fully implement it due to problems that emerged when breaking down its framework projects and designing the projects and subprojects forming the strategic plan. This situation was essentially because of the lack of a specific and formalized method to both manage this process and correctly communicate the vision of the organization to the PAV's Management Committee. For this reason, at the end of 2003 the PAV found that it was incapable of implementing appropriately its strategic plan. The inevitable need to overcome these difficulties or obstacles, as stated by Strategy & Focus (2007) in their investigation, had become one of the main challenges to overcome for success.

There were three reasons for the PAV to adopt a BSC system as a strategic management tool. The first reason was the need to improve its strategic planning process, the allocation of resources and its strategic follow-up system. The second main reason was the willingness to reinforce its organizational management culture. Finally, the third reason was to strengthen the role of the PAV as the promoter and leader of the port community, using the BSC as a system to communicate its common strategy and promote teamwork among the members of the port community.

In 2003, the PAV began the BSC implementation project, carried out in three stages as indicated in Table 2. Stage 1 consisted of adapting the common BSC model designed for SSOPS to the peculiarities of the PAV (personalization stage of BSC implementation at the PAV). The second stage involved the revision and improvement of the result of stage 1 and the preparation of the organization for BSC implementation (fine-tuning the corporate BSC and preparing for implementation). Finally, the third stage put in practice the BSC implementation project (launching of the corporate BSC and implementation stage). More specifically, the PAV developed the BSC implementation project following a program structured in six stages with corresponding tasks and deadlines. Figure 2 displays this program.

In the first stage, this plan would permeate the entire organization. Only in the second stage it would reach the port community (group of public and private sector organizations offering the whole range of port operations and services). The move to re-launch the Strategic Plan was motivated as previously stated by three reasons. Firstly, launching the plan would enhance the strategic planning process (defining objectives and strategic targets), while facilitating the alignment and assignment of resources (budgets and operating goals) and contributing to strategic monitoring (management measures, coordination and decision-making committees) of the PAV. Secondly, implementing the plan would strengthen the PAV's management culture aimed at business results, internal and external customer satisfaction, the integration of the PAV in its socio-economic environment, teamwork and participation, objective-led management and long-term strategy. Thirdly, it would ease up the PAV's task as an integrating body by providing the PAV with a tool to communicate the common strategy to all port community stakeholders and third parties who, although not being members of the port community, do nevertheless have some type of relationship with the port authority. This communication and shared strategy would foster cohesion and teamwork so that everyone could work towards the final goals.

In short, in the specific case of the PAV, a group of both internal and external working teams carried out the BSC implementation project. The internal team included the Management Committee, the internal project coordinator, the BSC working team and the head of information systems, while the external supporting team was composed of the central government's state-run ports agency, a team of consultants and the software implementation team.

Table 2: Stages of BSC Implementation at the Port Authority of Valencia

	STAGE I Personalization of BSC implementation at the PAV	STAGE II Fine-tuning corporate BSC and preparing for implementation	STAGE III Launching of corporate BSC and implementation
REQUISITES	Involving and integrating the central government body of state-run ports in the global BSC project	Management endorsement	Support from the Presidency
	Strategic Plan	Internal project manager Participation of Management Committee members	BSC integration in PAV's management Internal support guaranteed by Strategic Implementation Office
	Adapting the implementation methodology	Link to SSOPS BSC project Methodological support from a Consultancy	Integration of expert consultants in the Strategic Implementation Office
	First version of corporate map	Final version of corporate map	Accomplishing results foreseen in Strategic Plan
RESULTS	Maps by pillar	Table of detailed indicators	Improvement in PAV's management and consolidation of new structure
	Implementation plan	Plan for Action	Implementation of Plan for Action projects
	Commitment from top management	Strategic Implementation Office	Implementation of Plan for Action projects
	Making management team aware	Project Management Methodology	Creation of transversal teams of strategic implementation
	Operating project manager	Computer software: Quick Scorecard BSC Implementation Plan	Display and Communication of strategy through developing the BSC by pillar and by department

This table displays the stages of BSC implementation at the PAV, as well as the requisites prior to each implementation stage and the results obtained after completing each stage. Source: Port Authority of Valencia

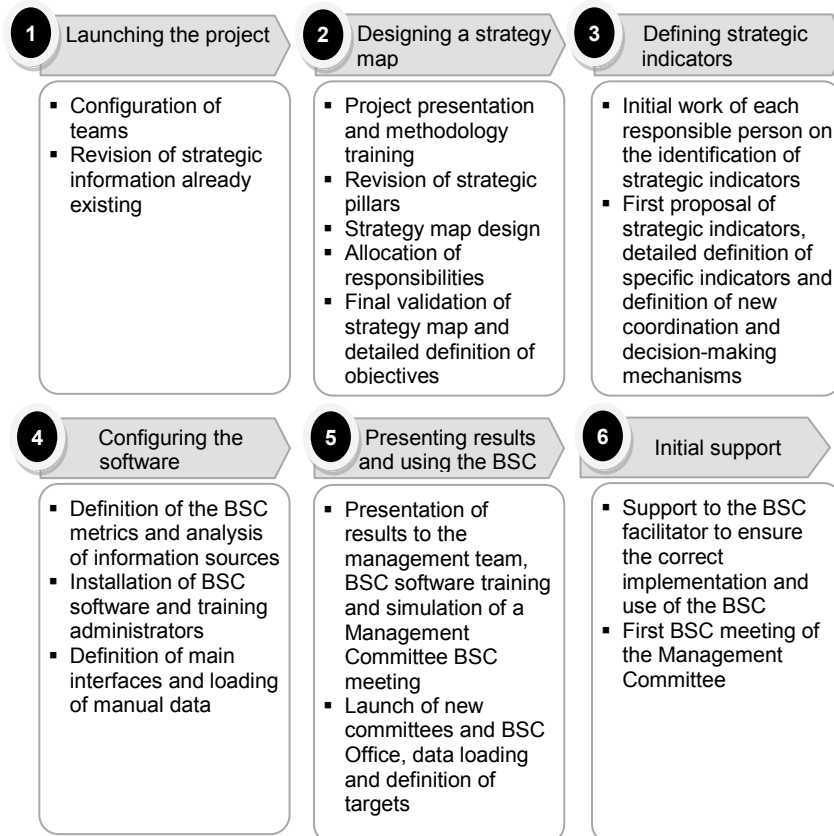
This enabled the implementation process to develop effectively thus managing to mitigate the possible difficulties that stem from the changes that implementing the strategy requires (Bogt and Helden, 2000; Nilsson, 2000). The different teams played specific roles in the implementation process. The Project Management Committee was in charge of project management, guaranteeing resources and sponsoring the project. The PAV Management Committee established the main strategic criteria for elaborating the BSC and testing/validating the results obtained throughout the project. The Internal Project Coordinator worked as a liaison officer between the organization and external teams and internally coordinated all activity related to the BSC project. The BSC Work Team provided the organization with knowledge of its fields, processes, customers, etc. This information was crucial to define the PAV-specific BSC model (setting objectives and elaborating strategic measures, assigning targets, etc.).

The Head of Information Systems provided information regarding information technology and data sources and participated in the definition of interfaces and the implementation of the computer software. Finally, the External Supporting Team, given its experience in implementing BSC in other organizations and its knowledge of the sector, provided methodological support for the project's development, led work meetings, prepared result reports, introduced PAV-specific parameters and installed the software.

As a result of the BSC implementation the PAV has reaped several benefits. The BSC system has facilitated streamlining staff actions with the strategy by translating strategic objectives into targets assigned to most groups within the organization. It has helped to allocate resources in a more balanced and coherent manner and prioritize project execution. It has provided top-level managers with a set of strategic and key operating measures capturing the evolution of their business from different perspectives. It has helped to anticipate problems and act proactively towards achieving strategic objectives. It has enabled the organization to carry ongoing monitoring of how well the Strategic Plan is being assimilated and followed. It has played a key role in communicating the strategy to all levels, which has allowed

everyday work to be related to the future vision of the organization. It has favored teamwork towards achieving common final objectives. It has guaranteed a global view of the organization’s strategy in all areas and departments, helping to understand the implications that actions carried out in one area have on others (global optimum versus local optimum). It has simplified the elaboration of business plans and budgets, linking long-term objectives to short-term goals. Finally, since the BSC system has a set of common measures agreed upon by all SSOPS business units, it has given rise to the possibility of benchmarking.

Figure 2: Phases for BSC Implementation at the Port Authority of Valencia



This figure shows the different implementation phases of the PAV’s BSC system. Source: Port Authority of Valencia

Finally, it is worth indicating that given the size of this project, the successful implementation of the BSC required the PAV to make a combined effort on three important issues: designing a strategy map; applying performance measurement software and strategy management. The next section addresses each of these three aspects.

Strategy Map of the Port Authority of Valencia

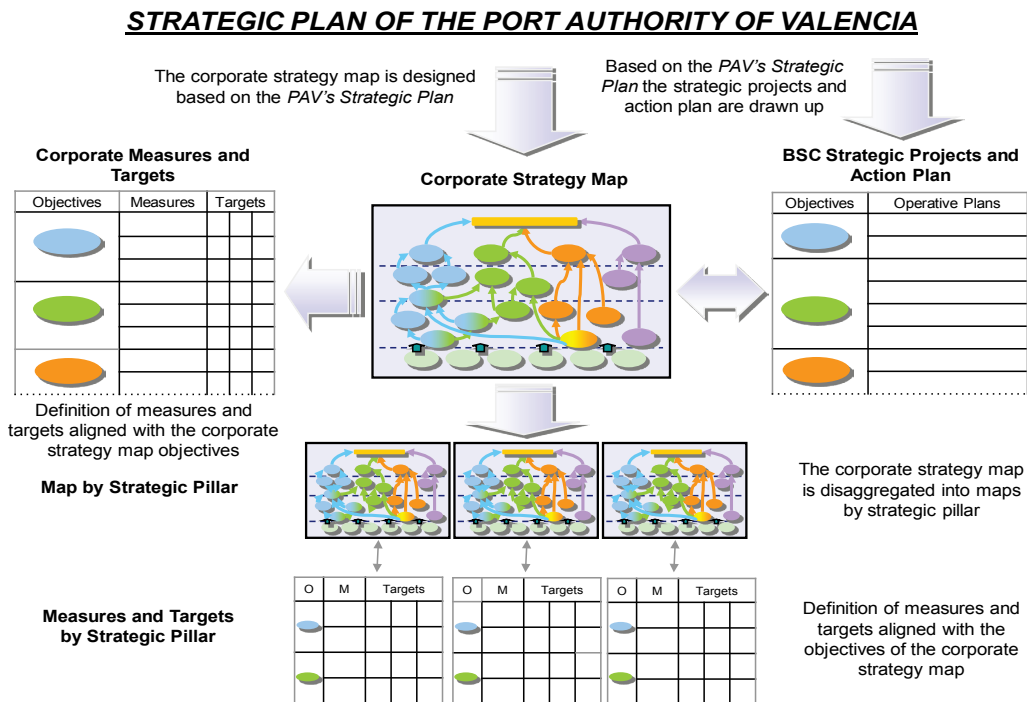
Prior to drawing up the strategy map of the PAV, all members of the Management Committee and a specific BSC team were given specific training courses in BSC methodology. Likewise, the PAV created a BSC team made up of a small group of members of the Management Committee (Executive Committee).

At present, the implemented BSC aims at PAV top-level management. This is to say that the President, Managing Director and Department Managers are the current users of the corporate strategy map. The BSC cascading process for lower levels of the organization is still pending, as well as the extension of the BSC to the rest of the port community.

The process followed by the PAV to elaborate its BSC, displayed in Figure 3, originated from the existence of the 2002-2015 Strategic Plan, which in turn resulted in the design of a corporate strategy map. Members of the organization attended an initial presentation of the BSC implementation project and received specific training in this methodology. The revision and adaptation of the strategic pillars followed. With regards to the perspectives of the common strategy map, the PAV established the objectives at the top executive level, appointed the managers in charge of the strategic objectives of the corporate map and undertook a final validation of this strategy map (Malmi, 2001; Horváth & Partners, 2003; Speckbacher et.al., 2003; Medina, 2005; Ripoll et.al., 2005). Finally, the PAV specified with more detail the strategic objectives assigned to these managers as well as the cause-effect relationships between them (Malmi, 2001; Ittner and Larcker, 2002; Speckbacher et.al., 2003; Banker et.al., 2004; Bryant et.al., 2004).

After designing the strategy map, the next stage was to determine the strategic metrics that would measure the various strategic objectives (Banker et.al., 2000; Hoque and James, 2000; Hoque et.al., 2001; Laitinen, 2002; Smith, 2002; Said et.al., 2003; Hoque, 2005). Along with the strategic metrics, the PAV also set the targets for these measures in forthcoming periods (AECA, 2006). The PAV then defined in detail the measures and particularly those that were specific or exclusive to the PAV as a business unit of the SSOPS. The entire process underwent several revisions as a stepping-stone towards final validation.

Figure 3: General Process of BSC Construction at the Port Authority of Valencia



This figure shows the process of BSC construction at the PAV. Source: Port Authority of Valencia

Given that a corporate strategy map already existed, the PAV correctly interconnected it to the strategic projects and the action plan resulting from the PAV's Strategic Plan (Chenhall and Langfield-Smith, 1998; Olsson et.al., 2000; Tate, 2000).

Regarding the perspectives of the common strategy map of the SSOPS - financial, customer, internal business process and learning and growth perspectives - (AECA, 2006), it is worth indicating that they have adapted perfectly to the PAV's requirements. As a result, there has been no need to adjust any of these perspectives whatsoever.

The SSOPS had designed its proposed common strategy map for port authorities lacking their own strategic plan. However, as the PAV had already elaborated a strategic plan prior to the process of implementing the BSC model, the organization had to adjust the pillars of its corporate strategy map to its strategic plan. Consequently, the PAV increased the five pillars normally included in the SSOPS common strategy map to eight PAV-specific pillars.

As a result of how specific the PAV is in relation to other port authorities and given the difficulty for PAV's members to assimilate the strategy derived from one sole corporate strategy map, it was decided that a set of maps, one for each strategy pillar, would be drawn up (Medina, 2005; Ripoll et.al., 2005). The PAV elaborated eight strategy maps, one map for each of the pillars included in the Strategic Plan. Their corresponding objectives, cause-effect relationships, measures and targets were determined by creating a team and a team leader for each strategic pillar map. The PAV's top-level management staff checked and validated these strategy pillar maps with their respective objectives, cause-effect relationships and measures. Once validated, the PAV Management Committee revised and approved these maps.

More specifically, after various sessions in which strategic pillar teams identified measures, the various metrics of both pillar maps and the corporate strategy map were approved. Team leaders were then appointed for each strategic objective of the corporate map and for each objective of the pillar maps. First-level strategic measures were also selected. These indicators measure success in accomplishing the objectives set by the corporate map and the strategic pillar maps. Finally, targets were established for all these metrics.

The process of configuring the software to manage the strategic information generated by the BSC started after the approval of all the strategic measures. While it is fair to say that the PAV's staff considers the strategy maps by pillar to be a breakdown of the corporate strategy map, the truth is that the PAV drew up its first corporate strategy map after integrating the eight strategic pillar maps.

Nevertheless, integrating the strategic pillar maps into one single corporate strategy map for top-level management was difficult to present and monitor afterwards. This was chiefly due to the vast number of strategic objectives and measures that were contained therein. For this reason, a small work group, created specifically for this purpose, designed an executive strategy map (Figure 4) for top-level management staff. This executive strategy map had a smaller number of both strategic objectives and measures, thereby making it easier for these members of the organization to analyze the key drivers that should be subject to appraisal. The presentation of the executive strategy map took place in 2004 before top-level management and included 16 strategic objectives and 39 strategic measures. By 2008, the number of measures had increased to 42.

To summarize, the four stages involved in the process of developing the executive strategy map were: a) designing the corporate strategy map; b) detailing the strategic objectives established in the corporate strategy map; c) reviewing the cause-effect relationships between strategic objectives and; d) appointing the managers to be in charge of each of the strategic objectives established.

Technology Implementation of the Balanced Scorecard at the Port Authority of Valencia

After concluding the first version of the strategy map and having determined the measures that should provide information regarding progress towards achieving strategic objectives, the need arose for a system to monitor this information. As a result, at this stage of the project, tasks specifically linked to the process of introducing the software for BSC in the PAV were undertaken.

In this sense, the coordination and decision-making mechanisms of the BSC implementation project needed to be redesigned with respect to normal business management tools (Escobar, 2002; Rigby and Bilodeau, 2005; Tuomela, 2005). In order to achieve this, the PAV analyzed the current state of its information systems with the aim of successfully integrating the software finally chosen with the existing information systems in use in the organization. Once the PAV had audited existing information systems, Quick Scorecard was the software program chosen to extract and supply BSC information. This tool works as an application integrated in Microsoft Access and Excel.

This program was chosen because it is capable of adequately monitoring the strategy and is easy to configure, use and integrate into the rest of software programs employed at the PAV (Krumwiede, 1998; Liberatore and Miller, 1998; Sharman and Kavan, 1999; Ahn, 2001; Cavalluzzo and Ittner, 2004). More specifically, the process involved giving parameters to the program, defining primary interfaces, training users, compiling and loading data into the program, purchasing business intelligence applications that enable the automatic calculation of measures, defining measure targets and designing electronic documents to define and monitor operating objectives and initiatives.

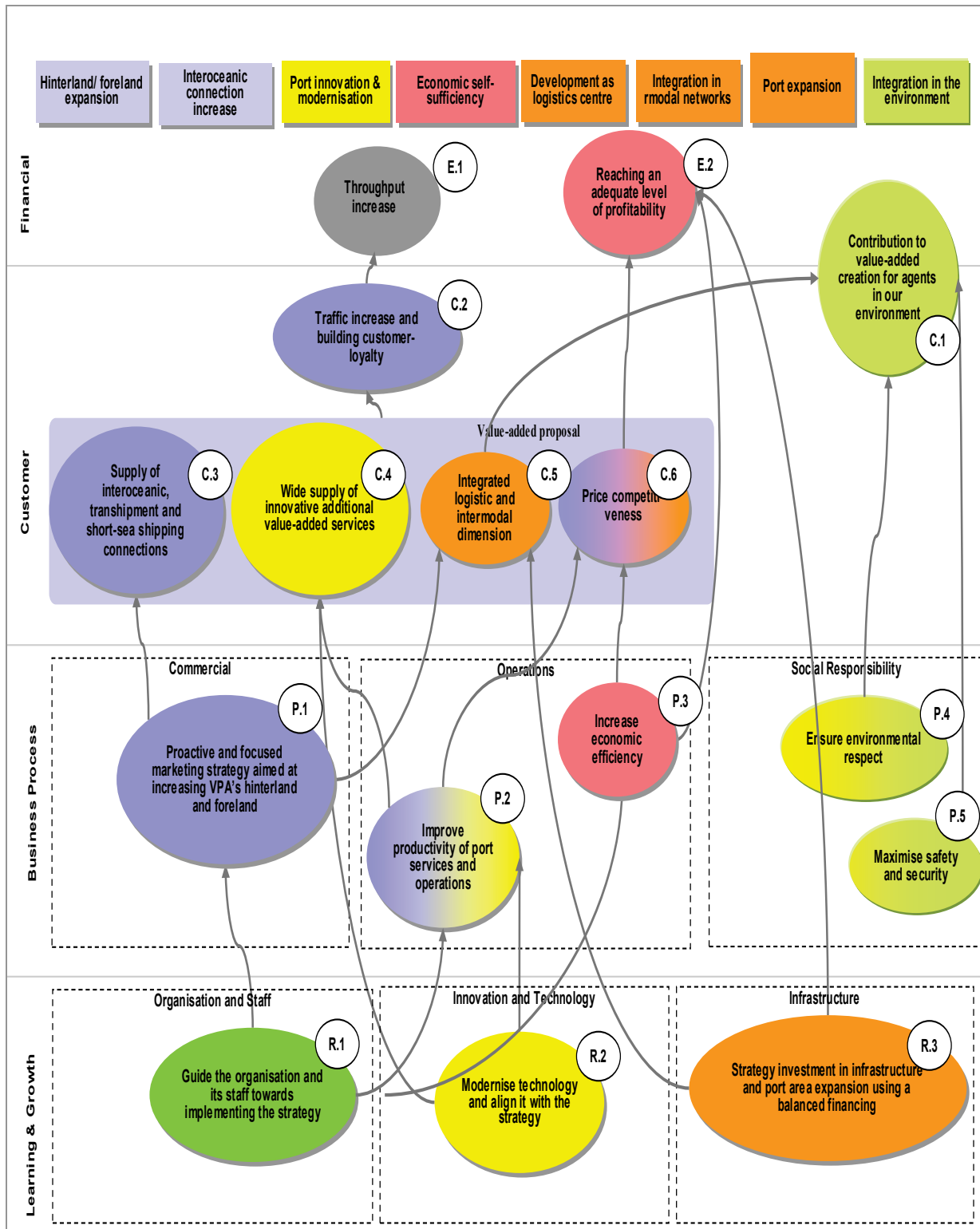
The PAV has improved considerably in terms of dealing with the growing amount of information that it generates, which is making the decision-making process easier for its members (Epstein and Manzoni, 1997 and 1998; Liberatore and Miller, 1998; Escobar, 1999 and 2002; Granlund and Malmi, 2002; Niven, 2002; Tuomela, 2005). Therefore, this technological development is based on the implementation of integrated information systems (ERP: Enterprise Resource Planning) and state-of-the-art business intelligence applications, capable of being programmed by the users themselves, leading to the deployment of one sole information system capable of gathering data from different databases. Reports can be easily created with this system and users are able to navigate through the reports (information traceability is ensured). As a result, gathering useful information becomes a faster and easier process.

In this sense, it is worth highlighting that the information flows between PAV members that feed the databases that contain the information on BSC measures are significant. Consequently, the program is crucial to visualize to what extent the strategy of the organization is being achieved, to monitor the contributions of the staff involved and assess how motivated they are and to detect possible flaws of the software (Doll and Thorkzadeh, 1998; Banker et.al., 2004). The data feeding process at the PAV (Figure 5) is therefore essential to appraise objectives and decisions.

At present, the PAV carries out the process of compiling and loading data and appraising objectives, as described below, on a quarterly basis. Final quarterly results are available in the BSC computer tool shortly after the appraisal meeting.

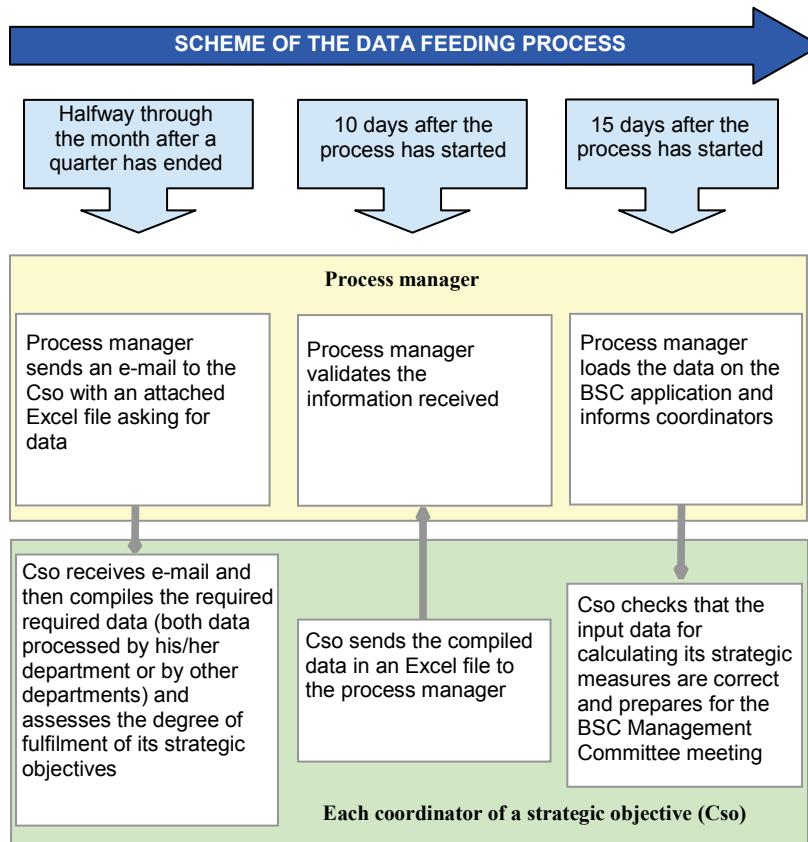
Strategic objective coordinators receive an e-mail halfway through the month immediately after the end of a quarter reminding them what strategic measure data they should provide and emphasizing the need to assess their respective strategic objectives. The coordinators also receive a personalized Excel sheet for them to introduce the data.

Figure 4: 2008 Executive Strategy Map of the Port Authority of Valencia



This figure shows the executive strategy map of the PAV. Source: Port Authority of Valencia

Figure 5: Data Feeding Process at the Port Authority of Valencia



This figure shows the data feeding process of the PAV's BSC system. Source: Port Authority of Valencia

The coordinators then have 10 days to provide this information and return the data file to the person in charge of the process. If a coordinator is unable to facilitate all the information required for a given period, the person in charge should be informed of what data are missing and why.

Finally, after receiving and validating all the information, the person in charge of the process loads the data into the BSC program and informs all coordinators electronically that the information is available.

Strategy Management at the Port Authority of Valencia

In order for the BSC project to be successful, the conception of strategy maps and implementation of software needed to become an integral part of the management process of the organization. At present, the PAV's management has successfully incorporated the BSC into its strategic management systems. In fact, the BSC has been used to render the strategy operative by synchronizing the strategy with the operations. In addition, it is employed as a guide in executive meetings aimed at monitoring business and in decision-making processes. Moreover, BSC is the tool used to communicate the results achieved to the PAV's staff, thereby fostering strategic dialogue between PAV members and teamwork towards accomplishing final goals. Finally, it is used in resource allocation and in prioritizing future actions.

Therefore, given the size and scope of the strategy implementation process, it was essential to plan and apply an entire array of strategy management actions enabling the organization to become acquainted

with the new strategy and the tasks it entailed, as well as to make it easier for key people to become involved gradually (Otley, 1999).

To achieve this the PAV uses basic management principles to reinforce strategic management and drive the implementation of the Strategic Plan. In this sense, the following management principles are worth highlighting: a) strengthening the leadership of top-level managers in the Strategic Plan projects; b) one-way strategic and day-to-day management; c) fostering delegating actions and independence in executing strategic projects; d) reinforcing management mechanisms; e) clarity and consistency when assigning project responsibilities; f) allocating strategic projects to the people/teams that are best prepared and willing to take charge; g) endowing strategic projects with devoted, capable and motivated human resources; h) establishing objectives and mechanisms for monitoring and control; i) developing internal communication and, j) promoting motivation mechanisms.

Along the same lines, the process of strategic implementation and monitoring should not be considered a one-off action to be developed only when a new strategic plan is specified. An organizational function, called strategy management, is necessary to guarantee ongoing support for both the implementation of the strategy and the monitoring and revising processes it entails (Strategy & Focus, 2007). The aim, therefore, is for management to be based on strategy, as defining the BSC model is not enough: it must be used as the primary reference in strategic business monitoring meetings; it should encourage strategic dialogue between organization members and foster teamwork towards attaining the final goals of the PAV. It must also be a key factor in resource allocation and when prioritizing the initiatives to be launched (Braam and Nijssen, 2004). In order to achieve the goals indicated herein, the following four actions were essential: a) defining mechanisms (committees) to monitor the strategy and decision-making processes; b) defining and putting into practice the process of compiling and loading data, assessing objectives and installing and using software; c) informing PAV members on a relatively periodical basis of the main results accomplished and, d) integrating the current process of resource allocation and definition of operating objectives into the BSC.

Normal strategy management requires a functional structure within the organization to make managing and monitoring easier (Roberts, 1990; Archer and Otley, 1991; Kaplan and Norton, 2001c). To this effect, the PAV created a Strategy Implementation Office under the direction of the PAV's Strategic Planning Section/Area. The role of this office is to manage the strategy, during both the elaboration and monitoring processes. Its responsibilities include managing the elaboration or annual review of the Strategic Plan and managing the process of designing and/or updating of strategy maps. It also coordinates the processes of defining and implementing corporate strategic initiatives. It makes sure that the different departments and units assimilate the corporate strategic initiatives. Furthermore, this office is in charge of designing the strategic management system (measures and targets) and managing the results and proceedings of coordination and review meetings regarding the implementation of the strategy at different levels (Executive Board, Management Committee, Departmental Committees, etc...). It also leads and manages the design, development and implementation of the technology platform, coordinating updates according to the information requirements that stem from the elaboration of a new strategy or an annual review. Moreover, it manages the external and internal strategy communication plan to make everyone aware of the PAV's strategic process in order to help it understand the strategy and get it involved in accomplishing its objectives. Finally, it manages the change that implementing the strategy entails.

More specifically, the Strategy Implementation Office has developed a series of strategy coordination and monitoring mechanisms to fulfill its function. These mechanisms are three-fold. The first mechanism consists of monthly internal implementation office meetings to monitor the strategy implementation and decision-making processes, as well as to review the organizational management model. These meetings serve to gather data and analyze the information extracted from the metrics received. They are also useful

to revise the plan of action, detect possible deviations from the schedule or resource overloads, propose actions to solve foregoing problems, improve processes or update models and to elaborate the contents of progress reports regarding the state of the strategy map and measures. The second coordination and monitoring mechanism are quarterly meetings of the Management Committee to monitor the strategy. The main function of these meetings is for each person in charge of a strategic objective to give a brief account of the progress they have made and their operating objectives. If appropriate, they may also raise critical issues to be discussed. Agreements and the next steps to be taken are specified and the meeting secretary prepares an e-mail to inform the entire team of the agreements reached. The third mechanism is a schedule for validation and revision of the elements comprising the PAV's management model, aimed at serving as a guide towards correctly updating the PAV's Strategic Plan.

Throughout the rest of the year, the BSC Management Committee holds periodical monitoring meetings to analyze the progress made towards strategic objectives and makes decisions to this respect. Those in charge of operative objectives and their teams carry out the projects assigned to them. Periodically, strategic metrics are measured. Finally, the information required by the common measures and operating objectives included in the objectives stage of the Business Plan is reported to the SSOPS on a quarterly basis.

CONCLUSIONS

There is widespread agreement over the importance of empirical research in management accounting (Ittner and Larcker, 2001; Luft and Shields, 2003) and BSC in particular, as one of the innovations that researchers are devoting the most attention to (Atkinson et al., 1997a; Ittner and Larcker, 1998; Bjørnenak and Olson, 1999). We believe that carrying out research of this nature supports the claim that most of the changes in accounting are a direct or indirect result of dissemination processes (Ax and Bjørnenak, 2005). For this reason, studying the design and implementation of these innovations in specific organizations contributes towards promoting the dissemination and adoption of such management practices. Furthermore, the more evidence there is that the systematic use of BSC improves organizational performance, the more organizations will become interested in implementing this kind of projects (Ittner and Larcker, 1998 and 2001; Otley, 1999).

In this sense, this case study has had a two-fold objective. Firstly, it has aimed to share the experience of the PAV, which has developed a project to implement the BSC at top management level. The article has attempted to explain and help others become aware and understand the changes that the PAV has made throughout the process. Our intention has been to provide those in charge of strategic planning with knowledge that can help them to carry out future BSC projects in their own organizations.

The PAV has been chosen as the unit of analysis because it is a business unit of a larger entity - the SSOPS. At the same time, it is a large and strategically positioned organization. The paper has briefly revised the main strategic axes, pillars and framework projects included in the PAV's Strategic Plan. It has analyzed how the lack of a specific and formalized method to manage the strategic planning process and communicate the organizational vision to the PAV's Management Committee delayed the implementation of the PAV's Strategic Plan that was publicly released in 2002. By the end of 2003, the PAV studied the reasons of its inability to implement its strategic plan and engaged on a BSC implementation project as a way to overcome the difficulties and obstacles that it had previously encountered. The BSC project was implemented in three stages. In the first stage, the general SSOPS' BSC model was personalized and adapted to the peculiarities of the PAV. In the second stage, the corporate BSC was fine-tuned and the top-level managers and BSC teams were prepared for implementation. Finally, the BSC was launched and it has been used ever since. Although the personalization and fine-tuning stages were long and arduous, the PAV has derived several benefits from the BSC implementation. The BSC has proved to be a real strategic management tool that has

strengthened the management culture while orientating the PAV towards internal and external customer satisfaction, teamwork, objective-led business management and long-term strategic goals. The PAV is at present using the BSC tool to assign resources and for strategic monitoring, as well as a way to communicate the common strategy to all port community stakeholders. The effective implementation of the BSC system required the creation of several internal and external work teams with specific roles in the process. Precisely due to the complexity of the BSC implementation, the system has only been directed towards top-level management. The cascading process for lower levels of the organization and the extension to the rest of the port community is still pending. Details on the different BSC implementation phases (designing a strategy map, defining strategic indicators, configuring the software, feeding data and how the BSC is being used) have been provided in this paper.

Among the main findings of the case-study carried out can be highlighted the discovery of all the new information flows and communication channels between PAV members that have been created as a result of this BSC implementation process; as well as the pro-active teamwork dynamics produced by the use of BSC. In this sense, BSC has increased the amount of available information and has compelled most PAV departments towards accomplishing their goals as part of a long-term vision for them all to achieve. The strategy coordination and monitoring mechanisms developed by the Strategy Implementation Office are working as communication vehicles that are aligning all resources towards common goals while reinforcing the strategic management culture in the organization.

Following Lynch and Cross (1991), this research has provided evidence on the application of BSC as a strategic management approach and tool. This case study has demonstrated that a BSC system is not simply a financial control and information tool but an organizational management approach aiming to global optimization. Using a BSC system, the PAV has moved from a management scheme giving priority to fulfilling individual objectives to a strategic management system where the main concern is the continuous improvement of interrelated corporate processes (Doll and Thorzadeh, 1998). This new integral and balanced strategic system (Smith, 1997) is linked to a horizontal communications network ensuring the communication of all objectives and BSC information to every department involved in each process. Finally, this case study illustrates how the BSC approach promotes organizational learning. Implementing a BSC system has required the creation of several teams where a small number of employees with complementary skills are mutually responsible for fulfilling a common goal (Katzenbach and Smith, 1993). This organization of work has made the implementation of BSC possible at the PAV and has encouraged organizational learning and increased flexibility and adaptation of the strategy to external changes.

Although the results of this case study cannot be extrapolated, this work contributes to increasing the existing knowledge on the use of BSC as a strategic management system. According to Eisenhardt (1989), comparing the results of numerous case studies would be the way to increase the capacity to generalize their main findings. More research on similar organizations would therefore be needed if we are to extrapolate the results obtained from this and other case studies (Abernethy et.al., 2005).

Further research on the variables incorporated in the BSC model would be needed since the success in the design and implementation of the BSC is said to depend on the synergic effect existing among the different attributes (Brignall and Ballantine, 2004; Jermias and Gani, 2004). Once the process of expanding the BSC system to all the hierarchical levels of the PAV has taken place, more research will be carried out to study the effect of this process on the organization's performance. One more line for future research, as suggested by Malina and Selto (2001) and Brignall and Ballantine (2004), would be the evolution in time of the BSC model within the same organization. Further research would be required on the investment and resources employed in the initial process of implementation of the BSC system and in maintaining and exploiting it annually. Comparing the costs involved in its implementation and maintenance with the benefits derived from its utilization would be of great interest (Brignall and

Ballantine, 2004). Finally, more evidence should be provided on whether the increase in organizational performance associated to the use of BSC are sustainable in the long-term (Davis and Albright, 2004).

REFERENCES

Abernethy, M.A., Horne, M., Lillis, A., Malina, M.A. and Selto, F.H. (2005) “A multi-method approach to building causal performance maps from expert knowledge”, *Management Accounting Research*, Vol. 16, N° 2, pp. 135-155

Ahn, H. (2001) “Applying the balanced scorecard concept: an experience report”, *Long Range Planning*, Vol. 34, N° 4, pp. 441-461

Archer, S. and Otley, D.T. (1991) “Strategy, structure, planning and control systems and performance evaluation – Rumenco Ltd.”, *Management Accounting Research*, Vol. 2, N° 3, pp. 263-303

Asociación Española de Contabilidad y Administración de Empresas (AECA) (2006) “La contabilidad de gestión en el sistema portuario español”, *Documentos AECA, Serie de Contabilidad de Gestión*, Documento N° 31, Madrid

Atkinson, A.A., Waterhouse, J.H. and Wells, R.B. (1997a) “A stakeholder approach to strategic performance measurement”, *Sloan Management Review*, Vol. 38, N° 3, pp. 25-37

Atkinson, A.A., Balkakrishnan, P., Booth, J., Cote, T., Groot, T., Malmi, H., Roberts, H., Uliana, E. and Wu, A. (1997b) “New directions in management accounting research”, *Journal of Management Accounting Research*, Vol. 9, pp. 79-108

Ax, C. and Bjørnenak, T. (2005) “Bundling and diffusion of management accounting innovations — the case of the balanced scorecard in Sweden”, *Management Accounting Research*, Vol. 16, N° 1, pp. 1-20

Baines, A. and Langfield-Smith, K. (2003) “Antecedents to management accounting change: a structural equation approach”, *Accounting, Organizations and Society*, Vol. 28, N° 7-8, pp. 657-698

Banker, R.D., Potter, G. and Srinivasan, D. (2000) “An empirical investigation of an incentive plan that includes nonfinancial performance measures”, *The Accounting Review*, Vol. 75, N° 1, pp. 65-92

Banker, R.D., Janakiraman, S. and Konstans, C. (2001) *Balanced scorecard: linking strategy to performance*, Morristown, Financial Executives Research Foundation, New Jersey

Banker, R.D., Chang, H. and Pizzini, M.J. (2004) “The balanced scorecard: judgmental effects of performance measures linked to strategy”, *The Accounting Review*, Vol. 79, N° 1, pp. 1-23

Benders, J. and van Veen, K. (2001) “What’s in a fashion? Interpretative viability and management fashion”, *Organization*, Vol. 8, N° 1, pp. 33-53

Bisbe, J. and Otley, D. (2004) “The effects of the interactive use of management control systems on product innovation”, *Accounting, Organizations and Society*, Vol. 29, N° 8, pp. 709-737

Bjørnenak, T. and Olson, O. (1999) “Unbundling management accounting innovations”, *Management Accounting Research*, Vol. 10, N° 4, pp. 325-338

- Bobrovitch, D. (1982) “Decentralised planning and competition in a national multi-port system”, *Journal of Transport Economics and Policy*, Vol. 16, pp. 31-42
- Bogt, H.J. and Helden, G.J. (2000) “Accounting change in Dutch government: exploring the gap between expectations and realizations”, *Management Accounting Research*, Vol. 11, N° 2, pp. 263-279
- Bourguignon, A., Malleret, V. and Nørreklit, H. (2004) “The American balanced scorecard versus the French tableau de bord: the ideological dimension”, *Management Accounting Research*, Vol. 15, N° 2, pp. 107-134
- Braam, G.J.M. and Nijssen, E.J. (2004) “Performance effects of using the balanced scorecard: a note on the Dutch experience”, *Long Range Planning*, Vol. 37, N° 4, pp. 335-349
- Brewer, J. and Hunter, A. (1989) *Multimethod research: a synthesis of styles*, Newbury Park, Sage Publications, California
- Brignall, S. and Ballantine, J. (2004) “Strategic enterprise management systems: new directions for research”, *Management Accounting Research*, Vol. 15, N° 2, pp. 225-240
- Bromwich, M. (1990) “The case for strategic management accounting: the role of accounting information for strategy in competitive markets”, *Accounting, Organizations and Society*, Vol. 15, N° 1, pp. 27-46
- Bryant, L., Jones, D.A. and Widener, S.K. (2004) “Managing value creation within the firm: an examination of multiple performance measures”, *Journal of Management Accounting Research*, Vol. 16, pp. 107-131
- Bryman, A. (1989) *Research methods and organization studies*, Unwin Hyman, London
- (1992) “Quantitative and qualitative: further reflections on their integration”, in Brannan, J. (Ed.): *Mixing methods: qualitative and quantitative research*, Avebury, Aldershot (UK), pp. 57-80
- Burns, J. and Scapens, R. (2000) “Conceptualising management accounting change: an institutionalist framework”, *Management Accounting Research*, Vol. 11, N° 1, pp. 3-25
- Cavalluzzo, K.S. and Ittner, C.D. (2004) “Implementing performance measurement innovations: evidence from government”, *Accounting, Organizations and Society*, Vol. 29, N° 3, pp. 243-267
- Chapman, C.S. (1997) “Reflections on a contingent view of accounting”, *Accounting Organizations and Society*, Vol. 22, N° 2, pp. 189-205
- Chenhall, R.H. (2005) “Integrative strategic performance measurement systems, strategic alignment of manufacturing, learning and strategic outcomes: an exploratory study”, *Accounting, Organizations and Society*, Vol. 30, N° 5, pp. 395-422
- Chenhall, R.H. and Langfield-Smith, K. (1998) “The relationship between strategic priorities, management techniques and management accounting: an empirical investigation using a systems approach”, *Accounting, Organizations and Society*, Vol. 23, N° 3, pp. 243-264
- Davis, S. and Albright, T. (2004) “An investigation of the effect of balanced scorecard implementation on financial performance”, *Management Accounting Research*, Vol. 15, N° 2, pp. 135-153

Doll, W.J. and Thorzadeh, G. (1998) “Developing a multidimensional measure of system-use in an organizational context”, *Information and Management*, Vol. 33, N° 4, pp. 171-185

Eisenhardt, K. (1989) “Building theories from case study research”, *Academy of Management Review*, Vol. 14, N° 4, pp. 532-550

Epstein, M.J. and Manzoni, J. (1997) “The balanced scorecard and tableau de bord: translating strategy into action”, *Management Accounting*, Vol. 79, N° 2, pp. 28–36

—— (1998) “Implementing corporate strategy: from tableaux de bord to balanced scorecards”, *European Management Journal*, Vol. 16, N° 2, pp. 190-203

Escobar Rodríguez, T. (1999) “El papel del cuadro de mando en la gestión estratégica de la empresa”, *Revista Española de Financiación y Contabilidad*, Vol. 28, N° 102, pp. 1075-1099

—— (2002) “El cuadro de mando como herramienta para el control de gestión: el estudio de un caso”, *Revista Española de Financiación y Contabilidad*, Vol. 31, N° 113, pp. 905-940

Ezzamel, M. (1994) “From problem solving to problematization: relevance revisited”, *Critical Perspectives on Accounting*, Vol. 5, N° 3, pp. 269-280

Fitzgerald, L., Johnston, R., Brignall, S., Silvestro, R. and Voss, C. (1991) *Performance measurement in service businesses*, The Chartered Institute of Management Accountants (CIMA), London

Fleming, D.K. and Hayuth, Y. (1994) “Spatial characteristics of transportation hubs: centrality and intermediacy”, *Journal of Transport Geography*, Vol. 2, N° 1, pp. 3-18

Foster, G. and Young, S.M. (1997) “Frontiers of management accounting research”, *Journal Management Accounting Research*, Vol. 9, pp. 63–77

Giner Fillol, A., Pontet Ubal, N. and Ripoll Feliu, V. (2007) “Caso práctico: la contabilidad de gestión en el Plan Estratégico de la Autoridad Portuaria de Valencia”, *Harvard-Deusto Finanzas & Contabilidad*, N° 80, November-December, pp. 68-80

Granlund, M. and Malmi, T. (2002) “Moderate impact of ERPS on management accounting: a lag or permanent outcome?”, *Management Accounting Research*, Vol. 13, N° 3, pp. 299-321

Hood, C. (1995) “The ‘new public management’ in the 1980s: variations on a theme”, *Accounting, Organizations and Society*, Vol. 20, N° 1, pp. 93-109

Hopper, T. and Powell, A. (1985) “Making sense of research into organizational and social aspects of management accounting: a review of its underlying assumptions”, *The Journal of Management Studies*, Vol. 22, N° 5, pp. 429-465

Hoque, Z. (2005) “Linking environmental uncertainty to non-financial performance measures and performance: a research note”, *The British Accounting Review*, Vol. 37, pp. 471-481

Hoque, Z. and James, W. (2000) “Linking balanced scorecard measures to size and market factors: impact on organizational performance”, *Journal Management Accounting Research*, Vol. 12, N° 1, pp. 1-17

Hoque, Z., Mia, L. and Alam, M. (2001) “Market competition, computer-aided manufacturing and use of multiple performance measures: an empirical study”, *The British Accounting Review*, Vol. 33, N° 1, pp. 23-45

Horváth & Partners (2003) *Dominar el cuadro de mando integral*, Ed. Gestión 2000, S.A., Barcelona

International Federation of Accountants (IFAC) (1998) *International management accounting practice statement: management accounting concepts*, IFAC, New York

Ittner, C.D. and Larcker, D.F. (1998) “Innovations in performance measurement: trends and research implications”. *Journal of Management Accounting Research*, Vol. 10, pp. 205-238

—— (2001) “Assessing empirical research in managerial accounting: a value-based management perspective”, *Journal of Accounting and Economics*, Vol. 32, N° 1-3, pp. 349-410

—— (2002) “Empirical management accounting research: are we just describing management consulting practice?”, *European Accounting Review*, Vol. 11, N° 4, pp. 787-794

Jermias, J. and Gani, L. (2004) “Integrating business strategy, organizational configurations and management accounting systems with business unit effectiveness: a fitness landscape approach”, *Management Accounting Research*, Vol. 15, N° 2, pp. 179-200

Kaplan, R.S. (1994) “Management accounting (1984–1994): development of new practices and trends of development”, *Management Accounting Research*, Vol. 5, N° 3-4, pp. 247–260

Kaplan, R.S. and Norton, D.P. (1996a) “Using the balanced scorecard as a strategic management system”, *Harvard Business Review*, Vol. 74, N° 1, pp. 75-85

—— (1996b) “Linking the balanced scorecard to strategy”, *California Management Review*, Vol. 39, N° 1, pp. 53-79

—— (1996c) “Strategic learning and the balanced scorecard”, *Strategy & Leadership*, Vol. 24, N° 5, pp. 18-24

—— (1996d) *The Balanced Scorecard – translating strategy into action*, Harvard Business School Press, Boston.

—— (2000) “Having trouble with your strategy? Then map it”, *Harvard Business Review*, Vol. 78, N° 5, pp. 167-176

—— (2001a) “Transforming the balanced scorecard from performance measurement to strategic management: part I”, *Accounting Horizons*, Vol. 15, N° 1, pp. 87-104

—— (2001b) “Transforming the balanced scorecard from performance measurement to strategic management: part II”, *Accounting Horizons*, Vol. 15, N° 2, pp. 147-160

—— (2001c) *The strategy-focused organization – How balanced scorecard companies thrive in the new business environment*, Harvard Business School Press, Boston.

—— (2001d) “Building a strategy-focused organization”, *Ivey Business Journal*, Vol. 65, N° 5, pp. 12-19

—— (2004) *Strategy Maps: Converting Intangible Assets into Tangible Outcomes*, Harvard Business School Press, Boston.

Katzenbach, J.R. and Smith, D.K. (1993) *The wisdom of teams: creating the high performance organization*, Harvard Business School Press, Cambridge

Krumwiede, K. (1998) “The implementation stages of activity-based costing and the impact of contextual and organizational factors”, *Journal of Management Accounting Research*, Vol. 10, pp. 239–277

Laitinen, E.K. (2002) “A dynamic performance measurement system: evidence from small Finnish technology companies”, *Scandinavian Journal of Management*, Vol. 18, N° 1, pp. 65-99

Langfield-Smith, K. (1997) “Management control systems and strategy: a critical review”, *Accounting, Organizations and Society*, Vol. 22, N° 2, pp. 207-232

Lebas, M. (1994) “Managerial Accounting in France. Overview of past tradition and current practice”, *The European Accounting Review*, Vol. 3, N° 3, pp 471-487

Lebas, M. (1995) “Performance measurement and performance management”, *International Journal of Production Economics*, Vol. 41, N° 1-3, pp. 23-35

Libby, R. and Luft, J.L. (1993) “Determinants of judgment performance in accounting settings: ability, knowledge, motivation and environment”, *Accounting, Organizations and Society*, Vol. 18, N° 5, pp. 425-450

Liberatore, M.J. and Miller, T. (1998) “A framework for integrating activity-based costing and the balanced scorecard into the logistics strategy development and monitoring process”, *Journal of Business Logistics*, Vol. 19, N° 2, pp. 131-154

Lillis, A.M. and Mundy, J. (2005) “Cross-sectional field studies in management accounting research-closing the gaps between surveys and case studies”, *Journal of Management Accounting Research*, Vol. 17, pp. 119-141

Lowe, T. and Puxty, T. (1989) “The problems of a paradigm: a critique of the prevailing orthodoxy in management control”, in Chua, W.F., Lowe, T. y Puxty, T. (Eds.): *Critical Perspectives in Management Control*, Macmillan Press, London, pp. 9-26

Luft, J. and Shields, M. (2003) “Mapping management accounting: graphics and guidelines for theory-consistent empirical research”, *Accounting, Organizations and Society*, Vol. 28, N° 2-3, pp. 169-249

Lynch, R.L. and Cross, K.F. (1991) *Measure up! Yardsticks for continuous improvement*, Basil Blackwell Publishers, Cambridge

Maiga, A.S. and Jacobs, F.A. (2003) “Balanced scorecard, activity-based costing and company performance: an empirical analysis”, *Journal of Managerial Issues*, Vol. 15, N° 3, pp. 283-301

Malchow, M.B. and Kanafani, A. (2004) “A Disaggregate Analysis of Port Selection”, *Transportation Research. Part E: Logistics and Transportation Review*, Vol. 40, N° 4, pp. 317-337

Malina, M.A. and Selto, F.H. (2001) “Communicating and controlling strategy: an empirical study of the effectiveness of the balanced scorecard”, *Journal of Management Accounting Research*, Vol. 13, N° 1, pp. 47-90

Malmi, T. (2001) “Balanced scorecards in Finnish companies: a research note”, *Management Accounting Research*, Vol. 12, N° 2, pp. 207-220

McNair, C.J., Lynch, R.L. and Cross, K.F. (1990) “Do financial and non-financial performance measures have to agree?”, *Management Accounting*, Vol. 72, N° 5, pp. 28-36

Medina Giacomozzi, A. (2005) “Mapa estratégico del cuadro de mando integral: propuesta de indicadores de gestión a una empresa concreta”, *Revista Española de Financiación y Contabilidad*, Vol. 34, N° 125, pp. 307-331

Merchant, K.A. (1998) *Modern management control systems: text and cases*, Prentice-Hall, Inc., Englewood Cliffs, New York

Nilsson, F. (2000) “Parenting styles and value creation: a management control approach”, *Management Accounting Research*, Vol. 11, N° 1, pp. 89-112

Nilsson, F. and Olve, N.G. (2001) “Control systems in multibusiness companies: from performance management to strategic management”, *European Management Journal*, Vol. 19, N° 4, pp. 344-358

Niven, P.R. (2002) *Balanced Scorecard Step-by-Step: Maximizing Performance and Maintaining Results*, John Wiley & Sons, New York.

Norton, D.P. and Kappler, F. (2000) “Balanced scorecard best practices — trends and research implications”, *Controlling*, Vol. 12, N° 1, pp. 15-22

Olsson, B., Karlsson, M. and Sharma, E. (2000) “Towards a theory of implementing the balanced scorecard: a study in association with the Swedish Telecommunication Firm Ericsson”, *Journal of Human Resource Costing and Accounting*, Vol. 5, N° 1, pp. 59-84

Otley, D.T. (1994) “Management control in contemporary organizations: towards a wider framework”, *Management Accounting Research*, Vol. 5, N° 3-4, pp. 289–299

Otley, D.T. (1999) “Performance management: a framework for management control systems research”, *Management Accounting Research*, Vol. 10, N° 4, pp. 363-382

Otley, D.T. (2003) “Management control and performance management: whence and whither?”, *The British Accounting Review*, Vol. 35, N° 4, pp. 309-326

Otley, D.T. and Berry, A.J. (1994) “Case study research in management accounting and control”, *Management Accounting Research*, Vol. 5, N° 1, pp. 46-65

Parker, L. (1998) “Accounting for environmental strategy: cost management, control and performance evaluation”, *Asia-Pacific Journal of Accounting*, Vol. 4, diciembre, pp. 145-173

Puertos del Estado (2001) “Proceso de planificación estratégica: la experiencia de Puertos del Estado III”, *Revista Puertos*, N° 86, July-August, pp. 9-15

Rigby, D. and Bilodeau, B. (2005) "The Bain 2005 management tools survey", *Strategy & Leadership*, Vol. 33, Nº 4, pp. 4-12

Ripoll Feliú, V., Aparisi Caudeli, J.A., Giner Fillol, A. and Maganto López, J. (2005) "Caso práctico: la planificación estratégica y la implantación del cuadro de mando integral del sistema portuario español", *Harvard-Deusto Finanzas y Contabilidad*, Nº 63, January-February, pp. 60-71

Roberts, J. (1990) "Strategy and Accounting in a UK Conglomerate", *Accounting, Organizations and Society*, Vol. 15, Nº 1-2, pp. 107-125

Roslender, R. (1996) "Relevance lost and found: critical perspectives on the promise of management accounting", *Critical Perspectives on Accounting*, Vol. 7, Nº 5, pp. 533-561

Ruhl, J.M. (1997) "The balanced scorecard and benchmarking videos reviews", *Journal of Cost Management*, Vol. 10, Nº 4, pp. 52-56

Ryan, B., Scapens, R.W. and Theobald, M. (2002) *Research method and methodology in finance and accounting*, Thomson, London

Said, A.A., HassabElnaby, H.R. and Wier, B. (2003) "An empirical investigation of the performance consequences of nonfinancial measures", *Journal of Management Accounting Research*, Vol. 15, pp. 193-223

Santos, R. (2001) "Los puertos se han convertido en grandes centros logísticos de comercio y transporte", *Revista del Ministerio de Fomento*, Nº 501, pp. 118-131

Shank, J. and Govindarajan, V. (1993) *Strategic cost management: the new tool for competitive advantage*, The Free Press, New York

Sharman, P. and Kavan, C.B. (1999) "Software is not the solution: software selection's effect on implementing the balanced scorecard", *Journal of Strategic Performance Measurement*, February-March, pp. 7-15

Shields, M.D. (1997) "Research in management accounting by North Americans in the 1990s", *Journal of Management Accounting Research*, Vol. 9, pp. 3-62

Simons, R. (2000) *Performance measurement & control systems for implementing strategy: text & cases*, Prentice-Hall, Inc., Englewood Cliffs, New York

Smith, M. (1997) "Putting NFIs to work in a balanced scorecard environment", *Management Accounting (UK)*, Vol. 75, Nº 3, pp. 32-35

Smith, M.J. (2002) "Gaming nonfinancial performance measures", *Journal of Management Accounting Research*, Vol. 14, pp. 119-133

Speckbacher, G., Bischof, J. and Pfeiffer, T. (2003) "A descriptive analysis on the implementation of balanced scorecards in German-speaking countries", *Management Accounting Research*, Vol. 14, Nº 4, pp. 361-387

Stake, R.E. (1994) "Case studies", in N.K. Denizen, N.K. and Lincoln, Y.S. (Eds.): *Handbook of qualitative research*, Thousand Oaks, CA: Sage Publications, Inc., pp. 236-247

Strategy & Focus (2007) *Libro Blanco de la Dirección Estratégica en España 2007-2009*, Strategy & Focus, Madrid

Tate, D. (2000) "Issues involved in implementing a balanced business scorecard in an IT service organization", *Total Quality Management*, Vol. 11, N° 4-5-6, pp. S674-S679

Tuomela, T.S. (2005) "The interplay of different levers of control: a case study of introducing a new performance measurement system", *Management Accounting Research*, Vol. 16, N° 3, pp. 293-320

Vaivio, J. (1999) "Exploring a 'non-financial' management accounting change", *Management Accounting Research*, Vol. 10, N° 4, pp. 409-437

Yin, R.K. (1994) "Case study research. Design and methods". *Applied Social Research Methods Series*, Vol. 5, Thousand Oaks, CA: Sage Publications.

BIOGRAPHY

José Antonio Aparisi-Caudeli holds a PhD in Accountancy and works as a lecturer for the Accountancy Department of the Faculty of Economics of the University of Valencia (Spain). He has specialized in the field of cost accounting and management and has coordinated several projects aimed at designing and implementing cost accounting and management systems, amongst which the BSC, for numerous companies. He is the author of various publications and congress communications.

Arturo Giner-Fillol holds a degree in Economics and has a Masters in Port Management and Intermodality from the Universidad Pontificia de Comillas (Spain). He is the Economic and Financial Director of the PAV, a member of the Economic Affairs, Auditing and Control Committee of the Stevedoring Societies of the Ports of Valencia and Sagunto and a member of the Administration Board of Infoport Valencia S.A. He gives lectures for several post-graduate courses on a regular basis.

Eva María Pérez-García holds a degree in Business Administration and has a Masters of Science in Business Research from the Birmingham Business School, University of Birmingham (UK). She has carried out projects in the field of transport economics and international trade since 1999 working for the University of Valencia and the Valenciaport Foundation. She is the Director of Transport Economics of the R&D&I department of the Valenciaport Foundation since January 2006.

ACKNOWLEDGEMENTS

This paper is the result of a cooperation agreement between the University of Valencia and the Port Authority of Valencia. The authors would like to thank the members of the Accounting Department of the University of Valencia and the executives and personnel from the Planning and Economic and Financial Departments of the Port Authority of Valencia that have participated in the project. The authors are grateful for the funding received from CICYT in its project TRA2006-09939/TMAR.