

Development of a Purchasing and Supply Management Maturity Framework

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ABSTRACT

The goal of this contribution is to present a Purchasing and Supply Management Maturity Framework based on the findings of a comprehensive literature and empirical research and a comparative analysis of maturity models published between 1983 and 2014 as well as (management) frameworks published between 1998 and 2014 in Purchasing and Supply Management (PSM). In total 20 maturity models published from authors with an academic or scientific background, 18 maturity models offered from consulting firms and 19 management frameworks of purchasing management were examined. In this research the following eight modules that contribute to a mature and professional PSM were detected: (1) strategy & plans, (2) controlling & performance management, (3) organization & internal interfaces, (4) supplier management & external interfaces, (5) process excellence & information and communication technology (ICT), (6) talents & skills, (7) innovation & methods and (8) sustainability & ethics. Based on these findings, the concept of an original Purchasing Maturity Framework will be presented. Contrary to the large part of the published maturity models in PSM, this model is rather designed as a management model for (I) the assessment of the PSM maturity in a company and (II) the display of standard improvement paths that should lead to higher maturity than an assessment tool for evaluating the maturity at a certain point in time. Moreover, aspects of professional project and change management will be addressed that are necessary for an effective and efficient advancement of the PSM function in a company.

Keywords: *purchasing maturity, purchasing framework, purchasing excellence*

1. INTRODUCTION

Purchasing and Supply Management is an important and crucial function in a company. One main cause is the leverage effect of PSM on the operating result: With an up to 60 percent share of total revenue, the costs for purchased parts have a tremendous effect on the bottom line in the main industries like metal, automotive or electronics (Arnolds *et al.*, 2013; Wallner and Schweiger, 2012; Klein, 2012; BME, 2011; Ortner *et al.*, 2011; Ballou, 1998). Besides this economic impact, the PSM function in a company is directly affected by major internationally driven business trends like globalization, short product life-cycles, high volatility and risks on the (raw material) market, complex supply chain structures, sustainability issues or

intellectual property protection (Aberdeen, 2014; Roland Berger, 2014; Spina *et al.*, 2013; Tate *et al.*, 2013; Wildemann, 2008; Beamon, 2008). These current aspects and challenges lead to a steadily increasing set of goals the PSM department has to fulfill. Next to the traditional and mostly operational objective to ensure the security of supply to low costs and high quality standards (Cousins *et al.*, 2008; Arnolds *et al.*, 1998; Kluck, 1998; Eschenbach, 1990), more strategic goals with mid- to long-term orientation came on the agenda of PSM executives. Examples are contributing to product design and innovation through early (supplier) involvement (Roland Berger, 2014; Axelsson *et al.*, 2006), building differentiated sourcing strategies and supplier partnerships (Aberdeen, 2014; Ortner *et al.*, 2011), evaluating the “right” organizational structure (e.g. central, hybrid, decentral; Offshoring, Onshoring; Benton, 2010; Monczka, 2010; Cousins, 2008), starting corporate social responsibility (CSR) and green procurement initiatives (van Weele, 2010; Burt *et al.*, 2003), establish early warning and risk management systems (A.T. Kearney, 2011) or to ensure highly efficient PSM processes within the company and with the most important suppliers using the proper ICT (Spring Procurement, 2010).

To cope with that a high level of professionalism and innovative orientation in the purchasing function is crucial (Schweiger, 2014; Rozemeijer *et al.*, 2003). In this context it is interesting for both academics and practitioners to answer the following question: What is a professional and strategic oriented PSM department? In this respect, purchasing maturity models (PMM) can be applied. Over the last decades several scientific as well as practical oriented PMM have been developed, that describe “several stages an organization is expected to go through in its quest for greater sophistication” (Schiele, 2007, p.274). These models offer many suggestions what a company – and in this specific context the PSM department – should do to reach the next maturity level. The hypothesis is that mature purchasing organizations apply best practices, while unsophisticated organizations fail to employ them (Ellram *et al.*, 2002; Chiesa *et al.*, 1996). The assumption is that greater maturity is associated with better (business) performance.

Parallel to that, (management) frameworks in PSM (e.g. Four Pillars of Purchasing and Supply Chain Excellence by Monczka *et al.* (2010); Framework for Managing External Resources by EFQM (2006); House of Sourcing and Supply Management by Eßig (2004)) also

deliver some helpful aspects and a theoretical systemization of holistic and structured purchasing management (Ortner and Schweiger, 2010; Baier, 2008), why the analysis of these frameworks also helps to answer the raised question above.

Up to know, a consistent, current and transparent overview and substantial alignment of purchasing maturity models (scientific and practical oriented) as well as management frameworks in Purchasing and Supply Management (PSMF) is still missing (research gap), but necessary to rank the most important issues of maturity in PSM as a guideline for PSM professionals. Furthermore, the existing maturity models do not take contextual aspects into account and focus primarily on the maturity assessment and not on the improvement phase of PSM, what lead to a further need of research. Usually PSM executives see (too) many things to (concurrently) improve (Stolle, 2007), but the link from the initiatives to the overall PSM and firm's performance is not always easy to determine. Moreover, the handling of too many initiatives and actions alongside daily business inevitably leads to more diversity and complexity for the employees in the purchasing department, which may again provoke counter-productive effects (Schweiger, 2014). This is a serious aspect, especially for small and medium

sized companies with limited organizational resources as well as an operational focus on getting the materials to a good price, in the defined quality and in time (Sollish and Semanik, 2012).

Based on the facts above, it appears crucial to continue the research about the critical aspects of high PSM maturity, and to develop a supportive management framework for assessing and interpreting the PSM maturity in a company until the realization of the improvement initiatives that should lead to higher sophistication.

2. RESEARCH GOALS AND METHODOLOGY

The main goal of this contribution is to present an overview of the published maturity models in scientific literature as well as management-oriented models offered from specialized consulting companies in this field over the last three decades. The focus lies on the areas of maturity assessment covered in these models. Parallel (management) frameworks in PSM will be analyzed and the findings of both will be aligned (**Table 1**).

Table 1 Research Goals

Research Goal 1	Develop a historical overview of maturity models and frameworks in Purchasing and Supply Management.
Research Goal 2	Derive the most important areas that decide about the maturity level of a purchasing department based on PMM and PSMF as basis for the development of an original Maturity Framework in PSM.

After defining the two research goals, the clarification of the research methodology is the next step. In general, the research topic can be allocated to the field of managerial economics and management science. Within this research field the problems that lead to new research activities mainly appear in practice (Ulrich, 1984), why managerial economics can be defined as part of the applied sciences (Schreyögg, 2007). Based on existing and scientifically grounded results combined with conceptual research activities recommendations and solutions should be derived. In general, it can be distinguished between explanatory and exploratory research. Whereas the explanatory research is focusing on testing hypothesis, the exploratory research aims at contributing in a field that previously has been subject to little research. By doing that, a profound basis is created for further hypothesis testing. As it will be shown in this article, there is not that much-detailed research in the

area of purchasing maturity models as well as in the area of management frameworks in PSM over the last decades. That is why the exploratory research approach was chosen. The goal is rather to create new insights and knowledge in the area of holistic Purchasing and Supply Management than to an empirical verification or falsification of a single aspect of PSM.

In order to give a critical, objective and transparent overview of the existing models and frameworks in PSM, a literature review was conducted (Rousseau *et al.*, 2008). By analyzing the relevant literature, patterns, themes and critical issues concerning the research question can be identified (Seuring *et al.*, 2005). Therefore, the list with the most important peer-reviewed journals in PSM, analytically derived from Wynstra (2010), was taken as a basis and was extended with other scientific journals and databases in the PSM area (**Table 2**).

Table 2 Selected Journals for Literature Review

Relevant PSM journals based on an analysis of the years 1999-2008 (Wynstra, 2010)	<ul style="list-style-type: none"> ▪ Journal of Purchasing and Supply Management ▪ Journal of Supply Chain Management ▪ Supply Chain Management: An International Journal ▪ International Journal of Operations and Production Management ▪ International Journal of Production Economics ▪ International Journal of Production Research ▪ Journal of Business and Industrial Marketing ▪ Journal of Business Research ▪ Journal of Operations Management ▪ Industrial Marketing Management
Extended list	<ul style="list-style-type: none"> ▪ International Journal of Physical Distribution and Logistics Management ▪ Journal of Business Logistics ▪ Supply Chain Management Review ▪ Harvard Business Review ▪ MIT-Sloan Management Review ▪ Industrial Management ▪ Benchmarking

Table 2 Selected Journals for Literature Review (Con't)

<p>scientific databases</p>	<ul style="list-style-type: none"> ▪ Emerald ▪ ABI/Inform Global - T&I ProQuest ▪ EBSCO Business Source Premier ▪ Wiley
<p>(highly cited) academic textbooks</p>	<ul style="list-style-type: none"> ▪ Bhote: Strategic Supply Management (1989) ▪ Hahn/Kaufmann: Handbook of Industrial Purchasing Management (2002) ▪ Burt <i>et al.</i>: World Class Supply Management (2003) ▪ Axelsson <i>et al.</i>: Developing Sourcing Capabilities (2005) ▪ Cousins <i>et al.</i>: Strategic Supply Management (2008) ▪ Large: Strategic Purchasing Management (2009) ▪ Monczka <i>et al.</i>: Purchasing & Supply Management (2010) ▪ Benton: Purchasing and Supply Chain Management (2010) ▪ Van Weele: Purchasing and Supply Chain Management (2010) ▪ Lysons/Farrington: Purchasing and Supply Chain Management (2012) ▪ Sollish/Semanik: The Procurement and Supply Manager's Desk Reference (2012)

In order to identify the relevant contributions for the defined research goal, an iterative approach has proven to make particular sense (Sartor *et al.*, 2013; Seuring *et al.*, 2005). As a first step a (1) title search for the mentioned journals for the period 1984-2014 was carried out, followed by a (2) keyword search (all except full text). The initial keywords were "Purchasing Maturity", "Supply Management Maturity", "Procurement Maturity", "Supply Chain Management Maturity", "Supply Maturity" and "Maturity models". Subsequently and based on the first results, the following keywords were added to the keyword search: "Purchasing Excellence", "Supply Management Excellence", "Procurement Excellence", "Supply Chain Management Excellence", "Supply Excellence", "Purchasing Audit", "Supply Management Audit", "Procurement Audit", "Supply Chain Management Audit", "Purchasing Power", "Supply Management Power", "Supply Chain Management Power", "Procurement Power", "Worlds Class Purchasing", "World Class Supply Management", "World Class Supply Chain Management" and "World Class Procurement".

The detailed analysis of maturity models in PSM was the primary focus and inner kernel of the research (Figure 1). However, during the title search in the mentioned journals particular attention has also be given to keywords that indicate if a management framework in PSM was discussed in the paper.

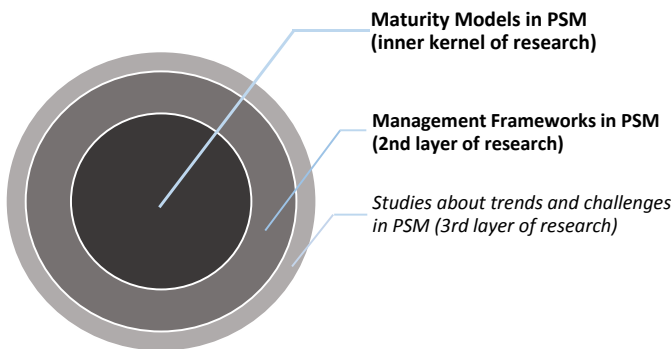


Figure 1 Layers of Research

The relevant respective keywords were "Purchasing Framework", "Supply Management Framework", "Procurement Framework", "Supply Chain Management

Framework", "Supply Framework", "Purchasing Model", "Supply Management Model", "Procurement Model", "Supply Chain Management Model" and "Supply Model". The third layer of research – but not discussed in this paper in detail – was the analysis of studies about trends and challenges in PSM (e.g. Aberdeen, 2014; Roland Berger, 2014; Spina *et al.*, 2013; Porsche Consulting, 2012; A.T. Kearney, 2011). The motivation for this research step is to find out if there are new challenges and trends, which are not covered from the available models in literature. By combining the results from the analysis of PMM, PSMF as well as PSM studies a well grounded basis for developing an original Purchasing and Supply Management Maturity Framework can be established.

Simultaneously to the keyword search in the mentioned journals, a (3a) crosscheck was undertaken by searching the electronic databases Emerald, ABI/Inform Global – T&I ProQuest, EBSCO Business Source Premier and Wiley separately and (3b) by searching highly cited academic textbooks. For a final countercheck and as a necessary means of empirically gaining information about management oriented maturity models, a (4) keyword search on www.google.de was conducted. At the same time (5) webpages of specified consulting companies in the area of PSM (Forbes- and Vault-Ranking of TOP-Consulting Companies; Brand Eins, Special Edition "Consulting Companies") and well known PSM institutions were searched for useful information and if possible a direct contact by mail and telephone was established (Table 3).

3. MATURITY MODELS AND FRAMEWORKS IN PSM

At this stage of research (09/2014), it was possible to deduce a list of 20 scientific maturity models and 18 management-oriented models that include both operational and strategic aspects of holistic PSM. Purchasing maturity models with a focus on single PSM aspects were excluded. Examples are maturity models in the area of supplier integration/supply chain integration from Childerhouse *et al.* (2011) or Fawcett (2008), supply chain operations from Netland (2011), global sourcing maturity from Trent/Monczka (2005) and Cox (1996) or a maturity model concerning MRO purchasing from Barry/Cavinato (1996). Parallel to that 19 (management) frameworks in PSM were examined.

Table 3 Consulted PSM Consultants and Institutions

Contacted Consulting companies	Accenture, adpci Consulting, ADR international, Arthur D. Little, A.T. Kearney, Bain & Company, Boston Consulting Group, Bearing Point, booz&co, Cell Consulting, Effico-Consulting, futurepurchasing, H & Z, Horváth und Partner, Innovative Management Partner, Insight Sourcing Group, Kerkhoff Consulting, McKinsey, MHP, OC&C Strategy Consultants, Oliver Wyman, OptiAchats, PA Consulting Group, pm2Consult, PMMS Consulting Group, Porsche Consulting, Purspective, PricewaterhouseCoopers, Roland Berger, Sourceone Management Services, Spring Procurement, Strategic Procurement Solutions, synGroup
PSM organizations	Aberdeen Group, CAPS Research/University of Arizona, Chartered Institute of Purchasing & Supply Management, European Association of Purchasing Managers/Bundesverband für Materialwirtschaft, Einkauf und Logistik e.V (BME), European Foundation for Quality Management, Gartner Group, Institute of Supply Management, International Purchasing and Supply Education and Research Association, National Procurement Institute, Supply Chain Council, Supply Chain Management Association, The Institute for Public Procurement, The International Federation of Purchasing and Supply Management

3.1 Purchasing Maturity Models

In the following two tables the scientific and the management oriented purchasing maturity models are listed. Next to the name of the model, the corresponding author(s),

the year of publication as well as the number of maturity levels are shown in a historical descending order.

Table 4 List of Scientific Purchasing Maturity Models

Nr.	Name of PMM	Author(s)	Year	Levels
1	PSM drivers and firm performance	Hartmann <i>et al.</i>	2012	3
2	Supply Chain Maturity Model	Reyes/Giachetti	2010	5
3	Purchasing and supply development model	Van Weele	2010	6
4	Stages in purchasing strategy development	Monczka <i>et al.</i>	2010	4
5	Supply Management Maturity Model	Schiele	2007	4
6	Conceptual model of drivers of PSM evolution	Stolle	2007	3
7	Levels of strategic purchasing	Paulraj <i>et al.</i>	2006	3
8	Purchasing Function Maturity	Cousins <i>et al.</i>	2006	4
9	Purchasing function maturity	Bruel/Petit	2005	5
10	Supply chain management process maturity model	Lockamy/McCormack	2004	5
11	World Class Supply Management	Burt/Starling	2002	4
12	Purchasing development stages	Jones	1999	5
13	Purchasing development model	Van Weele <i>et al.</i>	1998	6
14	From reactive to strategic procurement	Dobler <i>et al.</i>	1996	4
15	Purchase position benchmarking	Sysons	1989/1994	3
16	American Keiretsu	Burt/Doyle	1992	4
17	Towards purchasing excellence/MSU	Monczka/Trent	1991/1992	10
18	Fitting purchasing to the strategic firm	Freeman/Cavinato	1990	4
19	The four stages of supply management	Bhote	1989	4
20	Strategic stages in purchasing	Reck/Long	1988	4

As table four shows, the different PMM distinguish between three to ten different maturity levels (see also Schumacher *et al.*, 2008 and Schiele, 2007). The average of maturity levels is between four to five. The mentioned models describe one final stage a company is expected to reach in order for being "world class". This issue needs further research, which also considers various contextual aspects. Also, it is highly unlikely and nearly impossible to apply a single PMM to all types of companies and branches; however this is what most of these models do. As an example, there must be rather one most appropriate maturity level depending on the business and corporate context (e.g. Rozemejer *et al.*, 2003; Keough, 1993) and not one best maturity point. Especially when thinking of the imbalance of power between a big supplier and a small buying firm some maturity aspects like "supplier integration with VMI" or "long term contracts to fix optimum price level" would be theoretically right but in most of the practical cases unrealistic. This suggests that there is one highest maturity point to be reached in theory (HTMP), and one that can be realistically achieved because of contextual aspects (highest realistic maturity point, HRMP).

Next to these listed models (PMM in a narrower sense) there are also some other maturity models that are not differentiating between concrete maturity levels, but also describing aspects and criteria for PMM and an assessment method (PMM in a broader sense). Examples are the Purchasing Management Audit approach by Scheuing (1989) or the 15M Strategy Scan by Heß (2009). Whereas some authors deduced the maturity aspects mainly from theory (e.g. Van Weele, 2010/1998, Monczka *et al.*, 2010; Dobler *et al.*, 1996; Sysons, 1989/1994), others also included the opinion of (practical) experts (e.g. Paulraj *et al.*, 2006; Burt and Doyle, 1994; Freeman and Cavinato, 1990; Bhote, 1989; Reck and Long, 1988) in form of interviews or applying the Delphi method (Reyes and Giachetti, 2010). Only seven models have been empirically tested so far (Hartmann *et al.*, 2012; Reyes and Giachetti, 2010; Schiele, 2007; Cousins *et al.*, 2006; Paulraj *et al.*, 2006; Lockamy and McCormack, 2004 and Monczka and Trent, 1991/1992).

15 out of 33 consulting companies or PSM organizations (Table 3) are offering detailed information concerning their PMM or replied on the request if they ever had a PMM in their portfolio and forwarded direct feedback

or detailed further information. Some of them – like McKinsey or Arthur D. Little – changed the name of their PMM over the time and carried out some adaptations. There is also a close interrelation between the models from Arthur D.

Little, IMP Consulting and Cell Consulting (together with University St. Gallen) as those are based on the Purchasing Performance Index from 2002 (Vollrath and Nase, 2003 and Vollrath, 2006).

Table 5 List of Management Oriented Purchasing Maturity Models in Alphabetical Order

Nr.	Name of PMM	Author(s)	Levels
1	Assessment of Excellence in Procurement	A.T. Kearney	2
2	Best in class maturity framework	Aberdeen	3
3	Best Value Procurement	ADC Performance Improvement	.*
4	Framework for managing external resources	EFQM	3
5	Management-oriented purchasing analysis (Schumacher <i>et al.</i> , 2008)	H&Z	4
6	Levels of Procurement development (Anderson and Katz, 1998)	Mercer	4
7	Purchasing Excellence	Roland Berger	3
8	Purchasing EmPowerment (Voegele and Schwientek, 2002)	Roland Berger	3
9	Purchasing Performance Index	Cell Consulting/ University St. Gallen	4
10	Purchasing Maturity Model	OptiAchats	4
11	Purchasing Value Excellence	Arthur D. Little	4
12	Purchasing Performance Excellence		4
13	Procurement Performance Excellence	Innovative Management Partner	5
14	SCORmark	Supply Chain Council	4
15	Stages of purchasing sophistication (Kraljic, 1983)	McKinsey & Company	4
16	Stages of purchasing maturity (Cammish and Keough, 1991; Keough, 1993)		5
17	360° Supply Management Efficiency Review	Strategic Procurement Solutions	.*
18	360° Procurement Performance Analysis	Horváth & Partners	4

* At the time of handing in this paper, the information about the number of maturity levels from these three models was not yet available

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When the name of the author/s is/are added in brackets (**Table 5**), publications (journals or books) are available for this PMM. In the other cases, the information was empirically gathered from the respective website or from directly contacting and interviewing the company.

As scientific models, also the management-oriented PMM distinguish between different levels of maturity. The number of stages here ranges between three (Purchasing EmPowerment) and five (e.g. Stages of purchasing maturity). The main difference is that the authors of the management-oriented models emphasize on the integration of their consulting experience into their PMM. Scientific and academic findings are of course indirectly integrated into these models, but the consideration of specialized expertise and thorough knowledge of various industries makes them unique. For assessing the PSM maturity the management - oriented PMM usually follow a two-step

approach. First, the respective company is asked to fill out a questionnaire for a self-assessment and subsequently gets a first feedback about the performance in each of the evaluation areas (e.g. Innovative Management Partner, OptiAchats). Based on that, detailed fee-based workshops, analyses (e.g. spend analysis) and interviews are usually offered in order to derive rooms for improvement.

3.2 Frameworks in PSM

Taking the overview of management framework in PSM from Ortner and Schweiger (2010, p.128) as a basis (seven models), it was possible to extend this list by carrying out the above described literature research up to 19 frameworks. These models offer a comprehensive view on the aspects a company has to take into consideration for a well-managed PSM (Ortner and Schweiger, 2010).

Table 6 List of (management) Frameworks in PSM

Nr.	Name of PSMF	Author(s)	Year
1	SCOR Model	SCC	2012
2	Management of Requirements in Collaborations	Ortner <i>et al.</i>	2011
3	3-Layer-Model of SRM	Appelfeller/Buchholz	2011
4	Integrated PSM Process	Benton	2010
5	Four Pillars of Purchasing and Supply Chain Excellence	Monczka <i>et al.</i>	2009/2010
6	15M-Architecture of supply strategy	Heß	2009/2010
7	Cycle of holistic purchasing management	Schweiger <i>et al.</i>	2009
8	Potential Analysis in Purchasing	Wildemann	2008

Table 6 List of (Management) Frameworks in PSM (Con't)

9	Framework of purchasing activities	Schentler	2008
10	Procurement Event Monitoring	Bäck <i>et al.</i>	2007
11	The strategic supply wheel	Cousins	2002/2008
12	House of Sourcing and Supply Management	Eßig	2005
13	Supply Management Navigator	Jahns	2005
14	The 21st Century Logistics framework	Closs/Mollenkopf	2004
15	The CIPS procurement and supply management model	CIPS, Lysons/Farrington	2003
16	Supply Chain Management Excellence Model	Kanji/Wong	1999/2003
		Bowersox <i>et al.</i>	1999
17	PSM: a conceptual framework	Kaufmann	2002
18	Integrated St. Galler purchasing management approach	Schober <i>et al.</i>	2001
19	Global Supply Chain Forum Framework	Cooper <i>et al.</i>	1997
		GSCM	

Only models that are containing more than two areas of holistic PSM (e.g. Strategy, Organization and Processes or Organization, Processes and Performance Management) were considered for the in-depth analysis. Models that are only focusing on single aspects in PSM (e.g. Framework for low-cost country sourcing by Kusaba *et al.* (2011), Forward Sourcing by Appelfeller and Buchholz (2011), Advanced Sourcing by Wildemann (2009) or Framework of Purchasing Competence by Gonzales-Benito (2007)) were excluded.

4. COMMON CONSENSUS OF PSM MATURITY

For the development of the original PSM maturity framework it was interesting to find out if there is a common consensus about maturity in PSM. For that reason each of the assessment areas from the single maturity models as well as the Purchasing and Supply Management frameworks were listed and compared with each other in a matrix. By doing that, it was possible to detect the following eight main areas and in total 82 indicators of high PSM maturity by clustering the elements that substantially belong together.

Table 7 Areas and Indicators of High Maturity in PSM

Nr.	Areas of Maturity	Indicators of high maturity in PSM (Excerpt)
1	Controlling & Performance Management	<ul style="list-style-type: none"> Key performance indicators are defined and regularly reported. Based on the measured KPIs, initiatives for improvement are implemented. PSM is able to link its influence on the firm's overall performance.
2	Organization & Internal interfaces	<ul style="list-style-type: none"> Early involvement of PSM in product development projects. The needs of the internal and external customers are known and PSM regularly asks for feedback. There is a high visibility of the Purchasing Manager and the PSM team in the Board of Directors. The PSM department is at a senior hierarchical level. At least PSM topics are regularly on the agenda of the Top Management meetings.
3	Supplier (Relationship) Management & External interfaces	<ul style="list-style-type: none"> A closed loop from supplier scouting and analysis until the supplier development is available and documented. Supplier qualification programs and consistent supplier assessment methods are installed and feedback of results as a basis for supplier development is forwarded. Supplier motivation programs or supplier awards are part of the companies' SRM.
4	Strategy & Plans	<ul style="list-style-type: none"> Based on a corporate strategy, PSM develops short-, mid- and long-term plans. The PSM team knows about the plans and can participate in the creation of the plans. The PSM team has detailed knowledge about sourcing-strategies for PSM (based on e.g. portfolios) and apply them based on contextual situations.
5	Process Excellence & ICT	<ul style="list-style-type: none"> The core-processes are available in written form and part of a Purchasing Manual. For routine tasks and for decision support ICT is available and the PSM personnel is trained to use the systems in an effective and efficient way. The PSM personnel has the right level of information concerning PSM specific ICT.
6	Talents & Skills	<ul style="list-style-type: none"> There is a structured skill and talent management for PSM employees, e.g. employees are sent for internal and external education/training and job rotation is offered. The trainings activities are based on necessary current but also future requirements. Career paths and development programs for purchasing employees are available.
7	Innovation & Methods	<ul style="list-style-type: none"> Intensive use of strategic spend and cost management tools (e.g. LPP, CBD, Factor Cost Analysis). Regular benchmarking activities with our companies.

Table 7 Areas and Indicators of High Maturity in PSM (Con't)

		<ul style="list-style-type: none"> For internal development programs of the PSM function methods of project management (e.g. CPM, GANTT, milestones), creativity techniques (e.g. Ishikawa) and change management (e.g. motivation techniques) are applied.
7	Innovation & Methods	<ul style="list-style-type: none"> There is a clear vision concerning Corporate Social Responsibility. A code of conduct is part of the supplier contract. Regular programs are carried out to increase transport efficiency and to reduce CO2 emission.

Schiele (2007) who also did a comparison between the PMM published between 1988 and 2006 chose the clusters "Planning", "Structural organization", "Process organization", "Human Resources", "Controlling" and "Collaborative supply relation". By doing so, especially the strategic, the innovative as well as the talent management and sustainable aspects are not sufficiently emphasized (even though they are partly integrated and addressed as sub-areas in his PMM), why a different classification and extension seem to be reasonable.

5. PURCHASING AND SUPPLY MANAGEMENT MATURITY FRAMEWORK

5.1 Concept and Application

The derived areas of maturity as well as the detailed indicators are the substantial construct for the development of the framework. Contrary to the discussed PMM the

purchasing and Supply Management Maturity Framework (PSM2F) does not consist of a fixed number of maturity levels that are predefined. Following the concept of a framework as a management tool for PSM executives, the Purchasing and Supply Management Maturity Framework offers a comprehensive summary of indicators for high maturity in its kernel. For that reason, all the positively formulated aspects of maturity (things you should do/have) from the existing PMM as well as frameworks in PSM have been considered, as described by the following example using the PMM of Reck and Long from 1988 (Table 8). With this example it can be illustrated that positive aspects of maturity can be deduced from (nearly) every level and not only from the highest one. By breaking up this rigid and hence inflexible structure, the framework gives the company more flexibility in the creation of its individual improvement roadmap. By doing that, current resources, contextual aspects as well as overall corporate strategic goals can be considered in a better way, than by strictly following a predefined maturity ladder.

Table 8 Transfer of maturity aspects to PSM²F using the PMM of Reck/Long

Maturity Levels (Reck/Long: Strategic stages in Purchasing)		Description of maturity level (Excerpt)	Evaluation of wording (positive/negative)	Use for PSM ² F
1	Passive	The purchasing function has no strategic direction and primarily reacts to the requests of other functions.	Negative	<input type="checkbox"/>
		High proportion of purchaser's time is spent on quick-fix and routine operations.	Negative	<input type="checkbox"/>
		Purchasing function and individual performance are based on efficiency measures.	Negative	<input type="checkbox"/>
		Little interfunctional communication takes place because of purchasing's low visibility.	Negative	<input type="checkbox"/>
2	Independent	The purchasing function adopts the latest purchasing techniques and practices.	Positive	<input checked="" type="checkbox"/>
		The strategic direction of PSM is independent of the firm's competitive strategy.	Negative	<input type="checkbox"/>
		Performance is primarily based on cost reduction and efficiency measures.	Negative	<input type="checkbox"/>
		Coordination links are established between purchasing and technical disciplines.	Positive	<input checked="" type="checkbox"/>
3	Supportive	The purchasing function supports the firm's competitive strategy by adopting purchasing techniques and practices.	Positive	<input checked="" type="checkbox"/>
		Suppliers are considered a resource which is carefully selected and motivated.	Positive	<input checked="" type="checkbox"/>
		Markets, products and suppliers are continuously monitored and analyzed.	Positive	<input checked="" type="checkbox"/>
4	Integrative	Purchasing's strategy is fully integrated into the firm's competitive strategy and PSM implements a strategic plan.	Positive	<input checked="" type="checkbox"/>
		Cross functional training of purchasing professionals.	Positive	<input checked="" type="checkbox"/>
		Purchasing performance is measured in terms of contribution to the firm's success.	Positive	<input checked="" type="checkbox"/>

In general, the framework consists of two main modules (**Figure 2**): First, an assessment module with a self-assessment area based on the indicators of high PSM maturity (**Table 6**), and a display area, where the subjective level of maturity is indicated and can be compared to the theoretical/scientific opinion about excellence (HTMP), or to the relevant industry benchmark (HRMP). To foster the contextual approach the respective company has the possibility to weight the maturity aspects or exclude aspects that are not important for their branch or business model (e.g. strong interrelation with R&D department is generally important but doesn't make sense for a trading company or a company with external R&D).

Moreover the model contains recommendations in which areas an in-depth analysis – carried out in terms of a Purchasing Audit by a third party (van Weele, 2010; Scheuing, 1989) – might be useful (e.g. analyzing the compliance procedures or for areas where the experience of the PSM personnel is insufficient for an objective benchmark). After the assessment of the maturity level, standardized improvement paths and the respective positively influenced Key Performance Indicators will be displayed. By considering regular controlling loops and providing standard templates as well as assistance concerning change management aspects (e.g. create a culture of change and excellence, forming a powerful guiding coalition, empowering the personnel, plan and create short term wins, institutionalize new approaches; Champy, 1995; Kolmos and Graaff, 2007) this framework aims at covering the most important points for an effective and efficient advancement of the PSM function in a company.

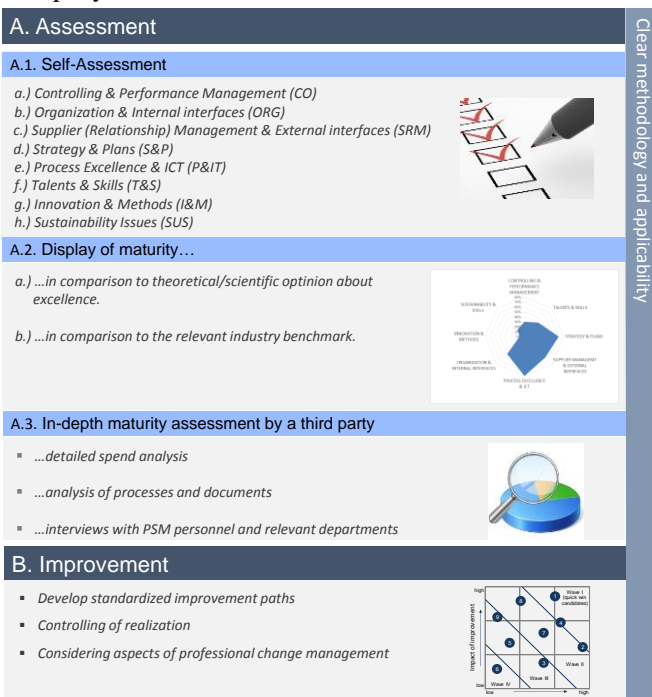


Figure 2 PSM Maturity Framework

5.2 Future Research Steps

In a further step, at least 15 experts from specified consulting companies in the area of PSM (Forbes- and Vault-Ranking of TOP-Consulting Companies; Brand Eins, Special Edition "Consulting Companies"), as well as

companies with certified PSM departments (e.g. European Association of Purchasing Managers/Bundesverband Materialwirtschaft, Einkauf und Logistik, BME; the Circle of Purchasing Executives of the Verein Netzwerk Logistik, VNL) or representatives of Best-Practice companies – companies that have installed a Purchasing Manager in the Board of Directors or directly in the first reporting line to the CEO – from the industry will be interviewed. During the interviews, the preliminary results will be discussed and used for adapting and refining the Purchasing and Supply Management Maturity Framework (PSM2F). Finally, the framework will be tested in three case studies (Kähkönen, 2011) in 2015. Therefore, it will be introduced in three companies in the beginning of 2015. Based on the initial assessment, rooms for improvement will be deduced together with the company and responsibilities for the implementation and the controlling of the realization will be defined. In autumn, the assessment will be repeated in order to examine if there is an improvement due to the adoption of the theoretical advice and to evaluate which elements of change and project management were particularly helpful in the process of developing the PSM function to a higher maturity level. This approach of accompanying a company over a longer period of time using the PMM as a management framework and not only to examine the maturity level at a single point of time is a still unexplored area of research (Reyes/Giachetti, 2010). Doing that, it is possible to study the causal strength between assessing the purchasing maturity, adopting the improvement advice under consideration of change and project management aspects and actual long-term improvements.

6. CONCLUSIONS

The goal of this contribution was to present a concept of an original Purchasing and Supply Management Maturity Framework based on the findings of a comprehensive literature and empirical research in form of expert interviews and an extensive online research and a comparative analysis of maturity models as well as (management) frameworks in Purchasing and Supply Management (PSM). In total 20 maturity models published from authors with an academic or scientific background, 18 maturity models offered from consulting firms and 19 management frameworks of purchasing management were examined. Based on these preliminary findings the Purchasing and Supply Management Maturity Framework (PSM2F) was designed as a management framework including the assessment and interpretation of the PSM maturity in a company as well as concrete suggestions for the realization of the improvement initiatives that should lead to higher sophistication.

The presented results extend the scientific discussion about maturity in Purchasing and Supply Management by giving a comprehensive summary and critical appraisal of the published models and academic movements in this context. Even though it was not the goal to empirically verify or falsify the impact of single aspects of maturity in PSM to the overall corporate performance, the research results are offering a scientifically sound basis for such in-depth empirical investigations.

Moreover, the research work offers concrete managerial implications. By clustering the main areas and indicators of high maturity in PSM, this paper answers the

question “What are the main levers of a professional and strategic oriented PSM department?”. This is a helpful guideline and orientation for purchasing executives, who focus on a continuous advancement of professionalism and innovation in the purchasing function.

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