

A Profile of Information Systems Research Published in *Information & Management*

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Abstract:

Information & Management (I&M) has been consistently regarded as one of the top academic journals in information systems (IS). In a spirit of introspection, this article profiles research published in I&M: we identified the most productive authors and universities associated with most research publications in I&M during the past 13 years (1992–2005). Based on a more detailed analysis of publications during the past 7 years, we determined the subject areas most often investigated and the research methodologies most often employed. Finally, we identified best practices by way of reporting the topics and methodologies used by the highly published authors. Our results indicate that while IS research is clearly dominated by US based universities, international researchers are beginning to make inroads. Furthermore, while the survey methodology is still dominant, interest in utilizing other methodologies is on the rise. Our findings should have implications for researchers, journal editors, universities, and research institutions.

Keywords: IS research; Meta analysis; Productive authors; Research methodologies; IS topics; Research universities

Article:

1. Introduction

MIS and IS are parts of a young and unique field, constantly experiencing rapid change and turmoil. As a field of study, it is characterized by diversity because of the many problems it addresses, its theoretical foundations, its reference disciplines, and the methods used in investigating it. Therefore, it is useful for IS researchers and the field itself to examine the major research issues considered and its trends. For this very reason, from time to time, investigators have conducted meta-research as a way periodically to report on IS research.

Information & Management (I&M) is regarded as one of the top academic journals in IS research [13,17]. It has a long tradition: it started publication 28 years ago, in 1978. Therefore, in the spirit of introspection, this article profiles our research. The analysis provides the I&M audience with an overview of research published in the journal, helping them develop an appreciation of it and the various topics considered worthy of research and publication. At the same time, I&M is a highly respected long-standing top journal with international reach and diversity in many aspects such as authors, reviewers, and topics. This examination should therefore lead to a broader understanding of IS research by the entire research community.

Three types of analyses have been reported in the literature when examining past research: research topics and themes [1,6,7,9,18], research methodologies [5,10,12,15,16], productive authors and universities [2,11,14]. In the same vein, this article analyzes publication trends in Information and Management and has a few objectives:

1. to identify the most productive authors;
2. to identify the universities associated with the most research publications;
3. to determine the topics most often investigated, and analyze their trends;

4. to identify the most applied research methodologies and their trends;
5. to identify best practices, by examining the subject areas and methodologies preference of the most productive authors.

2. Method

We conducted extensive content analysis of past issues of I&M. Given the need for massive data collection, we used a two-pronged approach to capture both the breadth and depth of data. We felt a need for collection over a long period of more data that can be readily gleaned from the title page of each article. This enabled us to capture data on authors and universities quite accurately. Therefore, all articles between 1992 and 2005 were selected, a total of 768 articles. The ending year of 2005 obviously included the most current full year of data. The choice of the beginning year of 1992, allowed us to analyze a substantial period of IS research.

For detailed analysis, we focused on a more manageable number of articles using the more recent 7-year period from 1998 to 2005, resulting in 435 articles. Deeper content analysis was conducted on these, with each article carefully examined to capture the relevant data. While several items were recorded for each article, the two of most interest in this analysis are the subject area (the topic) and the research methodology used by the author. This method is different from Claver et al., who examined only the information on the articles in the ABI/INFORM database. While the keywords and abstract can provide clues to the subject area and methodology, our examination indicated that this was not always accurate, especially in identifying the research topic and its methodology.

Table 1
Methodologies in IS research

Number	Methodology	Definition
1	Speculation/commentary	Research that derives from thinly supported arguments or opinions with little or no empirical evidence
2	Frameworks and conceptual model	Research that intends to develop a framework or a conceptual model
3	Library research	Research that is based mainly on the review of existing literature
4	Literature analysis	Research that critiques, analyzes, and extends existing literature and attempts to build new groundwork, e.g., it includes meta analysis
5	Case study	Study of a single phenomenon (e.g., an application, a technology, a decision) in an organization over a logical time frame
6	Survey	Research that uses predefined and structured questionnaires to capture data from individuals. Normally, the questionnaires are mailed (now, fax and electronic means are also used)
7	Field study	Study of single or multiple and related processes/phenomena in single or multiple organizations
8	Field experiment	Research in organizational setting that manipulates and controls the various experimental variables and subjects
9	Laboratory experiment	Research in a simulated laboratory environment that manipulates and controls the various experimental variables and subjects
10	Mathematical model	An analytical (e.g., formulaic, econometric or optimization model) or a descriptive (e.g., simulation) model is developed for the phenomenon under study
11	Qualitative research	Qualitative research methods are designed to help understand people and the social and cultural contexts within which they live. These methods include ethnography, action research, case research, interpretive studies, and examination of documents and texts
12	Interview	Research in which information is obtained by asking respondents questions directly. The questions may be loosely defined, and the responses may be open-ended
13	Secondary data	A study that utilizes existing organizational and business data, e.g., financial and accounting reports, archival data, published statistics, etc
14	Content analysis	A method of analysis in which text (notes) are systematically examined by identifying and grouping themes and coding, classifying and developing categories

The starting point for subject areas was the Barki, Rivard, and Talbot [3] classification scheme. This presents the most comprehensive classification of MIS topics and has been used in previous studies. The classification list contains seven levels. The first presents the broadest topic classification while each lower level refines the topic incrementally. The three top levels of the scheme were selected as the base for the subject classification in our study. Continual developments in IT have broadened the scope of MIS to include subjects that were not listed in the Barki, Rivard, and Talbot classification that was developed over 10 years ago. Therefore, the classification relied heavily on the scheme used by Palvia et al., which has thirty three subjects; of course, an article often deals with several subjects and we therefore, allowed for up to three subjects per article.

The classification scheme for research methodologies is shown in Table 1. Similar schemes have been used before. Similarly, articles may employ several methodologies, and therefore the coding allowed for up to two methodologies per article.

Table 2
Phase I inter-coder reliability

Coder	1	2	3
1			
2	94% (S), 65% (M)		
3	76% (S), 60% (M)	74% (S), 70% (M)	

Table 3
Phase II inter-coder reliability

Coder	1	2	3
1			
2	93% (S), 95% (M)		
3	92% (S), 90% (M)	89% (S), 100% (M)	

The articles were coded by three doctoral students over a period of 1 year. To ensure uniformity of coding and to reduce ambiguity, the coders were trained in the method as part of a seminar course on research methodologies. The inter-coder reliability was computed using a two-phase process. In phase I, the three students coded the same set of 50 articles independently. Table 2 presents the result of inter-coder reliability for these initial 50 articles for subjects (S) and methodologies (M). The inter-coder reliability was not at the 90% level recommended in the literature. However, S discussion of individual coding outcomes resulted in a consensus on the final coding scheme.

In phase II, the coders individually coded another set of 25 articles. Table 3 shows that they then achieved adequate inter-coder reliability. This method ensured that the coders were properly trained in the coding methodology and had a common understanding of the subjects and methodologies, thereby minimizing ambiguity in the coding process.

3. Results

The analysis of the data was divided into five parts. The first identified the most productive authors. The second lists the universities that have contributed most. The third and fourth capture the most researched subjects and the most commonly used methodologies. The fifth profiles the productive authors.

3.1. Productive authors

An analysis is made of the authors who were most productive in the 14-year period (1992–2005). This compilation should be viewed as indicative and not an authoritative declaration. As Claver et al. pointed out, we are aware that such analysis excludes important researchers because they might not have not published in I&M during the period of our analysis. Furthermore, the significance and impact of any single article was not assessed in our analysis. Therefore, attempts at ranking the authors should exercise due care and caution.

For assessing research productivity, the normal count approach was used. As pointed out in the literature, most observers use this approach, in which all publications naming the researcher are counted equally. For example, an article with four co-authors would provide one count for each. This method, however, results in the combined count of all authors being greater than the total number of articles.

For reporting purposes, we limited the number of articles to only those authors who had four or more publications during the period studied. Table 4 lists the resulting 33 authors, sorted by the number of publications, along with their current affiliation. Professor Igarria is on the top of the list, even though his publications stopped prematurely because of his untimely death in 2002. The top 10 authors with seven or more publications are: Magid Igarria, Milam W. Aiken, Vincent S. Lai, Gary Klien, Varun Grover, James J. Jiang, Prashant C. Palvia, Thompson S.H. Teo, Patrick Y.K. Chau, and Gholamreza Torkzadeh.

It is quite evident that authors from US universities have a greater presence in I&M. However, the existence of 12 authors (36%) from non-US universities shows a promising trend in the internationalization of IS research. This is certainly a welcome growth in the reach and acceptance of MIS research on an international scale. Thus Information & Management has been successful in attracting non-US authors. One area of concern is the low number of contributions from European researchers. Several reasons may account for this: the European community has many journals, the (perceived) inability of publishing in what are regarded as American

journals, the European emphasis on more qualitative methodologies, and the lack of integration among international researchers.

Table 4
Top 33 authors in *I&M* (1992–2005)

Author	Current affiliation	Count
Magid Igarbia ^a	Claremont Graduate University	13
Milam W. Aiken	University of Mississippi	12
Vincent S. Lai	The Chinese University of Hong Kong	11
Gary Klein	The University of Colorado at Colorado Springs	11
Varun Grover	Clemson University	10
James J. Jiang	University of Central Florida	10
Prashant C. Palvia	The University of North Carolina at Greensboro	9
Thompson S.H. Teo	National University of Singapore	8
Patrick Y.K. Chau	The University of Hong Kong	7
Gholamreza Torkzadeh	University of Nevada	7
Albert L. Lederer	University of Kentucky	6
William R. King	University of Pittsburgh	6
Sangjae Lee	Korea Advanced Institute of Science & Technology	6
William J. Doll	University of Toledo	6
Kwok-Kee Wei	National University of Singapore	5
Zahir Irani	Brunei University	5
Heeseok Lee	Korea Advanced Institute of Science & Technology	5
Bernard C.Y. Tan	National University of Singapore	5
Chang Liu	Northern Illinois University	5
Eldon Y. Li	California State Polytechnic University	5
Snehamay Banerjee	Rutgers University	5
Albert H. Segars	University of North Carolina at Chapel Hill	4
Peter E.D. Love	Edith Cowan University	4
Antonis C. Stylianou	University of North Carolina, Charlotte	4
Tor Guimaraes	Tennessee Technology University	4
Dale L. Goodhue	University of Georgia	4
Ingoo Han	Korea Advanced Institute of Science & Technology	4
Maris G. Martinsons	City University, China	4
Ashraf I. Shirani	San Jose State University	4
Youngohc Yoon	Southwest Missouri State University	4
Kirk P. Arnett	Mississippi State University	4
Ram L. Kumar	University of North Carolina, Charlotte	4
Nava Pliskin	Ben-Gurion University of the Negev, Israel	4

^a Dr. Igarbia passed away in 2002.

3.2. Leading research universities

Further analysis was conducted to determine the contribution of institutions and or universities. Since it is typical to have several researchers from the same university co-authoring an article, a raw count by the author's affiliation would result in multiple counts and therefore, adjustments were made so that a university having two or more authors on a single publication was counted only once. Table 5 lists the top 24 universities having 10 or more articles published in *I&M* during the period 1992–2005.

Once again our results should be regarded as indicative and not as a complete profile of university research. It is very likely that several universities have niches of research expertise that are not reflected in our results. Thus caution should be exercised in interpreting these results.

The top place in our compilation is occupied by the National University of Singapore, a non-US institution. In spite of our earlier caveats, this is indeed an important recognition. The next five places are held by University of Mississippi, City University of Hong Kong, University of South Carolina, and the Korea Advanced Institute of Science & Technology. Most of these schools and their faculty have solid reputation in IS research. While the table clearly shows a domination of US universities, there is a significant showing by non-US institutions: of a total of 24 universities, 8 are non-US. Once again European institutions are underrepresented; they do not appear in the top 24. This again may be due to the fundamental differences in the methodologies employed by European IS academics [4]. While North American research is based mainly on the positivistic traditions, European academics advocate greater pluralism that allow for qualitative and interpretive methods. It may also

show that Asian universities and researchers are more like their North American counterparts in terms of research traditions.

Table 5
Top 24 Universities published in *I&M* (1992–2005)

University	Count
National University of Singapore	52
University of Mississippi	28
City University of Hong Kong	27
University of South Carolina	24
Korea Advanced Institute of Science & Technology	21
Georgia State University	20
Drexel University	19
University of Texas at Arlington	19
The University of Memphis	18
Mississippi State University	17
University of Arizona	17
The Chinese University of Hong Kong	16
University of North Texas	16
The University of Toledo	15
Auburn University	14
University of Kentucky	14
University of North Carolina at Charlotte	14
University of Minnesota	13
The Hong Kong University of Science and Technology	12
The University of Hong Kong	10
National Chiao Tung University	10
Oakland University	10
National Chung Cheng University	10
University of Central Florida	10

Table 6
Topic frequency and percentage (1998–2005)

Name	Frequency	%
IS usage	103	13.98
Resource management/IS management issues	82	11.13
Electronic commerce/EDI	65	8.82
IS development/methods and tools	44	5.97
IS evaluation	37	5.02
Artificial intelligence/expert system/neural networks/knowledge management	35	4.75
Group decision support systems	33	4.48
Internet	31	4.21
IS research	26	3.53
Global information technology	21	2.85
End user computing	21	2.85
IS staffing	21	2.85
Organizational design/BPR/workflow systems	18	2.44
IS planning	17	2.31
IS implementation	16	2.17
Internal/external environment	16	2.17
Media and communications	16	2.17
Supply chain management (SCM)/ERP	15	2.04
IT value	15	2.04
Software/programming languages	14	1.90
Innovation	13	1.76
Decision support systems	13	1.76
IS function application	13	1.76
Networks/telecommunications	11	1.49
Databases/DBMS	10	1.36
Outsourcing	7	0.95
Multimedia	7	0.95
Security	7	0.95
Executive information systems	4	0.54
Theory of MIS	2	0.27
IS education	2	0.27
Customer relationship management (CRM)	2	0.27
Hardware	0	0
Total	737	100

3.3. Research topics

Table 6 shows the frequency, percentage, and the order of topics of research during the study period. The total count of all topic frequencies is higher than the total number of articles (435) for this period, simply because an article often dealt with multiple topics. Broad areas and macro management issues are at the top followed by specific micro level issues. The top two most researched topics in I&M were IS usage and resource management/IS management issues. It is no surprise that IS management is at the top, as many argue that MIS research refers to “Management of IS”. We believe that the high level of IS usage research was triggered by the enormous interest in IT diffusion research and the TAM published by Davis [8].

Listed third is electronic commerce/EDI. The high level of activity in this topic is due to the revolutionary changes made in the nature of IT with the emergence of the internet in the mid-nineties. In fact, research on internet issues and knowledge management are new areas that appeared only in the last few years. Towards the middle of the list are topics that are important to the management of IS and represent unique complexities for researchers. These are more specific in nature, and include decision support systems (DSS), IS staffing, business process reengineering (BPR), global information technology, and end user computing. This is consistent with the fact that these topics enjoy niches among researchers. For example, several researchers became interested in international issues of IT in the early 1990s. Now global information technology enjoys three niche journals (Journal of Global Information Technology Management, Journal of Global Information

Management, and Electronic Journal of Information Systems in Developing Countries). There is also now an international conference on it.

Table 7
Topic frequency trends (1998–2005)

Name	1998	1999	2000	2001	2002	2003	2004	2005	Total
Theory of MIS	0	1	1	0	0	0	0	0	2
Artificial intelligence/expert system/neural networks/knowledge management	7	4	2	3	3	5	4	7	35
Global information technology	3	0	2	7	6	6	5	4	33
Hardware	0	0	0	0	0	0	0	0	0
Software/programming languages	1	7	1	0	1	1	1	1	13
Networks/telecommunications	1	5	1	1	0	0	3	0	11
Internet	1	1	3	8	3	9	3	3	31
Electronic commerce/EDI	3	1	4	6	7	3	23	18	65
Multimedia	3	1	0	0	0	0	0	0	4
Databases/DBMS	1	1	1	2	2	4	0	2	13
Internal/external environment	2	2	1	1	0	5	4	0	15
Organizational design/BPR/workflow systems	3	3	1	3	3	3	2	3	21
Innovation	0	2	0	1	0	3	0	1	7
Resource management/IS management issues	3	9	8	8	9	10	22	13	82
IS planning	1	7	0	4	1	1	4	3	21
IS staffing	0	2	0	5	2	5	4	0	18
IS evaluation	0	4	3	4	7	9	5	5	37
Security	0	1	1	1	2	0	2	0	7
IS development/methods and tools	3	8	1	5	3	11	9	4	44
IS implementation	3	2	4	0	0	4	3	0	16
IS usage	14	8	1	13	11	17	20	19	103
End user computing	3	8	6	1	1	2	0	0	21
Executive information systems	2	1	0	0	1	3	0	0	7
Decision support systems	1	4	1	2	4	2	1	1	16
Group decision support systems	6	3	3	3	1	5	4	1	26
IS function application	1	0	0	3	3	3	2	2	14
IS education	0	0	0	0	1	1	0	0	2
IS research	0	3	3	1	1	2	1	2	13
Supply chain management (SCM)/ERP	0	0	0	0	4	6	5	2	17
Outsourcing	0	0	2	1	0	0	4	3	10
IT value	0	1	3	5	1	3	0	3	16
Media and communications	0	3	0	0	4	5	2	1	15
Customer relationship management (CRM)	0	1	0	0	0	0	0	1	2
Total									737

Towards the end of the list are topics like outsourcing, multimedia, customer relationship management, and security which are new topics and have either become the topic of new journals or not caught the attention of IS researchers. We believe there will be significant activity in some if not all of these in future at least among US researchers. The unabated outsourcing of IT activities and IT-supported business processes to countries like India and China and the ever increasing need for secure systems are forcing functions for this. One somewhat surprising finding is the low effort to produce a “Theory of MIS”—though calls for a theory have been repeatedly made.

3.4. Trends in research topics

Table 7 depicts trends in topics over the period of the study. Interesting insights can be obtained by analyzing this.

IS usage and resource management/IS management issues have been consistently considered over the study period. Upcoming areas include knowledge management, artificial intelligence applications, IS development, and global IT, and these topics have had more publications on the later years of the study.

It is interesting to note the emergence of Internet articles in 1998, their gradual rise until 2003, and then a decline. At the same time, research in Electronic Commerce has seen a steep rise. While internet articles related primary to the technology, the electronic commerce articles have focused on the application of the technology for individuals and business. Also of interest is the virtual absence of research in hardware and multimedia, and

low number of articles in CRM, software, and innovation. Worth noting is also the decline in the number of publications in areas like GDSS, end user computing, executive information systems, and DSS. It seems that many researchers have lost interest in these fields. Once again, these trends tell us only about research published in Information & Management, and what researchers are choosing to publish in this journal.

3.5. Research methodologies

The profile of methodologies employed by researchers during the study period in I&M is consistent with the findings of previous research. Table 8 presents the rank, frequency of use, and percentage of each methodology for the period 1998–2005. Again, because multiple methodologies were used in some articles, the total exceeds the total number of articles.

Table 8
Methodology ranks and frequencies

Methodology	Frequency	Percentage
Survey	199	41.54
Case study	47	9.81
Laboratory experiment	41	8.56
Field study	41	8.56
Frameworks and conceptual model	33	6.89
Interview	22	4.59
Literature analysis	22	4.59
Speculation/commentary	18	3.76
Mathematical model	18	3.76
Secondary data	15	3.13
Field experiment	10	2.09
Content analysis	8	1.67
Library research	4	0.84
Qualitative research	1	0.21
Total	479	100

As is evident from the above table, the survey methodology is the most used, far exceeding other methodologies. Ever since the beginning of IS research some 35–40 years ago, surveys have been used extensively. While the method is quite appropriate for descriptive studies, it is now being used for theory development and hypothesis testing. Surveys can attain high levels of external validity, however they are known to suffer from worldly richness, lack of control, and low internal validity. Qualitative methods, such as case research and field studies, allow the investigators to retain holistic and meaningful characteristics of real-life events [19] while experiments allow higher control and internal validity. It is heartening to note that these methodologies occupy second and fourth place rankings.

In the middle are methodologies like literature analysis, speculation and commentary, mathematical models, and secondary data. Literature analysis and meta research are useful in any evolving discipline, as they point to important trends and summarize research in various sub-areas. IS research is also affected by the exponential growth in technology and discontinuous breakthroughs (e.g., the internet), and insightful essays (speculative in nature) by visionaries are important to the discipline. There also exist communities of researchers who develop sophisticated mathematical models or specialize in analyzing secondary data (e.g., that available from the World Bank, International Social Survey Program, etc.).

The low positioning of content analysis, library research, and qualitative research (other than the case method) points to a preference towards the more established methodologies. The lower rankings can also be explained by the fact that IS is still a relatively new field and the lack of readily available and published secondary data poses constraints on researchers.

3.6. Trends in research methodologies

By analyzing the data year-by-year during the period of study, we found some interesting results. Overall, surveys and case studies have remained at the top of the preference list. However, survey methodology has seen

a decline during the last year. Field studies and case studies have remained at similar levels over last 2 years. Mathematical analysis has had an upward trend. However, through the years, some methodologies have become more frequently used while others fallen in use. Figs. 1 and 2 depict the trend in research methodologies usage over the study period.

3.7. Leading researcher profiles

It is instructive to examine the research profiles of leading authors. We looked at both the topics of their inquiry as well as the methodologies they used. There are at least two reasons for doing this: first, though arguable, is that it points to the “best practices” in IS research and second junior researchers and doctoral students benefit from knowing which areas are of interest to experts and where they may receive advice and assistance.

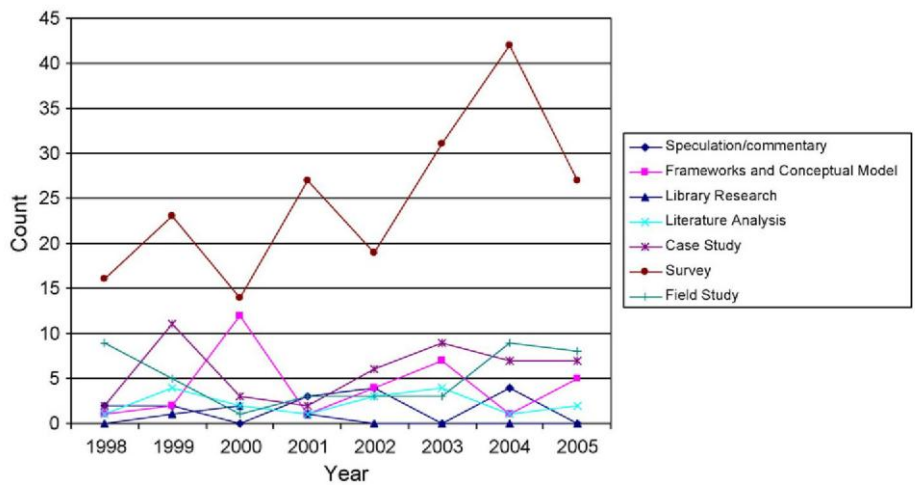


Fig. 1. Methodology trends over 1998-2005.

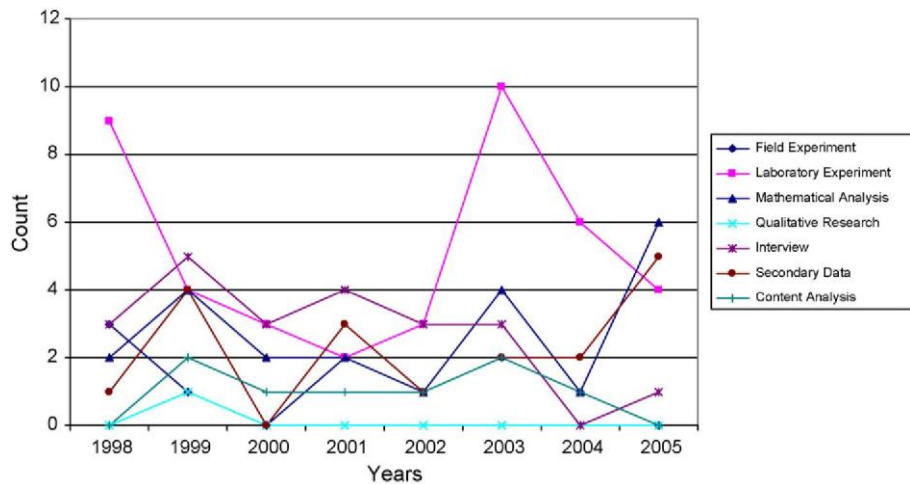


Fig. 2. Methodology trends over 1998-2005.

3.7.1. Topics of leading researchers

It is evident from Table 9 that most leading authors have conducted research on fundamental and traditional IS topics such as IS usage, resource management, IS planning, and IS staffing. This can be attributed to the fact that as a relatively new field, most of the IS research efforts have been directed to establishing a core body of knowledge. However, some leading researchers have staked new ground. One of these is “IS Research”, i.e., investigating the nature of IS research itself. Vincent Lai, Varun Grover, and Gholamreza Torkzadeh are associated with such research; their efforts have provided a valuable service to the community by consolidating previous work and directing the nature of future research. Upcoming areas like electronic commerce have seen

some work from Patrick Y.K. Chau, Sangjae Lee, Chang Liu, Snehamay Banerjee, Ingoo Han, and Kirk P. Arnett.

Another new area is global information technology; researchers who have been active in this field are Magid Igbaria, Prashant C. Palvia, Maris G. Martinsons, Antonis C. Stylianou, and Nava Pliskin. Group Decision Support Systems has been the domain of inquiry for Milam W. Aiken, Kwok-Kee Wei, Bernard C.Y. Tan, and Ashraf I. Shirani. Gholamreza Torkzadeh and William J. Doll are associated with end-user computing (EUC), especially with the development of instruments to measure EUC satisfaction.

When we compare the profiles of leading researchers with all of the topics listed in Table 6, a surprising finding emerges: the absence of subjects like knowledge management, supply chain management, and security. A possible explanation is that niche journals have been started to service these areas and also that such studies are being conducted and published by new and upcoming authors. Furthermore, the studies themselves may not have the requisite rigor necessary to merit publication in leading journals. However, we expect this situation to change.

Table 9
Top researched subjects by top 33 authors

Author	Current affiliation	Subjects researched
Magid Igbaria ^a	Claremont Graduate University	IS staffing, global information technology, resource management/IS management issues
Milam W. Aiken	University of Mississippi	Group decision support systems, media and communications, IS usage
Vincent S. Lai	Chinese University of Hong Kong	IS research, networks/telecommunications, IS usage
Gary Klien	University of Colorado at Colorado Springs	IS staffing, resource management/IS management issues, internal/external environment
Varun Grover	Clemson University	IS usage, IS evaluation, IS research
James J. Jiang	University of Central Florida	IS staffing, resource management/IS management issues, executive information systems
Prashant C. Palvia	University of North Carolina at Greensboro	Resource management/IS management issues, global information technology, IS usage
Thompson S.H. Teo	National University of Singapore	IS usage, internet, IS planning
Patrick Y.K. Chau	The University of Hong Kong	IS usage, resource management/IS management issues, electronic commerce/EDI
Gholamreza Torkzadeh	University of Nevada	End user computing, resource management/IS management issues, IS research
Albert L. Lederer	University of Kentucky	IS planning, resource management/IS management issues
William R. King	University of Pittsburgh	IS usage, resource management/IS management issues, outsourcing
Sangjai Lee	Korea Advanced Institute of Science & Technology	Electronic commerce, internet
William J. Doll	University of Toledo	End user computing, IS usage, resource management/IS management issues
Kwok-Kee Wei	National University of Singapore	Group decision support systems, resource management/IS management issues, innovation
Zahir Irani	Brunel University	IS evaluation, resource management/IS management issues
Heeseok Lee	Korea Advanced Institute of Science & Technology	End user computing, networks/telecommunications
Bernard C.Y. Tan	National University of Singapore	IS development/methods and tools, group decision support systems, IS management
Chang Liu	Northern Illinois University	Electronic commerce, IS usage
Eldon Y. Li	California State Polytechnic University	IS planning, resource management/IS management issues
Snehamay Banerjee	Rutgers University	Electronic commerce, IS evaluation
Albert H. Segars	University of North Carolina at Chapel Hill	IS evaluation, IS usage, resource management/IS Management issues
Peter E.D. Love	Edith Cowan University	IS evaluation, IS function application, resource management/IS management issues
Antonis C. Stylianou	University of North Carolina, Charlotte	Resource management/IS management issues, global IT
Tor Guimaraes	Tennessee Technology University	IS usage, resource management/IS management issues, IS staffing
Dale L. Goodhue	University of Georgia	Databases/DBMS, IS staffing, IS evaluation
Ingoo Han	Korea Advanced Institute of Science & Technology	IS evaluation, security, electronic commerce
Maris G. Martinsons	City University, China	Global IT, IS staffing
Ashraf I. Shirani	San Jose State University	Group decision support systems, media and communications
Youngohc Yoon	Southwest Missouri State University	Database/DBMS
Kirk P. Arnett	Mississippi State University	Electronic commerce
Ram L. Kumar	University of North Carolina, Charlotte	IS evaluation, resource management/IS management issues
Nava Pliskin	Ben-Gurion University of the Negev, Israel	Global IT, resource management/IS management issues, IS evaluation

^a Dr. Igbaria passed away in 2002.

Table 10
Preferred research methodology by top 33 authors

Author	Current affiliation	Most employed research methodology
Magid Igbaria ^a	Claremont Graduate University	Survey
Milam W. Aiken	University of Mississippi	Laboratory experiment
Vincent S. Lai	Chinese University of Hong Kong	Survey, case study
Gary Klien	University of Colorado at Colorado Springs	Survey
Varun Grover	Clemson University	Survey, literature analysis
James J. Jiang	University of Central Florida	Survey
Prashant C. Palvia	University of North Carolina at Greensboro	Survey, literature analysis
Thompson S.H. Teo	National University of Singapore	Survey, secondary data
Patrick Y.K. Chau	University of Hong Kong	Survey, interview
Gholamreza Torkzadeh	University of Nevada	Survey, field study
Albert L. Lederer	University of Kentucky	Survey
William R. King	University of Pittsburgh	Survey, frameworks and conceptual model
Sangjai Lee	Korea Advanced Institute of Science & Technology	Survey, mathematical analysis
William J. Doll	University of Toledo	Survey, field study
Kwok-Kee Wei	National University of Singapore	Laboratory experiment, survey
Zahir Irani	Brunel University	Survey, case study
Heeseok Lee	Korea Advanced Institute of Science & Technology	Survey, case study
Bernard C.Y. Tan	National University of Singapore	Field experiment, laboratory experiment
Chang Liu	Northern Illinois University	Survey
Eldon Y. Li	California State Polytechnic University	Survey, case study
Snehamay Banerjee	Rutgers University	Field experiment
Albert H. Segars	University of North Carolina at Chapel Hill	Survey, interview
Peter E.D. Love	Edith Cowan University	Survey
Antonis C. Stylianou	University of North Carolina, Charlotte	Field study, content analysis
Tor Guimaraes	Tennessee Technology University	Survey, field study
Dale L. Goodhue	University of Georgia	Case study, laboratory experiment
Ingoo Han	Korea Advanced Institute of Science & Technology	Survey, mathematical analysis
Maris G. Martinsons	City University, China	Survey, speculation/commentary
Ashraf I. Shirani	San Jose State University	Laboratory experiment
Youngohc Yoon	Southwest Missouri State University	Case study
Kirk P. Arnett	Mississippi State University	Frameworks and conceptual model
Ram L. Kumar	University of North Carolina, Charlotte	Survey, field study, field experiment
Nava Pliskin	Ben-Gurion University of the Negev, Israel	Survey

^a Dr. Igbaria passed away in 2002.

3.7.2. Methodologies used by leading researchers

The top methodologies employed by the leading authors are shown in Table 10. Survey is the preferred methodology of the vast majority. Twenty-five of the 33 authors, 77%, used the survey methodology for at least some of their research. Among qualitative methodologies, several have adopted a case study method; these include Vincent S. Lai, Zaheer Irani, Heesok Lee, Eldon Y. Li, Dale L. Goodhue, and Youngohc Yoon. Laboratory experiments were used by a few: Milam W. Aiken, Dale L. Goodhue, Kwok-Kee Wei, Bernard C.Y. Tan, and Ashraf I. Shirani.

It appears that the leading authors prefer the traditional and more established methodologies. This is corroborated by the fact that none of them used unconventional methodologies, such as the mathematical model, speculation/commentary, content analysis, library research, or qualitative research (other than for cases).

4. Summary and conclusion

In the tradition of cumulative research, we have updated an earlier article published in *Information & Management* [6]; it covered the period from 1981 to 1997. Continual self-introspection is useful for any field as it matures and thrives. The IS field is still relatively young and continues to show explosive growth. Our analysis provides a snapshot of the state of IS research. The trends show promising lines of inquiry as well as the ones that are neglected and in need of renewed attention. By looking at the work of leading researchers, we can learn and direct our own limited resources to best practice and fruitful lines of inquiry.

Most leading researchers have focused their attention on fundamental and traditional areas of research but there is also sufficient interest in mainstay and emerging topics. While the leading researchers have not necessarily delved into new areas, new and upcoming authors are writing about these subjects and perhaps doing so in new

and niche journals. Most of the research is published by US based researchers; however we also see evidence of increasing international participation.

The survey method is the predominant methodology used for conducting research, followed by case study and laboratory experiments. Ranked in the middle are methodologies like literature analysis, speculation and commentary, mathematical model, and secondary data; this meets the call for pluralistic approach to research. Methodologies which have not caught on include content analysis, library research, and qualitative research. There are several implications for researchers, journal editors, universities, and research institutions. First, the community can easily observe the role of leading authors: their research interests and preferred methodologies. This provides upcoming researchers with a bird's eye view of possible role models and an understanding of their scholarly mindset. Second, we do not advocate that all should follow the patterns of the leading men and women in the field but rather that research topics and methodologies neglected by them may be identified and of interest.

Finally, our recommendation to programs of research and journal editors is to encourage diversity in research in order to achieve an optimum balance.

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