Summer 6-1-2014

# A Comparative Study on MIS Research In Mainland China and Abroad (2002-2010)

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# A Comparative Study on MIS Research In Mainland China
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**Abstract:** Based on the literatures about induction and statistics MIS published in Mainland China and foreign journals from 2002 to 2010, this paper compares and analyzes the usual research topics, research methods and the authors in MIS research. It brings forward three aspects of differences between the domestic and foreign MIS research and gives three suggestions to advance domestic research, and hope the conclusion can be helpful for our future researchers.

Keywords: Management Information Systems, journals, research topics, research methods

## 1. INTRODUCTION

In the last two decades, Many foreign researchers have conducted studies on Management Information Systems (MIS), such as M. Alavi, P. Carlson, 1992[1]; E. Claver, R. Gonzalez, J. Llopis, 2000[2]; I. Vessey, V. Ramesh, Robert L. Glass, 2002[3]; Eppler. Martin, Mengis. Jeanne, 2004[4]; Ping Zhang, Na Li, 2005[5], Jones, Matthew R., Karsten, Helena, 2008[6], Sidorova, Anna, etal., 2008[7], Chiasson, Mike, etal., 2009[8]. These analyses are helpful to define the study trend.

In Mainland China, there are few papers focusing on the studies on MIS. One famous paper is "Review of information management and information system research in mainland China" (Donghui Yu, Lihua Huang, 2004). This paper discussed research status of information management and information systems from 1999 to 2002 in China and compared it with the result of "An analysis of research in Information Systems (1981-1997)" [2], and gave some valuable suggestions[9]. On the other hand, Shaobo Ji et al reviewed research in information systems(IS) in China in recent years and identified the similarities and the differences between North American and Chinese IS research from four perspectives: research discipline, research topics, research methods and unit and level of analysis in 2006[10]. In the same year, Daqing Zheng et al compared the disparities of MIS at home and abroad based on the samples selected from the renowned international conferences and major journals of IS in China[11]. Three years later Xianghua Lu et al reviewed current IS research about China which has been published in international IT/IS journals and conference proceeding from 1998 to 2007. Papers by Chinese and by overse as authors are compared in terms of research topics, research levels and methods[12].

This paper collected MIS literatures published in domestic and foreign journals from 2002 to 2010 and classified research topics and research strategies by number of publications. In a comparative analysis of current status of studies on MIS, we identified the problems in domestic research, and provided some suggestions to improve our level of research in MIS field.

## 2. DATA COLLECTION

### 2.1 Domestic data collection

There are almost no journals specializing in MIS currently in China. The MIS discipline mainly comes from Management Science and Computer Science[9]. We investigated the core journals about Management Science and Computer Science which some Chinese universities recommended, and finally narrowed it down to

seven journals. Among them, four journals, No.1 to No.4, tend to Management Science, and No.5 to No.7 tend to Computer science. We collected 1086 articles in all, among which 493 articles tend to Management Science and 593 articles tend to Computer science. The total number of articles is listed in Table 1. The articles focusing on management are fewer than that focusing on computer.

**Table 1.    The amount of articles in domestic journals**

| No | Journals | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Journal of management sciences in China | 14 | 16 | 6 | 9 | 8 | 8 | 9 | 12 | 21 | 103 |
| 2 | Journal of Industrial Engineering and Engineering Management | 29 | 15 | 10 | 12 | 7 | 5 | 15 | 19 | 17 | 129 |
| 3 | Systems Engineering-theory & Practice | 23 | 19 | 17 | 12 | 17 | 17 | 14 | 21 | 15 | 155 |
| 4 | Chinese Journal of Management Science | 20 | 6 | 10 | 12 | 6 | 9 | 20 | 10 | 13 | 106 |
| 5 | Computer Integrated Manufacturing Systems | 22 | 17 | 23 | 29 | 15 | 28 | 26 | 20 | 33 | 213 |
| 6 | Journal of Computer Applications | 14 | 11 | 10 | 13 | 12 | 14 | 15 | 11 | 9 | 109 |
| 7 | Application Research of Computers | 22 | 27 | 22 | 36 | 35 | 40 | 25 | 35 | 29 | 271 |
|  | Total | 144 | 111 | 98 | 123 | 100 | 121 | 124 | 128 | 137 | 1086 |

## 2.2  Foreign data collection

The most respected and prestigious journals specializing in the study of IS abroad include the following: Communications of the ACM, DataBase, Datamation, Decision Support Systems, Information & Management, Interfaces, Journal of Management Information Systems, Journal of Computer Information Systems, Journal of Systems Management and MIS Quarterly. There are also some journals which, though not specializing in IS, regularly publish articles related to the areas of: Academy of Management journal, Academy of Management Review, Administrative Science Quarterly, Decision Sciences, Harvard Business Review, Management Science, Omega, and Sloan Management Review[2].

According to the ranking on MIS-specialized journals provided by AIS[13] and K. Rainer, M. Miller[14], we have decided to focus on only three journals: MIS Quarterly(MISQ), Information Systems Research(ISR), and Journal of Management Information Systems(JMIS). We use EBSCO to search the articles between 2002 and 2010, and collected 675 articles in total in Table 2.

**Table 2.    The amount of articles in foreign journals**

| Journals | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MISQ | 16 | 22 | 24 | 25 | 21 | 30 | 23 | 32 | 20 | 213 |
| ISR | 25 | 18 | 20 | 13 | 12 | 21 | 17 | 21 | 25 | 172 |
| JMIS | 36 | 34 | 35 | 37 | 30 | 25 | 32 | 26 | 35 | 290 |
| Total | 77 | 74 | 79 | 75 | 63 | 76 | 72 | 79 | 80 | 675 |

## 3.  DATA ANALYSIS

The analysis of the articles was divided into three sections: the topics most often considered, the research methodology and the authors who have published the most.

### 3.1    Research topics

To deal with the classification of topics, we followed the sets used by E. Claver, R. Gonzalez, J. Llopis[2] and Richard L. Baskerville, Michael D. Myers [15]. Over all, we identified 34 different topics classified into five major groupings. These topics are presented in Table 3.

**Table 3.    MIS research topics**

| MIS Management | MIS Development | MIS Technologies | MIS Usages | Others |
|---|---|---|---|---|
| Strategic planning for MIS | MIS Development | Database/Data Warehouse | DSS/ GDSS | MIS research |
| MIS alignment/ organizational impact | MIS requirement Analysis | Artificial intelligence | ES | Others |
| MIS human resources | MIS architecture | The internet | Telecommuting | |
| MIS evaluation | MIS implementation | Other IT | Inter-organizational systems | |
| Using MIS for competitive advantage | Workflow | | MIS and small business | |
| MIS project management | | | EC | |
| MIS outsourcing | | | ERP | |
| MIS security and ethics | | | SCM | |
| IT management | | | CRM | |
| Information product pricing | | | KM | |
| Other management issues | | | BPR | |
| | | | Other MIS usages | |

The article's abstract, title, and keywords were the basic way to categorize an article as belonging to a particular topic. If impossible to classify an article, we included it in the Others group.

This paper categorized the domestic and foreign MIS research articles according to the topics above mentioned, and presented the three most frequent topics in each group in Table 4.

**Table 4.    Domestic and foreign MIS research three popular groups**

| Domestic research | | | Foreign research | | |
|---|---|---|---|---|---|
| Topics | No. | Percentage | Topics | No. | Percentage |
| MIS Usages | 580 | 53.41% | MIS Management | 321 | 47.56% |
| SCM | 180 | 16.57% | IT Management | 116 | 17.19% |
| EC | 112 | 10.31% | MIS evaluation | 59 | 8.74% |
| DSS/ GDSS | 72 | 6.63% | MIS security and ethics | 54 | 8.00% |
| MIS Development | 299 | 27.53% | MIS Usages | 204 | 30.22% |
| MIS Development | 136 | 12.52% | EC | 73 | 10.81% |
| Workflow | 90 | 8.29% | KM | 43 | 6.37% |
| MIS architecture | 51 | 4.70% | DSS/ GDSS | 18 | 2.67% |
| MIS Management | 118 | 10.87% | MIS Development | 58 | 8.59% |
| MIS PM | 27 | 2.49% | MIS Development | 30 | 4.44% |
| MIS evaluation | 26 | 2.39% | MIS requirement analysis | 13 | 1.93% |
| MIS outsourcing | 14 | 1.29% | MIS architecture | 9 | 1.33% |

- MIS usages (Domestic research, 53.41%)

In the past, studies were primarily focusing on OA, CAD, AIS, and so on. Now, more and more emphasis has been put on SCM, EC, DSS, the systems integrating all information resource. Studies on EC and SCM are gaining more attention due to the fact that these areas direclty impact an enterprise's competitive advantage. What's more, DSS/GDSS can assist decision-makers to analyze problems, to explore the decision-making methods and forecast, so it has been an important branch of information systems(IS) research in China.

 · MIS development (Domestic research, 27.53 %)

Most articles describe how to design and implement an MIS in certain fields, and some articles establish some models, architecture and so on. In addition, there have been more and more studies on the applications of workflow to enterprise reorganization, SCM, Agile Manufacturing and so on.

 · MIS management (Domestic research, 10.87 %)

Studies are concentrated on project management, system evaluation, and outsourcing. IT outsourcing has a lot of risks and challenges. Therefore, with China becoming the key region of IT outsourcing, domestic researchers pay greater attention to the study on such pattern.

The table 4 shows, the most popular topics in foreign researches:

 · MIS management (Foreign research, 47.56%)

These papers are mainly about investment, innovation, and application of IT. The studies on MIS evaluation mainly include customers' satisfaction, applying extent, implementation effect. With the rapid development of EC, security and ethics have become key issues as well.

 · MIS usages (Foreign research, 30.22 %)

The significance of articles dedicated to EC, and also to KM and DSS. KM has a profound impact on business management, especially impact on the existing MIS of enterprises, so exploring the application of KM in the traditional MIS mode is of great practical significance in recent years.

 · MIS development (Foreign research, 8.59%)

System development, requirement analysis and system architecture have been the topics of a considerable number of articles. Foreign authors not only value the development technology, but also take consideration of managing pattern and business requirement. MIS architecture will determines the essential characteristics of the system and affect the realization of its function, now more and more scholars have studied how to design the optimal architecture to manage the running of the system and help companies to achieve a more economical management quality.


### 3.2  Research strategies

The papesr can be classified as empirical and theoretical ones. Following M. Alavi and P. Carlson[1], we divided theoretical studies into conceptual, illustrative and applied concepts. According to the classical scheme elaborated by R. L. Van Horn[16], the empirical ones are classified as case studies, field studies, field experiments and laboratory experiments, as in table 5 and 6.

In China, majority of authors are focusing on theoretical studies (78%). They are based mainly on ideas, structures, and speculations. Some authors define framework, models, or theories and give justifications or explanations; some authors provide guidance on practice and offer recommendations for action or roadmap.

Foreign studies are more empirical (69%) vs. (31%) theoretical studies in table 6. Among the best-known theoretical studies are the illustrative, conceptual and applied concepts. In empirical studies, these articles also put forward hypothesis or proposition, or examine and correct the theories they proposed. In such studies, the most popular are the field studies (39%). According to V. S. Lai, R. K. Mahapatra[17], case studies are useful during the exploration stage of research, whereas the field studies require a deeper understanding of the phenomenon to be studied. Field study is, therefore, more suitable for more advanced research. Likewise, in J. T.

C. Teng and D. F. Galletta's paper[18], very few number of experiments were found compared to field or case studies.

**Table 5.    The amount of articles of domestic MIS research methodology**

| Research methodology | Domestic research | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | Total | **Percentage** |
| Theoretical studies | 131 | 97 | 78 | 90 | 79 | 73 | 95 | 107 | 98 | 848 | **78%** |
| Conceptual | 70 | 59 | 43 | 58 | 44 | 37 | 42 | 46 | 51 | 450 | **41%** |
| Illustrative | 36 | 21 | 16 | 19 | 20 | 28 | 36 | 38 | 32 | 246 | **23%** |
| Applied conceptual | 25 | 17 | 19 | 13 | 15 | 8 | 17 | 23 | 15 | 152 | **14%** |
| Empirical studies | 13 | 14 | 20 | 33 | 21 | 48 | 29 | 21 | 39 | 238 | **22%** |
| Case studies | 9 | 7 | 17 | 14 | 15 | 23 | 21 | 15 | 26 | 147 | **13%** |
| Field studies | 2 | 6 | 2 | 9 | 0 | 6 | 0 | 3 | 2 | 30 | **3%** |
| Field experiments | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0%** |
| Laboratory experiments | 2 | 1 | 1 | 10 | 6 | 19 | 8 | 3 | 11 | 61 | **6%** |
| Total | 144 | 111 | 98 | 123 | 100 | 121 | 124 | 128 | 137 | 1086 | |

**Table 6.    The amount of articles of foreign MIS research methodology**

| Research methodology | Foreign research | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | Total | Percentage |
| Theoretical studies | 18 | 23 | 23 | 28 | 16 | 26 | 21 | 23 | 30 | 208 | 31% |
| Conceptual | 9 | 5 | 7 | 11 | 6 | 12 | 7 | 4 | 8 | 69 | 10% |
| Illustrative | 9 | 17 | 10 | 15 | 9 | 11 | 14 | 16 | 17 | 118 | 18% |
| Applied conceptual | 0 | 1 | 6 | 2 | 1 | 3 | 0 | 3 | 5 | 21 | 3% |
| Empirical studies | 59 | 51 | 56 | 47 | 47 | 50 | 51 | 56 | 50 | 467 | 69% |
| Case studies | 7 | 8 | 7 | 9 | 11 | 15 | 9 | 9 | 13 | 88 | 13% |
| Field studies | 39 | 35 | 35 | 23 | 18 | 22 | 26 | 34 | 30 | 262 | 39% |
| Field experiments | 4 | 4 | 4 | 8 | 7 | 5 | 5 | 5 | 3 | 45 | 6% |
| Laboratory experiments | 9 | 4 | 10 | 7 | 11 | 8 | 11 | 8 | 4 | 72 | 11% |
| Total | 77 | 74 | 79 | 75 | 63 | 76 | 72 | 79 | 80 | 675 | 100% |

### 3.3   MAIN AUTHORS

This paper made an analysis of the authors who have the most publicastions (Tab1 and Tab2) between 2002 and 2010. This analysis reveals that there are a few universities leading the MIS field in China. These universities have obvious talent advantage, solid science research strength, and fruitful research achievements..

Table 7 analyzes the number of articles published individually by an author or by several authors. It shows the authors with the most articles published in foreign journals (Tab2).

As can be seen, Izak Benbasat and Kauffman. Robert J published most articles. The publication distribution among universities is relatively even.

**Table 7.    Authors with the most articles published in foreign journals**

| Authors | University | Articles |
|---|---|---|
| Izak Benbasat | Sauder School of Business, University of British Columbia, Canada | 15 |
| Kauffman. Robert J | Information Decision Sciences Department, Carlson School of Management, University of Minnesota | 15 |
| Andrew B. Whinston | Department of MSIS McCombs School of Business University of Texas at Austin | 10 |
| Jay F. Nunamaker Jr | Computer Science and Communication, University of Arizona, Tucson | 8 |
| Detmar W. Straub | Department of Computer Information Systems, J. Mack Robinson College of Business, Georgia State University | 8 |
| V. Sambamurthy | Information Technology Management, Eli Broad College of Business, Michigan State University | 7 |
| Sarv Devaraj | Management, University of Notre Dame | 5 |
| Rajiv Kohli | Management, University of Notre Dame | 5 |
| Tridas Mukhopadhyay | Carnegie Mellon University | 5 |
| David Gefen | MIS, Drexel University, Philadelphia | 4 |

## 4.    SUMMARY AND CONCLUSION

The comparative analysis of all the above mentioned journals during 2002 to 2010 shows the gap between Mainland China and foreign research from the three aspects.

- Research topics: domestic researchers tend to focus on traditional areas such as systems development and usages, while foreign researchers lay more emphasis on MIS management, such as such as IT Management, MIS evaluation and MIS security and ethics.
- Research strategies: domestic research focuses on conceptual theoretical studies. Foreign research pays more attention to empirical research over theoretical research, and the most popular empirical studies are field studies, followed by case studies and laboratory experiments.
- Authors: the achievements of MIS research are concentrated in a few universities in China. Also, we have some authors with the most articles published in foreign journals.

In order to shorten the gap between Mainland China and foreign research, we give the following suggestions to tackle the areas identified in our study. However, foreign level of MIS research is balanced, and the publication distribution among universities is relatively even.

- The success of MIS mainly depends on management, rather than technology. It is necessary to strengthen the study on MIS management. Our authors should combine the feature of Chinese firms, study principles and methods of conducting MIS research effectively. With the rapid development of Internet, the problems of security and ethics have become more prominent and we should start focusing on these topics.
- Domestic researchers should apply the scientific methodology and put forward the information engineering in firms.
- Domestic researchers also should reinforce communication and cooperation with foreign researchers, learn the advanced experiences, and study the condition of China and the actual environment of firms, construct MIS which fits with our status.

Because the data collection of this paper and the study strategy are limited, and only reflect the MIS research status to some extent, we could study more journals to make the result more comprehensive and precise in the future.

MIS research in China has made a lot of achievements during past decades, however, we are also facing

with many challenges. Therefore, we should explore and study with more bredth and depth.

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