Measuring Business Excellence
Performance measurement and management: a literature review and a research agenda
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Summary

Purpose – *The purpose of this paper is to review the literature in the field of performance measurement and management (PMM) for small and medium enterprises (SMEs) and large companies and propose a research agenda for the future.*

Design/methodology/approach – *This paper provides an update of Neely's work ''The evolution of performance measurement research'' The literature review has been carried out by using two different methodologies. Citation/co-citation analysis has been used to explore ''performance measurement'' (PM) literature, while a chronological review of main frameworks/models developed both for large and small companies is presented in order to highlight ''PMM'' literature.*

Findings – *The paper analyzes the literature on the field and carries out the most cited works and the common characteristics of them based on the key words used. The results of the literature review reveal a certain maturity of the literature related to large companies and a significant lack of PMM literature for SMEs. Finally the paper argues the development and evolution of the research field that is now entering a phase of new directions. These new directions can be conceptualized in three ways – by context, by theme and by challenge.*

Research limitations/implications – *The research presented in the paper is limited to work that is referred directly with performance measurement and management. Related research – such as literature on management control and accounting – has not been considered, even if future researches could include it.*

Originality/value – *The paper extends Neely's work under two dimensions: the research field evolution from 2005 to 2008 and the investigation of the ''performance management'' dimension. The paper will be valuable to scholars working in the field of business performance measurement and management, interested in the literature evolution and in identifying future areas of research.*

Keywords *Performance measures, Performance management, Small to medium-sized enterprises, Literature*

Paper type *General review*

1. Introduction

Interest on performance measurement and management (PMM) has notably increased in the last 20 years (Taticchi, 2008). Particularly, it is important to note the evolution of focusing performance from a financial perspective to a non-financial perspective. Since the middle of 1980s, companies emphasized the growing need of controlling production business processes. Companies have understood that for competing in continuously changing environments, it is necessary to monitor and understand firm performances. Measurement has been recognized as a crucial element to improve business performance (Sharma *et al.*, 2005). A performance measurement and management system (PMS) is a balanced and dynamic system that enables support of decision-making processes by gathering, elaborating and analyzing information (Neely *et al.*, 2002). The concept of ''balance'' refers to the need of using different measures and perspectives that tied together give an holistic view of the organization (Kaplan and Norton, 1996). The concept of ''dynamicity'' refers

instead to the need of developing a system that continuously monitors the internal and external context and reviews objectives and priorities (Bititci *et al.*, 2000). An increasing competitive environment, the proneness of growing in dimension, the evolution of quality concept, the increased focus on continuous improvement and the significant developments in information and communication technologies are the most important changes in recent years that have created a favorable context for the implementation of PMSs in SMEs, particularly in the manufacturing sector (Garengo *et al.*, 2005). Although extensive research has been carried out to investigate the needs and characteristics of PMSs in large organizations, there is a distinct lack of published research on issues related to SMEs (Hudson *et al.*, 2000). However, from the literature available it is possible to collect information regarding how large companies and SMEs manage performance measure processes.

In this paper we examine the evolution of the literature and the strengths and weaknesses of the frameworks/models developed both for large and small companies. The evolution of the literature is discussed and a research agenda is proposed.

2. PM literature review

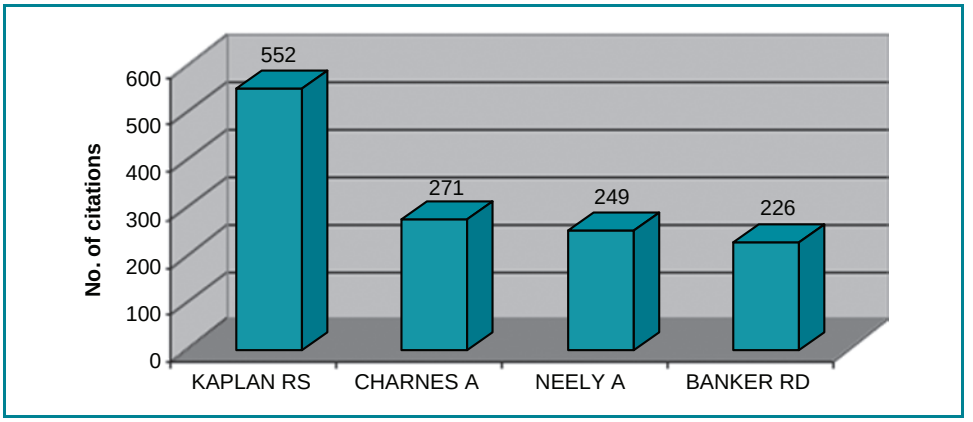
In this section, an extensive literature review of the PMM topic is proposed by using different methodologies. First, a citation/co-citation analysis is performed for analyzing PM research. Within this analysis, number of papers, leading journals and most cited authors are some of the results. Further, a chronological literature review of PMM frameworks/models both for large and small companies is presented, in order to discuss strengths and weaknesses.

2.1 Citation analysis

In order to examine macroscopically the literature, a citation/co-citation analysis of research on performance measurement is proposed by following the methodology of Neely (2005). As a consequence of that, this section can be considered an update of Neely's work. Nowadays, recent advances in information technology and online data storage have significantly eased the process of citation/co-citation analysis. The dataset used in this paper was constructed using the ISI Web of Knowledge database. The authors analyzed all the publications in literature containing the words ''performance measurement'' in the title, keywords or abstract. Thus, the resultant dataset in which performing the further analysis is constituted of 6,618 papers published in 546 different journals. The earliest paper included in the dataset was published in 1970 and the most recent in 2008 (91 percent of publications included in the dataset have been published since January 1991). Once downloaded with the Sitkis software (Schildt, 2002), the authors performed the reviewing process. In particular, every record that related to the 20 most cited authors was reviewed and confirmed (the top 5 percent of citations) and the title of every journal in the dataset was verified as well as errors identified in the dataset were corrected coherently with the current best practices for bibliometric analysis (Schildt, 2002).

The 6,618 papers included in the dataset provide some 115,547 citations, covering 88,959 works and drawing on 22,091 different lead authors. The most frequently cited authors (see Figure 1) were: R.S. Kaplan (552 citations), Abraham Charnes (271 citations), Andy Neely (249 citations), Rajiv Banker (226 citations). The four lead authors identified have somewhat different disciplinary backgrounds – accounting (Kaplan), operations management (Neely), accounting/operations research and information systems (Banker) and mathematics/operations research (Charnes). In total, the citations were drawn from 33,971 different journals. The most frequently cited journals were the *International Journal of Operation & Production Management* (943 citations), *Management Science Journal* (973 citations), *European Journal of Operations and Research* (728 citations), *Strategic Management Journal* (874 citations), and *Harvard Business Review* (652 citations).

Figure 1 Lead authors' citations



2.2 Analysis of citations data

The analysis of citations data has been performed by the authors analyzing the frequency of citations for individual pieces of work. The immaturity of the PM field is underlined by the fact that the pattern of citations is diverse: only ten works are cited more than 30 times. Table I shows the frequency of the most cited works, highlighting the dominance of Kaplan and Norton and the Balanced Scorecard (BSC). Given that research data suggest that between 30 and 60 percent of firms have adopted the balanced scorecard (Neely, 2005), this

Table I Most frequently cited performance measurement works

Author	*Title*	*Year*	*Citations*
Kaplan, R.S. and Norton, D.P.	''The Balanced Scorecard: measures that drive performance'', *Harvard Business Review*, January-February, pp. 71-9	1992	168
Kaplan, R.S. and Norton, D.P.	*The Balanced Scorecard: Translating Strategy Into Action*, Harvard Business School Press, Boston, MA	1996	92
Charnes, A., Cooper, W.W. and Rhodes, E.	''Measuring efficiency of decision-making units'', *European Journal of Operations Research*, Vol. 2 No. 6, pp. 429-44	1978	135
Dixon, J.; Nanni, A.and Vollmann, T.	*The New Performance Challenge*, Business One, Irwin, Burr Ridge, IL	1990	63
Neely, A.D., Gregory, M. and Platts, K.	''Performance measurement system design: a literature review and research agenda'', *International Journal of Operations & Production Management*, 15 No. 4, pp. 80-116	1992	67
Eccles, R.G.	''The performance measurement manifesto'', *Harvard Business Review*, January-February, pp. 131-7	1991	41
Lynch R.L. and Cross, K.F.	*Measure Up!*, Blackwell Publishers, Cambridge, MA	1991	40
Kaplan, R.S. and Norton, D.P.	''Putting the Balanced Scorecard to work'', *Harvard Business Review*, September-October, pp. 134-47	1993	48
Banker, R.D.; Charnes, A. and Cooper, W.W.	''Some models for estimating technical and scale inefficiencies in data envelopment analysis'', *Management Science*, Vol. 30 No. 9, pp. 1078-92	1984	88
Kaplan, R.S.	''Using the balanced scorecard as a strategic management system'', *Harvard Business Review*, Vol. 74 No. 1, pp. 75-85	1996	48

dominance is not surprising, but it is interesting, since the relative little certainty of BSC positive impact on management.

A more interesting analysis has been conducted taking in consideration the citation frequency over time. In particular, Figure 2 presents the trend over time for the ten most frequently cited works. What is remarkable to note about the data in Figure 2 is the relative stability of citations for the most frequently cited papers in terms of their continuing appearance in the citation rankings. This position contrasts with a more general analysis of the production and operations management (P/OM) research literature. Finally, Figure 3 presents the number of citations per year while Figure 4 the number of published items per year. From such figures it is possible to remark that even if the field is relatively young and the literature appear to be yet immature, the situation is speedily evolving.

A social network analysis is showed in Figure 5 to understand co-citation patterns in the previously data set. In particular the net shows the patterns of the citations for the most influential articles, i.e. those with a citation count of over ten when the citing articles had to be cited at least three times. The resultant network, as showed in Figure 5, contains a central group consisting of authors focusing on performance measurement, such as Dixon, Eccles, Kaplan, Maskell and Neely (Neely, 2005). Other contributions come from the business

Figure 2 Changing patterns of citation frequency

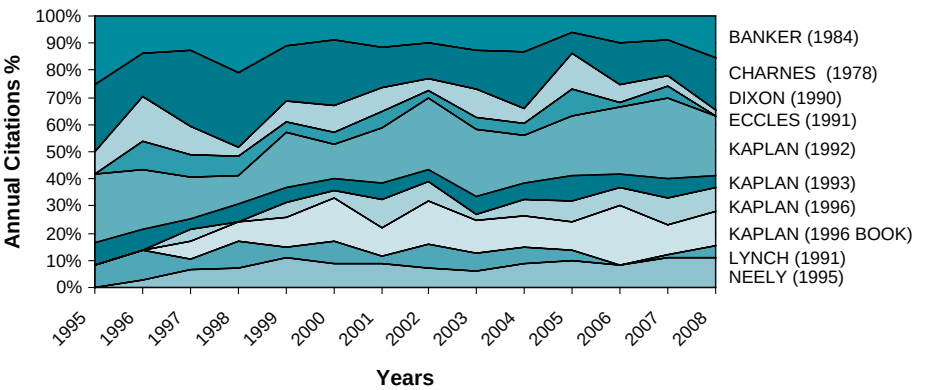


Figure 3 Citations per year

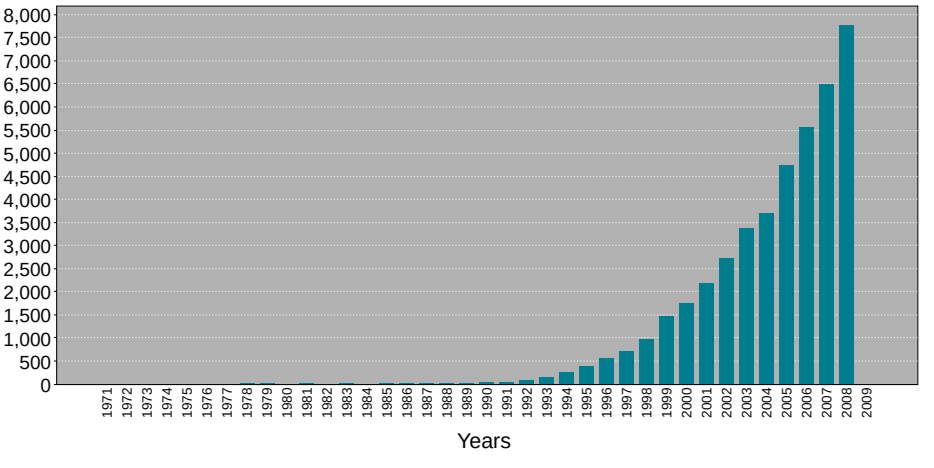


Figure 4 Published items per year

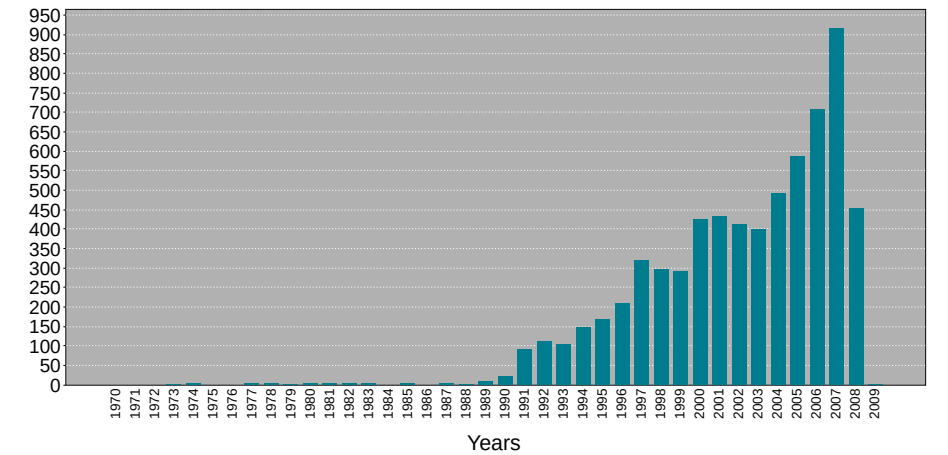
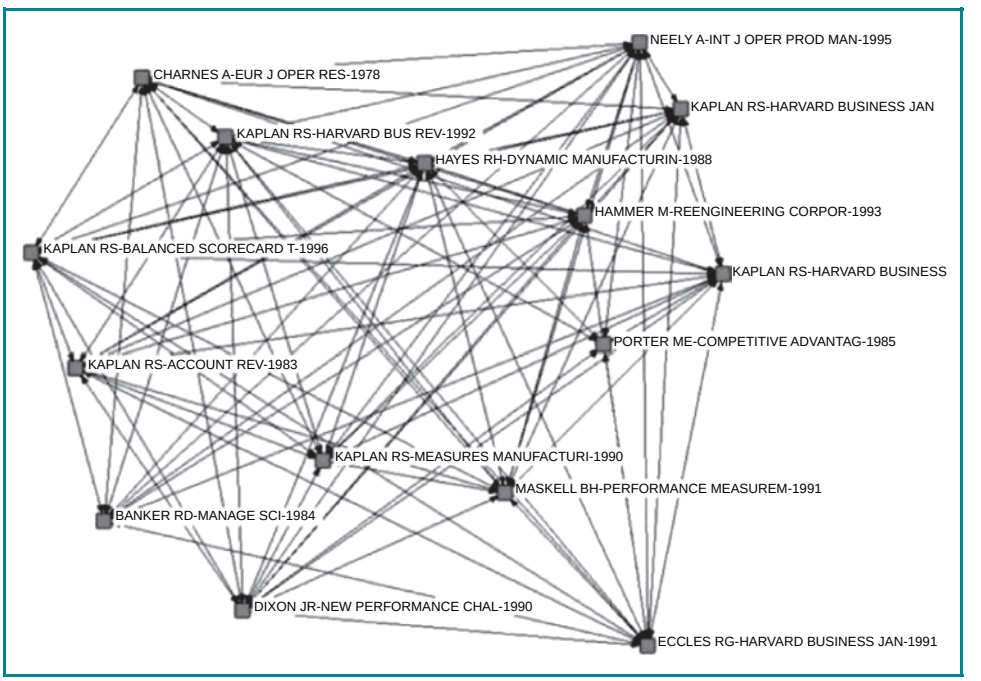


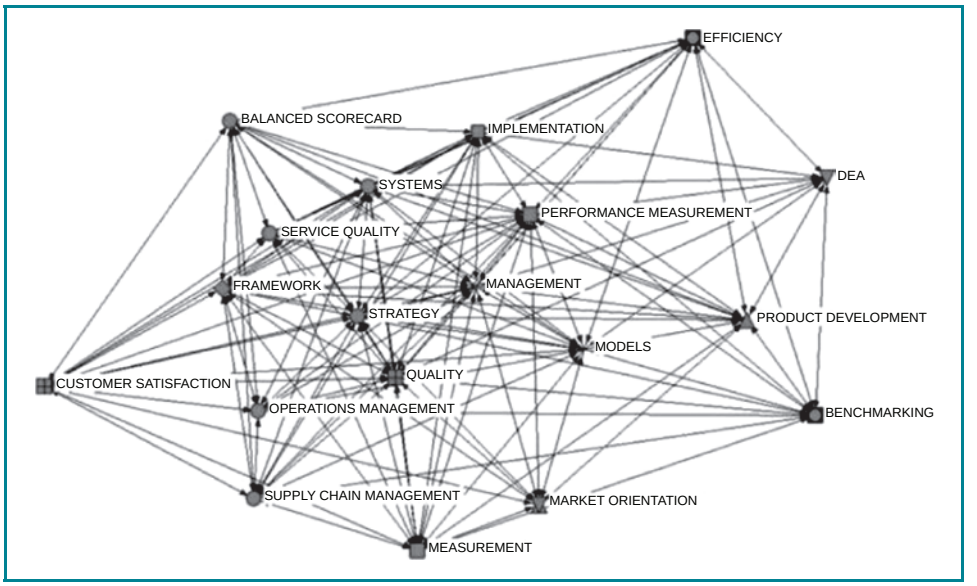
Figure 5 Citation/co-citation analysis for most influential works



strategy literature as performed by Hayes, while Charnes and Banker are key contributions to the development of the data envelopment analysis methodology.

The previous analysis highlights the main interest of the researchers in seeking solutions to a common challenge, namely how to ensure performance measurement systems related to an organization's strategy. A different analysis can be developed studying the social network of keywords for the most frequently cited works on literature (only works with over 20 citations are included in this analysis). Figure 6 proposes this overview and gives an insight on the fields of researchers' and practitioners' interest and on the evolution of the PM study. It is clear from the Figure 6 the evolution from the past, such as an increasing attention to indicators like the customer satisfaction and the market orientation.

Figure 6 Keyword analysis for most influential works



3. PMM literature review

Since the lack of published research on PMM, the authors decided to shift the research methodology from citation/co-citation analysis to a more qualitative approach, such as a structured literature review. As a consequence of that, in this paragraph a chronological review of the literature is presented, by analyzing frameworks/models developed both for large and small companies, over the last two decades.

3.1 Large companies: PMSs' evolution

In this section, the PMSs presented in Table II are discussed. The main goal of such models and frameworks is to support management by helping them to measure business performance, analyze and improve business operational efficiency through better decision-making processes. Most of the models have gone through some empirical testing and some have only theoretical developments.

In the 1980s, the EVA and the ABC models came as a result of observed deficiencies in the traditional accounting systems. The SMART model, developed in 1988, represents an important change in performance measurement literature, paying attention for the first time in linking strategy to operations, using external and internal measures of performance and modelling the company as an integrated system. The SPA model followed this, by introducing two important innovations that are: the concept of balanced measures and the use of non-financial indicators.

At the beginning of 1990s, the CVA model introduced a completely new approach, by building performance measurement exclusively from a commercial point of view. The use of a single main approach is also utilized by the BEM framework, using quality excellence as focus, and by the PDGBS, using benchmarking as approach.

In the 1990s, many PM systems and frameworks emerged trying to offer integrated solutions (RDF, BSC, SPC, IPMS, CBS, IPMF and BEM) or just specific methodologies to fix certain issues (PMQ, ROQ, CPMF and CPMS). This was followed by the BSC model that encompassed several features such as financial and non-financial to bring out composite measures of performance. The BSC has received much attention in the last fifteen years and it has been applied to several industries successfully. The models and frameworks developed recently possess characteristics of linking strategy to operations, offering

Table II Large companies, models and frameworks analyzed

Period of introduction	*Name of the model/framework*	*References*
Before 1980s	The ROI, ROE, ROCE and derivates	Simons (2000)
1980	The Economic Value Added Model (EVA)	Stewart (2007)
1988	The Activity Based Costing (ABC) – The Activity Based Management (ABM)	Cooper and Kaplan (1988)
1988	The Strategic Measurement Analysis and Reporting Technique (SMART)	Cross and Lynch (1988)
1989	The Supportive Performance Measures (SPA)	Keegan *et al.* (1989)
1990	The Customer Value Analysis (CVA)	Customer Value Inc. (2007)
1990	The Performance Measurement Questionnaire (PMQ)	Dixon *et al.* (1990)
1991	The Results and Determinants Framework (RDF)	Fitzgerald *et al.* (1991)
1992	The Balanced Scorecard (BSC)	Kaplan and Norton (1992)
1994	The Service-Profit Chain (SPC)	Heskett *et al.* (1994)
1995	The Return on Quality Approach (ROQ)	Rust *et al.* (1995)
1996	The Cambridge Performance Measurement Framework (CPMF)	Neely *et al.* (1996)
1996	The Consistent Performance Measurement System (CPMS)	Flapper *et al.* (1996)
1997	The Integrated Performance Measurement System (IPMS)	Bititci *et al.* (1997)
1998	The Comparative Business Scorecard (CBS)	Kanji (1998)
1998	The Integrated Performance Measurement Framework (IPMF)	Medori and Steeple (2000)
1999	The Business Excellence Model (BEM)	EFQM (2007)
2000	The Dynamic Performance Measurement System (DPMS)	Bititci *et al.* (2000)
2001	The Action-Profit Linkage Model (APL)	Epstein and Westbrook (2001)
2001	The Manufacturing System Design Decomposition (MSDD)	Cochran *et al.* (2001)
2001	The Performance Prism (PP)	Neely *et al.* (2001)
2004	The Performance Planning Value Chain (PPVC) Neely and Jarrar (2004)	
2004	The Capability Economic Value of Intangible and Tangible Assets Model (CEVITA™)	Ratnatunga *et al.* (2004)
2006	The Performance, Development, Growth Benchmarking System (PDGBS)	St-Pierre and Delisle (2006)
2007	The Unused Capacity Decomposition Framework (UCDF)	Balachandran *et al.* (2007)

balanced set of measures (both financial and non-financial), attempting to create quantitative relations incorporating performance indicators and addressing performance measurement as a cognitive process. The models which emerged since 2000 represent further improvement in understanding of the process. The DPMS is notable among these frameworks, since it merges all the strengths of models previously developed, by integrating the use of IT infrastructure and a quantitative model to manage cause-effect relations of performance indicators. The PP model represents incorporation of an architectural design framework. Among the latest research, the CEVITA™ and the UCDF widen the boundaries of PMM, by paying attention to the growing value of intangible assets and the importance of managing unused capacities. Given the growing importance of managing fixed cost capacities, UCDF is an important step in the literature. A basic analysis of the works reviewed permits to distinguish which are ''integrated frameworks for PMM'', which are ''models to face specific issues in PMM'' and which are ''other relevant models for PMM system design''. A classification of the models reviewed based on these criteria is provided in the lists below:

1. Integrated frameworks for PMM:
   - 1988 The Strategic Measurement Analysis and Reporting Technique.
   - 1989 The Supportive Performance Measures.
   - 1991 The Results and Determinants Framework.
   - 1992 The Balanced Scorecard.
   - 1994 The Service Profit Chain.
   - 1997 The Integrated Performance Measurement System.

- 1998 The Comparative Business Scorecard.
- 1998 The Integrated Performance Measurement Framewor.;
- 2000 The Dynamic Performance Measurement System.
- 2001 The Performance Prism.

2. *Models to face specific issues in PMM*:
   - 1980 The Economic Value Added Model.
   - 1990 The Performance Measurement Questionnaire.
   - 1995 The Return on Quality.
   - 1996 The Cambridge Performance Measurement Framework.
   - 1996 The Consistent Performance Measurement System.
   - 2001 The Action Profit Linkage Model.
   - 2004 The Performance Planning Value Chain.
   - 2004 The Capability Economic Value of Intangible and Tangible Assets Model.
   - 2006 The Performance, Development and Growth Benchmarking System.
   - 2007 The Unused Capacity Decomposition Framework.
3. *Other relevant models for PMM system design*:
   - 1988 The Activity-based Costing.
   - 1990 The Customer Value Analysis.
   - 1999 The European Foundation for Quality Management Model.
   - 2001 The Manufacturing System Design Decomposition.

The proposed classification highlights a certain maturity of PMM literature related to large companies, and it evidences a ten of models that are considered appropriate for managing PMM initiatives since based on an integrated approach to the issue.

3.2 SMEs: PMSs' evolution

In this section, the PMSs/researches presented in Table III are discussed. First of all, it is important to highlight the immaturity of the literature in comparison with that one for large companies. However, it is evident a time delay of this research field: first PMM models for large companies come from the 1980s, while first researches related to SME PMM appear just in the half of 1990s. Of course, in this period, SMEs have basically laid in financial performance measures used in large companies such as ROI, ROE, ROCE and their derivates.

At the beginning of 2000s, the research on performance measurement in relation to SMEs takes two directions: the first and main one is the application/adaptation of the models developed for large companies, the second, is the development of specific models for SMEs. By following the first direction, it is possible to find cases of implementation of the well-known BSC, application of quality models like the BEM and application of the ABC. By the other hand, it was possible to find in the literature just three frameworks proposing an integrated approach to performance measurement. It is also important to remark that such models do not demonstrate the right characteristics for moving from performance measurement to performance measurement and management. It is also interesting to highlight the fact that, similar to large companies PMM literature, the development of integrated frameworks seems to have ceased in 2001-2002 in favor of research on more specific issues. While this phenomenon can maybe be understood in large companies' research, since it happens after ten years of research evolution and ten of models developed, it is surely incomprehensible in SMEs research. Equally, it is difficult to justify the

Table III List of models, frameworks and researches analyzed

Period of introduction	*Name of the model/framework*	*References*
1995	Model for quality-based performances	Noci (1995)
1997	BSC application to SMEs	Chee *et al.* (1997)
1998	Customer orientation and Performance	Kwaku and Satyendra (1998)
1999	Activity based costing in SMEs	Gunasekaran *et al.* (1999)
2000	Quality model in an SME context	McAdam (2000)
2000	Computer-based performance measurement in SMEs	Kueng *et al.* (2000)
2000	OPM®: a system for organizational performance measurement	Chennell *et al.* (2000)
2000	Performance measurement in the implementation of CIM in SMEs	Marri *et al.* (2000)
2000	Performance measurement based on SME owner's objectives	Watson *et al.* (2000)
2001	Effective performance measurement in SMEs	Hudson, Lean and Smart (2001)
2001	Indicators for performance measurement in SMEs	Hvolby and Thorstenson (2001)
2001	Theory and practice in SME performance measurement systems	Hudson, Smart and Bourne (2001)
2002	Dynamic integrated performance measurement system	Laitinen (2002)
2004	A strategic planning model for SMEs based on the BSC	Davig *et al.* (2004)
2005	Practice of performance measurement	Sharma *et al.* (2005)
2007	BSC implemented in a not for profit SME	Manville (2007)
2007	A BPI framework and PAM for SMEs	Khan *et al.* (2007)
2008	A performance measurement model based on the grounded theory approach	Chong (2008)

large research through surveys and case studies carried out in the last ten years which attempts to verify and motivate this yet immature knowledge.

Similar to section 3, a basic analysis of the works reviewed identifies which are ''integrated frameworks for SME PMM'', which are ''models to face specific issues in SME PMM'', which are ''the application/adaptation of large companies PMM models'' and which are ''interesting researches for PMM system design in SMEs''. A classification of the models/researches reviewed based on these criteria is provided in the list below:

1. *Integrated frameworks for SME PMM*:
   - 2000 OPM®: a system for organizational performance measurement.
   - 2001 effective performance measurement in SMEs.
   - 2002 dynamic integrated performance measurement system.
2. *Models to face specific issues in SME BPM*:
   - 1998 customer orientation and performance.
   - 2000 computer-based performance measurement in SMEs.
   - 2007 a BPI framework and PAM for SMEs.
3. *Application/adaptation of large companies PMM models*:
   - 1995 model for quality-based performances.
   - 1997 BSC application to SMEs.
   - 1999 activity based costing in SMEs.
   - 2000 quality models in an SME context.
   - 2000 performance measurements in the implementation of CIM in SMEs.
   - 2004 a strategic planning model for SMEs based on the BSC.
   - 2007 BSC implementation in a not-for-profit SME.
4. *Interesting researches for PMM system design in SMEs*:
   - 2000 performance measurement based on SME owner's objectives.
   - 2001 indicators for performance measurement in SMEs.

- 2001 theory and practice in SME performance measurement systems.
- 2005 practice of performance measurement.
- 2008 a performance measurement model based on the grounded theory approach.

4. PMM – discussion of the literature and research agenda

Sections 2 and 3 have provided a global picture of PMM research. In this section, a number of considerations are raised, which constitute the base to propose a research agenda:

1. *Forward a new generation of scholars.* First of all, as highlighted by citation/co-citation analysis (see Figures 3-6), it is possible to affirm that PMM research is continuing is evolution and diffusion. In this path, the ''first generation'' of leading academics which started PMM research play yet a key role (see Figure 1 and 2); however, a ''new/second generation'' of scholars is doubtless slowly emerging, as confirmed by conference proceedings and white papers that have not been included in this review, which highlight the effort on new researchers working on PMM.

2. *Effectiveness of PMM models.* Nowadays, academics are paying great attention to identifying logics and drivers allowing enterprises to be effectively managed through the measurement of their performances. Another fundamental objective consists of identifying the way data and information can be transformed in value-making activities. It means that researchers, engaged in the PMM field, are investigating how companies can achieve objectives they plan to achieve through the measurement of their performances.

   In order to improve the effectiveness of PMM models two kinds of interventions have to be performed. First of all, the needed conditions for a correct and effective utilization of PMM models have to be created within companies. It mainly means providing enterprises with IT tools needed to extract, collect and elaborate data characterizing their business. This intervention represents an essential task for the majority of SMEs. Furthermore, the logic of PMM models also needs to be modified. Particularly, they should allow companies to identify relationships between processes their business is based on. In such a way they can really contribute to fulfill the ''knowing-doing'' gap. The ''knowing-doing'' gap expresses the difficulty of companies in effectively translating information coming from the measurement of processes into effective tasks. This difficulty is not caused by the impossibility of models in finding a right set of KPIs for monitoring enterprise's processes. Instead, it depends on the scarce comprehension of cause-effect relationships the value of each indicator is based on. Success maps and strategy maps approaches and the logic the MSDD model is based on have contributed to define guidelines to effectively deal with ''knowing-doing'' gap-related troubles. In spite of that, the attempt to comprehend the value-chain cause-effect relationships for different typologies of companies and the implementation of this model within operational IT tools, can even be considered a challenge in the PMM research field (Taticchi and Balachandran, 2008).

3. *Consistency and diffusion of PMM research in SMEs.* An additional lack to previous one opens while thinking to SMEs. In this context in fact, the situation related to PMM models adoption appears quite different, since characterized by a minimum percentage of adoption. Motivations related to unsuccessful utilization of PMM models within SMEs can be ascribed both to intrinsic factors of this typology of companies both to PMM models unsuitability. The first aspect, is due to a cultural lack which afflicts transversely SMEs: by management side, there is in fact benefits incomprehension and costs fear; while by operators' side, there is rejection for a system which is perceived as intrusive. Therefore the need of structural actions aimed to create early conditions for PMM models implementation. Furthermore, the need of a PMM models revision, so as to effectively face characteristics problems of SMEs. Particularly, these initiatives have to be carried out in attention of implementation costs.

   The huge difference existing between big and small company problems explains the reasons whereby PMM models developed for big companies cannot be adapted to

SMEs, therefore there is a need for specific research (Taticchi *et al.*, 2008). Figure 7 highlights, therefore, the areas of future research.

4. *Emerging themes.* Citation/co-citation analysis has showed a certain stability (see Figure 6) of the themes related/affected by PMM, such as strategy, operations and quality. Doubtless, citation/co-citation analysis highlights these themes, since their maturity. However, there is evidence today of emerging themes affected by and related to PMM (Taticchi, 2009), as PMM and sustainability, PMM and project management, PMM and risk management. These new themes represent important guidelines to address and apply future PMM research.

Points 2, 3 and 4 in the list above, constitute the base for addressing future research on performance measurement and management. However, there is need to develop a detailed research agenda for each of these milestones that will drive the future of PMM research. In order to achieve this target, future research from ''second-generation scholars'' will play a determinant role, in order to build knowledge over what has been developed by the ''first generation'' of academics, and give consistency to PMM research field.

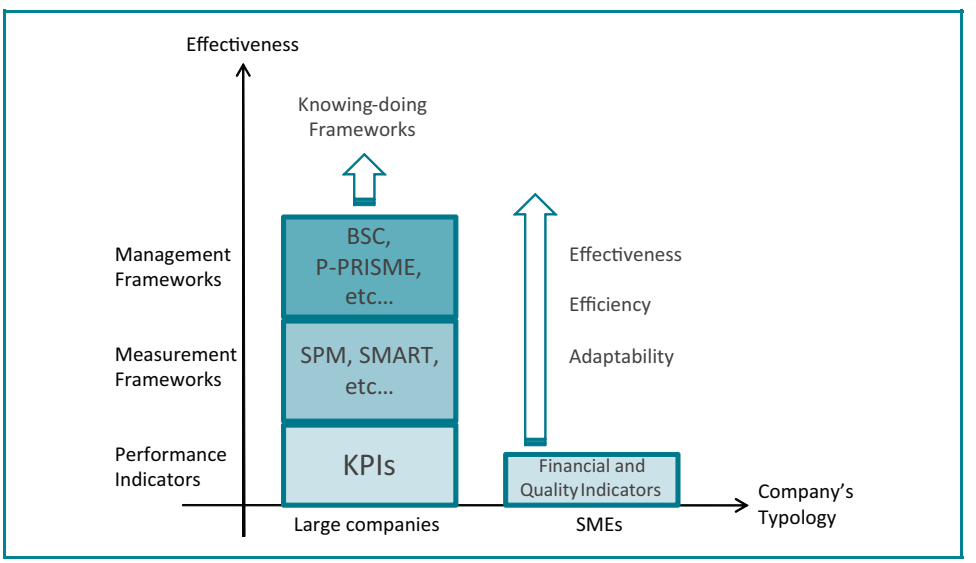
5. Conclusions

This paper carried out a literature review highlighting the state of the art of PMM research and provided an update of Neely's (2005) work. Citation and co-citation analysis were used to analyze the evolution of performance measurement (PM) research. Moreover, in order to review PMM literature, the main PMM models and frameworks developed in the last 20 years have been discussed so as to depict the evolution of the research field.

The state of art which emerges it appears completely different for large and small companies. The literature related to large companies results in fact quite mature, and future research will address to solve the difficulty of companies in effectively translating information coming from the measurement of processes into effective tasks. This issue is well-known as the ''knowing-doing'' gap and can be referred also as the difficulty of moving from performance measurement to performance measurement and management. In the paper this issue has been classified as a problem of ''effectiveness of PMM models'', which constitutes a challenge to be addressed in the future.

The SME context is completely different: the literature appears immature and the models indentified often fail while implemented. In this case, future research will focus on the

Figure 7 Large companies and SMEs, future areas of research



creation of early conditions for PMM models implementation and on the development of specific PMM models tailored on SME characteristics and needs. In the paper, this issue has been classified as a problem of ''consistency and diffusion of PMM research in SMEs'', and this constitutes the second milestone of the macro research agenda proposed.

Finally, the literature review carried out provided insights that new themes affected by and related to PMM are emerging, such as PMM and sustainability, PMM and project management, PMM and risk management. This result extends the multidisciplinarity of PMM, and it is expected that the exploration of these topics, classified in the paper as ''emerging themes'', will play an important role in future research.

Last, the literature review highlighted a ''first generation'' of academics, that gave start to PMM research. Today, a ''second generation'' of researchers seems to emerge, and therefore the authors expect that PMM research will continue its rapid path of evolution and diffusion.

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