



## Purchasing and supply management as a multidisciplinary research field: Unity in diversity?



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### ABSTRACT

Since the 1960s, research on Purchasing and Supply Management (PSM) has grown substantially, but in recent times various scholars have challenged the actual progress and coherence of the field. In delivering such critiques, the underlying, dominant view of PSM research is that it constitutes an academic discipline. In contrast, we offer an alternative perspective that views PSM as a multi-disciplinary field of research, drawing from Operations Management, Marketing and Strategy & Organization as reference disciplines. Adopting this perspective, we conduct a review of 2522 purchasing and supply management publications in a multi-disciplinary set of 18 high-impact management journals, published in the period 1995–2014. We analyse how PSM research has developed over time; quantitatively and content-wise, in terms of the topics and theories being addressed. We find that across the three reference disciplines and the specialist PSM journals, there is diversity, with distinct features of each journal group in terms of the one or two most popular topics or theories. Still, considering the full base of PSM publications in each journal group, there is considerable overlap. Supplier Relationship Management is a popular topic throughout, and the top-5 of topics for each of the journal groups demonstrates a high degree of overlap, in any given lustrum period. With one exception, TCE is the most popular for all journal groups for all periods and of the 17 different theories identified, only four have been applied by just one journal group. Thus, we conclude that PSM research is characterised by ‘unity in diversity’: “E Pluribus Unum”, and offer recommendations how this multi-disciplinary composition of the field can be leveraged in future research.

### 1. Introduction

Since the 1960s, Purchasing and Supply Management (PSM) has developed from a predominantly administrative process into a strategic function (Brandon-Jones and Knoppen, 2018; Ellram and Carr, 1994). Nowadays, there is a shared realisation that PSM encompasses activities through which organizations can realise their strategic objectives. Suppliers have become increasingly important to buying firms as providers of valuable resources such as materials, components, services and technologies. This growing relevance of PSM does not only apply to organizations in the manufacturing and service sectors, but also to entities in the public sector and to other non-profit actors (Gadde and Wynstra, 2017; Van Weele, 2015). In parallel, the definition of PSM in the academic literature has been changing from predominantly operational to more strategic. Nowadays, purchasing and supply management is typically defined as the design, initiation, control and evaluation of strategic, tactical and operational processes within and between

organizations, aimed at acquiring products and services at the most favourable conditions (Van Raaij, 2016; Wynstra, 2006).

While one could argue that the academic literature has mirrored developments in practice or perhaps has even helped to stimulate some of these, scholars have debated what exactly constitutes PSM research. Basically, there are two views on how to define PSM research: as a discipline or as an application field. Fabian defines a discipline as a “[...] *common focus of a set of researchers* who might perform research in varied paradigms and/or theoretical perspectives.” (Fabian, 2000, p. 351; emphasis added). Krishnan (2009) suggests that a general list of characteristics that mark a distinct academic discipline would include: (1) having a particular object of research (although this may be shared with another discipline); (2) having a body of specialist knowledge referring to their object of research, which is specific to the discipline and not generally shared with another discipline; (3) having theories and concepts that can organize the accumulated specialist knowledge; (4) using specific terminologies or a technical language adjusted to the

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research object; (5) having specific research methods; and (6), having some institutional manifestation in the form of subjects taught at universities, respective academic departments and professional associations connected to it. Adopting this discipline view, most scholars have argued that PSM is a maturing (Carter and Ellram, 2003) or emerging discipline (Harland et al., 2006), in other words, on its way to establish itself as a separate academic discipline. When PSM research is defined and evaluated in this way, as a monodiscipline, emphasis is put on the (limited) development of a unique set of theories and terminologies and of specific standards for data collection and analysis (Carter and Ellram, 2003; Harland et al., 2006). Also, if it is defined as a monodiscipline, it will have to stand on its own two feet and will be judged on its progress compared to other disciplines, including close neighbours such as supply chain management or industrial marketing management.

The alternative view holds that PSM is a multidisciplinary application field (Kline, 1995). This perspective was already proposed more than 30 years ago by Williams (1986), who argued that the multidisciplinary foundations of PSM had not sufficiently been leveraged. Similarly, a decade later, Das and Handfield (1997, p. 103) hinted at – but did not thoroughly analyse – the multidisciplinary nature of the field. This view has also been expressed in the editorial visions of the Journal of Purchasing and Supply Management (e.g. Wynstra and Knight, 2004). Founding editor Richard Lamming explicitly acknowledged the multidisciplinary nature of the field, in particular in terms of researchers' distinct disciplinary backgrounds: "Purchasing has a curious pedigree [ ...]. Its researchers and educators come from a wide spread of disciplines: operations management, economics, law, political science, engineering, marketing, psychology and accountancy, to name but a few. This breadth must be exploited [ ...]." (Lamming, 1994, p. 3). This multidisciplinary background of PSM researchers still applies today. The researchers who convene at conferences such as International Purchasing and Supply Education and Research Association (IP-SERA) come from a wide variety of disciplinary backgrounds. This is also true for author communities such as those in relation to JPSM and other journals specialising in PSM research. PSM scholars belong to various university departments (Operations, Supply Chain, Marketing, Strategy ...), operate in only partially overlapping job markets, and have received different forms of academic research training (cf. Abbott, 2001; Tarafdar and Davison, 2018).

In this study, we propose and validate this view of PSM as multidisciplinary application field. By taking this view, we are suggesting that the research field is composed of studies originating from various disciplinary backgrounds, not that individual studies are multidisciplinary (Choi and Pak, 2006). Treating PSM research as a multidisciplinary field opens up new perspectives. It makes it recognizable and to some extent understandable that there are different streams of literature even for the same topic (e.g. supplier involvement in innovation). It also can help in defining new scientific contributions, including interdisciplinary contributions (Choi and Pak, 2006), for new studies. Despite the recent publication of various reviews of the field (Chicksand et al., 2012; Hult and Chabowski, 2008; Spina et al., 2013, 2016), no review has been conducted that explicitly acknowledges this multidisciplinary background and analyses PSM research from such a perspective. Therefore, at the 25th anniversary of one of the core journals in the field, it is timely to review and analyse prior studies in PSM as a multidisciplinary research field; a phenomenon-centred body of knowledge in which various disciplinary perspectives are employed to define and explain phenomena related to PSM. As argued in more detail later, three disciplines have made substantial contributions to PSM research: Marketing, Operations Management and Strategy & Organization. A review of the academic literature, based on high quality journals from these three disciplines plus a set of specialised PSM journals, may further our understanding of the development of PSM research. It can also offer useful insights for the future development of the field.

The current review investigates two aspects. The first, more quantitative research question is how PSM research has developed over time

in terms of the absolute number of publications and its prevalence (market share) in the respective journals. The common understanding is that PSM research has grown substantially over time, but to date little evidence has been presented that spans several decades and a broad range of journals. In this quantitative analysis, our key interest pertains to the respective importance (contribution) of the various disciplines and their respective focus on PSM research over time. The second, more content-related question is which topics have been addressed and which theories have been used in PSM research over time, and how these trends compare for the core contributing disciplines to PSM research. While the field is united by the phenomena under study, there may be differences among the disciplines, in the specific topics studied and the theoretical perspectives applied, all of which, as defined above, influence the identity of the PSM field (Fabian, 2000; Krishnan, 2009). In other words, our review seeks to establish whether, beyond having a common study object, the field is characterised by *unity in diversity*. Is there such a thing as 'e pluribus unum' – do the different constituting disciplines have a common focus? Obviously, there are many other characteristics of the journal articles and underlying studies that could be analysed in this respect, such as the research methods employed or the empirical setting of field research. However, this review focuses on topics and theories, as the possible similarities in these two dimensions provide a fundamental indication for possible synergies across disciplines, more so than, for instance, similarities in data collection methods.

To analyse the quantitative and content-wise development of PSM research across various disciplines, this article presents a structured literature review based on a census of 2522 PSM publications in a multidisciplinary set of 18 high-impact management journals, over the period 1995–2014. This period, encompassing four five-year periods (*lustra*), begins when JPSM was established as a journal.<sup>1</sup> When the review was conducted, a fifth *lustrum* was still ongoing. Therefore the article provides a brief, quantitative review of the 2015–2017 period (in the appendices) to highlight potential changes in recent years. Some of the previous reviews focus on other types of outlets for PSM research, such as dissertations (Das and Handfield, 1997; Williams, 1986) or conference papers (Morlacchi et al., 2002). In general, journal articles have more rigid review processes and matter more than dissertations, conference articles or books in determining tenure and promotions, and thus provide a more representative picture of what are considered suitable topics and theories. Compared to those reviews that also build on journal articles, our review period is longer than the periods covered by prior multi-journal reviews of PSM research (Chicksand et al., 2012; Hult and Chabowski, 2008; Spina et al., 2013, 2016). Adopting a longer and more recent period for a review allows us to study trends over time, which may be more difficult to establish within shorter periods. Most importantly, the current study is the first to explicitly define PSM as a multidisciplinary research field and to develop its inquiry specifically along the lines of various management research disciplines. Most of the previous reviews investigate only one specific PSM research outlet (Carter and Ellram, 2003; Carter et al., 2007, 2014; Wynstra, 2010) or a set of outlets within a single discipline (Chicksand et al., 2012; Hult and Chabowski, 2008). Spina et al. (2013, 2016) reviewed journal publications from multiple disciplines, but did not analyse differences between these disciplines.

The outline of the article is as follows. The next section provides a brief historical account of the major developments in the PSM research field and identifies the most important management research disciplines that study PSM phenomena. We then define and examine these

<sup>1</sup> In fact, the journal was established as the European Journal of Purchasing & Supply Management (EJPSM) in 1994, but no articles appeared in 1995. To ensure that each journal in our set was represented with an equal number of volumes (years) of publication, the 1994 volume of EJPSM was included while taking 1995 as a starting year for the other journals.



disciplines in more detail and explore definitions of multidisciplinary. In the main body of the article, we describe the method used to collect the corpus of publications on PSM research and analyse these publications over time and across disciplines. After a discussion of the findings, we consider the limitations of our study, give suggestions for future research and conclude.

## 2. Research in PSM: historical development and multidisciplinary nature

The beginnings of PSM research as an object for academic study can be traced back to North America in the early 1960s. The first doctoral dissertation on purchasing was submitted by Harold Fearon in 1961, at Michigan State University (Institute for Supply Management, 2010).<sup>2</sup> This was soon followed by Michiel Leenders' dissertation at Harvard Business School in 1963. The first academic journal, the *Journal of Purchasing*, specifically oriented towards PSM was founded in 1965. It was later relabelled as the (International) *Journal of Purchasing and Materials Management*. The aim of this first journal was to provide an incentive to conduct dissertation and other purchasing research and to enhance the academic reputability of the field (Carter and Ellram, 2003). In the second half of the 1960s, several books were published (Howard and Sheth, 1970; Levitt, 1965; Robinson et al., 1967). Without exception, the authors of these milestone books were (well-known) marketing scholars and their primary interest in PSM was to understand organizational buying behaviour. There had been occasional publications on the topic of PSM earlier, often by practitioners (Field, 1917; Lewis, 1939; Twyford, 1915). But these three factors combined – the first dissertations, the first academic journal and multiple books – created significant momentum for PSM research in the early 1960s.

Advancements in PSM during the 1970s and the beginning of the 1980s continued to come from scholars in the Marketing discipline, with articles published regularly in outlets such as the *Journal of Marketing* and the *Journal of Marketing Research*. Important contributions from this period include theory on organizational buying behaviour (see Johnston and Lewin, 1996) and the Industrial Network Approach of the Industrial Marketing and Purchasing (IMP) research group (Cunningham and White, 1973; Håkansson and Wootz, 1975). In this period, interest in PSM also started to grow among scholars in Europe and Asia.

During the second half of the 1980s and the 1990s, increasingly more studies on PSM were conducted from an Operations Management and Industrial Engineering background. Vertical disintegration of activities provoked a growing interest in interorganizational coordination of operations strategy and processes. This also led to the introduction of the term 'supply chain management' in 1982 by Booz Allen Hamilton consultants (Oliver and Webber, 1992). In 1999, the *International Journal of Purchasing and Materials Management* changed its name to *Journal of Supply Chain Management*. The emergence of Supply Chain Management and its impact in practice created an enhanced interest in PSM. For example, Das and Handfield (1997) noted a strong increase in the number of (US-based) doctoral dissertations in the mid-1980s. Although there were still some studies on PSM from a Marketing background in this period, it seems the discipline gradually became less dominant.

Throughout the 1990s, PSM increasingly evolved into a phenomenon of interest to scholars in Strategic Management and Organization Theory. Many industries began focusing on core competences and outsourcing non-core activities, and this put strategic PSM issues centre stage in general management research. At the same time, the application of general economic and management theories in PSM research

increased. Issues of make-or-buy, outsourcing, and global sourcing, i.e., governance decisions, were studied using theories such as Transaction Cost Economics (TCE) and the Resource-Based View (RBV) of the firm (Barney, 1991; Leiblein and Miller, 2002; Williamson, 1991). Strategic sourcing and the use of supplier relations for competitive advantage brought PSM into the realm of organizational theories on alliances and networks (Dyer and Singh, 1998; Gulati, 1995; Uzzi, 1997). During this period, the field received a further impetus by the establishment of IPSERA in 1991, which is now the foremost global association in the field of PSM research. Several national purchasing management associations across Europe, such as in the UK (CIPS) and in the Netherlands (NEVI), established academic chairs in PSM. In 1994, IPSERA and its founding members were also instrumental in the launch of a second specialised PSM journal, the *European Journal of Purchasing & Supply Management*, later relabelled as the *Journal of Purchasing and Supply Management*. This journal and the *Journal of Supply Chain Management* are now considered to be the two premier specialised journals in the field (Zsidisin et al., 2007). For more detailed reviews of the early history of the field, see Heberling (1993) and Monzcka, Trent and Handfield (2002).

### 2.1. Three reference disciplines

Within the realm of management research, three disciplines have thus played a pivotal role in the development of PSM research: Operations Management (OM), Marketing (MA) and Strategy and Organization (SO). We describe these disciplines as *reference disciplines* as they provide the theoretical frameworks that PSM researchers use (Tarafdar and Davison, 2018). These three reference disciplines can be defined as follows.

**Operations Management:** Study of the transformation processes that create products or services in all organizations, for profit and non-profit (AOM, 2006).

OM is concerned with the study of effective and efficient transformation processes, in particular, production and logistics. Compared to MA and SO, OM comprises fewer grand theories or extensive conceptual frameworks, but many concepts and tools. Examples of concepts related to PSM include just-in-time (JIT) logistics (Dong et al., 2001), the 'bullwhip' effect (Lee et al., 1997) and supply chain management (Oliver and Webber, 1992).

**Marketing:** Study of the organizational function and the processes for creating, communicating and delivering value to customers and for managing customer relationships in ways that benefit the organization and its stakeholders (AMA, 2006).

MA, as discussed earlier, spawned the first scientific publications in the area of PSM (Ellram and Carr, 1994). These early publications gave rise to the organizational buying behaviour (OBB) literature, which seeks to understand and explain the behaviour of (groups of) individuals in terms of their purchasing activities, in relation to environmental, organizational and individual contingencies and the characteristics of the purchased item (c.f. Bunn, 1993; Johnston and Lewin, 1996; Sheth, 1967, 1996). Other literature streams that can be placed within MA, and which at least partly deal with PSM topics, include the marketing channels literature (Heide and John, 1988), the Industrial Network Approach (Araujo et al., 2003; Gadde and Håkansson, 1993; Gadde and Wynstra, 2017), Relational Exchange Theory (Dwyer et al., 1987), and Relationship Marketing (McKenna, 1991).

**Strategy and Organization:** Building and testing theory about organizations, their members and their management, organization-environment relations, and organizing processes (AOM, 2006).

SO has also been particularly instrumental in providing theories to study PSM phenomena. For example, Pfeffer and Salancik's (1978) Resource Dependence Theory and Porter's (1985) Five Forces Model can be applied to understand how companies can effectively interact with their suppliers. Transaction Cost Economics (Williamson, 1991)

<sup>2</sup> Already in 1942, James W. Culliton, at Harvard University, completed a dissertation entitled "Make or Buy". This dissertation, however, was primarily written from a manufacturing perspective (Das and Handfield, 1997).

can be used to understand which transactions are governed most effectively through hierarchy and which are better organized by market or bilateral governance; i.e. make-or-buy issues. Concepts from economic sociology such as weak ties (Granovetter, 1973) and embeddedness (Uzzi, 1997) can help explain the effects of supplier network structures.

We acknowledge that other disciplines within management research have also studied PSM phenomena and have contributed theories to PSM research. For instance, technology and innovation management has studied how suppliers can contribute to innovation. Management accounting research has examined PSM processes and tools such as total cost of ownership and target costing. These other management research disciplines, however, focus on a limited range of specific topics related to PSM, whereas the MA, OM and SO disciplines study research questions and contribute theories spanning a range of phenomena within PSM research – as described in more detail below.

One could argue that in particular Operations Research (OR) has also had a broad impact on PSM research. It has provided many mathematical applications for the PSM domain and is particularly strong in supplier selection methods, such as data envelopment analysis (DEA), fuzzy sets theory (FST) and analytic hierarchy process (AHP) (for an overview see De Boer, Labro and Morlacchi, 2001). However, the current analysis excludes the OR journal group, because the application of theoretical frameworks – a core element in the subsequent analyses – is not directly relevant to OR.

## 2.2. The different forms of multidisciplinary research

Having illustrated that PSM research is largely composed of research that stems from three disciplines, it may be useful to reflect on the alternative potential approaches for multidisciplinary research development (Choi and Pak, 2006; Tarafdar and Davison, 2018).

Disciplines can evolve along two different trajectories: intradisciplinary and interdisciplinary (Abbott, 2001; Tarafdar and Davison, 2018). Intradisciplinary evolution takes place via ‘differentiation’, by studying a topic in increasing specificity and via creating ‘fractals’, in which a topic is studied in increasingly smaller units of observation, using the same concepts. In PSM research, differentiation has, for instance, taken place in research on supplier involvement in product development, where research is increasingly focused on specific moderators that may affect the relationship between supplier involvement and product development outcomes (e.g. Hoegl and Wagner, 2005; Song and Di Benedetto, 2008). Fractals in PSM research can, for instance, be seen when organizational dimensions such as centralisation and cross-functional collaboration, originally studied at the level of the corporate organizational structure, are later applied at the level of category sourcing teams (e.g. Akin Ates et al., 2018).

For the current discussion, however, it is more pertinent to focus on the approaches for multidisciplinary or interdisciplinary research development. There is a widespread abundance of terms used for research drawing from multiple disciplines. Choi and Pak (2006) provide an overview of terminologies and distinguish between three forms of research involving multiple disciplines: multidisciplinary, interdisciplinary and transdisciplinarity. Multidisciplinary research—“working with several disciplines” (Choi and Pak, 2006, p. 356)—draws on knowledge from different disciplines but does not change these different perspectives; it only contrasts them. Interdisciplinary research—“working between several disciplines” (Choi and Pak, 2006, p. 356)—synthesizes and integrates knowledge. Transdisciplinary research—“working across and beyond several disciplines” (Choi and Pak, 2006, p. 356)—transcends traditional boundaries, creating new understanding and theories.

At the level of an entire research field, where it is about the interrelationships between different studies rather than the relations between disciplines within a given research project or study, one can compare these three forms to coexistence (multidisciplinary),

collaboration (interdisciplinarity) and cross-fertilization (transdisciplinarity). The current study therefore seeks to identify the multidisciplinary coexistence of different PSM disciplinary research streams; i.e. to what extent the field is composed of knowledge developed in different disciplines and how these different streams have developed quantitatively and content-wise over time.

## 3. Method: scope, search and screening

In the first step of setting up our review of journal publications on PSM research, two critical choices had to be made regarding the scope: the period and the journals to be covered. The review takes 1995 as the starting point. As mentioned, the mid-1990s witnessed a strong increase in the academic interest in PSM, and the establishment of the (European) Journal of Purchasing and Supply Management. The review ends with publications from 2014. Publications are only included if they appeared ‘in print’ in the years between and including 1995 and 2014. In this way, we split up the review period into four periods of five years (*lustra*), which allows us to identify and describe trends over time. The current review thereby covers a longer and more recent period than prior reviews of PSM research that span a variety of journals: Hult and Chabowski (2008) reviewed the 1998–2007 period, Spina et al. (2013, 2016) reviewed 2002–2010, and Chicksand et al. (2012) covered 1994–2009. Our study adds at least four years to the most recently published review, while the time lag between the articles included and the publication of the review itself is about the same – three to four years.

A list of non-specialist journals publishing PSM research, established with the input of 26 academics from various disciplines, served as a starting point. This list contains 34 journals spanning the three reference disciplines (OM: 13; MA: 9; SO: 12) (Wynstra, 2006). Such a large set of journals, and thus of publications, does not realistically lend itself for full-text review and content coding. Therefore, to select the top journals from each of the three discipline, we retrieved journal impact factors (JIFs) for each of these 34 non-specialist journals, from 2000, 2005 and 2010, and the five-year JIF from 2010. Although the JIF has received considerable criticism as an inappropriate indicator of publication quality, it is the most pragmatic indicator that is available and readily applicable across disciplines. Within each reference discipline (OM, MA and SO), we selected the five consistently highest scoring journals on the four JIFs, resulting in 16 journals (five each from MA and OM; six from SO because of a tie for fifth place).

Next to these discipline-based journals publishing PSM research, there are two premier specialist journals for PSM research: the Journal of Purchasing and Supply Management (JPSM) and the Journal of Supply Chain Management (JSCM). They are also multidisciplinary, in particular JPSM—as evidenced by the editorial statements cited earlier. Both journals were founded by associations dedicated to research on the purchasing and supply management profession and have a long history and an established academic reputation (Zsidisin et al., 2007). Other specialist academic PSM journals, such as the International Journal of Procurement Management (established in 2007) and the International Journal of Integrated Supply Management (2004) do not (yet) have the same reputation as JPSM and JSCM. Also, since these journals were established in the second half of our review period, including them would have created some challenges for the historical analyses.

Our review thus encompasses 18 journals in total, spanning three groups of discipline-based journals and one group of specialist PSM journals (see Table 1). Nine of these journals are also covered in the review by Spina et al. (2013, 2016).<sup>3</sup>

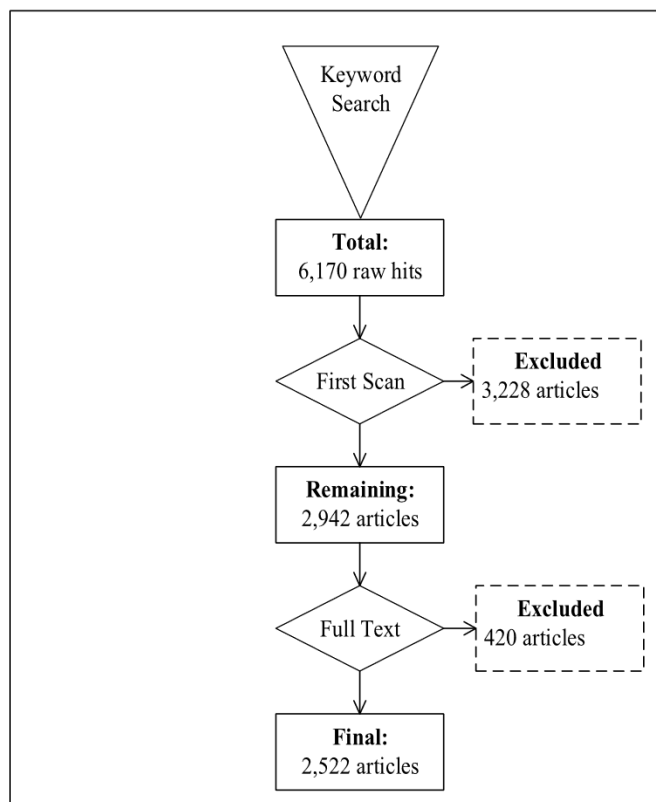
<sup>3</sup> The difference arises because Spina et al. (2013, 2016) use the 2010 Source Normalized Impact per Paper (SNIP) factor as journal selection criterion. Like our study, Spina et al. draw on: IJOPM, IJPE, JOM, IMM, JMR, OS, SMJ, JPSM



**Table 1**  
Selection of journals.

Journal groups	Journals	Impact factors	
		Average two-year impact factor 2000/2005/2010	Five-year impact factor 2010
Operations Management	IEEE Transactions on Engineering Management (IEEE-TEM)	0.84	2.17
	International Journal of Operations & Production Management (IJOPM)	0.94	2.79
	International Journal of Production Economics (IJPE)	1.08	2.41
	Journal of Operations Management (JOM)	2.43	6.03
	Production and Operations Management (POM)*	1.34	3.15
Marketing	Industrial Marketing Management (IMM)	0.96	2.78
	Journal of Marketing (JM)	3.31	7.24
	Journal of Marketing Research (JMR)	2.36	4.01
	Journal of the Academy of Marketing Science (JAMS)	1.91	3.61
	Marketing Science (MS)	2.29	3.00
Strategy & Organization	Academy of Management Journal (AMJ)	3.28	10.78
	Academy of Management Review (AMR)	4.96	11.66
	Administrative Science Quarterly (ASQ)	3.25	7.54
	Journal of Management (JoM)	2.18	6.21
	Organization Science (OS)	2.28	5.84
Purchasing and Supply Management	Strategic Management Journal (SMJ)	2.67	6.82
	Journal of Purchasing and Supply Management (JPSM)	NA	NA
	Journal of Supply Chain Management (JSCM)*,**	5.85	11.71

NA: Not available; first impact factor published in 2014. \*: No impact factor for 2000. \*\*: No impact factor for 2005.



**Fig. 1.** Selection of articles.

In the second step, online journal portals (mainly Elsevier's Scopus, but also Proquest's ABI/INFORM and Thomson Reuter's Web of Knowledge) were used to identify articles on PSM research. The choice for a specific portal depended on the availability of the journal (which may vary by year) and portal features such as exporting possibilities. To identify PSM articles, five keywords were selected: Purchase\*, Buy\*, Suppl\*, Source\*, Contract\*. Broadly defined keywords, related to the core themes in PSM research as identified before, minimise the chances of overlooking PSM research publications, but require filtering publications manually later (e.g. studies focusing on "sources of competitive advantage"). This keyword search, applied to title, abstract and keywords, resulted in 6170 raw hits; see Fig. 1.<sup>4</sup>

Next, based on a careful visual inspection of the title and abstract of each of these articles, we included 2942 articles (48%) in the database, and excluded 3228 articles that did not deal with PSM research. The boundary rules to include or exclude articles can be summarised as follows:

Articles were included if they contained:

- a buyer-perspective (or implications for that), e.g. a manufacturer choosing suppliers
- a seller-perspective with implications for the purchasing theory (from the buyer perspective), e.g. suppliers implementing technologies that directly affect the buyer's purchase behaviour
- an analysis of B2B relationships from a consumer perspective, e.g. country of origin preferences of consumers affecting a buyer's out-sourcing behaviour

Articles were excluded if they only focused on:

- consumer buying behaviour, e.g. consumers' relations with e-vendors
- the seller perspective, e.g. a manufacturer choosing distributors

The third main step involved the manual analysis and coding of the

(footnote continued)

and JSCM. They leave out: IEEE-TEM, POM, JM, JAMS, MS, AMJ, AMR, ASQ, JoM. They add: Supply Chain Mgt - an Int J, Int Journal of Production Res, Production Planning and Control, Research Policy, J of Mgt Studies, Technovation, Mgt Science, J of Product Innovation Mgt, Decision Sciences J, Eur Ec Rev, Harv Bus Rev.

<sup>4</sup> At a later stage, we tested whether the inclusion of the search term "Procurement" would have led to more hits in a set of three randomly chosen journals (JOM, SMJ and JoM). On average, this resulted in 3% additional raw hits. Given this limited omission, the original keywords were retained, also since these already resulted in a high prevalence percentage of PSM research compared to other studies, as is discussed later.

full text of each of the 2942 remaining articles. The coding scheme was developed based on the coding scheme from a previous bibliographical study in the field of PSM (Wynstra, 2010), and is discussed in detail in section 5.1. The second and third author conducted five pilot tests of the coding scheme and manual with sets of randomly selected articles from the database, totalling 280 articles (about 10% of the database). The two raters each independently coded these articles and then discussed the outcomes in terms of differences and similarities together with the principal researcher. Modifications were made to the coding scheme and manual after each pilot test. After the first pilot test, three other academics in the field of PSM, who were not involved in this study, reviewed the scheme for completeness and accuracy. More than 90% interrater-agreement (measured as joint-probability of agreement) between the two coders was reached in the final pilot test, across all the possible coding. The coders developed a system to highlight and mark articles in case of difficult or complex codes for subsequent discussion and the articles identified in this way had a large overlap with code disagreements identified in the pilot tests. Each of the remaining articles was then coded by one of the raters, and difficulties or uncertainties were discussed in weekly updates with the research team.

Based on the full text coding, an additional 420 articles (14%) were excluded from the set of 2942 after full-text analysis. Thus, the final database contained 2522 articles (41% raw hits). This is, to the best of our knowledge, by far the largest set of journal articles used in any existing review of PSM research publications.<sup>5</sup> Note that this final set of articles may include articles that apply an OR perspective to PSM research, even though they are published in a non-OR journal. Likewise, articles could, for instance, include a Technology & Innovation Management perspective.

#### 4. Quantitative analysis of PSM research: number and prevalence of publications

We started by analysing how the 2522 articles accumulated over time and how the four journal groups (i.e. OM, MA, SO and the specialist journals) contributed to this. Following a growth of 40%–50% in absolute numbers from lustrum to lustrum, more than 40% of the 2522 articles were published in the last five years (1,030), see Table 2.

In total, OM clearly contributed the largest number of publications (48%), followed by the PSM journals (29%). Over time, OM increased its number of PSM publications per lustrum by a factor eight (from 69 to 588), and its share of total publications increased nearly threefold (from 21% to 57%). While the absolute number of publications within the MA domain increased threefold over time (from 59 to 186 per lustrum), its share of the total remained stable, and the same applies to SO. The two dedicated PSM journals consistently published around 180 articles in each lustrum, while their share in total PSM output decreased by a factor three, because the number of PSM publications in other disciplines grew. So, we can conclude that the body of research in PSM grew at an increasing rate, with two-thirds of the number of studies having been published in the second half of the period under consideration. This growth is mainly the result of a strong increase in the number of studies published in OM journals. This development contributed to a shift in the relative contributions of the different disciplines. In the first lustrum, the specialist journals published more than half of the total of PSM publications, and OM and MA each contributed one-fifth of the publications. In the most recent lustrum, OM contributed more than half of the work published, and MA and the specialist journals group each contributed one-fifth. This increasing dominance of the OM journals and the shrinking dominance of the specialist journals forms the main trend, rather than an increasing fragmentation

**Table 2**  
Number of publications by period and journal group.

Period	Indicator	OM	MA	SO	PSM	Total
1995–1999	Total	1612	881	1285	227	4005
	PSM Research	69	59	20	186	334
	Share of period	21%	18%	6%	56%	100%
	Prevalence in journals	4%	7%	2%	82%	8%
2000–2004	Total	1628	941	1312	209	4090
	PSM Research	180	88	25	185	478
	Share of period	38%	18%	5%	39%	100%
	Prevalence in journals	11%	9%	2%	89%	12%
2005–2009	Total	2234	1463	1400	201	5298
	PSM Research	380	107	34	159	680
	Share of period	56%	16%	5%	23%	100%
	Prevalence in journals	17%	7%	2%	79%	13%
2010–2014	Total	2787	1762	1729	245	6523
	PSM Research	588	186	58	198	1030
	Share of period	57%	18%	6%	19%	100%
	Prevalence in journals	21%	11%	3%	81%	16%
Total	Total	8261	5047	5726	882	19,916
	PSM Research	1217	440	137	728	2522
	Share of period	48%	17%	5%	29%	100%
	Prevalence in journals	15%	9%	2%	83%	13%

of PSM research as a whole. In fact, the Herfindahl index (the sum of the squared market shares of each journal group; a measure for concentration) for the consecutive lustrum periods is quite stable (respectively, .394; .331; 0.392; 0.397). This swift transition towards OM dominance is all the more remarkable since the shift took place within a fixed set of journals.

Two distinct factors may have caused this shift from specialist journals to OM journals. Some journals may have grown more rapidly than others in terms of the total number of articles published per year, and/or some journals may have become more focused on PSM research. If the growth in PSM is mainly due to the total number of studies published per journal with the share of PSM studies being relatively stable, we could conclude that the growth in PSM research was merely a consequence of increasing journal 'size' and scientific output as a whole, rather than increasing emphasis on PSM as a research topic.

To investigate these two distinct effects, we reviewed the prevalence rates of PSM publications, i.e. the number of journal publications dedicated to PSM research as a share of the total number of journal publications in a given period and/or journal group. Table 2 shows that overall, the average prevalence rate doubled from 8% to 16%. This is quite high compared to the rate identified in other reviews.<sup>6</sup> Thus, the total growth in the number of publications from the 1995–1999 to the 2010–2014 period (from 334 to 1030), was caused by a substantial growth in the sheer number of articles in these journals (from 4005 to 6523; +63%) but even more by the growth in emphasis on PSM research within those journals (from 8% to 16%: +100%). At the same time, substantial shifts in terms of prevalence took place in the three non-specialist journal groups. Within OM, the PSM prevalence rate increased five-fold from the first to the most recent lustrum (4%–21%). SO's propensity for PSM research remained relatively stable, while MA saw an increase in its prevalence rate by 50% (7%–11%). The prevalence rate of the two dedicated PSM journals was stable at around 80%; JPSM at 87% and JSCM at 78%. There are two main factors why this prevalence percentage is not 100%. First, the total set of articles published in these (and other) journals also included some non-research items (other than book reviews and editorials, which are considered as non-citable items in the Journal Citation Reports), such as special issue

<sup>5</sup> Of the multi-journal reviews, Chicksand et al. (2012) reviewed 1113 publications for 1994–2009; Hult and Chabowski (2008): 1960 publications for 1998–2007; Spina et al. (2013, 2016) 1055 publications for 2002–2010.

<sup>6</sup> Spina et al. (2013, 2016) inspected the title and abstract of each article published in the 2002–2010 period in each of their 20 selected journals, identifying 1055 PSM articles out of a total of 14,943 articles, which amounts to a prevalence rate of about 7%. The difference may be, at least partly, due to the fact that their study includes different journals than ours.



introductory articles. Second, particularly in the case of JSCM, some research publications did not deal with PSM. These included articles related to intraorganizational logistics and articles with only specific implications and framing around the benefits to the supplier on collaborating downstream, which is outside the scope of PSM as defined above.

In conclusion, PSM publications grew more rapidly than the overall body of research in the three reference disciplines in the surveyed period. In the most recent lustrum, one out of six articles (16%) dealt with PSM research across the 18 journals under investigation. The analysis also reveals that the increase in the contribution of OM journals to PSM research was predominantly due to the increased focus of OM on this topic, rather than to the relative growth in the total number of OM publications.

The appendices provide additional data and analyses. [Appendix A](#) provides data for 2015–2017. The total number of publications increased (8% year on year) and the current total prevalence stabilised at around 15%. OM's share of total PSM research was also stable at between 50% and 60%, while PSM prevalence across OM journals increased. MA and SO journals continued to produce similar absolute numbers of PSM research, but their prevalence of and share in PSM studies decreased. [Appendix B](#) includes detailed analyses of the origins (country and university) of PSM publications. China, the Netherlands, Italy and Sweden contributed a large share of PSM research and also had a relatively strong focus on PSM research. [Appendix C](#) provides detailed information on the prevalence rates of PSM research for individual journals and by year. The trends reported in [Table 2](#) for the OM, MA and SO journal groups are aggregates across these journals respectively.

## 5. Content analysis of PSM research: topics and theories

This section presents the results of the analysis of the topics and theories of the PSM articles. The 2522 articles were coded on additional characteristics, such as the research methods employed in terms of data collection and analysis and the sectors where empirical research was conducted. This data is available upon request.

### 5.1. Topics

#### 5.1.1. Coding scheme

No single model or classification framework has been widely applied within PSM. Therefore, we developed a topic classification scheme based on previous research ([Wynstra, 2010](#)) with inputs from various other review articles. [Appendix D](#) contains a comparison of this classification scheme with models and schemes from other publications.

PSM, as defined earlier, consists of two distinct process types: strategic and tactical/operational processes. The Michigan State University (MSU+) or Purchasing Excellence model was adopted for the strategic processes ([NEVI, 2002](#); [Van Weele, 2010](#)). Corporate & PSM Strategy was added to the model to cover publications that focused on the relationship between boardroom management and purchasing strategy. The tactical/operational processes were derived from [Van Weele \(2010\)](#). The process step 'Pay' was added, since the pilot tests revealed articles that were specifically related to invoice handling and payment to complete transactions (P2P). Combined, these two groups of management processes – strategic and tactical/operational – capture the main activities generally considered as belonging to the PSM domain. These management processes are enabled by organizational resources ([Van Weele, 2010](#)) and executed to achieve a certain competitive performance. Therefore, codes were added for five distinct enablers and eight distinct competitive priorities (or dimensions of performance). Finally, several articles address research methods in PSM research, and these were coded separately. [Fig. 2](#) presents the four main clusters of PSM research topics (strategic processes, tactical/operational process, enablers and competitive priorities). The percentage in each

textbox indicates the share in the total set of articles (2522 articles) that address a given topic or topic cluster. Note that the raters were allowed to select one topic from each of the four main clusters, so each article could have up to four topic codes. Typically, however, two codes are applied per article.

### 5.2. Findings

[Fig. 2](#) shows that strategic processes (71%) in general and Supplier Relationship Management (28.7%) in particular are the most prevalent area of PSM research. This was also the case for *JPSM* publications during 1994–2009 ([Wynstra, 2010](#)). Much research on PSM is also concerned with the tactical processes of (supplier) selection, contracting and ordering (together 28% of all studies). Competitive priorities or performance dimensions are also a common study topic, which is not surprising as these often serve as a sort of dependent variable in the conceptual models being developed or tested (e.g. how can certain PSM processes reduce supply risk). Our findings show that Price & Cost is the most important competitive priority in PSM studies (followed by Risk), supporting similar analysis in [Spina et al. \(2013\)](#). Of the enabling factors, Information and Communication Technology (ICT) is the most popular study topic (8.9%), followed by Internal and External organization. These findings confirm informal observations that human resource factors are not popular topics within PSM research.

This figure reveals much about the topics of PSM research, but it does not address trends over time and journal group differences. [Table 3](#) shows a shift in research attention from strategic processes towards tactical/operational processes. In the first lustrum, 82% of all publications addressed strategic processes, compared to only 64% in the most recent lustrum. At the same time, publications increasingly addressed tactical/operational processes from only 20% in the first lustrum to 40% in the final lustrum. The changes in research attention for competitive priorities and enablers is less pronounced, even though the emphasis on competitive priorities increased and the emphasis on enablers decreased. Looking at the entire period, we can conclude that PSM research on strategic processes is particularly popular in SO and MA journals, but much less so in OM journals. Research on tactical/operational processes is particularly popular in OM journals, often coupled with a specific competitive priority. Enablers are a common study topic in SO journals.

The reduced focus on strategic processes is mainly caused by OM's decreasing emphasis on this topic; the emphasis in the other journal groups is relatively stable. The increased focus on tactical/operational processes is not only visible for the group of OM journals (from 28% to 53%), but also for SO journals (from 0% to 26%). While the other two journal groups did not show such a marked increase, the effect on the total body of publications was substantive due to the increasing share of OM journals in the total body of PSM publications ([Table 2](#)). Still, it should be noted that the decreasing emphasis on strategic processes is only relative: the absolute number of articles addressing this topic has been growing. The increase in research attention for competitive priorities is largely the same across the journal groups, while the decrease in emphasis on enablers is the clearest in OM, SO and PSM journals.

In sum, one can conclude at an aggregate level that research attention shifted from strategic to tactical/operational PSM processes, which is at odds with the common notion that PSM practice and research have increasingly emphasised strategic aspects. The explanation may be that as the body of studies on strategic processes accumulates, researchers perceive less need or contribution potential for such studies.

There are also some notable differences between the disciplines in terms of the topics they study. This would obviously limit the potential for interdisciplinary collaboration. For example, studies addressing enablers tend to employ more SO-based studies than OM-based studies. In fact, over time, the disciplines have drifted apart in terms of their relative emphasis on strategic and tactical/operational processes, as OM-based studies have clearly shifted away from the strategic

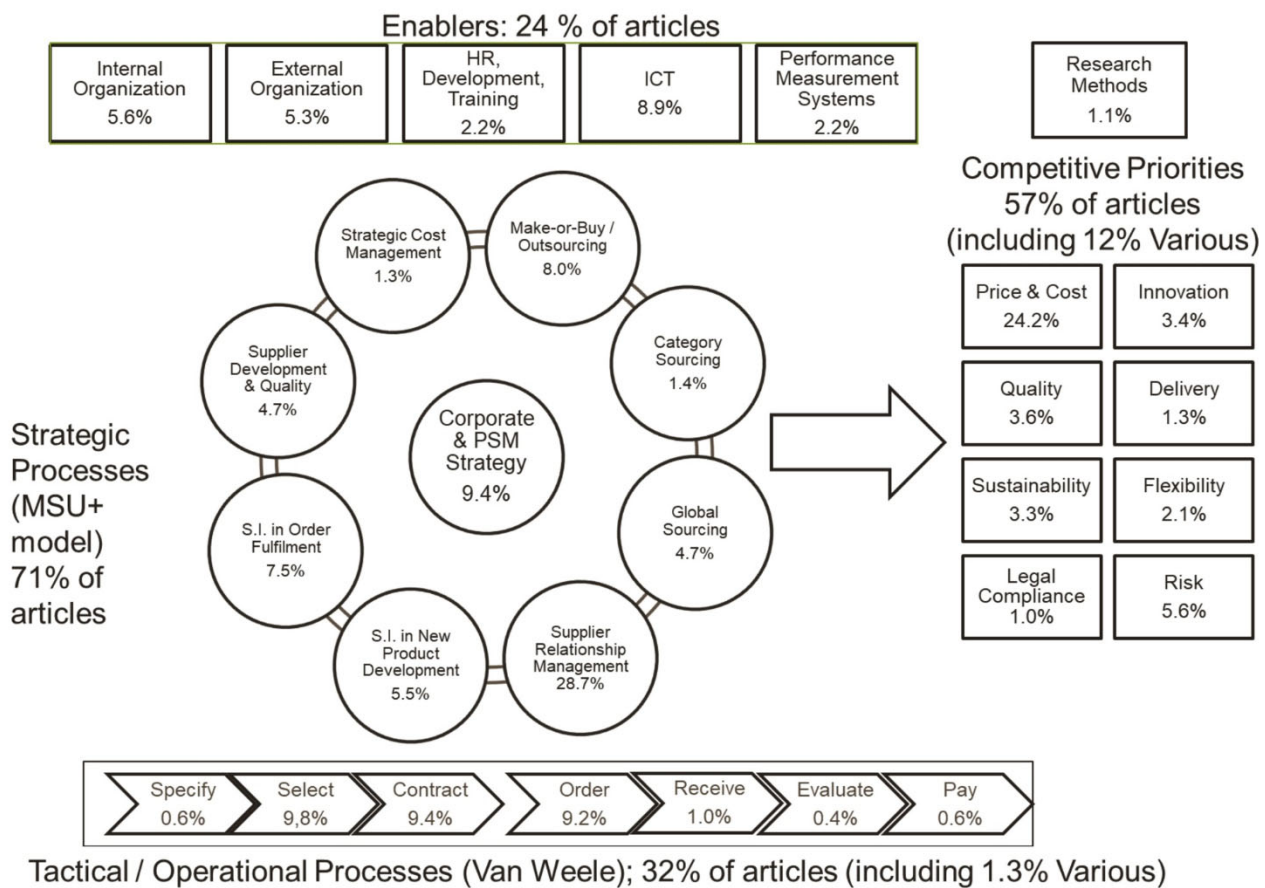


Fig. 2. PSM publications in terms of processes, enablers and competitive priorities. NOTE: Each paper can be classified in one topic for each of the four topic clusters. Percentages refer to the share of total articles that address the respective topic or topic cluster.

processes. The journal groups remained consistent in their emphasis on competitive priorities and increased the overall focus on this topic cluster over time. The journal groups have actually converged for the enablers of PSM processes, but at a lower level of overall emphasis.

The analysis also examined which of the specific strategic and tactical/operational processes each of the journal groups focused on over time. Given space limitations, the full details cannot be disclosed here as that would encompass 16 tables (four journal groups for each of the four lustra), but they are available upon request. The salient between-groups differences and trends over time are discussed here.

PSM research in OM mostly focuses on the strategic processes of Supplier Relationship Management (17%) and Supplier Integration in Order Fulfilment (11%). However, in the most recent periods, the tactical processes Order (23%) and Contract (16%) have grown substantially, and the same applies to the competitive priority Price & Cost. PSM research in MA is highly focused on Supplier Relationship Management (> 50%) and a salient share deals with the tactical process Select (10%). Again, Price & Cost is popular, but less so than within OM-based PSM research. PSM research in SO overall focuses on the strategic processes Supplier Relationship Management (43%) and Make-or-Buy decisions (33%). In the most recent lustra, tactical purchasing processes have become more popular, in particular Contract. Innovation as a competitive priority is also significantly more popular than in other journal groups, and even the most popular in the most recent lustrum. Finally, research in the specialised PSM journals is most diversified, addressing Supplier Relationship Management (27%), Corporate & PSM Strategy (20%) and Select (10%). Interestingly, Sustainability as a competitive priority has become very popular in the most recent lustrum (12%), while Price & Cost is the most popular (> 10%) across all lustra.

### 5.3. Theories

#### 5.3.1. Coding scheme

The key question in this section is how PSM research explicitly builds upon established theoretical perspectives to discover patterns over time and between journal groups. For present purposes, the explicit use of one or more theories was identified when articles mentioned one of the grand theories (listed below) or referred to the main source (book/paper) of such theories or employed a theory-specific construct. For example, the use of Transaction Cost Economics could be identified based on mentioning TCE itself, based on a citation of the article by Williamson (1979), for example in the theory section, or based on a concept such as asset specificity. An analysis of how such theory was used is beyond the scope of the present investigation (see Spina et al. (2016) for an in-depth review of theory use in PSM research).

We used the following list of 17 theories for coding: Actor Network Theory/Industrial Network Approach, Agency Theory, Contingency Theory, Game Theory, Information Processing Theory, Institutional Theory, Knowledge-Based View, Management Control Theory, Organizational Learning Theory, Resource Dependence Theory, Resource-Based View, Social Capital Theory, Social Exchange Theory, Social Network Theory, Stakeholder Theory, Systems Theory, and Transaction Cost Economics. This list was compiled for the current analysis, complemented by theories encountered in the articles used in the pilot tests of our coding scheme, as discussed above. Spina et al. (2016) provided a list of 12 External Grand Theories, based on the theories used in their own set of articles and cross-checked with similar reviews on the use of theories in purchasing and supply (chain) management research. Our list includes all of these theories, except



**Table 3**  
Topic clusters by period and journal group.

	1995-1999	2000-2004	2005-2009	2010-2014	Total
<b>Strategic processes</b>					
<i>Total journal set</i>	82%	79%	71%	64%	71%
OM	78%	71%	57%	49%	56%
MA	75%	81%	90%	87%	83%
SO	100%	92%	94%	98%	96%
PSM	84%	84%	89%	78%	80%
<b>Tactical/operational processes</b>					
<i>Total journal set</i>	20%	25%	33%	40%	32%
OM	28%	32%	47%	53%	46%
MA	27%	27%	17%	20%	21%
SO	0%	4%	15%	26%	15%
PSM	17%	21%	16%	21%	18%
<b>Competitive priorities</b>					
<i>Total journal set</i>	49%	48%	58%	63%	57%
OM	70%	59%	72%	77%	71%
MA	32%	38%	33%	38%	35%
SO	35%	52%	53%	48%	48%
PSM	49%	41%	41%	52%	43%
<b>Enablers</b>					
<i>Total journal set</i>	27%	33%	30%	11%	24%
OM	20%	30%	26%	12%	19%
MA	22%	36%	35%	18%	26%
SO	50%	32%	26%	31%	33%
PSM	28%	34%	38%	19%	29%

Note. This table shows the shares of papers addressing each topic cluster, per journal group in each lustrum. Background colours indicate the prevalence of a topic cluster over time (the darker, the higher the prevalence).

Dynamic Capabilities. This theory is often seen as an extension of the resource-based view of the firm and is coded as such.

#### 5.4. Findings

Table 4 summarises to what extent articles on PSM adopted an explicit theoretical lens. In total, 939 (37%) out of the total 2522 articles use at least one theoretical perspective. The use of theory was not very common in the first lustrum (17%) but increased to 40% in the final lustrum. The growth was particularly strong in OM and PSM specialist journals. Interestingly, in the most recent period, the use of theory declined somewhat in all the journal groups except in the PSM specialist journals. The use of theory in these journals now exceeds that of PSM research in OM and MA, despite the somewhat common perception of

‘theoryless’ PSM research and journals.

Part of these trends may be related to the increased attention for tactical and operational PSM processes in the most recent lustrum, in particular in OM journals. The data shows that articles focusing on more strategic processes (see section 5.1) are more likely to use theory than those focusing on tactical processes: 44% versus 24% of those articles, respectively, use some theory. This indicates that the (empirical) analysis of ‘basic’ purchasing and supply processes, such as those represented in the model by Van Weele, typically lack a theoretical grounding (Handfield, 1997; Chicksand et al., 2012).

In terms of specific theories employed, Transaction Cost Economics (TCE) was by far the most frequently used theory over the entire 20-year period. It was used by 13.6% of the total articles (see Table 5) and by 35.5% of all articles that use any theory at all. TCE is followed by the

**Table 4**  
Use of grand theories.

	1995-1999	2000-2004	2005-2009	2010-2014	Average total period	Number total period
OM	10%	24%	36%	31%	30%	369
MA	31%	45%	66%	46%	49%	215
SO	90%	80%	94%	66%	79%	108
PSM	7%	29%	46%	54%	34%	247
<i>Total</i>	17%	33%	46%	40%	37%	939

**Table 5**  
Prevalence of grand theories over time (in % of total number of articles).

	1995–1999	2000–2004	2005–2009	2010–2014	Total period
Transaction Cost Economics (TCE)	11.4%	20.5%	24.1%	14.7%	13.6%
Resource-Based View (RBV)	1.5%	6.5%	10.7%	6.8%	5.1%
Game Theory (GT)	1.8%	2.5%	6.3%	8.3%	2.9%
Social Exchange Theory (SET)	0.6%	3.3%	4.9%	4.6%	2.5%
Industrial Network Approach (INA)	0.0%	4.4%	4.0%	0.5%	2.2%
Social Network Theory (SNT)	0.9%	1.5%	5.9%	2.4%	2.1%
Resource Dependence Theory (RDT)	1.2%	2.1%	4.1%	2.9%	2.1%
Agency Theory (AT)	1.5%	1.3%	2.9%	5.0%	1.6%
Knowledge-Based View (KBV)	0.6%	1.3%	2.5%	2.2%	1.3%
Organizational Learning Theory (OLT)	0.6%	1.3%	1.9%	1.9%	1.2%
Contingency Theory (CT)	0.0%	0.0%	0.0%	1.7%	1.1%
Institutional Theory (IT)	0.0%	0.4%	2.4%	1.0%	1.0%
Social Capital Theory (SCT)	0.0%	0.2%	1.6%	2.7%	0.6%
Systems Theory (SyT)	0.0%	0.4%	1.3%	0.1%	0.5%
Information Processing Theory (IPT)	0.6%	0.8%	0.3%	1.6%	0.4%
Management Control Theory (MCT)	0.0%	0.4%	0.1%	0.0%	0.1%
Stakeholder Theory (ST)	0.0%	0.2%	0.3%	1.4%	0.1%
Total use of at least one theory	17%	33%	46%	40%	37%

Resource-Based View (RBV: 13% of subset), Game Theory (GT: 8%), Social Exchange Theory (SET: 7%), the Industrial Network Approach (INA: 6%), Social Network Theory (SNT: 6%), and Resource Dependence Theory (RDT: 5%). These seven theories combined account for about 80% of all theory use in PSM research. While our analysis of PSM research identifies a more extensive use of theory than reported in Spina et al. (2016), the relative use of specific theories is largely confirmed. Most theories have seen an increasing prevalence in PSM research in line with the overall increased use of theory, with the notable exception of the Industrial Network Approach that was developed by the Industrial Marketing and Purchasing (IMP) group, but which has not often been used since 2010. Theories notably increasing in prevalence (other than those already mentioned), include Agency Theory, Knowledge-Based View, Organizational Learning and Social Capital Theory.

To investigate differences between journal groups, we identified the three most common theories per journal group and per lustrum (see Table 6). Only TCE and RBV are widely used across the entire 20-year period, across all journal groups. Indeed, TCE is the most prevalent theory in all but one journal group/lustrum combination. Also RBV is consistently among the three most common theories, across journal groups and over time. Several theories are only or particularly popular in specific journal groups. Social Exchange Theory (SET) is only popular within MA. Since 1999, the Knowledge-Based View (KBV) has been consistently popular within SO, but only there. OM, more than other journal groups, employs Game Theory (GT) and Agency Theory (AT) to

study PSM. This highlights that the journals groups, to some extent, use different theoretical language and invoke different theoretical concepts to study PSM processes. Other theories appear to ‘migrate’ between journal groups. Social Network Theory (SNT), for example, was popular in MA early on, maintained a relatively high position in SO later on and has also become popular in PSM dedicated journals recently. Similarly, Resource Dependence Theory (RDT) appears to have been imported by PSM dedicated journals during the 2005–2009 lustrum from SO journals, where it was popular before. This shows that, while the journal groups have different profiles, learning takes place by authors adopting or importing theoretical perspectives from one domain to the next.

In sum, the use of theory has substantially increased over time, and TCE and RBV have been the most prevalent theoretical frameworks across the journal groups. Beyond these two theories, the popularity of theories in the journal groups varies, but the dominant set of theories is quite stable for each journal group – except for the PSM journals, where there are quite some changes in the relative prevalence of theories (Table 6).

## 6. Discussion

So, is PSM research a discipline or an application field? When PSM is defined as a monodisciplinary field of research, emphasis is put on the development of a distinct and coherent set of theories and terminologies, and unique standards or forms of research methods. Against the backdrop of such a largely implicit perspective, Chicksand

**Table 6**  
Top three theories per journal group, over time.

	1995–1999	2000–2004	2005–2009	2010–2014
OM	TCE (7.2%)	TCE (13.9%)	TCE (18.7%)	GT (10.9%)
	GT (2.9%)	RBV (6.7%)	RBV (9.2%)	TCE (10.2%)
	AT (1.4%)	GT (3.9%)	GT (8.9%)	AT (3.6%)
MA	TCE (13.6%)	TCE (26.1%)	TCE (32.7%)	TCE (16.7%)
	SNT (5.1%)	INA (12.5%)	INA (13.1%)	SET (11.3%)
	RBV/AT/IPT (3.4%)	SET (10.2%)	RBV (12.1%)	RBV (7.5%)
SO	TCE (70.0%)	TCE (72.0%)	TCE (64.7%)	TCE (39.7%)
	RBV (15%)	RBV (32.0%)	RBV (32.4%)	KBV (13.8%)
	RDT (10%)	RDT/KBV/SNT (8.0%)	KBV/SNT (20.6%)	RBV (12.1%)
PSM	TCE (5.9%)	TCE (17.3%)	TCE (22.6%)	TCE (18.7%)
	GT/AT (1.1%)	INA (4.9%)	RBV (8.8%)	RBV (16.7%)
	RDT (0.5%)	RBV (4.3%)	RDT (7.5%)	SNT (7.1%)

AT: Agency Theory; GT: Game Theory; INA: Industrial Network Approach; IPT: Information Processing Theory; KBV: Knowledge-Based View; RBV: Resource-Based View; RDT: Resource Dependence Theory; SET: Social Exchange Theory; SNT: Social Network Theory; TCE: Transaction Cost Economics. Percentages provided are the prevalence of a given theory in the body of research in that discipline and lustrum.



et al. (2012) noted the absence of a unifying paradigm in “purchasing and supply chain management” (P&SCM) research and conclude that “[...] P&SCM [...] is still some way from being a normal science.” (p. 454). Earlier, similar criticism was voiced by Carter and Ellram (2003) and Harland et al. (2006).

In our view, these critiques are not correct or at least not sufficiently precise as they do not consider the multidisciplinary nature of PSM research. Not considering the entire, multidisciplinary body of research in PSM – or not making any differentiation – hinders a good understanding of the current situation in our research field and of the potential for further development. Another complication of the (implicit) definition of PSM as a discipline is that there is disagreement as to which larger discipline PSM research belongs. Some authors see PSM as a subdiscipline of (business) Marketing (Buvik, 2001), whereas others see it as subdiscipline of Operations Management (Das and Handfield, 1997; Harland et al., 2006). More recently, Spina et al. (2013) defined PSM as a not yet fully mature and established subdiscipline of Supply Chain Management, which in turn may be seen as a subdiscipline of Operations Management. This perspective of PSM research as part of OM research has gained traction and is reinforced by the trend that academic departments and education programmes (particularly in Anglo-Saxon cultures) are increasingly organized in this way.

Based on the historical development since the 1960s and on the detailed analysis of PSM journal publications during the 1995–2014 period, we argue that *de facto* PSM research cannot be seen as a single discipline and that there are clear differences between the contributions of the disciplines that compose the field. PSM research published in OM journals is characterised by a relatively strong emphasis on tactical/operational processes and on performance outcomes (competitive priorities). In terms of specific processes, it has focused on Supplier Relationship Management (SRM) (albeit less than the other journal groups), Supplier Integration in Order Fulfilment, and Order and Contract. Price & Cost has been by far the most studied competitive priority, also compared to other journal groups. OM-based PSM research has relied less extensively on formally defined grand theories, but when it does, it has relied (like the other journal groups) extensively on Transaction Cost Economics (TCE), but also on Game Theory and Agency Theory.

PSM research in MA journals has strongly focused on strategic processes and in particular on SRM. Select, the tactical process of supplier selection, has also been quite popular. Price & Cost has been a popular performance measure for research, but less so than within OM-based PSM research. MA-based PSM research has relied more on theory than the OM-based studies and studies in the specialised journals. After TCE, Social Exchange Theory and the Industrial Network Approach have been the most common theoretical perspectives.

PSM research in SO journals has also strongly focused on SRM but Make-or-Buy studies have been a close second. Contract has recently become a less popular topic. Innovation as a competitive priority has also been significantly more popular in SO than in other journal groups. Compared to other journal groups, SO-based studies are more often based on grand theories, in particular the Resource-Based View (RBV) and the Knowledge-Based View (KBV) of the firm (next to TCE).

Finally, research in the specialised PSM journals has been the most diversified. This was to some extent to be expected, as these specialist journals cannot be assigned to one specific discipline. Next to processes that have been popular in one or several other journal groups, such as SRM and Select, Corporate & PSM Strategy has also been a highly popular theme within the specialised PSM journals. Price & Cost has been the most popular topic in terms of competitive priorities, but the focus on Sustainability has been growing. PSM studies in the specialised journals have been somewhat more ‘theory-oriented’ than OM-based studies, but less so than those in MA and SO. The specialist journals have also been the most diverse in the theories they use, especially in the later periods, with TCE and RBV having been the most popular.

Despite these differences, there are many similarities across the four

journal groups. SRM has been a popular topic throughout, and the five most popular topics for each of the journal groups, in any given period, overlap to a high degree. With one exception, TCE is the most popular for all journal groups in all periods. Of the 17 different theories identified, only four have been applied by just (or predominantly) one journal group (Game Theory and Agency Theory in OM, Social Exchange Theory in MA and the Knowledge-Base View in SO). Thus, we can conclude that PSM research, as measured by the topics and theories adopted in journal publications in the recent two decades, is characterised by ‘unity in diversity’. There has been diversity, with distinct features of each journal group in terms of the one or two most popular topics or theories but considering the broader base of PSM publications in each journal group, there is considerable overlap: “E Pluribus Unum”.

Besides demonstrating the multidisciplinary nature of the field, our analysis paints a more optimistic picture of the use of grand theories in PSM research than previous reviews. Starting in the late 1990s, several authors criticised PSM research for its lack of explicit theorising. For instance, Das and Handfield (1997, p. 103) commented on “[...] the historical lack of theory development in the purchasing field [ ... ]”, and Buvik (2001) criticised the lack of referencing to existing theoretical frameworks. More recently, Chicksand et al. (2012) argued that “There is the absence of theory in much of the work [...]” (p. 454). Our analyses reveal that more than one-third of all PSM articles refer explicitly to one or more grand theories. Across the entire review period, the use of theory has more than doubled, although there seems to have been a drop again recently – except in the specialist journals. This is perhaps related to the fact that tactical and operational PSM processes have become more popular topics. Articles with a focus on strategic PSM processes employ theory more frequently than articles focusing on tactical PSM processes.

The current findings are in contrast with Spina et al. (2016), who reported a low estimate of 10% of studies using any form of grand theory. Besides the fact that their study does not cover the same journal set as ours, the explanation may be that their approach only checked for 12 external grand theories whereas our coding scheme was more permissive, leading to a set of 19 grand theories identified in our set. In addition, the difference may be explained by the fact that Spina et al. only code for theories if the theory itself is explicitly mentioned. Our coding process also inferred the use of a theory if a seminal article of a theory was cited and the text clearly referred to such a theoretical notion, even without explicitly naming the theory itself. The prevalence of theory use in the current study is remarkably similar to Chicksand et al.’s findings (2012) even though their study covers only specialist journals (JPSM, JSCM, and Supply Chain Management: an International Journal) and a less recent period (1994–2009). In contrast to their study, however, our review arrives at a more positive conclusion: the use of theory has substantially increased over time, and especially in the specialist PSM journals. Still, the use of theory in PSM research can be extended and further improved, in particular since more than half of the studies do not explicitly relate to any of the identified grand theories. In further analyses, it would be interesting to compare the use of theory in PSM studies in the journals in the three reference disciplines to that in other studies in the same journals.

## 7. Conclusions and implications

### 7.1. Recommendations to the PSM field and to PSM researchers

Our analysis of PSM research as a multidisciplinary field reveals several insights. The total number of publications tripled in the most recent lustrum compared to the first, particularly driven by the OM journals. This growth was not only due to journals publishing more articles in a given period; journals also increased their dedication to PSM research. This prevalence of PSM research doubled over the entire period (from 8% to 16%), even more so in MA and particularly the OM

journals. This is a strong indicator of the high and growing scientific relevance of our field, especially considering this review only includes highly cited journals. This is an encouragement to individual researchers. Top journals across different disciplines are allocating a substantial part of their publication slots to PSM research. Still, the differences between the three non-specialist journal groups in terms of this prevalence are substantial.

Considering PSM as a multidisciplinary application field changes the type of research questions that researchers ask and their understanding of what constitutes valuable contributions to PSM research. Taking such a view holds an intrinsic appreciation of diversity and opens one's eyes to how different disciplines may interact within the field and influence one another, as further discussed below. By acknowledging this diversity and mapping the patterns of prevalence and influence over time, the understanding of the historical development of PSM research is enriched, providing new insights for future development opportunities.

The current analysis cannot establish to what extent the field or individual studies can be characterised as interdisciplinary or even transdisciplinary research (Choi and Pak, 2006). This could be established by analysing to what extent PSM studies from a given discipline draw on prior studies published in other disciplines, for example by looking at cross-citations (Carter et al., 2007). Such analyses are beyond the scope of the current article, but our impression is that individual PSM studies – at best – work *with* different disciplines, and often only implicitly so. We contend that PSM research, given that its scope spans several disciplines as we have demonstrated here, presents an excellent opportunity to conduct interdisciplinary or transdisciplinary research.

For researchers, this study leads to two recommendations related to the multidisciplinary nature of the PSM research field. First, understanding and acknowledging that PSM research is a multidisciplinary field could help researchers to map previous research and any differences and similarities in terms of theories applied, but also in terms of research methods used (an aspect not covered in this article). Second, the multidisciplinary perspective subsequently helps to define a more precise contribution for new studies. Our experience, as seminar participants, reviewers and readers, tells us that scholars moving into this field or shifting to a new topic, sometimes fail to realise the multidisciplinary nature of prior and ongoing PSM research. They are left with an impression of a fragmented and incoherent body of literature, and find it difficult to identify a clear direction for their own research.

Clearly, in defining a contribution, researchers can aim for a monodisciplinary contribution or for an interdisciplinary or transdisciplinary contribution. The choice may be informed by different factors, such as the maturity of the research topic, the expertise of the researcher(s) and the institutional incentives. At least, the implication of PSM being an essentially multidisciplinary field of study would be that scholars, especially young scholars, should make an explicit choice whether to develop a multidisciplinary approach and perspective in their work or to maintain a more dedicated disciplinary profile. When adopting one specific disciplinary focus, scholars should also consider the specific characteristics of the PSM research conducted within that discipline in order to effectively define research avenues and possible contributions. Whether a researcher chooses to approach a certain PSM research topic, say supplier relationship management, from a strategy & organization perspective or from a marketing perspective may have salient consequences in terms of the (perceived) appropriateness of choices for specific theories and methods.

The findings of our study and the underlying data can be used to identify research questions for various disciplinary perspectives and for an interdisciplinary perspective (cf. Sanders and Wagner, 2011). For instance, future research on supplier involvement in product development could more explicitly leverage the multidisciplinary background of previous work in that area by combining the process-based focus of OM-based studies with SO-based studies that draw more often on established, grand theories such as the Knowledge-Based View, and which

thereby can offer a stronger conceptualisation. We welcome any researcher that would like to use our database in this way.

Some of this interdisciplinary or transdisciplinary research may already be taking place. Subsequent reviews of the corpus of PSM journal publications can investigate whether such research has a more substantial impact on the reference disciplines, and perhaps also on other management and non-management disciplines. We believe that interdisciplinary or transdisciplinary work has a greater potential to make an impact on other fields and on the referent disciplines themselves. In other fields, such as Information Systems research, recent studies have shown that the dominant form of 'theory borrowing' is to use an abstract, 'grand' reference theory (e.g. TCE) and apply it to the context of the specific field, while field-specific concepts are typically limited to the role of contextual variables (Grover and Lyytinen, 2015). Such research can seldom be classified as interdisciplinary or transdisciplinary as it usually does not integrate, synthesise or create (new) knowledge and theory. Initial, casual observations of PSM research suggest that this form of theorising often applies to our field as well, with the possible consequence that the theoretical contributions (in this case, the contextualised specification of grand theories) are not very relevant outside of the PSM domain. We are not suggesting that theoretical contributions to the wider field of management research can *only* be achieved by interdisciplinary or transdisciplinary research. Anand and Gray (2017) provide a similar discussion of the opportunities that OM research offers to contribute to grand theories, such as TCE, while their argument does not invoke the need for (specific forms of) multidisciplinary research. However, we submit that in the field of PSM – multidisciplinary as it is – the theory development opportunities posed by interdisciplinary or transdisciplinary research are especially strong.

This discussion touches upon the more general issue of what type of theoretical contributions PSM research should aspire to, next to the further elaboration of existing grand theories. Surely, PSM could develop its own theories, and especially interdisciplinary or transdisciplinary theories would leverage the potential of our field. However, unlike some, we do not see the development of own theories as an essential ingredient in becoming a discipline – because PSM is not a single discipline. Finally, also in our multidisciplinary field, many more empirical contributions and thus replication studies are needed.

## 7.2. Limitations and future research

While the current study thus complements earlier field reviews, our approach has some limitations as well. First, our analysis treats the publications within journals belonging to a certain discipline (or the specialist PSM journal group) as representing that discipline. Whereas this is a logical choice if we see a discipline primarily as a body of knowledge, it remains somewhat debatable as two publications on the same topic by the same author(s) in different journals may now be classified as two different disciplinary contributions, while they may be very much related. Despite the demarcations we have put in place, "Disciplinary boundaries [...] do not have sharp edges." (Tarafdar and Davison, 2018, p. 6).

The choice to leave out certain disciplines, especially OR, is a second limitation. However, this choice is reasonable given the current article's emphasis on reviewing different topics and the use of grand management theories. Still, in possible follow-up studies investigating the development of research on a specific topic over time (e.g. supplier selection), it may be useful to add OR research, to gain a more complete picture of knowledge exchange across different disciplines.

A third limitation is our choice to focus on a specific selection of journals. This selection captures what are seen to be the high-quality journals (that publish PSM research) in the selected disciplines, as established with a Delphi study of academic peers and by impact factor. However, it also excludes a few journals that frequently publish or are even dedicated to publishing PSM research (e.g. Supply Chain Management: an International Journal, International Journal of



Procurement Management, Journal of Public Procurement). A more salient shortcoming is that the individual articles published in these journals and selected for our review, are not necessarily better than those in the journals we did not include. This is because the correlation between the impact factor (or other ranking criteria) of a journal and the quality of the individual publications therein is far from perfect (McKinnon, 2017). For the current analysis, however, it is not problematic that the set of publications does not necessarily encompass all the best articles. It is important that the articles are representative – in terms of dimensions discussed here – of the wider set of journals and journal publications. We believe this to be the case, but even though our approach (in its focus on high-impact journals) is similar to many other field reviews, the best test would obviously be to replicate the current study for a different set of journals, across the same disciplines and timeframe.

The final, in our view minor limitation, relates to the selection of the time period under consideration. While the mid-1990s marked the beginning of a period of strong growth of PSM research, its history goes back to the 1960s, as we have documented. Extending our review backwards by one or two decades may have yielded additional insights, for instance, explicating the more dominant influence of the marketing discipline during that timeframe. While such additional reviews are certainly welcome, including a longer period of publications in the current article would have enforced an even more aggregate analysis and reporting.

The current study may be extended in several ways. First and foremost, scholars could analyse the origins of references used in the current set of papers, and of citations to the current papers, to identify knowledge flows between disciplines, such as conducted by Carter et al.

## Appendix A. Epilogue 2015–2017

Our main review covers the 1995–2014 period and excludes the period 2015–2017, even though journal articles from these years were available at the time this article was finalised. Including these three recent years would have created a certain imbalance, as our analysis of trends over time and differences between the three reference disciplines plus the specialist journal group is based on five-year periods. Therefore, we would ideally extend the review with another five-year period, i.e. 2015–2019. In the meantime, we can provide a preliminary analysis of PSM research published in the years 2015–2017. Using the same keywords and journals, we collected journal articles using, as before, first a keyword search (1706 hits) and secondly, visual inspection of title and abstract (612 retained or 36% of hits). This provides statistics on absolute numbers of articles and prevalence, across the journal groups, for these three recent years (similar to Table 2, see Table A1). We have left the content analysis of these additional 612 articles for a subsequent study.

Table A1 shows largely similar trends as Table 2. The total number of publications increased by about 8% year on year, and the total prevalence stabilised at around 13%. OM's share of total PSM research stabilised at around 50%–60% and overall PSM prevalence across OM journals increased. While MA and SO journals continued to produce similar absolute numbers of PSM research, their prevalence and share decreased. This was caused by the increase in the total number of publications within these disciplines and an increasing prevalence of PSM research in OM.

Table A1  
Number of publications by period and journal group (2015–2017)

Period	Indicator	OM	MA	SO	PSM	Total
2015	Total	645	324	407	42	1418
	PSM Research	113	39	5	32	189
	Share	60%	21%	3%	17%	
	Prevalence	18%	12%	1%	76%	13%
2016	Total	540	328	442	53	1363
	PSM Research	108	30	13	51	202
	Share	53%	15%	6%	25%	
	Prevalence	20%	9%	3%	96%	15%
2017	Total	560	343	446	42	1391
	PSM Research	130	41	11	39	221
	Share	59%	19%	5%	18%	
	Prevalence	23%	12%	2%	93%	16%
2015–2017	Total	1745	995	1295	137	4172
	PSM Research	351	110	29	122	612
	Share	57%	18%	5%	20%	
	Prevalence	20%	11%	2%	89%	15%
1995–2017	Total	10006	6042	7021	1019	24088
	PSM Research	1568	550	166	850	3134
	Share	50%	18%	5%	27%	
	Prevalence	16%	9%	2%	83%	13%

(2007) and Hult and Chabowski (2008). Such analyses could reveal the extent and direction of any knowledge flows (if only crudely measured) between disciplines and specific journals, over time and for specific topics. Researchers could also investigate the extent to which PSM research is conducted as interdisciplinary or transdisciplinary research, as discussed above. These extensions may be done for the full set of publications or for a subset, for instance by topic, allowing more detailed analyses. Second, follow-up studies may extend the number of journals included, either for the current disciplines and/or for additional disciplines, as noted under the current limitations. We hope that this first explicitly multidisciplinary review of the body of PSM journal publications provides a useful starting point for further work along these lines, and we are happy to collaborate with other researchers to further explore and complement the data.

## Declaration of competing interest

The authors have no conflict of interest.

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## Appendix B. Country and university origins of PSM research

In total, the 2522 articles were produced by 6117 authors from 59 different countries, based on the country and location of the author's institute (see [Table A1](#)). We counted each authorship as equal (e.g. a first authorship counted for one as does a fifth authorship); the order in authorship does not necessarily only reflect relative contributions. For comparison, we also considered just first authorships. The list of top ten most prolific countries is highly consistent both for all authorships and first authorships only. Comparing this top 10 list to the SCImago country ranking for the number of publications in Business, Management and Accounting (1996–2016), China (SCImago ranking: (6), the Netherlands (9), Italy (12), Hong Kong (16) and Sweden (17) were particularly productive in PSM research ([SCImago, 2018](#)). Compared to other overviews, there are some interesting differences. [Wynstra \(2010\)](#) found a greater dominance of Scandinavian countries in *JPSM* and much less influence of Asian countries, at least until 2010. [Carter et al. \(2007\)](#) found a clear dominance of the USA in *JSCM* publications (1965–2004).

Table B1  
Most prolific countries

	All contributions		First author contributions	
1	2394	USA	993	USA
2	695	UK	290	UK
3	307	China	126	China
4	280	Netherlands	114	Netherlands
5	255	Germany	111	Germany
6	236	Italy	91	Italy
7	229	Canada	91	Canada
8	195	Hong Kong	72	Taiwan
9	162	Taiwan	60	Hong Kong
10	120	Sweden	57	Sweden

In total, the 6117 authorships stem from 1180 different institutes. Across the entire period, six universities in North-American, four in Europe and one in Asia were the top 10 most prolific institutes in terms of authorship (see [Table B2](#)). There are just small variations in the ranking if we just count first authorships instead of counting each authorship instance (e.g. an article with three authors from the same institute counts as three contributions). Of the 1180 institutes, almost half (518) contributed just one authorship. For comparison, [Wynstra's \(2010\)](#) top ten list for publications in *JPSM* during 1994–2009 included the universities of Bath (UK), Chalmers (S), Eindhoven (UK), Birmingham (UK), Arizona State (US), Cardiff (UK), Twente (NL), Politecnico Milano (I), Ulster (UK) and Linköping (S). [Carter et al.'s \(2007\)](#) top 25 of most prolific institutions for publications in *JSCM* during 1965–2004 included 22 universities in the US, plus Western University (Can), University of Bath (UK) and University of Birmingham (UK). Hence, the community of PSM researchers is geographically more diverse than the subset of authors who published in the specialist PSM journals only.

Table B2  
Most prolific universities

Rank	All contributions		First author contributions	
	#	Institute	#	Institute
1	170	Arizona State U (US)	65	Arizona State U (US)
2	129	Michigan State U (US)	47	Michigan State U (US)
3	103	Hong Kong Polytechnic U (HK)	38	U of Bath (UK)
4	99	U of Bath (UK)	31	Hong Kong Polytechnic U (HK)
5	70	U of Texas (US)	29	U of Texas (US)
6	57	Eindhoven Technical U (NL)	22	Eindhoven Technical U (NL)
7	48	Ohio State U (US)	22	Ohio State U (US)
8	43	U of Manchester (UK)	20	Chalmers U (S)
9	43	Cranfield U (UK)	19	Cranfield U (UK)
10	42	Pennsylvania State U (US)	19	U of Birmingham (UK)
	42	Western U* (Can)		

\* Previously called University of Western Ontario.



Appendix C. PSM research prevalence

Table C1

Prevalence rates by journal and year (percentage of PSM studies in relation to total number of papers in that journal and that year)

Disc.	Journ.	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total %	Total number
OM	IEEE	3%	6%	8%	3%	3%	3%	14%	19%	0%	5%	8%	5%	9%	4%	4%	2%	11%	9%	5%	15%	7%	61
OM	LIOPM	7%	8%	4%	7%	5%	16%	13%	16%	12%	13%	10%	20%	29%	24%	29%	14%	0%	0%	0%	0%	11%	144
OM	LIPE	1%	2%	1%	6%	3%	4%	5%	6%	15%	19%	18%	16%	14%	16%	21%	18%	24%	22%	20%	28%	15%	666
OM	JOM	2%	5%	14%	5%	9%	10%	20%	15%	11%	14%	13%	20%	21%	27%	32%	38%	40%	30%	53%	38%	22%	168
OM	POM	0%	0%	16%	3%	4%	3%	12%	20%	6%	29%	21%	5%	12%	24%	18%	6%	29%	30%	24%	34%	19%	178
MA	IMM	9%	10%	17%	15%	27%	16%	19%	13%	29%	22%	16%	20%	15%	20%	18%	15%	19%	31%	31%	16%	20%	319
MA	JMAR	7%	3%	4%	10%	0%	4%	12%	0%	10%	5%	4%	2%	8%	4%	3%	4%	7%	0%	10%	4%	5%	41
MA	JMR	5%	3%	0%	3%	5%	5%	0%	0%	6%	3%	2%	2%	2%	2%	2%	2%	1%	3%	4%	0%	2%	23
MA	AMSJ	0%	6%	3%	3%	14%	11%	9%	9%	3%	3%	3%	2%	0%	0%	6%	13%	4%	4%	5%	5%	5%	37
MA	MARS	0%	5%	0%	0%	0%	0%	0%	4%	0%	0%	0%	3%	4%	7%	1%	6%	0%	2%	6%	2%	5%	20
SO	AMJ	0%	0%	2%	0%	0%	1%	4%	1%	4%	0%	0%	7%	0%	4%	0%	0%	6%	0%	3%	0%	2%	19
SO	AMR	0%	3%	0%	5%	0%	0%	0%	0%	0%	0%	0%	2%	2%	2%	0%	0%	3%	0%	0%	4%	2%	8
SO	ASQ	0%	4%	0%	0%	0%	0%	6%	0%	0%	0%	0%	8%	8%	0%	0%	0%	0%	0%	0%	0%	1%	5
SO	JMAN	0%	0%	0%	0%	0%	2%	0%	0%	3%	0%	7%	0%	0%	0%	0%	0%	2%	4%	1%	3%	1%	11
SO	OS	0%	3%	3%	2%	5%	0%	0%	7%	7%	0%	4%	4%	0%	2%	2%	3%	2%	9%	1%	7%	3%	35
SO	SMJ	2%	4%	2%	6%	2%	3%	3%	4%	3%	0%	8%	5%	3%	4%	4%	4%	4%	1%	10%	7%	4%	59
PSM	JPSM	38%	68%	91%	88%	95%	91%	91%	95%	100%	78%	90%	92%	89%	100%	83%	92%	96%	91%	95%	85%	87%	393
PSM	JSCM	91%	83%	87%	100%	80%	83%	96%	82%	83%	81%	75%	88%	75%	58%	41%	46%	73%	74%	79%	80%	78%	335

Appendix D. Classification Schemes

Table D1  
Comparison of classification schemes and models.

	This study	MSU + model	Monzcka et al. (2008)	Van Weele (2010)	Wynstra (2010)	Spina et al. (2013)
<b>Strategic Process</b>	Corporate & PSM Strategy		Subcategory of Supply Management and Commodity Strategy: Aligning supply management and enterprise objectives		PSM strategy & corporate strategy	
	Make-or-Buy/Outsourcing	Insourcing/outsourcing	Commodity strategy development		Make-or-buy/outsourcing	Outsourcing
	Category Sourcing Strategy	Develop commodity/article group strategy	Supplier Evaluation and Selection; Worldwide sourcing	Global Sourcing	Supply base management/sourcing strategy	Portfolio management
	Global Sourcing	Establish and Leverage a world-class Supply Base			Internationalisation	Local/global
	Supplier Relationship Management	Develop and Manage Supplier Relationships			Supplier relations	Supplier management
	Supplier Integration in NPD	Integrate Suppliers into the new Product/Process Dev. Process	Supply Management Integration for Competitive Advantage (to develop new products)	Early Supplier Involvement in New Product Development		Supplier involvement
	Supplier Integration in Order Fulfillment	Integrate Supplier into the Order Fulfillment Process	Supply Management Integration for Competitive Advantage (into customer order fulfillment)	Supplier Integration		Supplier involvement; Lean
	Supplier Development & Quality Management	Supplier Development & Quality Management	Supplier Quality Management; Supplier Management & Development			
	Strategic Cost Management	Manage costs strategically across the Supply Chain	Strategic Cost Management		Pricing and costing	
<b>Tactical/Operational Process</b>	Specification		Forecast and Plan Requirement	Determining Specification	Specification	Requirements definition
	Supplier Selection		Evaluate and select suppliers	Selecting Supplier	Selection	Reverse marketing
	Contract		Contract Management	Contracting	Contracting	Contract management
	Order		Approval, contract and purchase order Preparation; Receipt [and Inspection]	Ordering	Ordering	
	Receive			Expediting and Evaluation	Delivery	
	Evaluate		[Receipt and] Inspection	Follow-up and Evaluation	Evaluation and Quality	
	Pay		Invoice Settlement and Payment			
<b>Competitive Priority</b>	Price & Cost			Spend management task	Price & Cost	Cost
	Innovation			Development task	Innovation	Innovation
	Quality				Quality	Quality
	Delivery			Supply task	Delivery	Time
	Sustainability			Corporate Social Responsibility and business integrity	Social, ethical and environmental aspects	Sustainability
	Flexibility				Legal aspects	Flexibility
	Legal Compliance				Legal aspects	Risk management
	Risk				PSM organization	Microstructure
<b>Enablers</b>	Internal Organization	Organizational design	Proper Organizational design; Purchasing and SC Organization	Risk management task	PSM organization	Centralisation; Cooperative purchasing; Macrostructure
	External Organization	Organizational design	Proper Organizational design; Purchasing and SC Organization		PSM organization	
	HR Development & Training	Human Resources	Capable Human Resources		HR issues in PSM	
	ICT	Information Technology		E-Procurement	ICT	E-purchasing
	Performance Measurement Systems	Measures of Performance	Real-Time and Shared Information Technology Capabilities; Supply Chain Information Systems and Electronic Sourcing			
	Research Methods		Right Measures and Measurement systems; Performance measurement and evaluation		Research Methods	



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