VU Research Portal

The relationship between the level of completeness of a strategic performance management system and perceived advantages and disadvantages

de Waal, A.; Kourtit, K.; Nijkamp, P.

2009

document version

Early version, also known as pre-print

[Link to publication in VU Research Portal](#)

citation for published version (APA)

de Waal, A., Kourtit, K., & Nijkamp, P. (2009). *The relationship between the level of completeness of a strategic performance management system and perceived advantages and disadvantages*. (Research Memorandum; No. 2009-15). Faculteit der Economische Wetenschappen en Bedrijfskunde.

General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal ?

Take down policy

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

E-mail address:

vuresearchportal.ub@vu.nl

THE RELATIONSHIP BETWEEN THE LEVEL OF COMPLETENESS OF A STRATEGIC PERFORMANCE MANAGEMENT SYSTEM AND PERCEIVED ADVANTAGES AND DISADVANTAGES

André de Waal*

Maastricht School of Management, the Netherlands

Karima Kourtiti

VU University Amsterdam, the Netherlands

Peter Nijkamp

VU University Amsterdam, the Netherlands

* corresponding author:

Endepolsdomein 150, 6229EP Maastricht, the Netherlands

Phone: +31-6-51232322

E-mail: andredewaal@planet.nl

André de Waal is associate professor of Strategic Management at Maastricht School of Management and academic director of the Center for Organizational Performance. Karima Kourtiti is PhD student at the VU University of Amsterdam. Peter Nijkamp is professor in Regional Economics and Economic Geography, Faculty of Economics, at the VU University of Amsterdam. The authors thank two anonymous reviewers for their valuable comments.

Introduction

In the past few decades strategic performance management (SPM) has attracted much interest from both academics and practitioners (Letza, 1996; Marr and Schiuma, 2002). In this article, SPM is defined as ‘the process where steering of the organization takes place through the systematic definition of mission, strategy and objectives of the organization, making these measurable through critical success factors and key performance indicators, in order to be able to take corrective actions to keep the organization on track’ (Waal, 2007). While practitioners were primarily concerned with the implementation of SPM systems, either new or improved, academics have been studying whether regular use of SPM systems leads to better organisational results (Ahn, 2001; Ittner et al., 2003; Said et al., 2003; Sandt et al., 2001; Waal et al., 2004; Lawson et al., 2005). However, there is still little known about the *actual* mechanisms underlying possible effects of SPM (Bourne et al., 2000; Bourne et al., 2005). Fortunately, this intriguing issue is gaining interest and researchers are increasingly examining the factors which cause SPM to work (Vakkuri and Meklin, 2000; Malina and Selto, 2001; Neely et al., 2004). One of the questions which has been underexposed in the literature so far, is whether there exists a relationship between the status of SPM system implementation and the perceived benefits of the system (McCormack et al., 2008). Or more specifically: Does a company experience more advantages and less disadvantages the further implemented and thus the more complete the SPM system is? This article describes empirical research that deals with this question, by aiming to provide an answer to the following research question: *What advantages and disadvantages of SPM do practitioners experience, and are these influenced by the level of completeness of a SPM system implementation?*

This article is organized as follows. The following two sections deal with the literature on the advantages and disadvantages of SPM and the effects of SPM system implementations. The literature findings have been tested in a series of interviews conducted at 17 Dutch business companies and the results are discussed in the fourth section of the article. Finally, the last section provides a summary and a discussion of the limitations of the research. The research described in this article may help management to focus on the need to complete SPM system implementations to maximize benefits of the system.

Advantages and disadvantages of SPM and completeness of implementation

The main source of our research to identify SPM advantages and disadvantages consisted of academic and management publications discussing real-world experiences of organizations

with SPM. A general search among academic and management databases on the topic of SPM advantages and disadvantages initially yielded 5.625 matches. However, most of these sources were either purely conceptual/theoretical or anecdotal in nature. After narrowing down the search criteria exclusively to literature containing empirical academic research, only 28 sources remained. From these sources, a list of 4 quantitative and 22 qualitative advantages and 8 qualitative disadvantages was compiled (Kourtiti and Waal, 2009). Appendix 1 summarizes the SPM advantages and disadvantages (in decreasing order of number of literature sources) and lists the publications in which these were found. It is interesting to see that the number of quantitative advantages (i.e. financial advantages) found was limited, and that quantitative disadvantages were even non-existent in the literature.

As noted in the Introduction, the relationship between the completeness of the implementation of a SPM system and benefits experienced by the organization has been underexposed in the literature. There is some literature that states that a SPM system has to be completely implemented in order to assure an operational SPM system which is used regularly. A complete SPM system can thus be seen as a precondition for achieving benefits from the system. 'Completely implemented' means that there is a fully operational system in place which contains critical success factor and key performance indicator data of the organization, which is used on a regular basis to monitor, discuss and manage business performance related issues (Bourne et al., 2002; Waal, 2003; Bititci et al., 2006). Several studies (Nudurupati, 2003; Evans, 2004; Lockamy and McCormack, 2004; McCormack et al., 2008) confirm that properly designed, implemented and used SPM systems are positively associated with improvements in organizational results. Many other studies that have made observations with regard to the relationship between completeness of the SPM system implementation and perceived benefits are of an anecdotal nature and less based on solid business management theory (Letza, 1996; Axson, 1999; Hepworth, 1998; Carlin, 1999; Frigo and Krurnwiede, 2000; Kueng, 2000). Finally, there is literature that states that higher levels of maturity in any business process result in: better control of results; improved forecasting of goals, costs and performance; greater effectiveness in reaching pre-defined goals; and improved management's ability to propose new and higher targets for performance (Srai et al., 2006; McCormack et al., 2008). In this context, maturity is defined as a measure of the level of development or sophistication of a process; the more developed a process is the more benefits it will yield. Given that SPM system implementation is a type of business process,

the 'maturity literature' may be assumed to implicitly state that the more complete the SPM system implementation is, the more an organization will benefit from this system. To our knowledge however, this proposition has not yet been tested and reported in empirical literature. Neely et al. (1995) provide an extensive overview of the status of SPM systems and list many research questions which need to be addressed, but ignore the issue of completeness of SPM system implementation. Toni and Tonchia (2001) give a comprehensive overview of different types of SPM systems, but fail to address the relationship between the completeness of SPM system implementation and organizational performance. Evans (2004) states in his research on the relationship between SPM systems and performance that his results "suggest that organizations with more mature performance measurement systems report better results in terms of customer, financial and market performance." This suggests that an organization with a SPM system achieves higher turnover, more profit, higher customer satisfaction and higher market share than an organization that does not use a SPM system. Evans, however, does not define maturity of SPM systems nor does he elaborate on this particular issue. Aken et al. (2005) make an implicit assumption that a more mature and more complete enterprise performance management system (as these authors call the SPM system) will yield more benefits for an organization, but again this assumption is not tested in practice. Olsen et al. (2007) put forward that the effectiveness of an SPM system is based on three criteria (causality, continuous improvement and process control), but do not link this effectiveness to the level of completeness of a SPM system implementation. Radnor and Barnes (2007) give an excellent overview of the development of SPM systems, but do not link the different development stages they distinguish to the benefits experienced by organizations. This offers an opportunity to investigate whether the level of completeness of a SPM system implementation bears a direct relation to the perceived benefits of such a system. This leads to the following research question: *What advantages and disadvantages of SPM do practitioners experience, and are these influenced by the level of completeness of a SPM system implementation?* To investigate this question, the concept of completeness of a SPM system implementation has to be operationalized. As the literature did not provide us with a clear and practical definition of completeness of a SPM system implementation, we decided to formulate one. To be able to do this, we asked the organisations participating in the research whether they had completed the implementation of the SPM system in their organisation and if so, whether the implementation had gone according to plan. The underlying assumption was that the best way of telling whether a SPM system yields certain advantages or disadvantages is to compare real SPM system implementations in various

stages of completion. The three stages of SPM system implementation we distinguished on the basis of responses given were: completely implemented, almost (completely) implemented, not (yet) completely implemented.

Research approach

To test whether SPM advantages and disadvantages that organizations experience are related to the level of completeness of the SPM system implementation, we interviewed organizational staff members of prominent Dutch business firms. As the literature search did not yield a structured, validated questionnaire to obtain information from organizations on the SPM advantages, disadvantages and level of completeness of a SPM system implementation, a self-composed questionnaire was used. The advantages and disadvantages identified from the literature were converted into questions and presented to the interviewees. For instance, the advantage 'improvement in communication in the organization on the strategy' translated into the following question: "Have you noticed that communication on the strategy has improved since the implementation of the SPM system?" The participating companies, all from the profit sector, were selected on the basis of one criterion, namely whether they had implemented or were in the process of implementing a SPM system. To determine the degree to which these organisations experienced advantages and disadvantages, the statements in the questionnaire were formulated in such a manner that interviewees had to give a rating on a Likert 5-point scale, varying from '1= not at all' (i.e. 'we did not at all experience the (dis)advantage') to '5 = very strong' (i.e. 'we experienced the (dis)advantage very strongly'). The interviewees were also asked if they had completed the implementation of the SPM system as it was initially planned. The questionnaire was first tested at one company after which some small adjustments were made in the formulation of several questions.

The research procedure was as follows. A letter was sent to a selected group of organisations in the Dutch profit sector, inviting them to participate in the research. The organisations were chosen on the basis of previous contacts we had with them so we could get easy access. In total 52 people of 17 organisations were interviewed. No selection of industries was made in order to heighten the chance of generalization of the research results. Appendix 2 gives information on the participating organisations and interviewees. The questionnaire was not sent in advance to interviewees in order to increase the spontaneity of answers. This was because the research was more about what interviewees' experiences were with SPM than

about getting a 'correct' answer. At the beginning of the interview, the two interviewers first gave a short introduction explaining the research objective, a definition of a SPM, and the interview procedure. After that, the interviewees were asked to what degree they experienced a certain advantage or disadvantage from the SPM system, by choosing one of the five ratings and explaining their choice. The interviewers were careful not to influence the interviewees in any way during the interview. They gave, for instance, no comments on the responses given by interviewees. This procedure minimized the risk on response bias. After the interviews, the interview reports were sent to the interviewees for confirmation of their responses. After interviewees had approved the interview reports, the answers given were averaged for each company.

Research results

Based on the answer to the interview question 'Did you complete the implementation of the SPM system as it was initially planned?' the organizations were categorized, creating three groups with different levels of completeness of a SPM system implementation. The first group consisted of organizations that had fully completed the implementation of the SPM system, either according to plan or not. This group consisted of five organizations. The second group included organizations that had not yet but almost fully completed the implementation of the SPM system. This group contained eight organizations. The third group consisted of organizations that were not near to completing the SPM system implementation. This group contained four organizations. For each group, the scores for all organizations in the group were averaged. Appendices 3 through 5 provide lists of detailed scores for each advantage and disadvantage. Table 1 summarizes the average scores for the advantages (quantitative and qualitative) and disadvantages, on a scale of 1 to 5. The higher the score in Table 1, the stronger the organization experienced the advantage or disadvantage.

Level of completeness of SPM implementation	Average scores					
	Quantitative advantages	Standard deviation	Qualitative advantages	Standard deviation	Dis-advantages	Standard deviation
Yes/ Yes, but not according to plan	3.39	0.84	3.40	0.60	1.72	0.25
No, but almost	3.26	0.98	3.51	0.56	1.77	0.36
No, still a lot to do	3.11	0.65	3.37	0.21	2.10	0.35

Table 1: Average score per level of completeness category

Table 1 shows that the hypothesis that ‘the more complete the SPM system implementation is, the more the organization will experience benefits’ holds true for the quantitative advantages and partially for the qualitative advantages. At the same time, the more complete the SPM system implementation, the less disadvantages the organization experiences. It is interesting to notice however, that the organizations in the ‘no, but almost’-category experience more qualitative advantages than the organizations with a more complete SPM system. It has been recognized in previous SPM research that qualitative, non-financial results precedes quantitative, financial results (Kaplan and Norton, 1996; Wiersma, 2003; Waal, 2007). This could also be the case in this research, as qualitative advantages experienced by the ‘no, but almost’-category might not yet have resulted in quantitative advantages. When the SPM system implementation nears completion, some of the qualitative advantages seem to disappear while the quantitative advantages become more strongly noticeable. At the same time, the standard deviations in Table 3 show that the differences between the completeness categories might not be significant. In this respect, when looking into more detail at Appendix 4, it is interesting to notice that for eight of the 22 qualitative advantages, the ‘yes’-category experiences the strongest advantages. These advantages seem to be of a more organization-wide (better knowledge sharing, better management, more employee commitment, more clarity of contribution, higher quality, higher employee satisfaction) or strategic nature (better strategic communication, better organizational reputation) which initially take time to achieve but in the long run may develop into lasting and strong benefits of the SPM system. The other 14 qualitative advantages mostly relate to processes (e.g., better focus, better information quality, higher efficiency, better decision-making, more effective control) and can be achieved more quickly than the organisation-wide and strategic advantages.

Looking at appendix 5, it is interesting to note that two disadvantages in particular are strongly experienced by organizations with a completely or almost completely implemented SPM system: ‘the SPM system does not contain enough strategic information’ and ‘the SPM system is too expensive and bureaucratic.’ It can be argued that these disadvantages are of the type that will only be experienced after use of a complete or almost complete SPM system. When organizational staff use a SPM system for a prolonged period of time, they may become more demanding and require higher-quality information, especially strategic information as many performance management systems contain enough operational information. At the same time, staff may be aware of the system becoming too elaborate

(because it includes too many types of information) and bureaucratic and consequently too expensive.

Summary and limitations

The research described in this article focused on answering the question whether more complete SPM systems yield more advantages and less disadvantages for an organisation. Based on a literature study and practical research among 17 prominent Dutch companies, it became clear that the answer to this question is affirmative: organisations that have a fully implemented SPM system do seem to be gaining more financial and non-financial advantages than organisations that are still implementing such a system. Companies that have almost completed the implementation of a SPM system are gaining qualitative benefits, but they experience less financial rewards. Because the ultimate goal of all organizations is to obtain better financial performance, the research results seem to argue in favour of completely implementing a SPM system, as only then organizations will be fully supported in achieving this goal. The practical implication of this research is that implementation and use of a complete SPM system does yield specific quantitative and qualitative advantages for an organization. The research results provide management with the knowledge about the advantages to be expected at each stage of completeness of a SPM system implementation. Management can use this knowledge to convince organizational staff that a SPM system is only beneficial for the organization if it is completely implemented. Management now also has a means to check whether complete implementation of the SPM system has been achieved. If the organisation does not experience the financial benefits of the SPM system, management has to investigate whether parts of the SPM system have not yet been properly deployed.

The research discussed in this article has several limitations. The sample size of the research was relatively small. Although 17 organisations participated in the research, only 52 people were interviewed, which restricts the generalisation to all companies. Also, the selection of the 17 organisations produced a sample that may have been biased. It is not unlogical to assume that organisations which have successfully implemented and used SPM are more willing to participate in the research than companies which did not have these positive experiences. As a result, the SPM advantages may have been overstated in the research results, while the SPM disadvantages may have been underexposed. Furthermore, only profit companies were included in the research, so a generalisation to non-profit and

governmental organizations cannot be made. Finally, only Dutch organizations took part in the research so claims about benefits from SPM systems for organisations in other countries may be problematic. Further research should therefore concentrate on a larger sample including more and different types of organizations from different sectors and from different countries, and on longitudinal studies that examine the developments and shifts in the relationships between advantages and disadvantages and the level of completeness of a SPM system.

References

- Ahn, H. (2001), Applying the balanced scorecard concept: an experience report, *Long Range Planning*, 34: 441-461.
- Aken, E. van, Letens, G., Coleman, G.D., Farris, J. and Van Goubergen, D. (2005), Assessing maturity and effectiveness of enterprise performance measurement systems, *International Journal of Productivity and Performance Management*, 54, 5/6: 400-418.
- Axson, D.A.J. (1999), The fastest route to right answers, strategy, *Strategy and Leadership*, 27, 3: 6-10.
- Baraldi, S. and Monolo, G. (2004), Performance measurement in Italian hospitals: the role of the Balanced Scorecard. In: *Performance measurement and management: public and private*, edited by A. Neely, M. Kennerly and A. Waters: 75-82. Centre for Business Performance, Cranfield University, Cranfield.
- Bititci, U., Mendibil, K., Nudurupati, S., Turner, T. and Garengo, P. (2004), The interplay between performance measurement, organizational culture and management styles. In: *Performance measurement and management: public and private*, edited by A. Neely, M. Kennerly and A. Waters: 107-114. Centre for Business Performance, Cranfield University, Cranfield.
- Bititci, U.S., Mendibil, K., Nudurupati, S., Garengo, P., Turner, T. (2006), "Dynamics of performance measurement and organisational culture", *International Journal of Operations & Production Management*, 26, 12:1325-1350.
- Bourne, M., Mills, J., Wilcox, M., Neely, A. and Platts, K. (2000), Designing, implementing and updating performance measurement systems, *International Journal of Operations & Production Management*, 20 (7): 754-71.
- Bourne, M., Neely, A., Platts, K. and Mills, J. (2002), The success and failure of performance measurement initiatives, *International Journal of Operations & Production Management*, 22, 11: 1288-1310.
- Bourne, M., Kennerley, M. and Franco-Santos, M. (2005), Managing through measures: a study of impact on performance, *Journal of Manufacturing Technology Management*, 16, 4: 373-395.
- Braam, G.J. and Nijssen, E.J. (2004), Performance effects of using the balanced scorecard: a note on the Dutch experience, *Long Range Planning* 37 (4): 335-349.
- Brown, A. (2004), Implementing a system of performance management in England's primary school. In: *Performance measurement and management: public and private*, edited by A. Neely, M. Kennerly and A. Waters: 155-162. Centre for Business Performance, Cranfield University, Cranfield.
- Carlin, T. (1999), Simplifying corporate performance measurement, *Australian CPA*, 69, 11: 48-50.
- Davis, S. and Albright, T. (2002), Relationship between high quality implementation

- procedures and improved financial performance for new performance measurement systems, *FSR Forum* 4 (September): 22-31.
- Davis, S. and Albright, T. (2004), An Investigation of the Effect of Balanced Scorecard Implementation on Financial Performance, *Management Accounting Research* 15 (2): 135-153.
- Dumond, E. J. (1994), Making best use of performance-measures and information, *International Journal of Operations & Production Management*, 14 (9): 16-32.
- Epstein, M., Kumar, P. and Westbrook, R. (2000), The drivers of customer and corporate profitability: modelling, measuring, and managing the causal relationships, *Advances in Management Accounting*, 9 (1), 43-72.
- Evans, J.R. (2004), An exploratory study of performance measurement systems and relationships with performance results, *Journal of Operations Management*, 22: 219-232.
- Frigo, A.L., Krurnwiede, K. (2000), The balanced scorecard, *Strategic Finance*, 81, 7: 50-54.
- Hepworth, P. (1998), Weighing it up-a literature review for the balanced scorecard, *Journal of Management Development*, 17, 8: 559-563.
- Heras, M.A. (2004), Performance measurement and quality systems: results of qualitative research carried out in companies that had won the Catalan quality award. In: *Performance measurement and management: public and private*, edited by A. Neely, M. Kennerly and A. Waters: 459-466. Centre for Business Performance, Cranfield University, Cranfield.
- IOMA. Business Intelligence at Work (2005), Two studies reveal how firms are improving their budgeting and planning. performance reporting: majority of companies need to fix their balanced scorecards, *IOMA's Financial Analysis, Planning & Reporting 2005 Yearbook*, IOMA: Newark: 4-5.
- Ittner, C.D., Larcker, D.F. and Randall, T. (2003), Performance implications of strategic performance measurement in financial services firms, *Accounting, Organisations and Society*, 28 (7-8): 715-741.
- Kald, M. and Nilsson, F. (2000), Performance measurement at Nordic companies, *European Management Journal*, 14 (1): 113-27.
- Kaplan, R.S. and D. P. Norton (1996), *The Balanced Scorecard – Translating Strategy into Action*, Harvard Business School Press, Boston.
- Kourtit, K. and Waal, A.A. de (2009), *Strategic performance management in practice: advantages, disadvantages and reasons for use*, Paper presented at the 2009 Performance Measurement Association Conference, University of Otago's School of Business, New Zealand
- Kueng, P., 2000. Process performance measurement system: a tool to support process-based organizations. *Total Quality Management*, 11, 1: 67-85.
- Lawrie, G., Cobbold, I. and Issa, K. (2004), The design of a strategic management system in an industrial private sector organisation. In: *Performance measurement and management: public and private*, edited by A. Neely, M. Kennerly and A. Waters: 579-586. Centre for Business Performance, Cranfield University, Cranfield.
- Lawson, R., Stratton, W. and Hatch, T. (2003), The benefits of a scorecard system, *CMA Management*, 77 (4): 24-26.
- Lawson, R., Stratton, W. and Hatch, T. (2004), Automating the Balanced Scorecard, *CMA Management*, 77 (9): 39-43.
- Lawson, R., Stratton, W. and Hatch, T. (2005), Achieving strategy with scorecarding, *Journal of Corporate Accounting & Finance*, 16 (3): 63-68.
- Letza, S.R. (1996), The design and implementation of the balanced business scorecard, *Business Process Re-engineering and Management Journal*, 2 (3): 54-76.
- Lingle, J.H. and Schiemann, W.A. (1996), From balanced scorecard to strategic gauges: is measurement worth it? *Management Review* 5 (3): 56-61.

- Lockamy, A. and McCormack K. (2004), The development of a supply chain management process maturity model using the concepts of business process orientation, *Supply Chain Management: an International Journal*, 9 (4): 272-278.
- Lovell, B., Radnor, Z. and Henderson, J. (2002), A pragmatic assessment of the balanced scorecard: an evaluation of a new performance system for use in a NHS multi agency setting in the UK, *University of Bradford Working Paper Series*, 2 (13): 339-346.
- 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*, 13: 47-90.
- Marr, B. and Schiuma, G. (2002), research challenges for corporate performance measurement: evidence from a citation analysis. In: *Performance measurement and management: research and action*, edited by A. Neely, A. Waters and R. Austin: 355-362. Centre for Business Performance, Cranfield University, Cranfield.
- McCormack, K., Ladeira, M.B. and Valadares de Oliveira, M.P. (2008), Supply chain maturity and performance in Brazil, *Supply Chain Management*, 13, 4: 272-282.
- Mooraj, S., Oyon, D. and Hostettler, D. (1999), The balanced scorecard: a necessary good or an unnecessary evil? *European Management Journal* 17: 481-91.
- Neely, A., Gregory, M. and Platts, K. (1995), Performance measurement system design: a literature review and research agenda, *International Journal of Operations & Production Management*, 15, 4: 80-116.
- Neely, A., Kennerley, M. and Martinez, V. (2004), Does the balanced scorecard work: an empirical investigation. In: *Performance measurement and management: public and private*, edited by A. Neely, M. Kennerly and A. Waters: 763-770. Centre for Business Performance, Cranfield University, Cranfield.
- Nudurupati, S.S. (2003), *Management and business implications of IT-supported performance measurement*, PhD thesis, University of Strathclyde, Glasgow.
- Olsen, E.O., Zhou, H., Lee, D.M.S., Ng, Y.E., Chong, C.C. and Padunchwit, P. (2007), Performance measurement system and relationships with performance results, *International Journal of Productivity and Performance Management*, 56, 7: 559-582.
- Papalexandris, A., Ioannou, G. and Prastacos, G.P. (2004), Implementing the balanced scorecard in Greece: a software firm's experience, *Long Range Planning*, 37 (4): 347-362.
- Radnor, Z.J. and Barnes, D. (2007), Historical analysis of performance measurement and management in operations management, *International Journal of Productivity and Performance Management*, 56, 5/6: 384-396.
- Robinson, S.P. (2004), The adoption of the balanced scorecard: performance measurement motives, measures and impact. In: *Performance Measurement: Past, Present and Future*, edited by A. Neely: 883-890. Centre for Business Performance, Cranfield School of Management, Cranfield University.
- 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*, 15: 193-223.
- Sandt, J., Schaeffer, U. and Weber, J. (2001) *Balanced performance measurement systems and manager satisfaction*, Otto Beisheim Graduate School of Management
- Self, J. (2004), Metrics and management: applying the results of the balanced scorecard, *Performance Measurement and Metrics*, 5 (3): 101-105.
- Sim, K. L. and Koh, H.C. (2001), Balanced Scorecard: a rising trend in strategic performance measurement, *Measuring Business Excellence*, 5 (2): 18-28.
- Shulver, M. and Antarkar, N. (2001), The balanced scorecard as a communication protocol for managing across intra-organizational borders, *Proceedings of the 12th Annual Conference of the Production and Operations Management Society*, Orlando, FL.
- Srai, J.S., Shi, Y. and Gregory, M. (2006), Supply chain process maturity and performance –

- the network configuration dimension. In: *Performance measurement and management: public and private*, edited by A. Neely, M. Kennerly and A. Waters: 729-736, Centre for Business Performance, Cranfield University, Cranfield.
- Tapinos, E., Dyson, R.G. and Meadows, M. (2005), The impact of performance measurement in strategic planning, *International Journal of Productivity and Performance Management*, 54 (5/6): 370-384.
- Toni, A. de and Tonchia, S. (2001), Performance measurement systems: models, characteristics and measures, *International Journal of Operations & Production Management*, 21, 1/2: 46-70.
- Vakkuri, J. and Meklin, P. (2000), The impact of culture on the use of performance measurement information in the university setting, *Management Decision*, 41, 8: 751-759.
- Waal, A.A. de (2002), *The role of behavioural factors in the successful implementation and use of performance management systems*, PhD, Vrije Universiteit Amsterdam, The Netherlands
- Waal, A.A. de (2003), Behavioral factors important for the successful implementation and use of performance managementsystems, *Management Decision*, 41, 8: 688-697
- Waal, A. A. de. (2007), *Strategic Performance Management, A Managerial and Behavioural Approach*, Palgrave MacMillan, London.
- Waal, A.A. de, Radnor, Z.J. and Akhmetova, D. (2004), Performance-driven behaviour: a cross-country comparison. In: Neely, A., Kennerly, M. and Waters, A. (ed.) *Performance measurement and management: public and private*, Centre for Business Performance, Cranfield University, Cranfield, pp. 299-306
- Wiersma, E. (2003), *Non-financial performance measures: an empirical analysis of a change in a firm's performance measurement system*, PhD thesis, Free University of Amsterdam, The Netherlands.

Appendix 1 – List of SPM advantages and disadvantages

This appendix summarizes the SPM advantages and disadvantages (in decreasing order of number of literature sources) and lists the publications in which these were found.

Quantative advantage	Literature source
Increase in revenue	Malina and Selto, 2001; Sim and Koh, 2001; Davis and Albright, 2002; Waal, 2002; Said et al., 2003; Braam and Nijssen, 2004; Davis and Albright, 2004; Neely et al., 2004; Robinson, 2004.
Increase in profit	Epstein et al., 2000; Davis and Albright, 2002; Waal, 2002; Said et al., 2003; Braam and Nijssen, 2004; Davis and Albright, 2004; Neely et al., 2004; Robinson, 2004.
Reduction in costs	Sim and Koh, 2001; Neely et al., 2004.
Higher ROA	Sim and Koh, 2001; Neely et al., 2004.
Qualitative advantage	Literature source
Improvement in communication in the organization on the strategy	Lovell et al., 2002; Baraldi and Monolo, 2004; Heras, 2004; Neely et al., 2004; Papalexandris et al., 2004; Robinson, 2004; Lawson et al., 2004.
Closer collaboration and better knowledge sharing and information exchange between organisational units	Mooraj et al., 1999; Kald and Nilsson, 2000; Neely et al., 2004; Lawrie et al., 2004; Papalexandris et al., 2004; Robinson, 2004.
Strengthened focus on what is important for the organization	Mooraj et al., 1999; Kald and Nilsson, 2000; Baraldi and Monolo, 2004; Neely et al., 2004; Self, 2004;
More focus on the achievement of results	Dumond, 1994; Bititci et al., 2004; Lawrie et al., 2004; Neely et al., 2004; Self, 2004.
Higher quality of performance information	Lawson et al., 2004; Neely et al., 2004; Robinson, 2004; IOMA. Business Intelligence at Work, 2005; Tapinos et al., 2005.
Better strategic alignment of organisational units	Malina and Selto, 2001; Shulver and Antarkar, 2001; Lovell et al., 2002; Neely et al., 2004; Lawson et al., 2005.
Higher operational efficiency	Waal, 2002; Neely et al., 2004; Robinson, 2004.
Improvement of management quality	Malina and Selto, 2001; Waal, 2002; Neely et al., 2004.
Better understanding of organizational members of the strategy	Lovell et al., 2002; Heras, 2004; Neely et al., 2004.
Improvement in the decision-making process	Dumond, 1994; Mooraj et al., 1999; Kald and Nilsson, 2000.
Higher commitment of organizational members to the organization	Malina and Selto, 2001; Neely et al., 2004; Bititci et al., 2004.
More clarity of people about their contribution towards achievement of the strategy and organizational goals	Lawson et al., 2004; Neely et al., 2004; Papalexandris et al., 2004.
Higher innovativeness	Sim and Koh, 2001; Waal, 2002; Self, 2004.
Better achievement of organisational goals	Waal, 2002; Lawson et al., 2003; Tapinos et al., 2005.
More pro-activity of organizational members	Neely et al., 2004; Hatch, 2005; Tapinos et al., 2005.
More clarity for organizational members about their roles and goals to be achieved	Lawson et al., 2004; Neely et al., 2004.
Higher quality of products and services	Waal, 2002; Brown, 2004.
More effective management control	Malina and Selto, 2001; Neely et al., 2004.

Higher employee satisfaction	Sim and Koh, 2001; Papalexandris et al., 2004.
Stronger process orientation	Shulver and Antarkar, 2001; Neely et al., 2004.
Strengthened reputation of the organisation as a quality firm	Waal, 2002; Self, 2004.
Better strategic planning process	Lovell et al., 2002; Tapinos et al., 2005.
Qualitative disadvantage	Literature source
It causes too much internal competition	Kald and Nilsson, 2000; Papalexandris et al., 2004
There is too much financial information	Kald and Nilsson, 2000; IOMA, Business Intelligence at Work, 2005
It is too expensive and too bureaucratic	Braam and Nijssen, 2004; IOMA, Business Intelligence at Work, 2005
There are too many performance indicators	Dumond, 1994; Kald and Nilsson, 2000; Self, 2004; IOMA, Business Intelligence at Work, 2005
The performance information is too aggregated	Kald and Nilsson. 2000; Neely et al., 2004
There is not enough strategic information in the system	Kald and Nilsson, 2000; Sim and Koh, 2001
The performance indicators are too subjective and therefore unreliable	Kald and Nilsson, 2000; Malina and Selto, 2001
There is too much historical information	Kald and Nilsson, 2000; IOMA, Business Intelligence at Work, 2005

Appendix 2 – Overview of the participating organizations

This appendix lists the organizations that participated in the research, and provides some detail on the level of completeness of the SPM system implementation and the interviewees.

Organization	Industry	Size	Type	SPM system completely implemented?	No. of interviews	Functions interviewed
Abrona	Care	Medium	National	No, but almost	5	Chairman of the Board, HRM Director, Region Manager, Cluster Manager (2)
De Lage Landen	Financial services	Large	Multinational	No, still a lot to do	4	Divisional COO (2), CFO, Program Manager
Eneco	Energy	Large	National	Yes	3	Services Manager, Corporate Controller, COO
Heemskerk	Food	Medium	Multinational	No, still a lot to do	4	Operations Director, HRM Director, Operations Manager, Business Desk Manager
ING	Financial services	Large	Multinational	No, but almost	2	Project and Change Manager (2)
KLM	Transportation	Large	Multinational	Yes	2	Network Senior Vice President, Passenger Senior Vice President/Controller
KLM Cargo	Transportation	Large	Multinational	No, but almost	2	Finance and Control Vice President, Financial Planning and Control Director
Philips Research	Manufacturing	Large	Multinational	No, but almost	4	Works Counsellor, Research Vice President, HRM Senior Manager, Secretary of the Board
PQ Europe	Manufacturing	Medium	Multinational	No, but almost	3	Plant Manager, HRM Officer, Health and Safety Manager
Rabobank	Financial services	Large	Multinational	Yes, but not according to plan	4	HRM Retail Manager, HRM SS&F Manager, Corporate HRM Manager
Sara-Lee/DE	Food	Large	Multinational	No, but almost	2	Corporate Control Vice President, Divisional CFO
Schiphol Group	Professional services	Large	Multinational	No, but almost	1	HRM Manager

Stork	Manufacturing	Large	Multinational	No, still a lot to do	2	Corporate Strategy and Control Manager (2)
Tempo-Team	Professional services	Large	National	Yes, but not according to plan	4	Business Unit Manager, Account Specialist (2), Business Unit Analyst
Trespa	Manufacturing	Medium	Multinational	No, but almost	4	CFO, Financial Support Manager, Commercial Manager, Industrial Engineer
Wessanen	Food	Large	Multinational	No, still a lot to do	5	Reporting Manager, Supply Chain Manager, Operations Manager, Financial Manager, Sales Director
A well-known car manufacturer	Manufacturing	Large	Multinational	Yes, but not according to plan	1	Internal consultant

Appendix 3 - Average quantitative advantage scores for SPM system level of completeness categories

This appendix gives an overview of the average scores per level of completeness category on the advantages experienced in practice.

- *Yes/Yes, but not according to plan* = organizations that implemented the SPM system, either according to plan or not;
- *No, but almost* = organizations that are almost finished with implementing the SPM system
- *No, still a lot to do* = organizations that are in the process of implementing the SPM system and still have a lot to do;
- Possible responses: 1= not at all; 2 = a little bit; 3 = unclear; 4 = clear; 5 = very strong.

Level of completeness category	Organizational scores	Quantitative advantages			
		Increased revenue	Increased profit	Reduced costs	Averaged score
Yes/ Yes, but not to plan	Eneco	3.00	4.33	4.33	3.89
	KLM	3.00	5.00	5.00	4.33
	Tempo-team	3.50	3.25	3.25	3.33
	Rabobank	2.75	2.00	1.50	2.08
	Car manufacturer	4.00	2.00	4.00	3.33
	<i>Group average</i>	3.25	3.32	3.62	3.39
No, but almost	Abrona	3.60	4.00	3.00	3.53
	Schiphol	3.00	3.00	4.00	3.33
	Trespa	4.25	4.50	4.00	4.25
	Sara-Lee/DE	3.00	4.00	3.00	3.33
	PQ Europe	1.33	4.00	4.00	3.11
	ING	1.00	1.00	1.00	1.00
	KLM Cargo	4.00	4.00	3.50	3.83
	Philips Research	4.25	4.75	2.00	3.67
	<i>Group average</i>	3.05	3.66	3.06	3.26
No, still a lot to do	De Lage Landen	1.50	2.75	2.25	2.17
	Heemskerk	1.75	4.25	4.00	3.33
	Stork	3.00	4.00	4.00	3.67
	Wessanen Nederland	2.60	3.20	4.00	3.27
	<i>Group average</i>	2.21	3.55	3.56	3.11

Appendix 4 – Average qualitative advantage scores for SPM system level of completeness categories

This appendix gives an overview of the average scores per level of completeness category on the advantages experienced in practice.

Level of completeness category	Organizational scores	Qualitative benefits												
		better strategic communication	better knowledge sharing	better focus	better result achievement	better information quality	better strategic alignment	higher efficiency	better management	better strategic understanding	better decision taking	more employee commitment	more clarity of contribution	more innovativeness
Yes/ Yes, but not to plan	Eneco	4.00	4.00	4.33	3.67	4.67	2.67	3.33	3.67	3.00	4.00	4.00	3.00	3.00
	KLM	4.00	5.00	4.00	4.00	5.00	4.00	4.00	4.00	3.00	4.00	3.00	4.00	1.00
	Tempo-team	4.25	3.50	3.75	3.75	3.75	3.25	3.25	3.50	4.25	3.50	4.25	3.75	2.50
	Rabobank	3.50	1.75	4.00	3.75	2.50	2.00	1.75	3.25	1.50	1.75	1.75	2.50	1.00
	Car manufact.	4.00	4.00	4.00	4.00	2.00	3.00	4.00	4.00	4.00	4.00	4.00	4.00	1.00
	<i>Group average</i>	3.95	3.65	4.02	3.83	3.58	2.98	3.27	3.68	3.15	3.45	3.40	3.45	1.70
No, almost	Abrona	4.20	3.00	4.40	4.40	4.00	4.20	3.40	4.20	3.60	3.60	3.60	4.00	3.20
	Schiphol	5.00	5.00	5.00	5.00	5.00	5.00	4.00	5.00	4.00	5.00	5.00	3.00	3.00
	Trespa	4.75	4.25	4.75	4.75	4.50	4.00	4.00	3.25	3.75	4.25	4.50	4.00	2.75
	Sara-Lee/DE	3.00	2.50	4.00	4.50	4.00	2.50	3.00	3.00	4.00	3.00	3.00	3.00	3.00
	PQ Europe	2.67	3.33	4.00	4.00	4.00	3.33	2.67	2.67	4.00	3.67	2.67	3.67	1.00
	ING	4.00	1.00	5.00	5.00	4.00	1.00	1.00	1.00	4.00	1.00	1.00	4.00	1.00
	KLM Cargo	4.00	4.50	5.00	4.50	4.50	3.50	5.00	4.00	3.50	4.50	4.00	4.50	2.50
	Philips Research	3.25	2.50	4.50	4.25	3.00	3.00	3.00	3.00	2.00	3.25	2.75	4.00	2.50
	<i>Group average</i>	3.86	3.26	4.58	4.55	4.13	3.32	3.26	3.26	3.61	3.53	3.31	3.77	2.37
No, still a lot to do	De Lage Landen	3.50	3.50	3.75	3.75	3.25	4.00	3.25	3.50	3.75	3.25	3.50	3.00	3.50
	Heemskerk	3.75	3.50	4.50	3.75	4.75	3.00	4.00	4.00	2.75	3.25	3.75	3.00	2.25
	Stork	4.00	3.00	5.00	4.00	4.00	3.00	4.00	3.00	3.00	4.00	2.00	2.00	4.00
	Wessanen	4.00	2.60	3.00	3.20	3.80	3.00	3.40	3.00	3.40	2.60	3.20	3.20	2.20
	<i>Group average</i>	3.81	3.15	4.06	3.68	3.95	3.25	3.66	3.38	3.23	3.28	3.11	2.80	2.99

Level of completeness category	Organizational scores	Qualitative benefits									Averaged score
		better goal achievement	higher pro-activity	more role clarity	higher quality	more effective control	higher employee satisfaction	better process orientation	better organisational reputation	better strategic planning	
Yes/ Yes, but not to plan	Eneco	4.00	2.00	3.67	4.00	4.67	3.00	4.00	4.00	1.67	3.56
	KLM	5.00	4.00	4.00	4.00	4.00	3.00	5.00	4.00	4.00	3.91
	Tempo-team	3.50	3.75	3.75	3.50	3.75	2.00	4.75	3.00	3.50	3.58
	Rabobank	1.50	2.75	3.25	1.75	3.25	3.00	1.75	1.25	2.50	2.36
	Car manufact.	4.00	2.00	4.00	4.00	4.00	4.00	3.00	4.00	4.00	3.59
	<i>Group average</i>	3.60	2.90	3.73	3.45	3.93	3.00	3.70	3.25	3.13	3.40
No, almost	Abrona	4.60	3.20	4.20	3.00	4.40	2.80	3.80	3.00	4.20	3.77
	Schiphol	5.00	5.00	1.00	4.00	5.00	3.00	1.00	4.00	5.00	4.18
	Trespa	4.25	3.75	4.00	3.50	4.50	2.50	4.25	4.25	4.00	4.02
	Sara-Lee/DE	4.00	3.00	3.00	3.00	4.00	3.00	4.00	3.00	2.00	3.25
	PQ Europe	3.67	1.67	4.00	2.67	4.00	1.33	1.00	1.33	1.67	2.86
	ING	4.00	1.00	4.00	3.00	4.00	3.00	4.00	3.00	4.00	2.86
	KLM Cargo	4.00	3.00	4.00	4.00	5.00	4.00	4.50	3.00	4.00	4.07
	Philips Research	4.25	2.25	2.25	3.50	3.00	2.25	2.50	3.25	3.00	3.06
	<i>Group average</i>	4.22	2.86	3.31	3.33	4.24	2.74	3.13	3.10	3.48	3.51
No, still a lot to do	De Lage Landen	3.25	3.25	3.50	3.50	3.75	2.75	4.67	3.33	4.00	3.52
	Heemskerk	3.00	3.75	3.25	4.00	4.25	2.25	3.50	3.25	3.25	3.49
	Stork	4.00	2.00	3.00	3.00	4.00	3.00	4.00	3.00	4.00	3.41
	Wessanen	3.00	2.80	2.80	3.20	3.00	2.40	3.60	3.40	2.80	3.07
	<i>Group average</i>	3.31	2.95	3.14	3.43	3.75	2.60	3.94	3.25	3.51	3.37

Appendix 5 – Average disadvantage scores for SPM system level of completeness categories

This appendix gives an overview of the average scores per level of completeness category on the disadvantages experienced in practice.

Level of completeness category	Organizational scores	Disadvantages								Averaged score
		too many KPIs	not enough strategic info	too much internal competition	too expensive/ bureaucratic	KPIs too subjective	info too aggregated	too much financial info	too much historical info	
Yes/ Yes, but not to plan	Eneco	3.33	3.00	1.00	2.67	1.67	1.33	1.00	2.67	2.08
	KLM	2.00	4.00	2.00	1.00	1.00	1.00	2.00	1.00	1.75
	Tempo-team	2.75	2.75	1.25	1.50	1.75	1.00	1.25	1.00	1.66
	Rabobank	2.00	2.25	1.25	3.50	1.25	1.50	1.00	1.00	1.72
	Car manufacturer	1.00	1.00	1.00	4.00	1.00	1.00	1.00	1.00	1.38
	<i>Group average</i>	2.22	2.60	1.30	2.53	1.33	1.17	1.25	1.33	1.72
No, but almost	Abrona	2.20	1.40	1.80	2.00	1.60	1.20	2.40	1.00	1.70
	Schiphol	1.00	1.00	4.00	4.00	1.00	4.00	4.00	1.00	2.50
	Trespa	3.50	1.25	1.75	1.00	1.75	1.00	1.00	3.75	1.88
	Sara-Lee/DE	1.00	2.50	2.50	2.00	2.00	1.00	1.50	1.50	1.75
	PQ Europe	4.00	2.00	1.00	1.00	1.67	3.00	1.00	1.00	1.83
	ING	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	KLM Cargo	2.00	1.00	1.00	1.00	1.50	1.50	2.50	2.50	1.63
	Philips Research	3.50	3.00	1.00	1.75	1.75	1.75	1.25	1.25	1.91
	<i>Group average</i>	2.28	1.64	1.76	1.72	1.53	1.81	1.83	1.63	1.77
No, still a lot to do	De Lage Landen	2.00	2.50	2.25	2.75	2.25	2.00	2.75	2.00	2.31
	Heemskerk	1.50	2.75	1.50	1.25	1.25	2.00	1.25	1.25	1.59
	Stork	1.00	1.00	1.00	3.00	1.00	1.00	4.00	5.00	2.13
	Wessanen	3.00	2.80	1.60	2.20	1.80	3.00	2.00	2.60	2.38
	<i>Group average</i>	1.88	2.26	1.59	2.30	1.58	2.00	2.50	2.71	2.10