

Assessing the Knowledge Transfer of IS Research to Practice

Full Paper

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Abstract

For many years, researchers have been debating whether the Information Systems discipline is generating knowledge, which is actually transferred to practice. Still, empirical studies, which could confirm or reject assertions about missing practical relevance in the rigor vs. relevance debate are lacking. We followed the research call of MIS Quarterly's editors of 2011 and address the issue by analyzing two academic-practitioner journals, MISQ Executive and Sloan Management Review, which are potential channels for knowledge transfer to practice. Following a scientometric approach we performed a comprehensive quantitative citation analysis on journal-level. By this, we identified core knowledge sources of academic-practitioner journals and found a respectable amount of scientific publications referenced in such outlets with a mixed audience. Our research extends the scarce scientometric studies about knowledge transfer and practical relevance in terms of a comprehensive citation database and the performed categorization.

Keywords

Relevance, Knowledge transfer, Citation analysis, Scientometrics

Introduction

The Information Systems (IS) discipline's self-conception is to be an applied field of study (Desouza et al. 2006). Nonetheless, researchers have challenged the link to business problems and raised a discussion about the field's practical relevance that has not ended yet (Benbasat and Zmud 1999; Davenport and Markus 1999; Gholami et al. 2016; Hassan 2014; Lee 1999; Niederman et al. 2017; Robey and Markus 1998). Straub and Ang (2011) delineate the rigor vs. relevance debate into two distinct gaps. The first gap focuses on the difference between topics demanded by practice and provided by research. The second gap deals with the ability to transfer knowledge from academia to practice.

It seems to be widely known that academic articles, including the top outlets, are hardly read by practitioners. (Senior) editors do not see a need for changes in academic journals: "Scholarly journals are written by scholars for scholars" (Straub and Ang 2011, p. viii). Instead, they emphasize the importance of other channels as "real avenues for knowledge transfer". Regarding the written output, the list includes textbooks, newspaper articles, brochures, white papers and policy briefings as well as academic-practitioner journals (AP journals). AP journals are designed to target practitioners but are usually written by academics. They are deemed an effective means for knowledge transfer from academia to practice (Cohen 2007; Davenport and Markus 1999; Jabagi et al. 2016; Straub and Ang 2011). The style and readability of articles published in AP journals follow different criteria that ensure practical relevance and applicability of the research.

Straub and Ang resumed that, "no one to date has thoroughly studied the transfer question" (Straub and Ang 2011, p. viii), which is according to them the actual question in the debate. For instance, most of the suggested channels for knowledge transfer have rarely been studied empirically. Gallivan and Aryal (2012)

evaluated the knowledge transfer in newspapers and AP journals. The authors found that only a limited number of IS articles and scholars get cited in practitioner outlets, with a focus on certain research fields such as IS economics. They conclude that “the overall level of visibility of IS research is extremely low” (Gallivan and Aryal 2012, p. 8). Second, Serenko et al. (2011) analyzed citations, finding that the analyzed books draw on scientific sources to almost 30 percent on average.

This article sets out to significantly extend the findings from the aforementioned studies by collecting additional empirical data to inform the debate. The primary objective is to investigate the knowledge transfer through AP journals. Thereby, we focus on the role of two renown AP journals with strong IS affiliation i.e. *MISQ Executive (MISQE)* and *MIT Sloan Management Review (SLOAN)*.

For this purpose, we use scientometrics to analyze the sources – a method that has not received much attention in the IS field (Hassan and Loebbecke 2010; Roche et al. 2016). Following similar studies, the underlying assumption of our research endeavor is that academic findings are relevant for practice and that knowledge transfer takes place, if research is captured through citations in AP journals (Loebbecke and Leidner 2012; Straub and Ang 2011). We perform our analysis in two steps. First, we investigate how many academic articles are used as a knowledge source in MISQE and SLOAN. Proportions of the different source types enable interpretations about the relevance of academic publications, particularly IS research journals. Second, we investigate which outlets are referenced in MISQE and SLOAN. Thereby, the core knowledge sources for these journals are identified. Hence, our research questions are: **RQ1:** *To what extent do MISQE and SLOAN refer to academic (IS) outlets?* **RQ2:** *Which academic (IS) outlets are cited the most in MISQE and SLOAN?*

Theoretical Background

Role of Academic-Practitioner Journals

AP journals have not been clearly defined yet. They have also been named *hybrid business-academic journals* (Davenport and Markus 1999), *bridge journals* (Cascio 2007; Cohen 2007), *practitioner business magazines* (Gallivan and Aryal 2012) and *professional/managerial journals* (Peffer and Ya 2003). Lee sees the mission of an academic-practitioner journal as “the publication of research that would appeal immediately to managers, executives, consultants, and other practitioners” (Lee 2000, p. vi). Straub and Ang state “academic-practitioner journals are written by either academics or practitioners, but are pitched mostly at a professional audience” (Straub and Ang 2008, p. vi). Like the variety of names the perception of what falls into these categories varies, too. For example, Gallivan and Aryal (2012) distinguish between practitioner business magazines like *SLOAN* and *Forbes*, and trade magazines like *MISQE*. Straub and Ang (2011), in contrast, categorize *MISQE* as AP journal and *Forbes* as pure practitioner magazine with little or no scientific influence.

It has been challenged if AP journals are actually read by practitioners (Klein and Rowe 2008). Empirical studies that assess the readership of academic journals and AP journals are very scarce and inconsistent. One study focusing on management journals has revealed that academic journals are mostly ignored by executives whereas AP journals, trade magazines and newspapers are read more often (Forster 2007). In this study with Australian managers, 10.84% reported to read *MIT Sloan Management Review* regularly or sometimes. More readers have been identified for *Harvard Business Review* (28.92%). Pearson et al. (2005) analyzed whether IS practitioners grouped as either professional, mid-level or high-level manager are familiar with or read a certain set of journals, including AP journals. Though *Harvard Business Review* ranked best, also *MIT Sloan Management Review* received a good awareness among the mid (53.4%) and high-level managers (87.5%).

Despite the lack of consistent evidence for actual readership of AP journals, we argue that AP journals can serve as one valid and assessable proxy indicator for the practical relevance of IS research. First, they have been specifically designed to transfer knowledge from academia to practice. Second, they are more often (even though perhaps not often enough) consumed by practitioners than purely academic outlets. Third, in contrast to most newspaper and trade magazine articles, most AP journals can be investigated using scientometric methods. This is because newspaper articles on research results often only cite the reference of the underlying research imprecisely, if it is not omitted completely.

Studies Analyzing Practical Relevance of Research Articles

The need for empirical evidence in the rigor vs. relevance debate has been formulated by different scholars (Bichler et al. 2015; Cascio 2007; Lee 1999; Straub and Ang 2011). Although the calls have not remained unanswered completely, Gallivan and Aryal (2012, p. 1) note “an absence of empirical data in most studies of IS research relevance”. While first studies empirically investigated a topic gap between academia and practice (Rosemann and Recker 2009; Srivastava and Teo 2005), others studied if and how practical contributions are presented in IS articles (Jabagi et al. 2016), only few studies provide empirical findings to examine the knowledge transfer gap (Straub and Ang 2011).

The most interesting results so far are provided by Gallivan and Aryal (2012), who used scientometric methods to measure whether IS research results are transferred to practice through practitioner-oriented trade journals and newspapers (more recent studies have not been found). In their 2012 *AMCIS* paper they examined (1) which researchers are mentioned or cited most often in trade magazines and newspapers, (2) which academic articles, respectively researchers, are cited most often in AP journals, and (3) which AP journals reference most often academic IS research. The authors found that only few IS researchers are mentioned in public press and that AP journals do cite IS research journals but on a low level. To this end, they identified the leading influencers referenced in AP publications: authors, articles, and – in aggregation – journals. This approach required a restriction of the investigated scientific journals (EJIS, ISJ, ISR, JMIS, and MISQ) or the to-be-mentioned researchers. Thus, the approach ignored a substantial amount of academic outlets, particularly non-top-tier journals and conferences, which also belong to the body of knowledge (Cocosila et al. 2011). The results of Gallivan and Aryal show that articles that are cited often in all journals (academic and mixed audience) are also cited often in practitioner magazines. In contrast, papers with a high ratio of practitioner-to-total citations are cited very rarely in total. However, we believe that the benchmark must be the number of citations sent from AP journals to IS research in comparison to citations sent to other sources.

Research Methodology

Data Collection

We performed a citation analysis on journal level. Though Straub and Ang (2011) propose a list of AP journals, most of them cannot be considered as exclusively IS related (e.g. *Journal of Euromarketing*) and would require a topic-specific pre-processing to receive relevant data. The same would have been true for *Harvard Business Review* but which generally could not be included because of its editors' requirement to focus on in-text mentioning without reference lists (Harvard Business Review 2016).

We used a set of two AP journals with IS-affiliation as *sending* journals, i.e. journals that “send” references to other outlets. MISQE was taken from Straub and Ang's list. We further added SLOAN to our selection due to its readability scores (Pearson et al. 2005). SLOAN received also a good awareness as professional/managerial journal in the seminal paper by Peffers and Ya (2003). In contrast to the aforementioned study by Gallivan and Aryal (2012), which also focused on a set of sending journals, we did not define the receiving outlets a priori. We collected citation data with the following information: (a) Citing outlet (sending), (b) Year when the citing outlet was published, (c) Cited journal (receiving) and (d) Year when the cited journal was published. Next, we built the sum of citations by using a unique combination of the four data points, for example: *MISQE cited in its 2014 articles the JMIS articles of 2010 twice*.

We used Scopus as database of scientific articles for our analysis. In comparison to the Web of Science, Scopus does not only cover more journals, “its citation analysis is [also] faster and includes more articles than the citation analysis of Web of Science” (Falagas et al. 2008, p. 342). Scopus is expected to cover more than 22,000 journals against about 12,300 in WoS (Giustini 2015). Moreover, Scopus is also listing conference proceedings. We collected the references cited between 2010 and 2014. In this five year period, MISQE published 122 articles, SLOAN published 310 articles. The articles were not filtered for either content type (e.g. editorials) or topics.

As first step, we queried all articles published in one studied journal in one of the five years. The resulting articles were selected as basis for the references report. Afterwards, the list of cited references was grouped by year of publication. Finally, the resulting outlet titles and their citation counts could be extracted and

copied to a spreadsheet for further processing and analysis. Once all references were recorded, references without any title were filtered out. These records would not contribute to the analysis and also had to be suspected of erroneous reference recognition. This procedure is in line with previous scientometric studies that corrected minor anomalies (Dennis et al. 2012; Polites and Watson 2009).

Outlet Categorization

The intended analyses required dividing the references at least in academic and non-academic outlets. Four research articles were used that either categorize outlets or rank outlets separated by categories: Peffers and Ya (2003) served as starting point since it is most comprehensive and suitable in terms of differentiation between categories (i.e. *IS Research Journals*, *Allied Discipline Research Journals* and *Professional/Managerial Journals*). To further improve the categorization, we also used rankings from the German Wirtschaftsinformatik-Community (Heinzl et al. 2008; Hennig-Thurau and Sattler 2015). Journals included in either ranking were recognized as *IS Research Journal* since they comprise international journals potentially relevant for IS researchers. Conferences could be categorized using the ranking by Heinzl et al. (2008). We also added academic journals by Straub and Ang (2011), which were not already included in one of the other lists and classified them as *Allied Discipline Research Journal*.

Even after extending the categorization of receiving outlets, there were still many outlets not covered by the joint list. Therefore, all not yet categorized outlet titles receiving in total five and more citations were screened manually and put in one of the four categories. This included mostly professional/managerial journals (e.g. *New York Times*) but also a few academic journals from allied disciplines (e.g. *Journal of the Academy of Marketing Science*). In total, we were able to categorize 51.5% of 831 references cited in MISQE and 37.88% of 1,988 references cited in SLOAN.

Analysis

Visibility of Research Outlets in Academic-Practitioner Journals

Table 1 depicts the proportions of the different categories. Combining the scientific categories *Allied Discipline*, *IS journals* and *Conferences*, we see a share of more than 50% for both studied journals. Looking at the specific categories the share of IS journals is much higher in MISQE than in SLOAN whereas the latter cites sources from allied disciplines more often. Professional/managerial journals are cited often in both journals and represent the strongest category.

Outlet category	MISQE	SLOAN
Allied discipline journals	17.52%	47.81%
Information Systems journals	30.61%	5.58%
Conferences	3.50%	0.40%
Professional/Managerial journals	49.44%	43.77%

Table 1. Proportions of Different Categories

Though being a management-focused journal SLOAN cites scientific sources to a great extent. As regards IS research, it cites only about five percent IS research journals, which is well below MISQE. Assuming that AP journals play a role for knowledge transfer from academic to practice, our findings do not confirm general claims about a lack of relevance (Benbasat and Zmud 1999). Most categorized references in the studied AP journals are from scientific sources representing an impact of scientific results. Even if all uncategorized references are professional/managerial – what is an unlikely scenario – the proportion of scientific sources is still a fourth in the case of MISQE, and a fifth for SLOAN. The very small proportion of conferences is notably because we expected AP journals to rely on most recent findings from conferences (Cocosila et al. 2011).

Knowledge Sources of Academic-Practitioner Journals

Regarding our second research question to identify core knowledge sources for AP journals, the following top ten lists show the most cite outlets for SLOAN and MISQE (Table 2). The category (Cat) is indicated

with A (allied disciplines), I (information systems), and P (professional/managerial). The last line indicates the share of the top 10 outlets in relation to all references (also non-categorized).

The core knowledge sources differ widely. Whereas the MISQE cites renown journals from IS, no journal from IS appears in SLOAN’s list. Instead, six allied discipline and four professional/managerial journals are cited most often. A common knowledge source is the *Harvard Business Review*. Further, the MISQE cites SLOAN quite often but just in one direction: MISQE received only six citations from SLOAN in total. The self-referencing practice known from other journals is also observable (Palvia et al. 2009). Still, MISQE stands out by citing articles from the own outlets much more often than the second place. Though we cannot analyze reasons due to the aggregation, this practice must be challenged.

SLOAN				MISQE			
	Journal	Cat	Cites		Journal	Cat	Cites
1	Sloan Management Review	P	110	1	MIS Quarterly Executive	P	96
2	Harvard Business Review	P	106	2	MIS Quarterly	I	38
3	Management Science	A	34	3	Harvard Business Review	P	34
4	Strategic Management Journal	A	29	4	Sloan Management Review	P	15
5	Academy of Management Journal	A	26	5	Communications of the ACM	P	14
6	Organization Science	A	25	6	California Management Review	P	13
	New York Times	P	25	7	Management Science	A	13
8	Research Policy	A	24	8	Journal of Management Information Systems	I	12
	Wall Street Journal	P	24		Information Systems Research	I	12
10	Journal of Marketing	A	22	10	Academy of Management Review	A	9
Σ 425 / 21.4%				Σ 256 / 30.8%			

Table 2. Ranked Most Cited Outlets in SLOAN and MISQE

In general, the ten most cited outlets comprise 21% or 30%, respectively, of all references. This is even more than Garfield (1996) found for *top 50* receiving journals in the Journal Citation Report of 1996 which made 33%. Many outlets from the above lists were also identified as source of academic journals in a social network analysis of Polites and Watson (2009). Thus, the citing behavior of AP journals is similar to scientific journals in terms of preferring a few journals and using similar outlets as core knowledge source.

Role of Information Systems

Regarding the role of the IS-field, Gallivan and Aryal (2012) concluded that “the overall level of visibility of IS research is extremely low” (p. 8) in popular trade magazines. Though MISQE and also SLOAN cannot be deemed popular trade magazines, at least the latter is read by practitioners frequently (Pearson et al. 2005). The proportions of IS research journals is admittedly low in SLOAN. But considering the smaller part of articles in SLOAN presumably dealing with core IS topics, the numbers may be misleading. Drilling down the category of allied disciplines may reveal similar numbers for other disciplines. We understand visibility as the knowledge of existence that there is a discipline with certain expertise. Researchers make use of the expertise if results can inform their topic. For some articles in SLOAN this applies, but certainly not for all.

Regarding the core IS knowledge sources, the previous tables contained only a few IS research journals and none in case of SLOAN. Like we have argued above, we deem the visibility of IS research journals sufficient considering the proportions of 30.61% in MISQE and 5.58% in SLOAN. Still, the individual journals do not reach citation counts similar to the other categories. The following table 3 presents only IS journals. The bottom line indicates the proportion in relation to all references categorized as IS research.

Table 4 reveals an unexpected journal at the top. The *Journal of Management* is categorized as IS research according to Peffer and Ya’s ranking (Peffer and Ya 2003). But in their study, it was one of the journals

with least perceived value for IS. Basket journals are listed though the citation counts are vanishingly low. Compared to the top list for all categories, the citation counts of SLOAN's IS journals are very low.

However, for MISQE all eight basket journals are ranked in the list. In general, the findings suggest that if IS research is used in AP journals the knowledge originates to a great extent from well-established IS research journals and not from niche journals. Recalling the methodology, unknown or small journals had the chance to become categorized if they were cited at least five times.

SLOAN			MISQE		
	Journal	Cites		Journal	Cites
1	Journal of Management	9	1	MIS Quarterly	38
2	MIS Quarterly	7	2	Journal of Management Information Systems	12
3	Journal of Interactive Marketing	4	3	Information Systems Research	12
4	Journal of Management Information Systems	3	4	Journal of Information Technology	7
	Information and Organization	3	5	Communications of the AIS	5
	Information Technology and People	3		Journal of Strategic Information Systems	5
7	Journal of Information Technology	2	7	European Journal of Information Systems	4
8	e-Service Journal	1		Information Systems Journal	4
	Information Systems Research	1		Information Systems Frontiers	4
	Information Systems Journal	1		Journal of the AIS	4
Σ 34 / 81.0%			Σ 95 / 72.6%		

Table 3. Ranked Most Cited IS Research Journals in SLOAN and MISQE

As regards IS conferences, the sources used for the categorization did not allow for an objective distinction between IS and allied disciplines. Anyway, the references categorized as conferences are diminishing. The conferences MISQE cited are ICIS (6 citations), AMCIS (2), WI (1), ECIS (1), HICSS (1) and few smaller conferences (4). Like observable in the conference share, for SLOAN only three references were categorized as conferences: HICSS (2) and AMCIS (1). Though conferences can be seen as outlet with faster publication cycles useful for preliminary and practically relevant work they are ignored in the two studies AP journals.

Differences in the Recency of Sources

We also plotted the category counts in relation to the reference age at the point of publication (see figure 1). We observed the references to be quite young for those from professional/managerial journals. However, also academic journals of different ages are cited. Conferences as outlets for a faster dissemination or for preliminary results do not play a role either for MISQE or SLOAN like already seen in the tables above. The few cited conferences are spread throughout different ages.

Due to their short-term research focus we expected the number of professional/managerial journals to decrease faster than the other categories (Khazanchi and Munkvold 2000). In fact, for both studied journals a decreasing proportion of professional/managerial journals can be observed. Their percentages change over to either IS for MISQE or allied disciplines for SLOAN. In the age analysis, we found that cited IS references are younger than those from allied disciplines. Generally, MISQE cites younger sources. While there is an actual peak identifiable for one-year-old sources in MISQE the references in SLOAN aged one to five are about the same level. The older sources from allied disciplines may be explainable by their longer tradition. However, it can also indicate a slower scientific progress in allied disciplines than in IS.

The recency of topics represents an important dimension of practical relevance (Baskerville and Myers 2009; Khazanchi and Munkvold 2000). Topics that were relevant, when research has started, are likely to be less relevant when findings are published (Desouza et al. 2006; Jennex 2001). References from AP journals to scientific sources have been suspected to be all-time classics (Hess 1997) without direct impact on the citing work. Our analysis shows that references categorized as either research journal or conference are not much older than professional/managerial journals. Admittedly, there are some outliers aging 20 and more years but the majority of references to research journals is rather young.

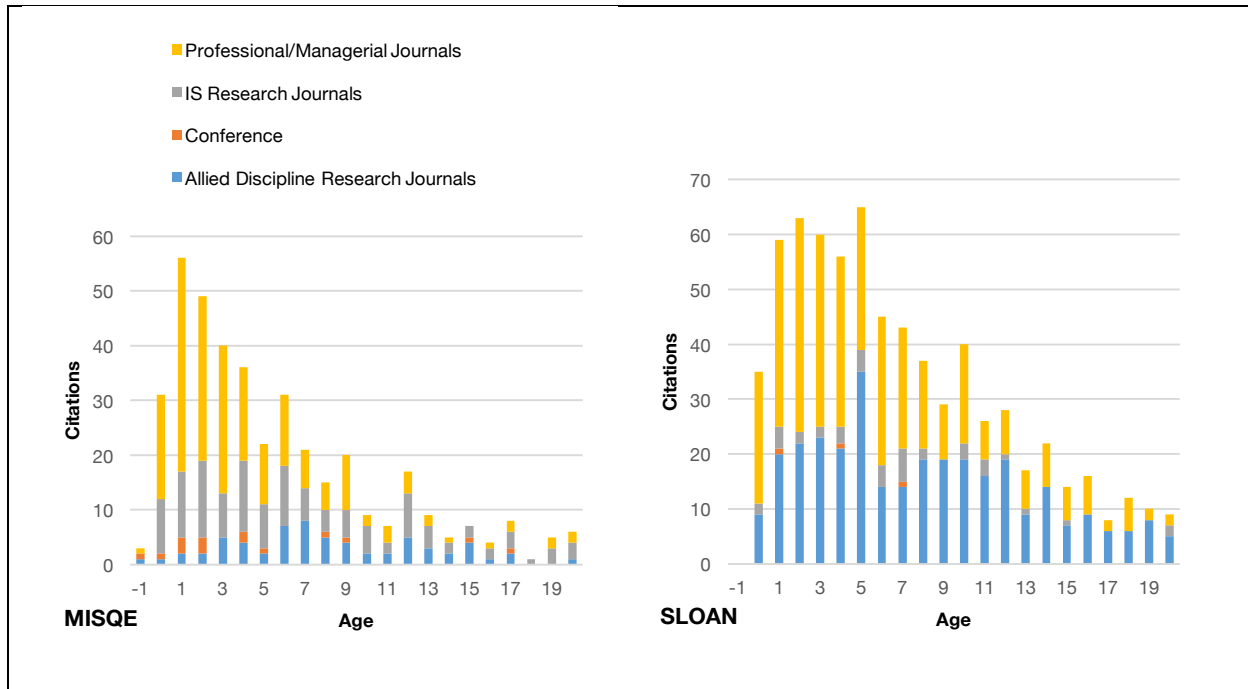


Figure 1. Reference Age and Age-Specific Proportions for MISQE and SLOAN

When comparing references with increasing age, a shift from conferences to journals was expected, since conferences usually provide a platform for preliminary research results whereas journals are the actual body of knowledge (Cocosila et al. 2011). We were not able to analyze the issue rigorously as both journals cited just a few conferences. However, calculating the median age for conferences cited in MISQE resulted in three years which we consider young. Like already stated by other scholars, conferences should play a bigger role in the knowledge transfer (Cohen 2007; Srivastava and Teo 2005), raising the question why both AP journals rather neglect such outlets.

Conclusion

Our study addresses the lack of empirical data in the knowledge transfer and relevance debate. Given that AP journals are truly read – which needs further attention especially for MISQE – our findings support that a knowledge transfer from academia to practice can take place. Research results, also from IS research outlets, are captured in MISQE and SLOAN. Still, we acknowledge that AP journals are just one potential channel for knowledge transfer. Straub and Ang (2011) as well as Lee (2000) advocated the MISQE as a means to bridge a potential gap between academia and practice, and to improve the knowledge transfer. Despite its disputable readership, MISQE may act as a showpiece in terms of its orientation towards IS practice while capturing scientific IS results. In combination with its academic sister publication *MIS Quarterly*, the journals' missions are rather clear and supposedly easier definable than for SLOAN. Considering this, the reference proportions of MISQE (50% academic, 50% professional/managerial) may serve as a blueprint for other journals aimed at bridging academia and practice. Still, the MISQE's practice of self-citation can be challenged and needs further attention (Palvia et al. 2009).

We propose that authors, reviewers, and editors should strive for a balanced use of knowledge sources in AP journals to ensure that rigorous (academic journals) and recent (academic conferences) findings are combined with a *practitioner body of knowledge* (professional/managerial journals). To increase the motivation to publish in AP journals, the recognition of these for promotion and tenure criteria suggested by Desouza et al. (2006) is important. Thereby, researchers may be encouraged to rewrite research findings (i.e. different language and style, less emphasis on methodology, more on practical implications) for a practitioner audience fostering the knowledge transfer. Reviewers of AP journals should be composed of academics as well as practitioners who are able to assess the practical value. Following Straub and Ang (2011) and Bichler et al. (2015), we agree that there is no need to change academic journals so that

practitioners will like to read them and, hence, do not consent to Jabagi et al. (2016). Instead, AP journals may serve as a useful vehicle to transfer scientific results to practice. Still, editors should challenge their standards that either prohibit the tracking of knowledge transfer by banning citations (e.g. HBR) or require authors to include references from the same outlet. Instead, editors may change standards to a mixed set of reference type like proposed above. We observed that MISQE and SLOAN cite conference papers very rarely though AP journals and their perceived relevance may benefit from capturing topics that are more recent. At the same time, IS conference can aim at attracting more recent and practical relevant topics that enable their reference in AP journals or trade magazines. For instance, dedicated tracks on “practice-oriented research” (firstly organized at ICIS 2015) with fast track opportunity to MISQE might help to increase conference’s practical relevance. AP journal editors may also accelerate review cycles.

As regards **RQ1** (*to what extent do MISQE and SLOAN refer to academic (IS) outlets?*), citation data reveals that scientific outlets (including conferences and journals from allied disciplines and IS) receive more than 50% of all categorized references in both AP journals. The visibility of IS research journals is with proportions of 5% (SLOAN) to 29% (MISQE) not generalizable. The low proportion of conference references in both journals is noticeable. While professional/managerial journals are most recent, scientific sources cannot be regarded as old considering the age distributions. Thus, it cannot be confirmed that references to academic outlets are limited to seminal classics (Hess 1997). Notably, cited IS research journals are younger than those from allied disciplines on average.

The studied AP journals differ in their core knowledge sources making a short answer to **RQ2** (*which academic (IS) outlets are cited the most in MISQE and SLOAN?*). *Harvard Business Review* has received a top place in both AP journals – besides the revealed self-citation practice. In SLOAN, no IS research journal can match up to the journals from allied disciplines or professional/managerial journals. Still, a particular look at IS research journals has proven the influence of the AIS basket journals. In general, the studied AP journals have adopted the behavior to send the majority of references to a few outlets.

Limitations

Although citation analysis are deemed as an objective means (Hassan 2008), interpretations assume that a citation represents impact. Loebbecke et al. (2007) speak of “best available, even if only imperfect [...] proxy to research importance.” (p. 2) Problems with citation analyses are that reasons to cite previous work can be multi-faceted (e.g. self-citation, expanding reference list) and do not always depict a real influence on the citing work (Paz et al. 2015). Moreover, institutional decisions (e.g. in promotion or tenure processes) that rely mostly on citation measures provide questionable incentives (MacRoberts and MacRoberts 1989). Though our findings prove the citations of scientific results in AP journals we based our conclusions on the assumption that such articles are read and – even more important – understood and at least conceptually mapped or applied to practical problems. Only then research creates a value for practice.

The categorization process as one building block was based on four sources to assure objective and comparable results. However, some outlets could arguably better fit into another category. Besides the basket journals, there seems to be no international consensus about journal categories and their quality ranking. Moreover, supposing that journals listed in IS-specific ratings are IS research journals is at least problematic, since they are primarily rated as publication outlets and not reference sources. All in all, our categorization of journals may have led to an overrepresentation of IS research journals. For instance, the rating by Heinzl et al. (2008) assumes all IEEE and ACM transactions be potentially relevant IS publications. Hence, they were categorized as IS research journal. On the other hand, Peffer and Ya (2003, p. 67) argue that “IS researchers have continued the tradition of publishing articles that address IS research questions in the journals of allied disciplines.” A different approach for categorizing may improve the methodology and inform future studies. Further, it must be conceived that collected data are direct citations. Cited articles in professional/managerial journals can have already used scientific findings, which would represent a knowledge transfer of second degree. The related question of how (scientific) results shift through articles and journal types over several citation iterations may extend the findings of this article.

More studies to empirically investigate knowledge sources of practitioners are needed to show whether AP journals are read (e.g. for MISQE) and if covered topics are applicable. In general, studies investigating readership of journals are important to assess the expected impact beyond citation counts. The taken perspective on journals allowed discovering the general citation behavior of only two AP journals. Thus, interpretation with respect to other outlets must be taken with care. On a more general note, the reliability

of our results depends on the data and its quality provided by Scopus. It was reasoned why we did not use Web of Science. Still, the gathered data cannot be expected to be complete. It could not be checked, whether the numbers of articles or references indexed in Scopus reflect the truth. Also, only citations made between 2010 and 2014 could be analyzed. Thus, other journals or periods may reveal different results.

Besides the limitations, we argue that our results add meaningful empirical results to the debate how researchers can transfer knowledge to practice. Previous studies that applied similar methods have not yet regarded AP journals though they are deemed as a potential channel for knowledge transfer (Straub and Ang 2011). Future research could extend our findings by social network analysis methods to visualize the role of second-degree citations within the knowledge transfer to practice (Polites and Watson 2009). Furthermore, scientometric analyses may be used to investigate research topics or research types that are cited often in AP journals.

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