



Vive les differences? Developing a profile of European information systems research as a basis for international comparisons

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Abstract

The information systems (IS) community is truly international, yet there is often a sense that different elements of the community have different profiles in terms of their research and publication expectations. This paper contributes to this discussion by developing a profile of European IS research that can be used as a basis for international comparisons. It reflects on European research on IS as presented during the first 10 years of the European Conference on Information Systems (ECIS). Based on an analysis of all papers published in the ECIS proceedings during the period 1993–2002, the paper presents the key characteristics of the ECIS conferences, together with a profile of European IS research activity as presented at ECIS. In particular, it highlights the key references and sources used by researchers presenting papers at ECIS. It articulates the research areas presented at ECIS and explores the claim that European IS draws more on social theories than elsewhere. Its contribution in presenting a profile of European research in the IS field lies in identifying particular characteristics of the European style of research that can be compared to that undertaken in other parts of the world.

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Introduction

The field of information systems (IS) research has been developing ever since the first commercial applications of information and communication technologies were introduced in the early 1950s (see Caminer *et al.* (1998); and Ferry (2003) for accounts of the world's first business computer, LEO, developed in the U.K. in 1951, running the first business applications software Glass (2005)). Arising initially from the field of computer science and developing through the application of concepts from cognate fields of study such as organisation science, operational research, management, strategy, psychology, systems thinking and the like (Buckingham *et al.*, 1987), interest in IS soon gained momentum. Technological and application developments of IS are traced in Somogyi & Galliers (1987) and are updated in Galliers & Leidner (2003, pp. 1–24).

Early U.S. journals dealing with aspects of IS included *Communications of the ACM* (first published in 1958), and as the academic field developed, *The Data Base for Advances in Information Systems* (1970), *MIS Quarterly* (1977), and more recently, the *Journal of Management Information Systems* (1984) and *Information Systems Research* (1990).

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In Europe, the academic field was somewhat slower to develop in terms of journals, with *Information & Management* (1963) leading the way. In the U.K., a number of journals emerged in the late 1980s and early 1990s, including *Journal of Information Technology* (first published in 1986), *Information Systems Journal* (known as *Journal of Information Systems* until 1994), *European Journal of Information Systems* and *Journal of Strategic Information Systems* (all appearing for the first time in 1991). Other important European journals, include the German language *Wirtschaftsinformatik* and the *Scandinavian Journal of Information Systems* (Mylonopoulos & Theoharakis, 2001).

Mirroring the introduction of journals, the first specifically IS conference – the annual *Scandinavian IS Research Seminar (IRIS)* – took place in 1978. (The more broadly focussed *Hawaii International Conference on System Sciences* predates IRIS by some 10 years, having celebrated its 40th anniversary in January 2007). The *International Conference on Information Systems (ICIS)* followed in 1980. More recently other regional conferences were also founded, including the *Australasian Conference on Information Systems (ACIS)*, the *Pacific Asia Conference on Information Systems (PACIS)* and, of course the *European Conference on Information Systems (ECIS)*.

The origins of ECIS can be traced back to two parallel initiatives to launch a conference for European researchers in IS. The first initiative was led by Professor Dan Remenyi, then at Henley Management College, with the second arising from discussions following the publication of the *European Journal of Information Systems* by the U.K.'s Operational Research Society. The editors of *EJIS* were based at the LSE at the time, and Edgar Whitley began working with the OR Society to organise a European conference that covered the same area as the new journal. Professor Frank Land learned of both initiatives and helped ensure that rather than duplicating work, the two initiatives merged and led to the first ECIS. This was held at Henley Management College in 1993. Frank Land was also closely involved in the formation of the ECIS standing committee (ECIS, 2007), which has responsibility for selecting forthcoming ECIS venues and for ensuring the ongoing success of the ECIS conferences. With the foundation of the *Association for Information Systems (AIS)* (AIS, 2007) in 1994, PACIS and ECIS were recognised as regional AIS conferences and the *Americas Conference on Information Systems (AMCIS)* was established to complement these already existing conferences. The U.K. Academy for Information Systems (UKAIS) was a separate but related development, and predated AIS by a year. Other, country-specific European IS associations include the French L'Association Information et Management (AIM), founded in 1991. In the German speaking world, the *Wirtschaftsinformatik* conference has been run biennially since the 1993 conference held in Münster.

Despite this increase in activity within the European IS academy, very little was known about the range of research interests and favoured journals for European

academics that can be used as a basis for international comparisons. This is in marked contrast to a long-standing tradition in the U.S. of analysis of the quality, standing of and citations in their journals (e.g., Davis, 1980; Hamilton & Ives, 1980; Nunamaker, 1980; Hamilton & Ives, 1982; Vogel & Wetherbe, 1984; Culnan, 1986; Culnan, 1987; Jackson & Nath, 1989; Gillenson & Stutz, 1991; Nord & Nord, 1995; Walstrom *et al.*, 1995; Hardgrave & Walstrom, 1997; Im *et al.*, 1998a, b; Walstrom & Leonard, 2000; Vessey *et al.*, 2002; Galliers & Meadows, 2003; Chen & Hirschheim, 2004).

Thus, far less is known about European IS research. Are there particular characteristics that differentiate European IS research from that done elsewhere? Do European researchers have different publishing and citation preferences? (see, e.g., Gallivan & Benbunan-Fich, 2007). Can European research be identified by its choice of research topics? Which institutions are most active in research? Where are most IS researchers located? How many IS researchers exist in Europe?

The aim of this paper is to begin to address these questions, and to build on the limited empirical work on the topic by developing a profile of European IS research that can form the basis for international comparisons. Earlier work in this area includes, for example, the first survey of European IS academics that took place in 1996 (Avgerou *et al.*, 1999), which followed a somewhat similar survey of the U.K. IS community some 2 years earlier (Galliers *et al.*, 1997). In addition, Nurminen (1997, 1999) has analysed the contributions to the IRIS conference during its formative stages (i.e., 1978–1981 and 1982–1988), Desq *et al.* (2002) and Peaucelle (2001) review the French language IS literature, and Iivari and Lyytinen (1999) provide an account of research on IS development in Scandinavia.

Moreover, there is an important temporal element to any such understanding of IS research. As a relatively young field, there are likely to be lag effects as new researchers join the field, as new conferences are formed and as new journals emerge with their own agendas. It is therefore important to appreciate the features of European IS research as they appear now, rather than as they were 10 years ago. Thus, the claims by Evaristo & Karahanna (1997) that there are few differences between North American and European IS research may well be skewed by the fact that they draw on data taken from between 1985 and 1990. Similar methodological concerns arise when drawing on the existing studies of North American publishing and citation preferences. For example, there is a strong issue of path dependency where later studies often base their samples on the journals and outlets presented in earlier research. Even assumptions about the most widespread and prestigious journals in the field (Nord & Nord, 1995; Claver *et al.*, 2000; Gallivan & Benbunan-Fich, 2007) may be problematic in the European context where computer science and systems development/implementation is often the main focus rather than the mainstream business issues

found in the U.S. field of MIS (see Avgerou *et al.* (1999) for details).

Since the first conference in 1993, ECIS has come to be the leading forum for European IS researchers to meet and present their work. As such, papers presented at ECIS offer a good proxy for understanding the state of European IS research. The paper is structured as follows. Following this introductory section, the paper presents the research method used in the construction of the database and the subsequent analysis of these data. This is followed by the presentation of our key findings thus far, helping to place European IS research in a global context, and identifying further research that might usefully be carried out. More detailed data are provided in the Appendices.

Research method

In developing this profile of European IS research, this paper reports on all the publications included in the proceedings of the first 10 years of ECIS conferences. In addition to the copies of the proceedings themselves, two main databases were used. The first was an Endnote library containing full bibliographic details of all ECIS papers. This was created using the Endnote libraries of ECIS proceedings made available by the ECIS standing committee (ECIS Endnote, 2007). This Endnote library was used to provide data for the second database, which recorded all the citation and institution data used in the analysis. The Endnote library was also used to identify the most frequent authors and to classify the research areas presented at ECIS. The second database was developed using Access and stored details of all ECIS papers, all the institutions (and their countries) associated with the papers. It also included a list of papers cited in the ECIS papers. Further details of the design of the database and how the database was populated are given in Appendix A. The data were analysed by running queries against the data, and the use of the relational database allowed for checking specific hypotheses and trends. Data checking measures are detailed in Appendix B.

In the next section, the basic profile of the ECIS papers is presented. This is followed by a more detailed analysis of the results and their implications for our understanding of European IS research.

Results: profile

Table C1 in Appendix C presents the locations of the first 10 ECIS conferences and their dates. There is a clear pattern for ECIS conferences being held around June, although there is some variation according to the academic calendar of the hosting institutions and other important dates (e.g., Midsummer celebrations in Scandinavia). ECIS has been hosted by institutions from 10 different countries during its first decade of existence, from as far afield as Cork in the Irish Republic in the North West, to Athens, Greece in the South East; from Gdansk, Poland in the North East, to Lisbon, Portugal in

the South West. From a relatively small conference in 1993 (Henley-on-Thames, England), with just 45 papers accepted for presentation, ECIS has grown to an average of 130 papers per conference over the first 10 years of its existence (see Table C2). The largest number of papers presented (205) was at the 2000 conference, held in Vienna, Austria.

ECIS's claim to be the leading conference for European IS researchers can be supported by the data presented in Table C3, which shows that – at least for Western Europe – by ECIS 1996 papers had been accepted from all major countries in the region. Interestingly, the expansion into Central and Eastern Europe, which can be seen with the first papers from Hungary, Latvia, Lithuania and Slovakia coincided with the hosting of ECIS in Central and Eastern Europe (Bled, Slovenia in 2001 and Gdansk, Poland in 2002).

There are few surprises when considering the number of authors per paper (see Table C4) with one or two authors per paper being the most common, accounting for two-thirds of all papers; nor with the fact that two-thirds of all papers have authors from one institution only (although a quarter of the papers have authors from two institutions, see Table C5). Less than 10% of the papers have three to five institutions represented, suggesting that there remains a relative lack of inter-institutional IS research in Europe, despite the disappearance of national frontiers in the European Union.

Twenty-six countries have had at least 10 papers published in ECIS over the first 10 years, with the U.K. having by far the largest proportion of papers, as can be seen from Table C6. Interestingly, the next largest contributors are Australia and the U.S.A., both of which are English speaking and are outside what might be considered to be the catchment area for ECIS. This trend can be partially explained by the fact that English is the language used at ECIS, and by considering the data in Table C7 that presents the number of papers by country over the first 10 years of ECIS. From this it can be seen that, whilst the U.K. has a consistently large number of papers at each conference, for Australia and the U.S.A. the patterns are more varied. For example, Australian participation has been far higher in the last 5 years than it was in the first 5 years, whereas American participation seems to have varied according to conference location, with a marked drop in 1999 (Copenhagen).

As Table C8 shows, there is considerable variation in the relationship between papers from a particular country and papers from particular institutions within a country. Thus, whilst Germany is fourth in the national rankings, no single German institution has more than 14 papers in ECIS, whereas Ireland, which is 12th overall, provides the third most frequent institution (University College, Cork – host of ECIS 1997). The U.K. is well represented, with the London School of Economics (LSE), the University of Warwick, the University of Salford and Brunel University, each accounting for more than 20 papers. Similarly, Denmark – in the form of Copenhagen Business School

and Aalborg University – accounts for 43 of the papers presented.

Thirty-eight authors have published six or more papers in ECIS over the years, with none publishing a paper in every conference (see Table C9). An institutional/country analysis is problematic for these data, as many of these authors have changed institution over the period. Five of the top six authors (in terms of the number of papers presented) come from the U.K. Germany provides two of the top 10 most prolific ECIS authors, while Ireland, Denmark and Australia each provide one.

Results: trends

One useful way of determining the characteristics of a research community is to consider its key citations. The analysis of the papers cited by ECIS authors shows some interesting patterns that strongly suggest that European researchers have a different research profile to those reported elsewhere (Culnan, 1986, 1987; Gillenson & Stutz, 1991; Nord & Nord, 1995; Claver *et al.*, 2000; Walstrom & Leonard, 2000). See also Whitley & Galliers (2007). Details of the means by which data were checked are given in the section Top cited items in Appendix B. Table 1 presents the most cited items.

Given the business-oriented focus of much IS research, it is perhaps unsurprising that over half of the items cited are focussed on business/strategy issues. More unusually, and perhaps more significantly, the large number of

citations to texts on research approaches (e.g., Yin on case studies; Walsham on interpretivist approaches) would indicate a high profile for such research methods and topics in Europe. Other significant features include the large number of citations of leading European Systems/IS researchers such as Checkland, Walsham and Earl. These individuals have been particularly influential on European IS research. Another distinctive feature is the citation of the social theorist Anthony Giddens, and his work on the constitution of society (Giddens, 1984). His book, bearing the same title, introduces structuration theory. Similarly, Zuboff's *In the Age of the Smart Machine* (Zuboff, 1988), which provides detailed ethnographic descriptions of 'informed' work practices, also appears in the list. It is also interesting to note the high proportion (74%) of books in this list.

When considering traditional sources for citations (i.e., leading journals and conferences), a further interesting pattern emerges, as can be seen from Table C10. Leading North American journals (*MIS Quarterly*, *Harvard Business Review* (HBR) and *Organisation Science*) account for over 40% of citations, while leading European journals (*Journal of Strategic IS*, *European Journal of IS*, *IS Journal* and *Journal of IT*) account for just 21% of citations – prior U.S. influence on European IS research is therefore considerable. Having said that, ECIS itself accounts for 11% of citations (ICIS accounts for just 5%), so papers

Table 1 Most cited sources

Rank	Count	Cited item
1	74	Yin RK (1989) <i>Case Study Research: Design and Methods</i> . Sage Publications, Newbury Park, CA
2	66	Walsham G (1993) <i>Interpreting Information Systems in Organisations</i> . John Wiley & Sons, Chichester.
3	63	Hammer M and Champy J (1993) <i>Reengineering the Corporation: A Manifesto for Business Revolution</i> . Harper Business, New York.
4	59	Porter ME and Millar VE (1985) How information gives you competitive advantage. <i>Harvard Business Review</i> 66(4), 149–160.
5	56	Earl MJ (1989) <i>Management Strategies for Information Technology</i> . Prentice Hall, London.
6	49	Checkland PB (1981) <i>Systems Thinking, Systems Practice</i> . Wiley, Chichester.
7	47	Scott-Morton M (Ed) (1991). <i>The Corporation of the 1990s: Information Technology and Organizational Transformation</i> . Oxford University Press, Oxford.
8	45	Davenport TH (1993) <i>Process Innovation: Reengineering Work Through Information Technology</i> . Harvard Business School Press, Boston, MA.
8	45	Hammer M (1990) Re-engineering work: don't automate obliterate. <i>Harvard Business Review</i> 68(4), 104–112.
10	42	Malone TJ, Yates J and Benjamin R (1987) Electronic Markets and Electronic Hierarchies. <i>Communications of the ACM</i> 30(6), 484–497.
10	42	Rogers EM (1995) <i>Diffusion of Innovations</i> . Free Press, New York.
12	36	Giddens A (1984) <i>The Constitution of Society</i> . Polity Press, Cambridge.
13	33	Cash JI and Konsynski B (1985) IS redraws competitive boundaries. <i>Harvard Business Review</i> 63(2), 134–142.
13	33	Nonaka I and Takeuchi H (1995) <i>The Knowledge-Creating Company: How Japanese Companies Create the Dynamics of Innovation</i> . Oxford University Press, Oxford.
13	33	Checkland P and Scholes J (1990) <i>Soft Systems Methodology in Action</i> . Wiley, Chichester.
16	31	DeLone WH and McLean ER (1995) Information systems success: the quest for the dependent variable. <i>Information Systems Research</i> 3(1), 60–95.
16	31	Porter ME (1985) <i>Competitive Advantage. Creating and Sustaining Superior Performance. Competition on the Internet: Aggregation Strategies</i> . The Free Press, New York.
18	30	Zuboff S (1988) <i>In the Age of the Smart Machine: The Future of Work and Power</i> . Basic Books, New York.
18	30	Porter ME (1980) <i>Competitive Strategy</i> . The Free Press, New York.

Table 2 Most frequently cited articles from common sources

Rank	Count	Text	Source
1	59	Porter & Millar (1985)	<i>Harvard Business Review</i>
2	45	Hammer (1990)	<i>Harvard Business Review</i>
3	33	Cash & Konsynski (1985)	<i>Harvard Business Review</i>
4	31	DeLone & McLean (1995)	<i>Information Systems Research</i>
5	29	Benbasat <i>et al.</i> (1987)	<i>MIS Quarterly</i>
6	28	Nonaka & Takeuchi (1995)	<i>Harvard Business Review</i>
7	25	McFarlan (1984)	<i>Harvard Business Review</i>
8	24	Orlikowski (1992a)	<i>Organization Science</i>
8	24	Nonaka (1994)	<i>Organization Science</i>
10	23	Orlikowski & Baroudi (1991)	<i>Information Systems Research</i>
11	21	Venkatraman (1994)	<i>Sloan Management Review</i>
12	19	Nolan (1979)	<i>Harvard Business Review</i>
13	18	Johnston & Vitale (1988)	<i>MIS Quarterly</i>
14	17	Galliers & Sutherland (1991)	<i>Information Systems Journal</i>
15	16	Galliers (1991)	<i>European Journal of Information Systems</i>
15	16	Orlikowski (1993a)	<i>The Information Society, Ltd.</i>
17	15	Farbey <i>et al.</i> (1992)	<i>Journal of Information Technology</i>
18	14	Niederman <i>et al.</i> (1991)	<i>MIS Quarterly</i>
19	13	Galliers (1990)	<i>IFIP 8.2 proceedings</i>
20	12	Willcocks (1992)	<i>Information Systems Journal</i>
20	12	Eason (1988)	<i>Journal of Information Technology</i>
20	12	Earl (1993)	<i>MIS Quarterly</i>
23	11	Jarvenpaa & Ives (1991)	<i>MIS Quarterly</i>
23	11	Orlikowski (1993)	<i>MIS Quarterly</i>
23	11	Swatman <i>et al.</i> (1994)	<i>Journal of Strategic Information Systems</i>
26	10	Davis (1989)	<i>MIS Quarterly</i>
26	10	Rockart (1979)	<i>Harvard Business Review</i>
26	10	Lee (1989)	<i>MIS Quarterly</i>
26	10	Newman & Robey (1992)	<i>MIS Quarterly</i>
26	10	Copeland & McKenney (1988)	<i>MIS Quarterly</i>
26	10	Barrett & Konsynski (1982)	<i>MIS Quarterly</i>
26	10	Galliers (1993)	<i>Journal of Information Technology</i>
26	10	Swatman & Swatman (1992)	<i>The Information Society</i>

cited in ECIS proceedings together with the above mentioned European journals combined account for practically one-third of the ECIS citations from common sources (cf. Gallivan & Benbunan-Fich, 2007).

In terms of specific articles from these sources (Table 2), once again the focus on methodology (e.g., (Benbasat *et al.*, 1987; Lee, 1989; Orlikowski & Baroudi, 1991) and business issues (e.g., Porter & Millar, 1985; Cash & Konsynski, 1985; Johnston & Vitale, 1988; Hammer, 1990; DeLone & McLean, 1995; Nonaka & Takeuchi, 1995) is noteworthy.

The research also looked at the research themes presented at ECIS over the period of study. In order to analyse the papers, the classification proposed by Banker & Kauffman (2004) was used. They analysed each paper, initially in terms of its title but also by examining the abstract and contents, to locate it within the classification. Most papers were easily placed in a single category but a few were located in more than one category. Banker & Kauffman (2004) propose 10 categories for IS research papers that appeared in *Management Science*. These are:

decision support and design science, value of information, human-computer systems design, IS organisation and strategy, economics of IS and IT, global and societal issues, electronic markets, inter-organisational issues, group decision making and creativity, IS research. These categories were developed further to more closely reflect the trends for ECIS with, for example, the value of information category being merged with executive and decision support systems, and the organisation and strategy category being merged with inter-organisation issues. The final categories used in this research are presented in Table C11.

Using this revised classification, we can see from Table 3 that the ECIS community tend to focus greater attention on social, organisational, strategic, economic and market aspects of IS than on the IT artefact and related development and human-computer interaction issues, in marked contrast to the claims in Benbasat & Zmud (2003), for example.

Table 4 shows how the overall patterns of research topics have varied over the first 10 years of ECIS.

Table 3 Papers by research topic

Year	Social	IS Org. and strategic	System dev.	DSS	Technology	Research issues	Economic	Human	Electronic markets
1993	7	22	3	6	4	6	2	2	2
1994	7	32	9	6	3	5	1	2	1
1995	10	39	12	25	7	8	3	9	5
1996	19	46	15	9	15	9	8	5	9
1997	17	55	15	16	11	14	4	6	11
1998	21	54	22	18	5	15	9	11	14
1999	10	38	11	14	4	10	2	2	10
2000	44	68	16	23	19	31	7	3	45
2001	29	20	9	0	0	17	12	0	0
2002	19	24	18	3	13	35	17	12	16
Total	183	398	130	120	81	150	65	52	113

Table 4 Percentages of papers in each research topic, by year

Year	Social (%)	IS Org. and strategic (%)	System Dev. (%)	Decision support systems (%)	Technology (%)	Research issues (%)	Economic (%)	Human (%)	Electronic markets (%)
1993	13	41	6	11	7	11	4	4	4
1994	11	48	14	9	5	8	2	3	2
1995	8	33	10	21	6	7	3	8	4
1996	14	34	11	7	11	7	6	4	7
1997	11	37	10	11	7	9	3	4	7
1998	12	32	13	11	3	9	5	7	8
1999	10	38	11	14	4	10	2	2	10
2000	17	27	6	9	7	12	3	1	18
2001	33	23	10	0	0	20	14	0	0
2002	12	15	11	2	8	22	11	8	10
Average	14	33	10	9	6	11	5	4	7

For example, there has been a steady growth of papers exploring the electronic markets that new technologies such as the internet enable, along with growth in economics-driven analyses of IS. In contrast, research in decision support systems topics – a dominant topic in the North American IS community over the years (Walstrom & Leonard, 2000) – declines in Europe in recent years. Also of note is the large clustering of research in broadly societal areas, suggesting that there is some truth in the belief that much European IS research is focussed on non-traditional organisational contexts (including education, e-government and non-profit organisations).

Another common belief about European IS research is that it draws heavily on what might be broadly classified as social theory. In order to explore this belief, the paper takes a method developed by Jones (2000) for analysing the social theory content of papers. He looks to see how many papers cite social theorists and how many different social theorists they cite (Appendix B MJI papers).

In the first 10 years of ECIS, 29% of the papers (335 papers) cite at least one social theorist, with the most popular social theory texts being given in Table 5.

Table 5 Most popular social theory sources

Rank	Count	Text
1	42	Rogers (1995)
2	36	Giddens (1984)
3	25	Williamson (1975)
4	23	Glaser & Strauss (1967)
5	20	Williamson (1985)
6	18	Strauss & Corbin (1990)
7	17	Berger & Luckmann (1966)
8	15	Coase (1937)
9	14	Burrell & Morgan (1979)
9	14	Latour (1987)
11	12	Polanyi (1966)
11	12	Polanyi (1973)
13	10	Habermas (1986)
13	10	Austin (1962)
13	10	Searle (1969)

Jones (2000) defines the social citation density (the 'Matthew Jones Index' (MJI)) as the sum of the number of distinct social theorists cited by each paper, divided by

Table 6 Number of papers citing social theory sources by country

Country name	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	Total
UK	1	8	12	13	16	16	10	18	17	7	118
Australia		1	2	2	1	5	2	11	10	9	43
Netherlands		4	5	2		5	2	4	3	1	26
Germany			1	4	3	1	1	10	2	3	25
USA	1	1	2	1	2	4			7	5	23
Sweden				1	1	5	2	3	4	6	22
Denmark		1	2	2	1		6	1	4	3	20
France		1	1	4	3	3		1		1	14
Ireland		1	1	4	1	1	3		1	1	13
Italy			2	1	4	1	1			4	13
Finland		1	1	1	3	1	1	1	1	1	11

Table 7 Proposed profile elements for comparing IS communities

Profile element	Description	ECIS profile
Contextual information	History of conference including location of conferences and number of papers presented	See Tables C1 and C2
International representation	Participation by country	See Tables C3, C6 and C7
Characteristics of the papers	Number of authors per paper, details of most prominent authors, number of institutions per paper, details of most prominent institutions	See Tables C4, C5, C8 and C9
Citations	Key sources used, top cited texts	See Tables 1, 2 and C10
Research topics	Distribution of papers by research topic	See Tables 3 and 4
Social theory	Use of social theory and representation by nationality	See Tables 5 and 6

the total number papers. Using this notation, the first 10 years of ECIS have a MJI of 0.53 (618 distinct authors mentioned in the papers). As a comparison, the journals *MIS Quarterly* and *JMIS* have a MJI of 0.05 for the period 1992–1999, during which period they published almost 400 papers, whereas IFIP working group 8.2 conferences have an average MJI of 2.1 between 1979 and 1999, during which period almost 300 papers were published.

Table 6 lists the number of social theory sources cited, by country, noting that papers may have authors from more than one country (the other countries represented are Canada (nine) Greece and Norway (seven), Switzerland (six), New Zealand and South Africa (five), Belgium (three), Hong Kong, Portugal, Singapore and Spain (two), Austria, Hungary, Iran, Russia, Slovenia and Taiwan (one)). The proportion of social theory papers is closely correlated to the total number of papers presented by authors from that country (0.71) with the U.K. providing proportionately more social theory papers and the U.S.A. proportionately fewer papers.

Given the far larger sample size for ECIS (over 1100 papers) and the breadth of topic coverage that this is likely to entail, this strongly suggests that European IS research draws far more heavily on social theory than 'mainstream' (i.e., U.S.-based) IS journals and is also strong in comparison to outlets that are more heavily focussed on social theory.

Conclusions

Table 7 lists the key characteristics of the ECIS community as presented in this paper. These are proposed as the elements of a research profile for IS research that can be used as the basis for international comparisons. For example, the ECIS profile could be compared with similar profiles developed for ICIS, PACIS and AMCIS (see, e.g., Chan *et al.*, 2006; Xu & Chau, 2006 on ICIS). Alternatively, the profile definition can be used to characterise the differences between different journals (or groups of journals). For example, how does the international representation and key citations of EJIS compare with those presented in *MIS Quarterly* or *IS Research*?

From this presentation of results it is apparent that there are significant patterns to European IS research, as evidenced through papers presented in the first 10 European Conferences on IS, and further, that some of these patterns are distinct from those in evidence in the North American IS research tradition. The data presented here can therefore form a basis for international comparisons. There is clearly much more analysis of the data required, including patterns of citation by institution and country, and research approaches adopted, as well as on-going analysis of the papers published in ECIS proceedings in years subsequent to the first 10 years of the conference. Such analyses will be the subject of future research.

We might expect, for example, given the high preponderance of citations of the work of Yin (1989) and Walsham (1993) that interpretivist and/or case study research will continue to represent something of a tradition in European IS research. It might also be of interest for analyses to take place of the AMCIS and PACIS conference proceedings using the profile of European IS research developed here as a basis, with a view to ascertaining whether there are distinctive features of the IS research being undertaken in these regions of the world.

Trend data might also be considered in more detail. For example, will the work of the likes of Checkland and Giddens remain seminal and timeless, or will we see other authors emerge on the scene? Will references to the work of Hammer and Davenport on BPR, or Porter on competitive advantage begin to become less frequently cited as time goes on? One might expect to see such trends as these, given the decline in the percentage of papers considering particular topics, as indicated in Table 4.

Notwithstanding these outstanding questions, the current paper gives an insight into some of the characteristics of European IS research, and suggests that the claims made by Evaristo & Karahanna (1997), for example, that there are few difference between North American and European IS research may well be mistaken.

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Appendix A

Database design and data entry

Figure A1 gives an overview of the database structure.

<i>ECIS Papers</i>	
* ECIS Paper ID	
Author	
Year	
Title	
<i>Paper Institution Link</i>	<i>Paper Citation Link</i>
ECIS Paper ID	ECIS Paper ID
Institution ID	Cited Paper ID
<i>Institution</i>	<i>Cited Papers</i>
* Institution ID	* Cited Paper ID
Institution Name	First Author
Country ID	Year
	Title
	Common Source ID
<i>Country</i>	<i>Common Source</i>
* Country ID	* Common Source ID
Country Name	Common Source Name

Figure A1 Database model.

The *ECIS Papers* table was populated using data from the Endnote library described above. To reduce data entry, the *Cited Papers* table was also initially populated with data from other Endnote libraries including tables of contents from leading IS journals and conferences (Journal Endnote, 2007). These cited papers were marked to indicate the *Common Source* that they came from (e.g., ECIS, EJIS, MISQ, etc.).

Data entry into the system was done through a web-based (ASP) interface by a team of Ph.D. and former M.Sc. students and consisted of linking *ECIS Papers* with *Cited Papers*. If an ECIS paper cited a paper (or anything else) that was not already listed in the *Cited Papers* table, then it was necessary to add the paper to the system. To minimise this data entry, only the first author, year and (abbreviated) title was entered. If the paper came from a *Common Source* this was also indicated in the database. A similar process was implemented for linking *ECIS Papers* with *Institution* and again, any new institutions were added to the system when they first arose.

For later years, the process was automated by taking the citation information directly from the pdf files of the proceedings. These were then matched against existing citations in the database – if the citation existed previously then the current paper was linked to the older version, if not the new cited paper and link were added to the database.

Although it should not be necessary to reenter *Cited Papers* or *Institutions* into the system, on occasion there was duplication of entries. Any duplicated entries were identified and replaced with a single, unique value. This was particularly the case with the citations taken directly from the pdf files. To address these cases, a 'link field' was created to link the various forms of the citations so that they all referred to the same thing. All queries were then based on the count of these link fields.

Institutions were also linked to *Country*, which was taken as a proxy for nationality of the author (thus a Greek academic based in a Swedish institution when submitting a paper for ECIS would be listed as Swedish for that year for analysis purposes). For each paper, only one instance of an institution would be listed against that paper (thus a paper with three authors from Institution A and two from Institution B would be listed as being linked once to both Institution A and Institution B rather than having three links to Institution A and two to Institution B).

Appendix B

Data checking measures

Top cited items In order to ensure that the top cited items were accurate, the database was carefully checked to ensure that different versions of the same paper were properly linked to refer to the same thing. So, for example, the Yin book on case studies has existed in various versions and editions. All these were linked together so that the total score for the Yin book is for all editions of the book. Similarly, care was taken when the same item appeared to be listed in two different years or with slightly different spellings. To ensure that nothing was missed, the top cited paper lists were checked to items that had five or more citations. A second query, excluding any papers cited by U.K. authors was done, to make sure lower scoring papers were not lost. Further checking was done to make sure that all the papers in Walstrom & Leonard's (2000) list of citation classics were properly linked, as were the authors in Jones' (2000) list of social theorists.

As the U.K. contributes almost a quarter of papers, the query for the top cited items was run again without any paper with any author from the U.K. The results are given in Table B1. As can be seen, the items in this list match those in the main list (although the rankings are slightly different)

Top common sources For most of the papers, tracking the common source was unproblematic as the database had been preloaded with marked records of all the papers published in these sources. However, the initial design of the database had not appreciated the importance of *HBR* as a source of materials, and this 'common source' had to be added later. Many *HBR* articles were included in the pdf files added as described above and so, these were easily marked as coming from the *HBR* common source. Again, care was taken to check the top listed papers to see if they came from the *HBR* as a common source.

Top papers from common sources These data were unproblematic as the checks described above under the sections Top cited items and Top common sources in Appendix B had already been undertaken.

Table B1 Top cited papers not including papers with authors from the UK

Rank in table 1	This rank	Count	Text
1	1	63	Yin (1989)
3	2	43	Hammer & Champy (1993)
4	3	37	Porter & Millar (1985)
10	4	36	Malone <i>et al.</i> (1987)
8	5	36	Davenport (1993)
5	6	34	Earl (1989)
10	7	34	Rogers (1995)
7	8	30	Scott-Morton (1991)
8	9	30	Hammer (1990)
2	10	27	Walsham (1993)
16	11	25	Porter & Millar (1985)
6	12	24	Checkland (1981)
13	13	24	Cash & Konsynski (1985)
20	14	24	Benbasat <i>et al.</i> (1987)
16	15	24	DeLone & McLean (1995)
13	16	23	Nonaka & Takeuchi (1995)
23	17	23	Davenport & Short (1990)
2	18	22	Williamson (1975)
18	19	21	Porter (1980)
8	20	20	Davidow & Malone (1992)
24	21	20	Eisenhardt (1989)
20	22	19	Senge (1990)
2	23	19	Williamson (1985)
12	24	18	Giddens (1984)

MJI papers As the cited papers are listed by author, identifying the social theorists used was relatively easy, given the list of theorists provided by Jones (2000), Table 2 and Appendix A. While identifying authors for the MJI, checks were also made to ensure that links were accurate.

As LSE and Warwick dominate and are by far the largest institutions in terms of accepted papers, excluding them from the analysis of the MJI lowers it to 0.43, and excluding all papers with an author from the U.K. lowers it to 0.31.

Jones (2000) looks at two measures. The first is the total number of social theorist sources cited in the papers. The second is the citation density, which is defined as the sum of the number of unique social theorists cited in each paper, divided by the total number of papers. Thus a paper citing Latour, Giddens and Beck would contribute three to the total number of social theorist sources cited, and three to the sum of unique social theorists. A second paper, citing two different works by Latour would contribute two to the total number of social theorist sources cited and one to the sum of unique social theorists used.

Appendix C

Detailed Tables C1–C11 are given here.

Table C1 Location of ECIS Conferences

Year	Location	Date	Organisers
1993	Henley-on-Thames, United Kingdom	29–30 March	Edgar Whitley, Dan Remenyi
1994	Nijenrode, The Netherlands	30–31 May	Walter Baets, Joop Volkers
1995	Athens, Greece	1–3 June	Georgios I. Doukidis, Robert D. Galliers, Tawfik Jelassi, Helmut Krcmar, Frank Land
1996	Lisbon, Portugal	2–4 July	J. Dias Coelho, Tawfik Jelassi, Wolfgang König, Helmut Krcmar, Ramon O'Callaghan, Markku Sääksjärvi
1997	Cork, Ireland	19–21 June	Robert D. Galliers, Ciaran Murphy, Sven A. Carlsson, Claudia Loebbecke, Hans Robert Hansen, Ramon O'Callaghan
1998	Aix-en-Provence, France	4–6 June	Jacques-Andre Bartoli, Jean-Louis Le Moigne, Niels Bjorn-Andersen, Hubert Oesterle, Georgios I. Doukidis, Leslie Willcocks, Tawfik Jelassi
1999	Copenhagen, Denmark	23–25 June	Jan Pries-Heje, Claudio U. Ciborra, Karlheinz Kautz, Josep Valor, Ellen Christiaanse, David Avison
2000	Vienna, Austria	3–5 July	Hans Robert Hansen, Martin Bichler Harald Mahrer
2001	Bled, Slovenia	27–29 June	Jože Gričar, Steve Smithson, Stefan J. Klein, Georgios I. Doukidis, Dorothy Leidner, Kalle Lyytinen, Leslie Willcocks
2002	Gdansk, Poland	6–8 June	Stanislaw Wrycza, Karlheinz Kautz, Marco de Marco, Robert D. Galliers, Karl Kurbel

Table C2 Number of papers per conference

<i>Year</i>	<i>Number of papers</i>
1993	45
1994	62
1995	106
1996	117
1997	121
1998	141
1999	82
2000	205
2001	127
2002	157
Total	1163

Table C3 First papers by country

<i>Year</i>	<i>First papers from</i>
1993	Canada Germany Greece Hong Kong Netherlands New Zealand Poland Russia Singapore South Africa Switzerland UK USA
1994	Australia Belgium Denmark Finland France Ireland Norway Spain Sweden Taiwan
1995	Cyprus India Italy Portugal
1996	Austria Czech Republic Israel Slovenia
1997	Iran
1998	Tunisia
1999	Monaco
2000	Brazil Japan Korea
2001	
2002	Hungary

Table C3 Continued

<i>Year</i>	<i>First papers from</i>
	Latvia
	Lithuania
	Slovakia
	Thailand

Table C4 Number of authors per paper

<i>No of authors per paper</i>	1	2	3	4	5	6
% of all papers	26	41	21	7	3	1

Table C5 Number of institutions per paper

<i>No of institutions per paper</i>	1	2	3	4	5	6	7
% of all papers	66	26	5	2	1	0	0

Table C6 Most frequent representation by country

<i>Country name</i>	<i>Percentage</i>
UK	24
Australia	9
USA	9
Germany	8
Netherlands	6
Denmark	4
Finland	4
Switzerland	3
France	3
Canada	3
Sweden	3
Ireland	3
Greece	3
Italy	2
New Zealand	1
South Africa	1
Singapore	1
Hong Kong	1
Spain	1
Austria	1
Norway	1
Portugal	1
Slovenia	1
Belgium	1
Israel	1

Table C7 Papers by country over time

Country name	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	Total
Australia		2	5	5	12	20	15	37	30	27	153
Austria				2	1	3	1	6	1	3	17
Belgium		1	2	4	1	2		3			13
Brazil								2			2
Canada	1		6	5	10	11		4	3	9	49
Cyprus			1							1	2
Czech Republic				1							1
Denmark		5	3	7	5	6	16	4	10	9	65
Finland		3	8	5	12	10	4	8	4	11	65
France		1	2	12	7	13	4	5	2	4	50
Germany	1	3	11	14	11	11	9	45	7	22	134
Greece	2	2	3	2	4	5	3	6	10	6	43
Hong Kong	2	1	2	4		3	2	1	4	2	21
Hungary										1	1
India			1								1
Iran					1						1
Ireland		2	1	8	11	4	7	4	3	5	45
Israel				4			1	5			10
Italy			2	1	8	4	2	7	2	6	32
Japan								2	1		3
Korea								1			1
Latvia										1	1
Lithuania										1	1
Monaco							1				1
Netherlands	1	9	15	14	8	21	16	9	3	7	103
New Zealand	2	3	1	1	4	1		7	3	2	24
Norway		2		1	3	2	3	2	2	1	16
Poland	1			1						2	4
Portugal			2	7	2	1		2	1	1	16
Russia	1	1	3	1							6
Singapore	3		1	1		2		2	5	7	21
Slovakia										2	2
Slovenia				1		1		3	9		14
South Africa	7	1	1	5		2	3	3	1		23
Spain		1	1	1	3	2	1	3	1	7	20
Sweden		1	2	5	6	7	4	4	6	13	48
Switzerland	1	2	3	4	6	6	3	14	7	5	51
Taiwan		1			1						2
Thailand										1	1
Tunisia						1					1
UK	28	28	34	39	54	44	41	56	43	31	398
USA	3	3	11	11	16	17	5	35	21	21	143

Table C8 Most frequently represented institutions

Institution name	Country name	Count
London School of Economics	UK	55
Warwick University	UK	39
University College Cork	Ireland	28
Copenhagen Business School	Denmark	25
University of Salford	UK	23
Brunel University	UK	21
Aalborg University	Denmark	18
Queensland University of Technology	Australia	18
University of Bath	UK	18

Table C8 Continued

Institution name	Country name	Count
AUEB	Greece	17
Erasmus University	Netherlands	17
Monash University	Australia	17
University of St Gallen	Switzerland	17
Tilburg University	Netherlands	16
University of Melbourne	Australia	16
University of New South Wales	Australia	16
Edith Cowan University	Australia	15
National University of Singapore	Singapore	15

Table C9 Most frequent authors, by year

Author	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	Total	No of years
P. Powell	0	0	1	4	4	2	4	2	4	3	24	8/10
R.D. Galliers	0	1	2	2	3	2	2	3	3	3	21	9/10
C. Loebbecke	0	0	1	1	1	4	3	3	1	0	14	7/10
S. Newell	0	0	0	1	2	2	1	4	3	1	14	7/10
L. Willcocks	1	1	2	3	2	2	2	0	0	0	13	7/10
E.A. Whitley	1	1	1	1	1	2	1	2	0	1	11	9/10
H. Krcmar	0	0	3	1	2	0	0	4	0	1	11	5/10
P. Finnegan	0	0	0	1	1	2	2	2	1	2	11	7/10
E. Christiaanse	0	0	2	2	0	3	0	2	1	0	10	5/10
J.M. Burn	1	1	3	0	0	1	2	0	1	1	10	7/10
J. Swan	0	0	0	1	2	3	2	2	0	0	10	5/10
P. Beynon-Davies	0	0	1	1	1	1	1	3	1	0	9	7/10
F. Adam	0	1	1	1	1	1	0	0	1	2	8	7/10
G.I. Doukidis	0	2	1	1	2	0	0	2	0	0	8	5/10
T. Cornford	2	0	1	1	1	0	1	0	1	1	8	7/10
A.F. Farhoomand	0	0	1	2	0	3	1	0	0	0	7	4/10
B.T. Ward	0	0	0	1	2	1	0	1	1	1	7	6/10
J.C. Sipior	0	0	0	1	2	1	0	1	1	1	7	6/10
M. Robertson	0	0	0	1	2	2	1	1	0	0	7	5/10
R.J. Paul	1	0	1	0	2	2	0	1	0	0	7	5/10
S.A. Carlsson	0	1	1	1	1	0	1	1	1	0	7	7/10
A. Pouloudi	0	0	1	1	0	1	1	1	1	0	6	6/10
C. Murphy	0	1	2	1	0	1	1	0	0	0	6	5/10
D.G. Wastell	0	0	0	2	0	2	0	0	2	0	6	3/10
G. Dhillon	0	0	1	2	3	0	0	0	0	0	6	3/10
G. Fitzgerald	0	1	1	0	1	1	2	0	0	0	6	5/10
G. Hofstede	0	0	1	0	1	1	1	2	0	0	6	5/10
J. Damsgaard	0	0	0	1	0	0	3	0	2	0	6	3/10
K. Lyytinen	0	0	1	2	1	1	1	0	0	0	6	5/10
L. Mathiassen	0	0	1	2	0	1	2	0	0	0	6	4/10
M. Levy	0	0	0	2	1	0	1	0	1	1	6	5/10
M. Newman	0	0	1	2	0	2	0	1	0	0	6	4/10
M. Smits	0	0	1	1	2	0	0	1	0	1	6	5/10
P.M.C. Swatman	0	0	2	1	1	0	1	1	0	0	6	5/10
P. Yetton	0	0	1	1	0	1	1	0	2	0	6	5/10
R. Hackney	0	0	0	1	1	1	0	1	2	0	6	5/10
S.L. Jarvenpaa	0	0	0	0	1	2	0	3	0	0	6	3/10
V.K. Tuunainen	0	0	0	1	1	1	1	1	0	1	6	6/10

Table C10 Most cited common sources

Rank	Percentage	Common source
1	27	MIS Quarterly
2	11	ECIS Proceedings
3	10	Harvard Business Review
4	8	Information Systems Research
5	6	Journal of Strategic Information Systems
6	5	European Journal of Information Systems
6	5	ICIS proceedings
6	5	Information Systems Journal
6	5	Journal of Information Technology
6	5	Organization Science

Table C11 Categories used for classifying research topic

<i>Category used</i>	<i>Banker & Kauffman</i>	<i>Typical keywords</i>
Society	Global and societal issues	Government Public sector Public service Society
IS Organisational and strategy	IS organisation and strategy	Organiz(s)ation(al) Corporation Business Outsourcing Enterprise resource planning Enterprise Management Internal market Strategy
System development	Human–computer systems design	System development Information systems planning
Decision support systems	Decision support and design science	DSS Design science Model Decision
Technology		Networks
Research issues	IS research	IS field IS research Case studies Information systems research Knowledge
Economic	Economics of IS and IT	IT productivity Economic
Human	Human–computer systems design	Human Interface
Electronic markets	Electronic markets	E(lectronic) commerce Markets