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## Winning Awards or Winning Citations: A Retrospective Look at the Consistency between Evaluative Metrics

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## Winning Awards or Winning Citations: A Retrospective Look at the Consistency between Evaluative Metrics

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### Abstract:

Appropriate evaluation of information systems research papers ensures that our institutions and review processes stay viable. In the short run, we typically assess research value through research awards, while, in the longer term, we typically assess research value based on how the research community sees and draws from particular published research papers. In this study, we examine the consistency between two metrics for assessing research value: research awards and citations. To do so, we focus on a premier journal, *MIS Quarterly*. We found that rarely are the “papers of the year” the ones cited the most. We offer possible explanations for this discrepancy based on assessing papers’ originality and utility and their citation patterns.

**Keywords:** Citation, Citation Patterns, IS Research Papers, Most Cited Papers, Award-winning Papers.

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## 1 Introduction

Publishing in top journals of the information systems (IS) field, such as *MIS Quarterly* and *Information Systems Research*, is especially difficult, because our review processes that assess research demand (increasingly more) rigor and significant theoretical contributions. Further, these processes also value interesting, novel, and relevant research.

However, one can judge academic work once published in different ways. In this study, we examine two such metrics: best paper awards and citations. A journal's editorial board members (i.e., experienced researchers and reviewers or other highly respected researchers in the field) typically choose a "best paper" shortly after its publication (i.e., within a year) based on their potential impact on scholarship and practice (Rai, 2016). In contrast, the researchers engaged in the IS and other fields (i.e., the wider academic community) "chooses" a "most cited" paper by citing it in their own work, which continues in the long term. A best paper receives such an accolade based on experts' assessing its quality and believing that the paper will significantly impact the field in the future (due to the fact that it offers both practical and theoretical contributions). In contrast, when a paper receives a large number of citations, it indicates that it offers a currently useful contribution to the researchers who cite it. Thus, one might expect these two assessments to have a high level of consistency in their citation counts.

We focus centrally on the following question: "How accurately do we, as a field, foresee papers that have a significant impact?". By this question, we do not necessarily imply that awards predict citations; however, since they use similar criteria<sup>1</sup>, we would expect to find consistency in them. The question is fundamental for our field. Consistent results would indicate that the field uses consistent standards to judge valuable papers. Inconsistent results would raise questions about whether "good-quality research" and "well-cited research" are the same. Recently, Grover and Lyytinen (2015) have alluded to the possibility that, by using epistemic scripts, we might be engaging in incremental research that meets tests of quality but lacks impact. In addition, we also explore the related (but equally intriguing) question: "Are there any differences between award-winning and most cited papers?".

To answer these questions, we conducted a descriptive analysis on papers from *MIS Quarterly*, an exemplar of high-quality IS journals, and examined consistency between the papers that the journal awarded with the "Paper of the Year" award and the top five most cited papers from 1993 to 2014<sup>2</sup>. We evaluate the results and discuss their implications for the field.

## 2 A Paper's Contribution: Factors of Influence

As we state in Section 1, top IS journals require papers that provide a strong theoretical contribution, though researchers across every field have long debated what "theory" actually means. However, they all recognize theory's significance for advancing knowledge. As Lee (2001, p. 7) states, "We need to accelerate this materialization of a 'good grand theory'". Strong theory is essential because it helps explain the systematic reasons for why a phenomenon occurs or does not occur in the real world (Sutton & Staw, 1995).

Researchers typically define a "strong theoretical contribution" as offering "important and original ideas" (Kilduff, 2006). Therefore, a value-added contribution to theory development, in addition to answering "who", "when", and "where" (identifying constructs, contexts, boundary conditions, etc.), must also answer "how" and "why" (relationships and explanations) questions of theory (Whetten, 1989). In other words, as a maturing field, scientific relevance and rigor are increasingly characterizing IS (Grover, Gokhale, & Narayanswamy, 2009; Rosemann & Vessey, 2008). For this work, we draw on Corley and Gioia's (2011) conceptualization of theoretical contribution, which has dimensions: originality and utility. Corley and Gioia (2001) note that researchers have typically defined the utility dimension according to two tracks: scientific and practical (Corley & Gioia, 2011). The scientific utility of a theory or paper describes its relevance to research. It is the degree to which it affords future theoretical development. A paper with high practical utility should apply to practice (Benbasat & Zmud, 1999; Rosemann & Vessey, 2008). In terms of utility, research can be relevant to a varied number of stakeholders: other researchers, organizations,

<sup>1</sup> In order to understand which criteria guide how *MISQ* chooses its "best paper" award recipients, we contacted the current editor-in-chief. He confirmed that, although the journal has no explicit guidelines as such, editors consider impact (scholarly and practical) and other aspects related to the quality of theory and methods heavily in picking the award's recipients.

<sup>2</sup> Although *MISQ* had awarded its 2015 and 2016 papers of the year, we took 2014 as the last year for our analysis to allow at least a three-year citation pattern to emerge.

consultants, IS students, or society in general (Davenport & Markus, 1999). Thus, papers with strong theory can have both scientific and practical contributions. Originality describes the degree to which a research has interesting and novel insights. Originality “arises when theory reveals what we otherwise had not seen, known, or conceived” (Corley & Gioia, 2011). In reviewing existing publications on the issue, Corley and Gioia (2011) found that surprising, revelatory, and transformative ideas primarily affects whether a publication makes a theoretical contribution. A paper with *revelatory originality* typically has interesting, novel insights, whereas a theory or a paper with *incremental originality* typically extends existing theory with new constructs and/or in a new context.

Despite the obvious importance of both originality and utility, many researchers focus more on the scientific utility and, therefore, favor rigor over relevance. One reason that may explain the disconnect between rigor and relevance could be that IS research has grown up around sociotechnical topics, such as enterprise resource planning, customer relationship management, data warehousing, and group support systems, which may be too general for industry and would need to be contextualized further to have implications for practice (Kohli & Kettinger, 2004). In addition, recommendations for practical relevance seem to be at odds with journal publishing standards. Some claim that, to diffuse IS work more broadly, researchers need to pay more attention to industry when developing theory (Baskerville & Myers, 2002) and produce more industry-focused research to raise the practical relevance of IS research (Benbasat & Zmud, 1999). In the contrast, some claim that “nothing is so practical as a good theory” (Lewin, 1945). Because most researchers seek to create and disseminate new knowledge, good theories are practical for researchers because they help them accumulate and disseminate knowledge through journal publications. Theories that carry both theoretical and practical utility are even more important today as rapid advances in technology have an increasingly far-reaching influence on IS activities; the diffusion of technologies to diverse industries offers tremendous opportunities for the IS field to develop its knowledge and broaden its relevance (Chiasson & Davidson, 2005).

Thus, we can see that utility and originality have clear and wide importance. A fairly stable opinion posits they serve as a basis for evaluating all published work in the field. On the other hand, we mention above also that the IS field has two established recognition mechanisms for papers in place by all researchers in the form of citations and by journal editors in the form of paper awards. We believe that we can reasonably assume that, while the evaluation process completely differs in each case, it should use similar criteria; that is, regardless of whether the paper receives citations or awards, it does so due to its relevance and usefulness for the field or praxis and for its originality. Therefore, the evaluative outcomes of these two groups should coincide—presuming that the IS field has achieved a good understanding and agreement on what constitutes a theoretical contribution. Thus, we expect that the papers voted as “paper of the year” in a high-quality IS journal to be among the top most cited papers of that year as well<sup>3</sup>. Such a result would show consistency between how experts assess research’s quality and future value and its actual usefulness. Thus, we hypothesize:

**H:** Papers published in a high-quality IS journal and that receive a “paper of the year” award from that journal are among the top most cited papers of that year.

## 3 Method

### 3.1 Data Collection

We use *MIS Quarterly (MISQ)* to represent a “high-quality” journal in IS. Most IS scholars regard it as the top journal (or at least one of the top journals) in our field. *MISQ* introduced its “paper of the year” award in 1993, and, since then, the journal has awarded it every year. Senior editors and other respected researchers of the field decide on the award based on several criteria, which include the quality of the theory, degree of theoretical contribution, methodological rigor, and degree of practical usefulness.

We examined the award-winning papers from 1993 through 2014 and noted the number of citations they received as at July, 2017. In the same manner, we recorded the number of citations that the top five most cited papers in each year received (1993-2014). We used papers only to 2014 to allow papers to accrue at least three years’ worth of citations<sup>4</sup>. We used Google Scholar as the means to collect the number of

<sup>3</sup> In addition, papers awarded best paper have better chances of receiving citations due to the increased publicity.

<sup>4</sup> While a fair criticism would indicate that three years is insufficient to assess citation impact, we do so because: 1) with the exception of 2014, all other years have a longer period; 2) we sought only to assess citation impact and, for most published papers,

citations. Google Scholar offers a wider coverage for all published works since it creates its indexes “from the full text or part of the full text of the primary documents (even if it shows the snippet of it), not merely the bibliographic records, abstracts and the subject terms (if assigned by the author or the publisher to the papers)” (Jacsó, 2005). Table 1 presents part of our results. This table contains *MISQ*'s best paper award winners along with the number one most cited paper of the same year. Appendix C presents the full list of papers.

**Table 1. *MISQ* Best Papers and Most Cited Papers: 1993-2014 (Citation Counts as of July, 2017)**

Year	Accolade	Paper type	Vol(iss.)	Author(s)	Citations
1993	Best paper	Theory and review	17(3)	Orlikowski	1781
	Most cited			<i>Same</i>	
1994	Best paper	Research paper	18(3)	Hess & Kemerer	335
	Most cited	Theory and review	18(1)	Alavi	1468
1995	Best paper	Special issue paper	19(3)	Leidner & Jarvenpaa	1316
	Best paper	Research paper	19(2)	Mukhopadhyay, Kekre, & Kalathur	1097
	Most cited	Theory and review	19(2)	Compeau & Higgins	5535
1996	Best paper	Theory and review	20(2)	Hitt & Brynjolfsson	1909
	Most cited			<i>Same</i>	
1997	Best paper	Theory and review	21(2)	Ngwenyama & Lee	921
	Most cited	Research note	21(4)	Gefen & Straub	2320
1998	Best paper	Theory and review	22(2)	Kumar, van Dissel, & Bielli	406
	Most cited	Research paper	22(3)	Lacity & Willcocks	1210
1999	Best paper	Special issue paper	23(1)	Klein & Myers	5006
	Most cited			<i>Same</i>	
2000	Best paper	Research paper	24(4)	Majchrzak, Rice, Malhotra, King, & Ba	992
	Most cited	Research paper	24(1)	Bharadwaj	4201
2001	Best paper	Theory and review	25(2)	Te'eni	506
	Most cited	Theory and review	25(1)	Alavi and Leidner	10295
2002	Best paper	Theory and review	26(4)	Jaspersen, Carte, Saunders, Butler, Croes, & Zheng	375
	Most cited	Research paper	26(3)	Ba & Pavlou	2260
2003	Best paper	Special issue paper	27(2)	Lamb & Kling	845
	Most cited	Research paper	27(3)	Venkatesh, Morris, Davis, & Davis	17941
2004	Best paper	Research paper	28(4)	Swanson & Ramiller	764
	Most cited	Research essay	28(1)	Hevner, March, Park, & Ram	9243
2005	Best paper	Research paper	29(3)	Lapointe & Rivard	990
	Most cited	Special issue paper	29(1)	Wasko & Faraj	4215
2006	Best paper	Special issue paper	30(SI)	Markus, Steinfield, Wigand, & Minton	304
	Most cited	Research essay	30(3)	Gregor	2172
2007	Best paper	Research paper	31(4)	Burton-Jones & Gallivan	383
	Most cited	Research paper	31(1)	Liang, Saraf, Hu, & Xue	1911
2008	Best paper	Theory and review	32(3)	Dennis, Fuller, & Valacich	847
	Most cited			<i>Same</i>	

the early citation period is a good indicator; and 3) we have reason to believe the ranking of the most cited paper in its yearly set would change over longer citation periods.

**Table 1. MISQ Best Papers and Most Cited Papers: 1993-2014 (Citation Counts as of July, 2017)**

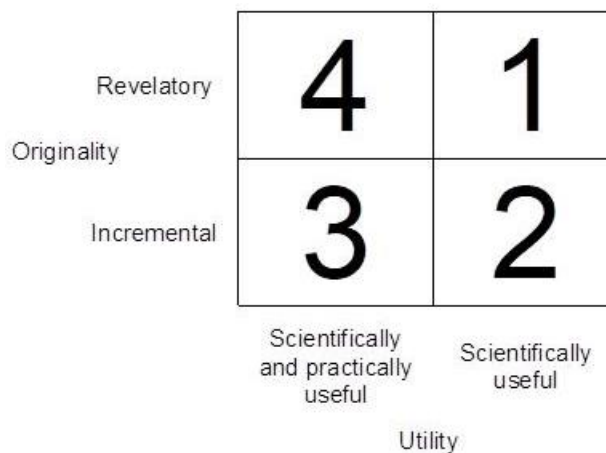
2009	Best paper	Research paper	33(3)	Cyr, Head, Larios, & Pan	331
	Most cited	Special issue paper	33(1)	Wetzels, Odekerken-Schroder, & van Oppen	1815
2010	Best paper	Special issue paper	34(3)	Abbasi, Zhang, Zimbra, Chen, & Nunamaker	88
	Most cited	Research note	34(1)	Mudambi & Schuff	1168
2011	Best paper	Research paper	35(1)	Leonardi	873
	Most cited	Research essay	35(1)	Sein, Henfridsson, Purao, Rossi, & Lindgren	813
2012	Best paper	Research paper	36(1)	Polites & Karahanna	228
	Most cited	Research note	36(1)	Venkatesh, Thong, & Xu	2155
2013	Best paper	Research paper	37(4)	Xu & Zhang	56
	Most cited	Research essay	37(2)	Gregor & Hevner	799
2014	Best paper	Research paper	38(4)	Chan & Ghose	64
	Most cited	Theory and review	38(1)	Kane, Alavi, Labianca, & Borgatti	379

As Appendix C shows, in the 22 years MISQ has presented its best paper award, only five papers recipients have also accrued enough citations to rank in the top five most cited papers for the year they received the award<sup>5</sup>. Such a large discrepancy indicates a lack of support for our hypothesis and is an interesting phenomenon worth researching: either the general community use different criteria to evaluate the papers or the papers' perceived value right after publication and further in the future differ.

Comparing citation magnitudes provides a simple and clear picture of the discrepancies between awards and citations. However, it does not explain the reasons behind these differences. Therefore, to further investigate the discrepancies, we examined these papers in terms of their contribution (theoretical and/or practical value) and their citation pattern over time.

### 3.2 Type of Contribution: Theoretical and Practical Contribution

To make it more appropriate for our study, we modified Corley and Gioia (2011) two-dimensional typology for contribution. Their 2 x 2 matrix comprises originality (revelatory vs. incremental) and utility (scientific vs. practical). Given that top journals in the IS field require a paper to have at least a low degree of scientific contribution (otherwise they would not have published the paper)<sup>6</sup>, we modified the utility dimension to as comprising "scientifically useful" and "scientifically and practically useful". Figure 1 shows the resulting matrix.



**Figure 1. Dimensions of Theoretical Contribution**

<sup>5</sup> In twenty-two years, five awarded papers are also one of the top five most cited in their years. Four of them are the most cited in their respective years.

<sup>6</sup> This is especially true as we assess the "best" papers from this journal.

Papers in cell one are revelatory in their nature and have scientific utility: they might be theoretical papers that provide new insights into a phenomenon. Papers in cell two extend existing models or theories and have limited practical utility. Papers in cell three also extend existing models and theories; however, the suggested changes have implications for practitioners. Lastly, cell four papers present new ideas or approaches that have both scientific and practical utility.

In the absence of clear objective criteria to assess originality and utility for each paper in our sample, we followed an inherently subjective process. As Rynes (2002, p. 311) states, “theoretical contribution along with quality and truth are subjective and can only be assessed in the context of each unique manuscript”. However, in order to mitigate subjectivity, we first developed a coding scheme based on research papers in the field (Corley & Gioia, 2011; Whetten, 1989). Initially, we developed four questions for each dimension. Next, two coders assigned one of the dimensions of originality and utility to the papers and compared the results. The agreement rate was not sufficiently high, which we attributed to the subjectivity in interpreting the coding scheme. The coders then discussed specific instances of disagreement and revised the questions. The coders used *MISQ*'s review form as an additional source for the questions. Appendix A presents the final coding scheme. After three rounds of coding, discussion, and revision, the interrater reliability (Cohen's  $\kappa$ ), increased to 0.901 (95% CI, 0.806 to 0.996,  $p < .001$ ). The coders resolved strong disagreements in four cases out of 82 via extensively discussing the papers and their contribution and by reflecting on specific parts of the papers. Table 2 displays the results.

**Table 2. Results of the Coding Procedures**

Year	Accolade	Author(s)	Originality	Utility
1993	Best paper	Orlikowski	Revelatory	Scientific and practical
	Most cited	<i>Same</i>		
1994	Best paper	Hess & Kemerer	Incremental	Scientific and practical
	Most cited	Alavi	Incremental	Scientific
1995	Best paper	Leidner & Jarvenpaa	Incremental	Scientific
	Best paper	Mukhopadhyay, Kekre, & Kalathur	Incremental	Scientific and practical
	Most cited	Iacovou, Benbasat, & Dexter	Revelatory	Scientific and practical
1996	Best paper	Hitt & Brynjolfsson	Revelatory	Scientific and practical
	Most cited	<i>Same</i>		
1997	Best paper	Ngwenyama & Lee	Revelatory	Scientific
	Most cited	Gefen & Straub	Incremental	Scientific and practical
1998	Best paper	Kumar, van Dissel, & Bielli	Revelatory	Scientific
	Most cited	Lacity & Willcocks	Incremental	Scientific and practical
1999	Best paper	Klein & Myers	Revelatory	Scientific
	Most cited	<i>Same</i>		
2000	Best paper	Majchrzak, Rice, Malhotra, King, & Ba	Revelatory	Scientific and practical
	Most cited	Bharadwaj	Revelatory	Scientific and practical
2001	Best paper	Te'eni	Incremental	Scientific and practical
	Most cited	Alavi & Leidner	Incremental	Scientific
2002	Best paper	Jasperson, Carte, Saunders, Butler, Croes, & Zheng	Revelatory	Scientific
	Most cited	Ba & Pavlou	Incremental	Scientific and practical
2003	Best paper	Lamb & Kling	Revelatory	Scientific
	Most cited	Venkatesh, Morris, Davis, & Davis	Incremental	Scientific
2004	Best paper	Swanson & Ramiller	Revelatory	Scientific
	Most cited	Hevner, March, Park, & Ram	Incremental	Scientific
2005	Best paper	Lapointe & Rivard	Revelatory	Scientific and practical
	Most cited	Wasko & Faraj	Revelatory	Scientific and practical
2006	Best paper	Markus, Steinfield, Wigand, & Minton	Revelatory	Scientific

**Table 2. Results of the Coding Procedures**

	Most cited	Gregor	Incremental	Scientific
2007	Best paper	Burton-Jones & Gallivan	Revelatory	Scientific
	Most cited	Liang, Saraf, Hu, & Xue	Revelatory	Scientific and practical
2008	Best paper	Dennis, Fuller, & Valacich	Revelatory	Scientific and practical
	Most cited	<i>Same</i>		
2009	Best paper	Cyr, Head, Larios, & Pan	Revelatory	Scientific and practical
	Most cited	Wetzels, Odekerken-Schroder, & van Oppen	Incremental	Scientific
2010	Best paper	Abbasi, Zhang, Zimbra, Chen, & Nunamaker	Revelatory	Scientific and practical
	Most cited	Mudambi & Schuff	Incremental	Scientific and practical
2011	Best paper	Leonardi	Revelatory	Scientific
	Most cited	Sein, Henfridsson, Purao, Rossi, & Lindgren	Incremental	Scientific
2012	Best paper	Polites & Karahanna	Revelatory	Scientific and practical
	Most cited	Venkatesh, Thong, & Xu	Incremental	Scientific and practical
2013	Best paper	Xu & Zhang	Incremental	Scientific and practical
	Most cited	Gregor & Hevner	Incremental	Scientific
2014	Best paper	Chan & Ghose	Revelatory	Scientific and practical
	Most cited	Kane, Alavi, Labianca, & Borgatti	Incremental	Scientific and practical

### 3.3 Pattern of Contribution: Citations over Time

Obviously, one reason for the discrepancy in opinions lies in the difficulty in assessing current and future value. To further examine why only four award-winning papers also received the most citations for their particular year, we collected additional data on citation patterns over time. In order to establish existing citation patterns of published IS papers, we collected yearly data on every paper that *MISQ* published from 2000 to 2014. From these 271 papers, we studied citation patterns over time and classified them into four distinct patterns: steady increase, fluctuated increase, steady decrease, and fluctuated decrease. Appendix B presents examples of papers from each of the pattern cluster.

Two coders then classified the most cited<sup>7</sup> and award papers (in Table 1) into one of the clusters. Table 3 shows the results of this coding procedure. We used a minimum term of eight years in order to detect a distinct pattern in each case. Note that our data for earlier years engender more confidence in the pattern<sup>8</sup>.

<sup>7</sup> Comparing award-winning papers to top five most cited papers versus the one most cited paper of the year produced only one additional match. Thus, in order to keep the sample sizes of the two groups equal, we examined only the first most cited paper of the year as a representation of the whole sample.

<sup>8</sup> Because of the fewer data points with younger papers, the citation patterns for papers published after 2010 may feature bias. However, Davis and Cochran (2015) found that most scholarly papers have around a six-year half-life, which suggests that the eight-year period should be sufficient to obtain a distinct pattern.



**Table 3. Citation Patterns of the Papers Examined in the Study**

Year	Accolade	Author(s)	Citation pattern
1993	Best paper	Orlikowski	Steady increase
	Most cited	<i>Same</i>	
1994	Best paper	Hess & Kemerer	Fluctuated decrease
	Most cited	Alavi	Fluctuated increase
1995	Best paper	Leidner & Jarvenpaa	Fluctuated decrease
	Best paper	Mukhopadhyay, Kekre, & Kalathur	Fluctuated decrease
	Most cited	Iacovou, Benbasat, & Dexter	Steady increase
1996	Best paper	Hitt & Brynjolfsson	Fluctuated increase
	Most cited	<i>Same</i>	
1997	Best paper	Ngwenyama & Lee	Fluctuated increase
	Most cited	Gefen & Straub	Steady increase
1998	Best paper	Kumar, van Dissel, & Bielli	Fluctuated decrease
	Most cited	Lacity & Willcocks	Fluctuated increase
1999	Best paper	Klein & Myers	Steady increase
	Most cited	<i>Same</i>	
2000	Best paper	Majchrzak, Rice, Malhotra, King, & Ba	Fluctuated increase
	Most cited	Bharadwaj	Steady increase
2001	Best paper	Te'eni	Fluctuated increase
	Most cited	Alavi & Leidner	Steady increase
2002	Best paper	Jaspersen, Carte, Saunders, Butler, Croes, & Zheng	Fluctuated increase
	Most cited	Ba & Pavlou	Steady increase
2003	Best paper	Lamb & Kling	Fluctuated decrease
	Most cited	Venkatesh, Morris, Davis, & Davis	Steady increase
2004	Best paper	Swanson & Ramiller	Fluctuated increase
	Most cited	Hevner, March, Park, & Ram	Steady increase
2005	Best paper	Lapointe & Rivard	Fluctuated increase
	Most cited	Wasko & Faraj	Steady increase
2006	Best paper	Markus, Steinfield, Wigand, & Minton	Fluctuated increase
	Most cited	Gregor	Steady increase
2007	Best paper	Burton-Jones & Gallivan	Fluctuated increase
	Most cited	Liang, Saraf, Hu, & Xue	Steady increase
2008	Best paper	Dennis, Fuller, & Valacich	Steady increase
	Most cited	<i>Same</i>	
2009	Best paper	Cyr, Head, Larios, & Pan	Fluctuated increase
	Most cited	Wetzels, Odekerken-Schroder, & van Oppen	Steady increase
2010	Best paper	Abbasi, Zhang, Zimbra, Chen, & Nunamaker	Fluctuated increase
	Most cited	Mudambi & Schuff	Steady increase
2011	Best paper	Leonardi	Steady increase
	Most cited	Sein, Henfridsson, Purao, Rossi, & Lindgren	Steady increase
2012	Best paper	Polites & Karahanna	Steady increase
	Most cited	Venkatesh, Thong, & Xu	Steady increase
2013	Best paper	Xu & Zhang	Steady increase
	Most cited	Gregor & Hevner	Steady increase
2014	Best paper	Chan & Ghose	Steady increase
	Most cited	Kane, Alavi, Labianca, & Borgatti	Steady increase

### 3.4 Data Analysis

In order to examine the difference in most cited versus award papers, we classified the papers based on three independent variables: originality of the paper (measured categorically as either revelatory or incremental), utility of the paper (scientific and practical, or just scientific), and citation pattern clusters (steady increase, fluctuated increase, steady decrease, and fluctuated decrease). We used the type of paper as our dependent variable with three categories: 1) paper of the year, 2) most cited paper, and 3) both paper of the year and most cited paper. In order to examine the differences between the three groups, we conducted multinomial logistic regression using the *mlogit* command in STATA 14.2. Table 4 presents the results of the data analysis, and we discuss them in Section 4.

**Table 4. Multinomial Logistic Regression of Types of Paper and Their Characteristics**

Variables	Categories	Coefficients	Robust standard errors	p-values	Odds ratio
<b>Best paper only</b>	(base outcome)				
<b>Most cited only</b>					
Intercept		2.989	1.164	0.01	19.860
Originality	Incremental	(base group)			
	Revelatory	-3.028	1.367	0.027	0.048
Utility	Scientifically useful only	(base group)			
	Scientifically and practically useful	0.116	1.011	0.909	1.123
	Steady increase	(base group)			
Citation pattern	Diminishing increase	-1.533	1.158	0.186	0.216
	Fluctuated increase	-3.526	1.293	0.006	0.029
	Fluctuated decrease	-20.242	1.458	0.000	0.000
<b>Best paper and most cited</b>					
Intercept		-15.698	1.393	0.000	0.000
Originality	Incremental	(base group)			
	Revelatory	15.478	1.235	0.000	5272655
Utility	Scientifically useful only	(base group)			
	Scientifically and practically useful	0.117	1.490	0.937	1.125
	Steady increase	(base group)			
Citation pattern	Diminishing increase	-17.340	1.875	0.000	0.000
	Fluctuated increase	-1.896	1.504	0.207	0.150
	Fluctuated decrease	-17.849	1.698	0.000	0.000

Note: pseudo log-likelihood = -19.811014, Wald  $\chi^2 = 1624.99$ , df = 10, n = 41, Prob >  $\chi^2 = 0.0000$ , pseudo  $R^2 = 0.4886$ .

## 4 Results

We set the “best paper only” group as the base outcome. The log likelihood of the model was -19.811. The Wald chi-square of 1624.99 with a p-value < 0.0001 shows that this model as a whole had a significantly better fit than an empty model. The results of the multinomial logistic regression show that, in terms of originality, most cited and award-winning work were significantly different ( $p = 0.027$ ). The odds ratio for a revelatory compared to an incremental paper was 0.048; that is, a revelatory paper, compared to an incremental paper, was 20.66 (1/0.048) times more likely to receive a best paper award than become most cited. We also found a significant difference between award-winning papers and those that were both award-winning papers and the most cited ( $p < 0.001$ ). Overall, 19 out of 41 papers were revelatory and 22 were incremental. However, of the 23 award-winning papers, 18 were revelatory and only five were incremental. Correspondingly, of the 22 most cited papers, only eight were revelatory (four of those were also best papers), while 14 were incremental<sup>9</sup>. In sum, most cited papers tended to be

<sup>9</sup> The difference in the number of papers is due to the fact that there were two papers awarded “Paper of the Year” status in 1995.

incremental, while award-winning papers were mostly revelatory. This finding provides one clear difference between award-winning and most cited papers.

As for the papers' utility, the results of the empirical analysis do not show any significant differences between most cited and award-winning papers. Lastly, citation pattern analysis did show significant variance among the samples of papers. Specifically, compared to papers that exhibited a steady increase pattern, papers that followed a fluctuated increase pattern had a significantly ( $p = 0.006$ ) increased odds (0.029) of belonging to the "paper of the year" group as opposed to the most cited group. Furthermore, the positive coefficient of the steady increase category in the most cited only group shows that steady increase was the most likely pattern that most cited papers exhibited. Taken together, the analysis shows that the award-winning papers most often exhibited the fluctuated increase pattern, while most cited papers generally tended to exhibit the steadily increasing pattern.

## 5 Discussion

Based on our analysis results, we can offer plausible explanations for the observed divergence between most cited and award-winning papers. Table 5 summarizes and illustrates the key findings. In sum, we found three key results:

- 1) Most cited papers were incremental and had a steadily increasing citation pattern.
- 2) Most award papers were revelatory and had fluctuated increase citation pattern.
- 3) Practical utility of the papers had no effect on awards and citations.

**Table 5. Key Findings**

Findings	Results	Examples
Most cited papers were incremental.	Fourteen out of 18 most cited papers were incremental.	Barki & Hartwick (1994)
Most cited papers had an increasing citation pattern.	Sixteen out of 18 most cited papers had steadily increasing citation patterns.	Compeau & Higgins (1995)
Most award papers were revelatory.	Fourteen out of 19 award papers were revelatory.	Ngwenyama & Lee (1997)
Award papers most often had a fluctuating citation pattern.	Nine out of 19 award papers had fluctuated increasing citation patterns.	Majchrzak, Rice, Malhotra, King, & Ba (2000)
Papers that are both awarded and one of the most cited were all revelatory.	Of the five papers that received an award and were among the top five most cited papers, all five were revelatory, but only three had both scientific and practical utility.	Orlikowski (1993)

So, what do our findings suggest? The first result seems to be a symptom of "platform effect" (i.e., the degree to which a specific subarea or topic of the IS field is popular among researchers for a certain extended period (more than one year)). As we mention above, most award-winning papers were revelatory in their nature: they provided some new and unexpected ideas or views or challenged the existing ways we look at things. In contrast, most of the most cited papers were cumulative (additive): they built on the field's existing theory and advanced it in theoretical or methodological manner. For instance, Swanson and Ramiller (2004), the paper of the year winner for 2004, brought a new concept into the innovation literature: mindful innovation. However, Gefen and Straub (1997), the most cited paper in 1997, builds on one of the most widely discussed topics in IS: the technology acceptance model (TAM) (Venkatesh & Davis, 2000). Looking at the two examples above, we propose that such a drastic imbalance in citations among papers could reflect the "platform effect". Thus, the papers that add to the popular research areas or existing models have a potential to be cited more due to their popularity. At the same time, introducing a novel idea, such as a new construct of mindful innovation, takes time to spread among the field's participants and does not always receive recognition and acceptance. Therefore, the citation counts might not be as high as those for the papers that extend existing popular research topics<sup>10</sup>.

<sup>10</sup> While we discuss the "platform effect", we are aware of the limitation that occurs due to the nature of the data we collected and analyzed: a possible tautological relationship between the most cited papers and their citation pattern exists. Although it is possible that most cited papers would have a steadily increasing trend because of the fact that they received many citations to begin with, they do represent distinct traits. In addition, we observed that papers could achieve a high number of citations in as little as three to

This explanation is viable for the differences in citation patterns as well: while a constant steady increase in the number of yearly citations for the most cited papers represented by the steady increase pattern results from the high popularity of certain topics and their sustained importance in the field, the fluctuated increase pattern illustrates how new or contradictory ideas evolve in the IS field: they take time to gain popularity and, thus, garner a lower number of overall citations. Further, the fluctuating pattern shows significant variation, which shows how a topic can gain popularity during some years but wane during other periods.

We might also explain the second result with the “novelty effect”: the degree to which novelty creates uncertainty in assessing impact. It seems that the criteria that guide the field’s senior editors and other well-respected researchers to nominate and choose *MISQ*’s paper of the year differ from those that most researchers use to choose which paper to cite in their own work. Editors (as evident from the results) tend to look for novelty in award-winning papers. However, the community receives these novel papers with some degree of uncertainty because they may not readily fit into any existing knowledge schema; hence, the hesitant pattern of citations. The research community tends to cite and is more certain about value of incremental work that builds on existing schemas, which explains the steadier upward pattern of citations for the most cited papers.

We did not expect the third result. Many academics in the field maintain a strong position on the importance of practical utility in academic papers (Baskerville & Myers, 2002; Benbasat & Zmud, 1999). However, major journals and their review processes seem to prefer academic rigor over relevance to practice. Indeed, we can see as much in the community in that awards give high credence to theoretical quality (rigor) and researchers cite highly cited papers more for the inputs they can provide to theory or method rather than their contribution to praxis.

## 6 Implications

Our results suggest that the IS field exhibits a dichotomy in how it treats incremental and novel research: the community rewards incremental but predictable research with citations and research with more novelty but also uncertainty with awards. On one hand, this dichotomy can be healthy: researchers can engage in portfolios with different mixes of incrementalism depending on their interests and capabilities. If the field chooses to promote more novel theorizing as researchers have recently called for (e.g., Baskerville & Myers, 2002; Grover & Lyytinen, 2015; Truex, Holmstrom, & Keil, 2006), the field may produce papers that are not as highly cited and that have an uncertain impact. We can look at such a situation as potentially beneficial but, at its extreme, also harmful. On the one hand, research runs the possibility of pushing novelty for the sake of novelty (Rai, 2016) and of over-reaching in studying trendy evolving technologies might limit the field’s ability to create sustainable cumulative knowledge. After all, novel ideas by definition start new streams or platforms of research, and too many platforms that fizzle out may not foster a robust field. On the other hand, too much incrementalism—which some researchers currently criticize the IS field for—may yield healthy citations and cumulative platform research but produce research that follows scripts and misses important questions that the field needs to address (Grover & Lyytinen, 2015). The results of this research show that most IS research belongs in this category.

These problems do not apply only to our field. In management, top-tier journals put researchers in a metaphoric “straightjacket” that only allows topics that fit neatly with today’s popular theories (Miller, 2007; Miller, Greenwood, & Prakash, 2009). Similarly, our results suggest that individual researchers evaluate novelty highly but that the field rewards incrementalism with citations.

In sum, our findings show that the IS field over the past 22 years has done outstanding research but not adequately led practice. Researchers have proposed several remedies that we agree with. Some suggest that the institutional structure of IS should be open to data-driven research and blue ocean theorizing (Grover & Lyytinen, 2015). Others suggest an expedited review process may increase academics’

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five years (e.g., the most cited paper of 2006 achieved 63% of its total citation in five years). We have attempted to overcome this limitation by observing citation patterns for the papers during a eight-year period, which is longer than an average half-life of the literature (Davis & Cochran, 2015). In addition, we did not observe a diminishing number of citations in the older papers, which could have been a potential problem as well.

exposure to current and future technological environments (Benbasat & Zmud, 1999). We believe the field is attempting to move in these directions (Rai, 2016).

As a field, we are at a unique stage. Accelerating advances in IS can fuel novel research with groundbreaking implications. Social media, mobile technologies, machine learning, cloud computing, big data, and so on are changing the way people interact with technologies. Individuals are constantly connected to technologies, and, in return, organizations are constantly capturing streams of data about them. Along with this change in the human-machine relationship, technologically adept users, or digital natives, are challenging assumptions about the needs, roles, and processes for IS development and IS use. Given the evolving technological landscape, we hope that this study sheds some light on the kinds of papers that the IS field gives awards to and cites so we can better determine the appropriate criteria needed to both assess and drive research in order to advance the field.

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## Appendix A: Coding Scheme

Table A1. Coding Scheme

Dimension	Questions	Criteria
Originality	1) Does the paper challenge an existing concept/variable/construct or introduce a novel concept/variable/construct? (Whetten (1989)—what)	If the answer to any two of the questions 1 through 3, or question 4, or question 5 is <b>yes</b> , then we coded the paper as <b>reveatory</b> , else we coded it as <b>incremental</b> .
	2) Does the paper challenge an existing causality/pattern/relationship or introduce a novel causality/pattern/relationship? (Whetten (1989)—how)	
	3) Does the paper challenge an existing theoretical perspective/explanation/logic or introduce a novel theoretical perspective/explanation/logic? (Whetten (1989)—why)	
	4) Does the paper challenge empirical literature, methods, IS professional issues, or IS body of knowledge, then proceeds to offer improvements?	
	5) Does the paper propose a metatheory?	
Scientific utility	6) Does the paper identify a clear research gap and suggest ways to close it?	If the answer to <b>any</b> of these questions is yes, then we coded the paper as <b>scientifically useful</b> .
	7) Does the paper identify specific ways future researchers can build on this research?	
	8) Does the paper focus on methodology/creation of the new instrument?	
	9) Does the paper focus introspectively on the IS field?	
Practical utility	10) Does the paper contribute to our understanding of current technological and organizational problems or challenges faced by IS or other practitioners?	If the answer to <b>any</b> of these questions is yes, then we coded the paper as <b>practically useful</b> .
	11) Does the paper help managers expand their understanding of specific work situations better?	
	12) Does the paper make specific recommendations for managers/employers/employees?	
	13) Does the paper offer specific ways of improving practice of organizations?	
	14) Does the paper offer specific ways to overcome problems in the practice?	



## Appendix B: Examples of Citation Pattern Clusters

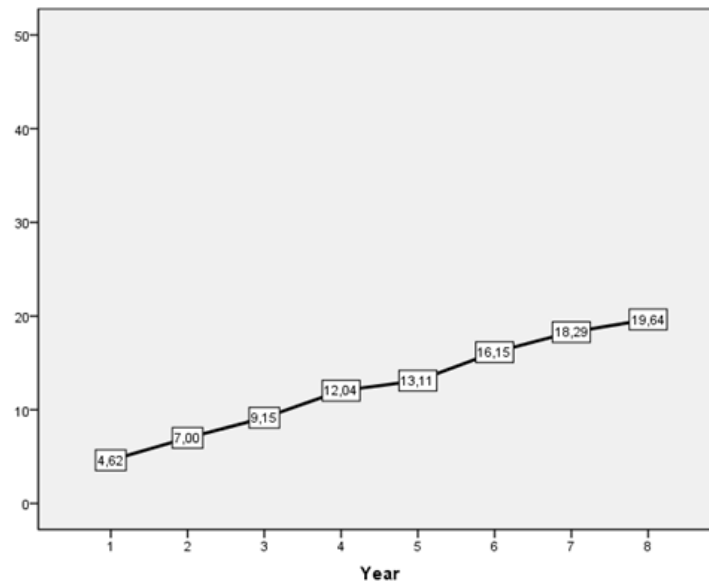


Figure B1. Steady Increase

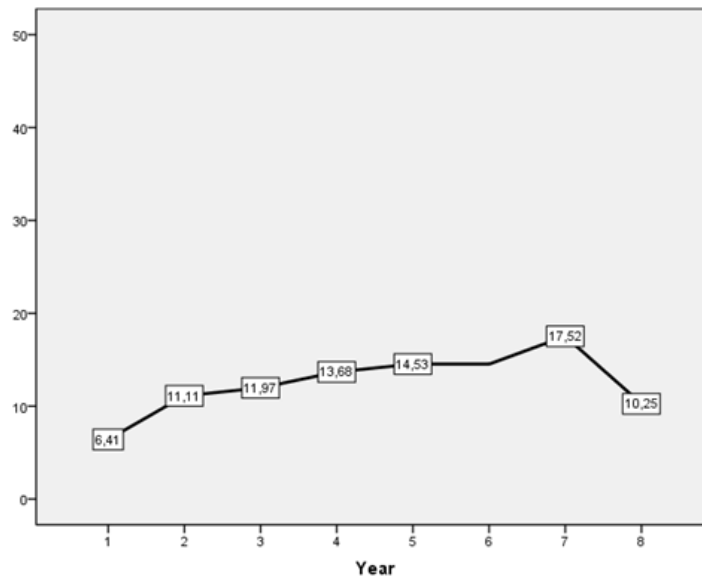


Figure B2. Diminishing Increase

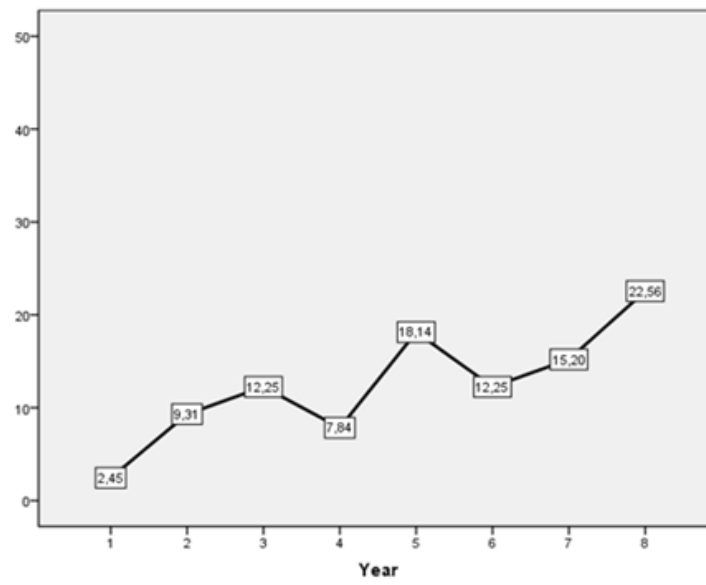


Figure B3. Fluctuated Increase

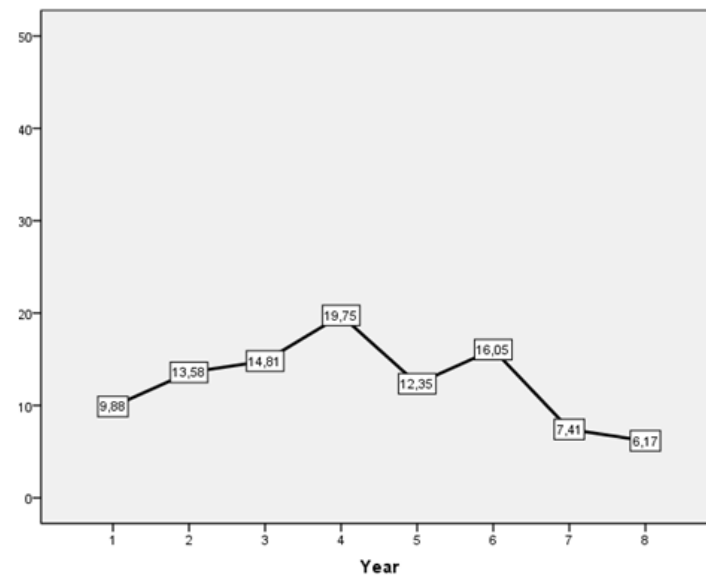


Figure B4. Fluctuated Decrease

## Appendix C: MISQ Best Papers and Top Five Most Cited Papers: 1993-2014 (Citation Counts as of July, 2017)

**Table C1. MISQ Best Papers and Top Five Most Cited Papers: 1993-2014 (Citation Counts as of July, 2017)**

Year	Accolade	Type of the paper	Vol(iss)	Author(s)	Google
1993	Best paper	Theory and Review	17(3)	Orlikowski	1781
	Most cited			<i>Same as best paper</i>	
	2nd	Research paper	17(1)	Earl	954
	3rd	Research paper	17(1)	Cragg & King	875
	4th	Theory and review	17(3)	Culnan	688
	5th	Research paper	17(4)	Chidambaram & Jones	425
1994	Best paper	Research paper	18(3)	Hess & Kemerer	335
	Most cited	Theory and review	18(1)	Alavi	1468
	2nd	Theory and review	18(1)	Barki & Hartwick	1092
	3rd	Theory and review	18(3)	Boynton, Zmud, & Jacobs	899
	4th	Research note	18(4)	Doll, Xia, & Torkzadeh	892
	5th	Theory and review	18(2)	Lee	892
1995	Best paper	Special issue paper	19(3)	Leidner & Jarvenpaa	1316
	Best paper	Research paper	19(2)	Mukhopadhyay, Kekre, & Kalathur	1097
	Most cited	Theory and review	19(2)	Compeau & Higgins	5535
	2nd	Theory and review	19(2)	Goodhue & Thompson	4139
	3rd	Research note	19(4)	Taylor & Todd	2787
	4th	Research paper	19(4)	Iacovou, Benbasat, & Dexter	2606
	5th	Theory and review	19(4)	Mata, Fuerst, & Barney	2555
1996	Best paper	Theory and review	20(2)	Hitt & Brynjolfsson	1909
	Most cited			<i>Same as best paper</i>	
	2nd	Theory and review	20(2)	Smith, Milberg, & Burke	1546
	3rd	Theory and review	20(3)	Kumar & van Dissel	1157
	4th	Research note	20(2)	Brancheau, Janz, & Wetherbe	1027
	5th	Theory and review	20(4)	Nelson & Coopride	1020
1997	Best paper	Theory and review	21(2)	Ngwenyama & Lee	921
	Most cited	Research note	21(4)	Gefen & Straub	2320
	2nd	Theory and review	21(3)	Igbaria, Zinatelli, Cragg, & Cavaye	1886
	3rd	Research paper	21(1)	Kettinger, Teng, & Guha	1144
	4th	Theory and review	21(1)	Chau & Tam	969
	5th			<i>Same as best paper</i>	
1998	Best paper	Theory and review	22(2)	Kumar, van Dissel, & Bielli	406
	Most cited	Research paper	22(3)	Lacity & Willcocks	1210
	2nd	Theory and review	22(3)	Zigurs & Buckland	1046
	3rd	Research paper	22(4)	Straub & Welke	1039
	4th	Research note	22(4)	Ang & Straub	903
	5th	Theory and review	22(2)	Segars & Grover	838
1999	Best paper	Special issue paper	23(1)	Klein & Myers	5006
	Most cited			<i>Same as best paper</i>	---
	2nd	Research paper	23(2)	Karahanna, Straub, & Chervany	3551
	3rd	Research note	23(2)	Compeau, Higgins, & Huff	2396

**Table C1. MISQ Best Papers and Top Five Most Cited Papers: 1993-2014 (Citation Counts as of July, 2017)**

	4th	Research paper	23(2)	Venkatesh	1617
	5th	Research paper	23(2)	Sambamurthy & Zmud	1117
2000	Best paper	Research paper	24(4)	Majchrzak, Rice, Malhotra, King, & Ba	992
	Most cited	Research paper	24(1)	Bharadwaj	4201
	2nd	Research Paper	24(1)	Venkatesh & Morris	3796
	3rd	Research Paper	24(4)	Agarwal & Karahanna	3541
	4th	Research Paper	24(1)	Reich & Benbasat	1470
	5th	Research paper	24(2)	Keil, Tan, Wei, Saarinen, Tuunainen, & Wassenaar	1121
2001	Best paper	Theory and review	25(2)	Te'eni	506
	Most cited	Theory and review	25(1)	Alavi & Leidner	10295
	2nd	Research paper	25(3)	Bhattacharjee	4414
	3rd	Research paper	25(4)	Piccoli, Ahmad, & Ives	1582
	4th	Research paper	25(1)	Wixom & Watson	1421
	5th	Research paper	25(1)	Venkatesh & Brown.	1233
2002	Best paper	Theory and review	26(4)	Jasperson, Carte, Saunders, Butler, Croes, & Zheng	375
	Most cited	Research paper	26(3)	Ba & Pavlou	2260
	2nd	Special issue paper	26(3)	Markus, Majchrzak, & Gasser	1167
	3rd	Research paper	26(2)	Chatterjee, Grewal, & Sambamurthy	883
	4th	Research paper	26(3)	Schultze & Leidner	739
	5th	Research note	26(4)	Thatcher & Perrewe	640
2003	Best paper	Special issue paper	27(2)	Lamb & Kling	845
	Most cited	Research paper	27(3)	Venkatesh, Morris, Davis, & Davis	17941
	2nd	Research paper	27(1)	Gefen, Karahanna, & Straub	5752
	3rd	Special issue paper	27(2)	Sambamurthy, Bharadwaj, & Grover	2238
	4th	Issues and opinions	27(2)	Benbasat & Zmud	1481
	5th	Research paper	27(1)	Teo, Wei, & Benbasat	1380
2004	Best paper	Research paper	28(4)	Swanson & Ramiller	764
	Most cited	Research essay	28(1)	Hevner, March, Park, & Ram	9243
	2nd	Theory and review	28(2)	Melville, Kraemer, & Gurbaxani	2932
	3rd	Research note	28(4)	Van der Heijden	2436
	4th	Theory and review	28(1)	Wade & Hulland	2298
	5th	Research Paper	28(2)	Bhattacharjee & Premkumar	1324
2005	Best paper	Research paper	29(3)	Lapointe & Rivard	990
	Most cited	Special issue paper	29(1)	Wasko & Faraj	4215
	2nd	Special issue paper	29(1)	Bock, Zmud, Kim, & Lee	3501
	3rd	Special issue paper	29(1)	Kankanhalli, Tan, & Wei	2358
	4th	Special issue paper	29(1)	Ko, Kirsch, & King	1256
	5th	Research paper	29(3)	Jasperson, Carter, & Zmud	1227
2006	Best paper	Special issue paper	30(SI)	Markus, Steinfield, Wigand, & Minton	304
	Most cited	Research essay	30(3)	Gregor	2172
	2nd	Research paper	30(1)	Pavlou & Fygenson	1948
	3rd	Research note	30(2)	Rai, Patnayakuni, & Seth	1316
	4th	Theory and review	30(2)	Leidner & Kayworth	1233

**Table C1. MISQ Best Papers and Top Five Most Cited Papers: 1993-2014 (Citation Counts as of July, 2017)**

	5th	Issues and opinions	30(3)	Fitzgerald	801
2007	Best paper	Research paper	31(4)	Burton-Jones & Gallivan	383
	Most cited	Research paper	31(1)	Liang, Saraf, Hu, & Xue	1911
	2nd	Research essay	31(4)	Petter, Straub, & Rai	1901
	3rd	Research paper	31(1)	Pavlou, Liang, & Xue	1310
	4th	Research paper	31(4)	Limayem, Hirt, & Cheung	1121
	5th	Theory and review	31(1)	Xiao & Benbasat	648
2008	Best paper	Theory and review	32(3)	Dennis, Fuller, & Valacich	847
	Most cited			<i>Same as best paper</i>	---
	2nd	Theory and review	32(1)	Jones & Karsten	573
	3rd	Special issue paper	32(2)	Dibbern, Winkler, & Heinzl	494
	4th	Special issue paper	32(2)	Levina & Vaast	493
	5th	Research paper	32(1)	Hsieh, Rai, & Keil	489
2009	Best paper	Research paper	33(3)	Cyr, Head, Larios, & Pan	331
	Most cited	Special issue paper	33(1)	Wetzels, Odekerken-Schroder, & van Oppen	1815
	2nd	Research essay	33(4)	Cenfetelli & Bassellier	651
	3rd	Research note	33(3)	Kim & Kankanhalli	583
	4th	Research paper	33(2)	Angst & Agarwal	567
	5th	Research paper	33(1)	Goo, Kishore, Rao, & Nam	442
2010	Best paper	Special issue paper	34(3)	Abbasi, Zhang, Zimbra, Chen, & Nunamaker	88
	Most cited	Research note	34(1)	Mudambi & Schuff	1168
	2nd	Special issue paper	34(3)	Bulgurcu, Cavusoglu, & Benbasat	856
	3rd	Issues and opinions	34(1)	Melville	778
	4th	Issues and opinions	34(1)	Watson, Boudreau, & Chen	744
	5th	Special issue paper	34(3)	Johnston & Warkentin	561
2011	Best paper	Research paper	35(1)	Leonardi	873
	Most cited	Research essay	35(1)	Sein, Henfridsson, Purao, Rossi, & Lindgren	813
	2nd	Research commentary	35(2)	MacKenzie, Podsakoff, & Podsakoff	858
	3rd	Theory and review	35(4)	Smith, Dinev, & Xu	695
	4th	Research paper	35(1)	Leonardi	680
	5th	Theory and review	35(4)	Bélanger & Crossler	502
2012	Best paper	Research paper	36(1)	Polites & Karahanna	228
	Most cited	Research note	36(1)	Venkatesh, Thong, & Xu	2155
	2nd	Special issue paper	36(4)	Chen, Chiang, & Storey	2002
	3rd	Theory and review	36(2)	Von Krogh, Haefliger, Spaeth, & Wallin	287
	4th	Research note	36(1)	Mithas, Tafti, Bardhan, & Goh	283
	5th	Research paper	36(1)	Polites, & Karahanna	282
2013	Best paper	Research Paper	37(4)	Xu & Zhang	56
	Most cited	Research essay	37(2)	Gregor & Hevner	799
	2nd	Research paper	37(1)	Venkatesh, Brown, & Bala	764
	3rd	Research commentary	37(1)	Willison & Warkentin	201
	4th	Special issue paper	37(3)	Henfridsson & Bygstad	184
	5th	Special issue paper	37(2)	Oestreicher-Singer & Zalmanson	174
2014	Best paper	Research paper	38(4)	Chan & Ghose	64
	Most cited	Theory and review	38(1)	Kane, Alavi, Labianca, & Borgatti	379

**Table C1. MISQ Best Papers and Top Five Most Cited Papers: 1993-2014 (Citation Counts as of July, 2017)**

2nd	Research paper	38(2)	Yin, Bond, & Zhang	183
3rd	Issues and opinions	38(2)	Fichman, Dos Santos, & Zheng	149
4th	Research paper	38(2)	Fang, Qureshi, Sun, McCole, Ramsey, & Lim	140
5th	Research paper	38(1)	Tsai & Bagozzi	139

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