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Article (Draft)

Original Citation:

Córdoba, José-Rodrigo and Pilkington, Alan and Bernroider, Edward (2012) Information systems as a discipline in the making: comparing EJIS and MISQ between 1995 and 2008. *European Journal of Information Systems*, 21 (5). pp. 479-495. ISSN 0960-085X

This version is available at: <http://epub.wu.ac.at/3703/>

Available in ePub^{WU}: November 2012

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Information Systems (IS) as a discipline in the making: Comparing EJIS and MISQ between 1995 and 2008

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Abstract

The status of Information Systems (IS) as a discipline has been widely debated as a body of knowledge that offers a number of concepts, methods and techniques to understand and improve the roles of information communication systems and technologies in organizations. Current state of this debate as reported in academic journals signals an imperative to ground some of the perspectives in relation to what IS professionals use in practice in different cultural and geographical contexts. This paper aims to contribute to the debate by tracing the unfolding of information systems as a body of knowledge using the ideas of Abbott on disciplines. We use three different stages of a discipline's development: differentiation, conflict and absorption and map them using a citation and co-citation analyses of two main IS journals (EJIS and MISQ) in the period between 1995 and 2008. Our results indicate that dominant ideas and models to investigate IS phenomena emerged over time are behavioural based and study IS adoption/acceptance/rejection in organisations, many of which are predictive and thus lending themselves usable for positivistic quantitative and qualitative research. There are however stable varieties within IS building on interpretivism and constructivism that we need to recognise and reignite in order to ensure that this field continues moving forward, in particular in studying current and future processes of innovation and diffusion of technology worldwide.

Keywords: Information Systems; Professions; Citation Analysis; Co-citation Analysis; EJIS; MISQ.

1. Introduction

Briefly speaking, information systems (IS) is a body of knowledge that has spread in many different ways in the last decades. A number of proposals have emerged to define and map different elements of the knowledge that IS academics and practitioners (should) use in their work to make IS a discipline (Baskerville, R. and Myers, 2002; Benbasat and Zmud, 2003; Chen and Hirschheim, 2004; Dwivedi and Kuljis, 2008; Klein, HK and Hirschheim, 2008). In some of the most recognised journals in information systems like the European Journal of Information Systems (EJIS), there is a focus on dealing with issues related to IS design, implementation and management (Dwivedi and Kuljis, 2008). One of the current debates in journals like EJIS also signals an imperative to better understand the importance for IS professionals to claim jurisdiction (e.g. ownership) on a particular set of problems, and to provide the tools for gaining new insights [on those] driven by advances in theory and research (Somers, 2010). This entails a focus on understanding what IS has contributed to so it can offer itself as a reference discipline rather than simply an influenced one (Baskerville, R. and Myers, 2002).

The above perspective contrasts with others which portray IS as a disciplining profession through a number of mechanisms and boundaries that define what type of knowledge is valid (or acceptable) at the expense of others (Introna, 2003). This perspective challenges those who advocate some normative elements to guide research and practice (Benbasat and Zmud, 2003), because this maintains certain core elements of the profession (i.e. methodologies, concepts, areas of study) as 'sacred' and displaces and even leaves others 'unpublished' (Hassan, 2006; Introna, 2003). Within these tensions, there are efforts that aim to identify and integrate commonalities to guide IS forward in research and education (Bacon and Fitzgerald, 2001; Klein, HK and Hirschheim, 2008). In a recent edition of EJIS, Somers (2010) offers an opinion paper with a perspective based on the process of IS as gaining a professional status and advocating deepening into certain knowledge elements to construct a social identity for IS. While researchers seem to agree on the need for plurality of approaches, a methodological divide continues to exist between the German-speaking and Anglo-American community. A recent memorandum underwritten by many well-known academics from the German-language IS domain claims a difference in status and development between design and behavioural science in global IS research (Oesterle, Becker, Frank, Hess, Karagiannis et al., 2010). The suggestion that Anglo-American research is based on mainly behaviourist approaches and consequently misleads competition among researchers and journals in status seeking, was recently contested in another opinion paper brought forward by senior editors of leading IS journals including EJIS and MISQ (Baskerville, Richard, Lyytinen, Sambamurthy, and Straub, 2010). It seems that some academics in IS desire a firm and explicit disciplinary basis, while others accept a more fluid and contingent notion of the discipline (Bryant, 2008). To contribute to these current debates, we argue that it is necessary to identify some of the elements of knowledge that the IS community *really* use to develop and put forward their ideas, them being imported into or generated by it. These elements need to be compared with those that people arguing for the status of IS as a discipline aim to norm or defend, so that we know where we really stand, with a view to put forward a number of possibilities about where IS could be going in the next few years.

In this paper we aim to revisit existing claims about the status of information systems by considering its dynamics in the last few years. We intend to identify a number of stages of unfolding of IS as a discipline and to map knowledge elements and their relationships to assess where we have been and where we currently are. We first propose featuring IS as a discipline by using the ideas of Abbott (1988, 2001). These will help us analysing and understanding the dynamics of citations and co-citations of articles of two mainstream journals in the period

between of 1995 to 2008: The European Journal of Information Systems (EJIS) and Management Information Systems Quarterly (MISQ). These two journals have been declared as top in the field of information systems by professional associations (AIS, 2007), and are those in which many academics and practitioners aspire to publish their work or use what is published to inform their activities. We identify similarities and differences of used elements in three different time periods: 1995 to 1999; 2000 to 2004; and 2005 to 2008.

We aim to show how through different periods of time IS professionals have proposed, consolidated, discarded or revisited ideas so that the IS profession repositions itself in both academia and society. Our purpose is to constructively challenge and assess existing profiling studies of IS research published in these and other journals (Dwivedi and Kuljis, 2008) by interpreting occurrences of and relationships between articles in the light of Abbott's ideas. We aim at extending the scope of this and other studies by showing how elements of IS knowledge are related to each other and how relationships unfold through time. In line with the proposal of Somers (2010) about deepening into certain elements that we can offer as a profession to the rest of the world, our findings suggest that there is already a degree of depth in studying the theme of 'IS acceptance'; this is currently done through a number of *predictive* models and frameworks which have been developed through positivist accounts and which can also guide interpretive research. This could indicate that diversity in IS research is now in a stage of consolidation, with effects on it becoming more 'portable', 'usable' and 'prediction oriented' whilst at the same time diverse and in need of some (re) conceptualization. Many of the other concepts and approaches already developed in IS could contribute to address this need, by for instance branching the overarching theme, producing new abstractions or challenging existing research models and frameworks. There this then is the opportunity to make some 'dormant' elements more relevant and visible in IS.

The findings suggest and confirm that despite the above dominance other elements related to qualitative and interpretive IS research have remained throughout the periods we have studied. The profession needs to continue acknowledging their value because they also contribute to maintain IS's identity in both academia and society. Moreover, new and complex phenomena in the domain of IS and technologies could be addressed by revisiting concepts and claims of IS as related to the (adequate) use of information and communication technologies, and by acknowledging that our study of these phenomena is far from being clear cut or uniform (Paul, 2008).

We begin our paper by situating our approach within current debates about the status of IS as a discipline.

2. IS as a discipline

The debate of the status of IS as a discipline has gathered a number of different perspectives. From those suggesting that IS needs to norm certain elements as described above to those who think that IS has become a reference discipline to others, in particular management (Baskerville, R. and Myers, 2002). Studies of IS as a discipline have adopted a classification of the discipline in relation to the research approaches adopted: positivist, interpretive and critical appreciations and interventions of phenomena (Chen and Hirschheim, 2004; Orlikowski, WJ and Baroudi, 1991). Difficulties arise when IS professionals and researchers try to position themselves in one (and only one) of these. Being critical in IS for example entails not only using a critical theory to inform the research or practice; it is necessary to reflect on the methods used, many of which could still be positivist or interpretive in nature (Willcocks and Mingers, 2004). The debates that

ensue around this issue (Avgerou, 2005) also show that IS is still a discipline in conflict, which to many signals a weak identity to the world it (Somers, 2010).

It is also often the case that in order to 'organise' IS, perspectives suggest that there are core elements of knowledge which could be used to structure forward its future developments (Benbasat and Zmud, 2003; Klein, HK and Hirschheim, 2008). Hassan (2006) suggests that if IS is to become a 'monolithic' discipline, the following ideas are to be considered:

- Fundamental ideals that are shared by a community of individuals
- There is a repertory of concepts and explanatory procedures
- There is a clear and accepted boundary between what knowledge is internal to the discipline and what is external to it.
- There are methods by which concepts, procedures and other elements can gain validity, coherence and translatability to other domains or fields.
- Theories that explain and predict phenomena are defined.

The search for the above unifying elements and concepts is challenged by those preferring to look at the process of becoming a discipline as such. Those who are critical of the homogeneous nature of IS see that this quest for unification means establishing mechanisms to ensure validity of IS knowledge according to certain assumptions of what is 'true' knowledge in IS (Introna, 2003). This claim finds a good example in the process of journal articles publication, where inevitably there are and will be winners and losers, in other words ideas, concepts and approaches that will see the public light and which, if continuously published, can influence future developments in IS. A less radical but equally challenging perspective for IS sees it in a continuous and fluid process of unfolding, in which it is important to build consensus and around communities about problems that IS professionals are to tackle (Klein, HK and Hirschheim, 2008; Somers, 2010). In both of these perspectives we find that there is a lack of empirical evidence to suggest what has become acceptable (or 'true') knowledge, at which point in time; in both, there is scope to acknowledge that IS unfolding is not unidirectional, but that there might be dominant elements at some point which can become something else, be replaced or integrated into others, meaning that IS responds to societal demands or pressures. Our article aims to provide some evidence to help us acknowledge a stronger relationship between IS knowledge and its use. In this regard, we argue that in order to continue contributing to the debate of IS as a professional discipline, it is necessary to assess three aspects: 1) What elements of knowledge *and relations among them* are really being used by IS professionals; 2) How and when have these elements being used; 3) Which of these elements are being imported to or exported from IS. To help us organise our understanding of IS elements unfolding we turn our attention now to the ideas of Abbott on professions.

Chaos or Self-Organisation?

The sociologist Abbott (2001) proposes that academic disciplines are part of a wider system to fulfill a function of addressing a particular set of problems faced by people in society. A discipline provides knowledge that contributes to diagnose, treat and infer a particular set of problems in practice. Academic disciplines continuously compete within and with each other to gain jurisdiction to a domain of knowledge, abstraction and education. They do so by claiming their knowledge can help solve specific problems and therefore by challenging claims from other disciplines.

In an earlier work, Abbott (1988) describes how in the world of professions, they check each other and use academic knowledge (of disciplines) to legitimize what they do as well as gain new

insights on ways of diagnosing and treating problems as well as inferring new ones. This work is followed by a later one in which Abbott (2001) focuses on academic disciplines. In the latter he proposes that disciplines through self-recurring and similar patterns of development as they respond to cultural and societal demands, reflecting what society values at particular periods in time¹. Both disciplines and professions organize into structures which, although are not equal, they follow similar patterns of organisation. To better understand the unfolding of disciplines Abbott (2001) suggests the following and iterative stages:

- A. Differentiation. A discipline claims jurisdiction on specific knowledge areas that are being vacated by others due to their loss of relevance (possibly through excessive efficacy or clarity). A discipline differentiates from others to lay its claims. Within a discipline, sub-disciplines also differentiate from each other.
- B. Conflict. Disciplines dispute jurisdiction by often 'denying' the relevance of other disciplines' knowledge and their claims, or by providing alternative ways to conceive of (diagnose), treat (solve) and understand (infer) problems.
- C. Absorption. How 'winning' disciplines ingest the losing one(s), claim jurisdiction over their territory, but in doing so they have to also integrate their competitors' claims, and possibly their competitors ways of diagnosing, treating and inferring problems within a specific jurisdiction.

According to Abbott (2001), these stages generate similar structures that self-replicate through time, and which despite dramatic changes (divisions, re-organisations, mergings, etc) within a discipline and outside it, their core knowledge elements are sustained at the level of society, even if they have to be repeatedly called upon or rediscovered from time to time by different disciplines or sub-disciplines. For Abbott, the self-production of disciplines is also helped by a continuous process of *abstraction and classification* of core concepts from practice. Abstraction aims to reveal regularities between problems, their diagnoses and treatments, as well as to define new inferences on problems whose complexity requires disciplines to modify their existing classifications. Educational activities play a threefold role in the development of a discipline. First, they help abstracting common elements problems, diagnoses and inferences. Second, they also help in the socialization of future professionals by offering educational programmes and by certifying them (Abbott, 1988; Somers, 2010). And thirdly, academic disciplines also contribute to the gaining or losing jurisdiction of a profession, because in academic debates the validity of the claims of a discipline are subject to continuous scrutiny and attack by others.

As part of the process of unfolding of a discipline, Abbott goes on to say that through time, a discipline consolidates knowledge about its methods and concepts by making them simple to grasp and use, and therefore accessible by others within or outside the discipline. This can also mean that a discipline loses jurisdiction over those as well as over the problems they address. Ironically, disciplines or sub-disciplines then become subject to attack by others when their knowledge becomes too 'portable'. A reaction from professionals would be to continue abstracting new elements (diagnoses, treatments, inferences or even problem classifications). One possible danger with this strategy is for a discipline or sub-discipline to become too abstract and thus detached from the problems it owns. Connections between abstraction and practice should be maintained. Another strategy for disciplines to 'survive' is by entering new domains of practice

¹ The term discipline seems to reflect how professions and academic disciplines develop in similar (but not equal) structures (Abbott 2001).

by gaining insights into ‘new’ problems (which could be owned by other disciplines) and by laying claims about solving them better.

These ideas give us a general perspective on how disciplines unfold, how they compete with each other or within the same discipline. In the domain of information systems and using the ideas of Abbott (1988), Somers (2010) has recently suggested that that IS professionals should build consensus about the problems they ‘own’, deepen into knowledge about them and better promote the socialization of IS professionals. In this regard, we would like to investigate how processes of differentiation, conflict and absorption are reflected in IS. In our investigation we also aim to identify certain key problems and their diagnoses, treatments and inferences that the IS has become knowledgeable of and which could be offered to the ‘outside’ world. This will enable us to better substantiate our claims for jurisdiction about how we deal with IS issues. For IS and many other disciplines (for instance operational research or OR), there is a natural but continuous challenge to step back and reflect on what society values about them, so that that image is better promoted (Corbett and Van Wassenhove, 1993). In the discussion of our findings we will refer back to them to reflect on the state of affairs in IS and on possibilities forward.

3. Methodology

Our study requires an alternative methodological approach from those either norming certain core elements in IS (Benbasat and Zmud, 2003), or from those valuing diversity in the IS field (Vessey, Ramesh, and Glass, 2002). We do not assume a priori areas in which IS research and practice should be focused; neither we do study research methods used to study these areas in isolation. We aim to identify through time how knowledge in IS is valued as a process relating areas of study, approaches and methods which can be respectively considered as problems, diagnoses and treatments using Abbott’s language (1988). Moreover, we also want to identify elements that are imported from other disciplines and that have been adopted in IS research.

To identify problems, diagnoses and treatments in IS through different periods of time we use a combination of quantitative techniques such as bibliographic citation and co-citation analyses in the field as reported in a US based journal (*Management Information Systems Quarterly* or *MISQ*) and a European one (*European Journal of Information Systems* or *EJIS*). These journals are both well reputed for the impact of their publications worldwide and have been classified as ‘type A’ (top) ones (AIS, 2007). We intend to identify dominant and less dominant authors and their contributions through time, as well as how their works relate to each other. We rely on patterns in the works that are commonly cited together and can give us a sense of the sorts of elements that IS people use to put forward their claims to knowledge, how they emerge, connect and consolidate or disappear through time as a proxy to processes of differentiation, conflict and absorption between areas to be studied as well as approaches used.

Citation analysis relies on the idea that that a heavily cited article will have exerted a greater influence on a subject than those less frequently referenced (Culnan, 1986; Sharplin and Mabry, 1985) and will represent more activity or importance in the field. While this assumption has some weaknesses as outlined above, given adequate screening and a large enough sample, citation analysis provides a useful insight into which journals, papers, and authors are considered influential. According to White and Griffith (1990), citation analysis represents "the field's view of itself." Using citation analysis, we can examine the growth in citations and get a sense of when the major articles in the field were written, how article popularity fared over time, and whether an article is still useful to current researchers. An article that continues to be cited indicates its historic value over time as well as its role in supplemental studies; in our perspective this sort of

article and its link maintain *jurisdiction* over a particular topic or theme. We can also use the citations to determine changes in field direction, whether alternative journals refer to the same literature, and whether the journals themselves change focus.

There are limitations related to using citations to make inferences: focusing on one author, or considering a publication as a unit of analysis (Garfield, 1979) can leave out other considerations about the field as a whole, which to some means that there are waves of fashion that come and go in terms of problems and ways of dealing with them. There is also a problem in identifying the correct data (person, journal or book) when dealing with similar names. Here we have limited the impact of these problems by carefully selecting the source documents, and also by drawing on the contents of two distinct journals. In both we are equally interested in papers that deal with IS problems, concepts and methods, as well as on how same authors develop their ideas through time. A further topic often of concern is how to weight the contributions identified. In our study, we believe that equal value should be applied to each work as we seek to describe the evolution of the field from two perspectives.

Moreover, citation analysis alone does not show the structure of ideas in a field (Leong, 1989). For a richer understanding of such structures, we can then conduct co-citation analyses. A co-citation analysis helps us to identify the relationships among the articles identified through citation analysis. Here the authors, topics, journals, keywords, or even research methods, can be plotted and the structural groupings of these relationships identified and interpreted. By building on co-citation analysis, other tools can be used to graphically plot citation influence on each other, how they relate, the strength of relationships, and how central to groups a particular citation (article) is. Co-citation analysis allows not only a view of importance, but also the relationships in the intellectual structure of a discipline. Co-citation studies the topics, themes, and research methods in a field, and how they may have changed over time.

White (1990) notes that co-citation analysis reveals “the intellectual structure of scholarly fields” and recommends “nothing better for reconnoitering ‘macro-level’ intellectual structure as it evolves... The maps are essentially a new kind of graphics for revealing inter-textual relationships.” In reporting the relationships with co-citations, several approaches are often used including using factor analysis or multi-dimensional scaling (MDS) to identify implicit dimensions. Factor analysis was used for example by Pilkington and Meredith (2009) to identify that the most cited articles in operations management could be fitted to twelve groups and so repeatedly cover these topics. MDS examples include Ramos-Rodriguez and Ruiz-Navarro (2004) and Hoffman and Holbrook (1993) who use this approach to represent the structural knowledge of the strategic management and consumer research disciplines. Another approach is to utilize network analysis tools to represent the information and also develop measures that allow comparisons between different networks (in different disciplines or from alternative sources) and the roles of the nodes (authors or articles) themselves. These techniques have been employed to examine the development of a range of disciplines, including service and technology management (Pilkington, A. and Chai, 2008; Pilkington, A. and Teichert, 2006).

For the purposes of our paper, studying co-citations gives us two types of insights: First, it allows us to associate problems with diagnoses and treatments, in other words to identify relevant issues in IS and how they are dealt with. Second, it also shows how different groups in IS relate to each other (Small, 1973). Analyzing co-citation network patterns using tools such as factor analysis gives groupings in a field and also allows us to plot how they change with journal and over time so that we are able to associate changes with processes of differentiation, conflict and absorption in the IS discipline as proposed by Abbott (2001). We associate differentiation with the existence

of different groups in the whole spectrum of citations and co-citations. Regarding the last two processes (conflict and absorption), we associate them with the existence of groups that exhibit competing or alternative claims to those that are dominating citations and co-citations at a particular period of time but which in a subsequent period they gain or lose it.

Data management

The normal source of data for studies using citation and co-citation techniques is the ISI social science citations index, which contains both information on source articles and their citation lists. We used this as the source for our data for this study. Specifically, the data used in the study included the contents of MISQ and EJIS between 1995 and 2008, specifically, MISQ from Vol. 19 No. 1 (1995) to Vol. 32, No.3 (2008) and EJIS from Vol. 4 No. 1 (1995) to Vol. 17, No.3 (2008), as recorded in the ISI Social Science Citation Index. Note that the MISQ data is available back to 1984 from ISI, but as the EJIS is only available from 1995 we chose to select the periods shown above.

We chose these publications as they are the leading journals on both sides of the Atlantic and can give us a relevant glimpse: the US and wider North American centered MISQ and the European EJIS (Dwivedi and Kuljis, 2008). The MISQ data contained 415 source papers containing 34,555 citations to 19,926 different publications. The EJIS data contained 381 papers making 19,596 citations to 17,163 publications.

Several steps are required to start working with ISI data, including converting into a standard format and checking for different spellings and abbreviations of names, journal and book titles as well as book editions. To try and reduce certain inconsistencies related to ISI as far as possible (different spelling and abbreviations of names, journal and book titles as well as book editions), we adopted a process of manually checking and re-checking ranked frequency tables of separate and combined data fields and using complex search and replace routines to generate standardized records. In practice, this involves generating frequency tables of the different fields, both in isolation and then combined, and examining whether there are similar entries to the high frequency terms which should be adjusted. For example, ACAD_MANAGE_J (Academy of Management Journal) was one of the most listed titles and so corresponding entries such as AC_MANAGE_J and ACAD_MANAG_J were altered. As such, our data contains the source article information such as publication information, authors, titles, and keywords; cross-linked to their standardized citations. The level of information contained in the standardized citations was first author (with one initial), publication (journal or book title), and publication year. Due care was taken to double check that information was not amalgamated when removing author initials and publication issue information. Standardization of book editions into one single reference was accomplished using a similar frequency check approach.

4. Results

Table 1 shows the countries of origin of the authors identified for correspondence for the source articles from the data. There are clear geographical divisions between the journals, with North American-based authors being the dominant contributors to MISQ and European-based (together with Australasia) as major writers of articles for EJIS. This clearly shows that the division between the journals reflects, as expected, the respective communities and that they are a good choice for this study. Also it is valuable for this study to note the limited degree of cross publishing between the groups and also that the Rest of the World entries are of small but equal importance to both journals.

MISQ		EJIS	
North America	379	Europe/Australasia	247
Europe/Australasia	42	North America	99
RoWorld	21	RoWorld	31

Table 1. Citation Age Profile of the Source Journals

Citation Data

Following from our validation of a possible geographical division of authors who publish in each journal, we then proceeded to examine whether there is any difference in the general citation behavior between the journals. One simple way to examine whether the journals show different citation habits is to look at the age of the citations. Figure 1 gives the mean age of citation in each journal as around 12 years. This 12 year peak has also been seen in other studies (Pilkington, Alan and Meredith, 2009; Ramos-Rodríguez and Ruíz-Navarro, 2004) which also report a growth of about 2.3 citations/journal/year up to an average of 28 after 12 years, and a variation in citation rates reaching a maximum of four times the average for popular articles (Stremersch, Verniers, and Verhoef, 2007).

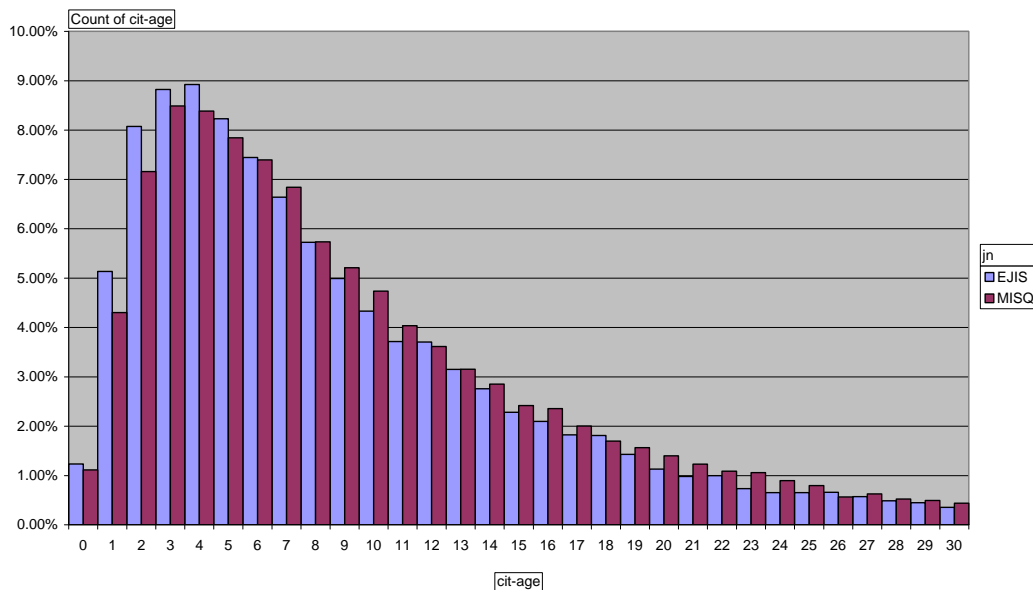


Figure 1. Age of citations in each journal

With the above, we have now established that the two journals do not differ in terms of the nature of their citations. We can then start to analyze if there are distinct areas covered. Table 2 lists the top 40 most-frequently cited publications (including ties for the last entries) among the journals over the 13 years of this study and their resulting frequencies.

The most frequently cited EJIS reference is Yin’s book on case study research (Yin, 1984), followed by Rogers’ book on the diffusion of innovations (Rogers, 1962). For MISQ the most cited item is Davis’ article on usefulness and acceptance of IS (Davis, 1989). Despite the importance of journals in the field, many of the most popular citations are books rather than

research articles. This pattern has also been found in other studies such as on strategic management (Ramos-Rodríguez and Ruíz-Navarro, 2004) and the relatively new field of operations management (Pilkington, Alan and Meredith, 2009). Using the table, it is possible to see that the most popular publications differ little between the different journals. Our interpretation here is that in general they deal with the same topics but we need to investigate if they are treated in different ways, or if they take different orientations. We note that the top publications for both journals are basically identical except that EJIS ranks the works of Walsham (1993, 1995) and Checkland (1981) which do not feature for MISQ. These authors are European and influential in expanding the notion of information systems as social systems, making it essential to investigate the context (social, political, cultural) in which IS are defined, implemented and used. Similarly present in MISQ but missing from the top of the EJIS list, the work of Ives et al on IS user acceptance (Ives, Olson, and Baroudi, 1983) defines a number of subjective aspects attributed to user acceptance of information systems. The same is true of the quantitative method sources of Fornell and Larcker (1981).

Citation	EJIS	Citation	MISQ
YIN_R\$CASE_STUDY_RES_DESIG\$1984	60	DAVIS_F\$MIS_Q\$1989	63
ROGERS_E\$DIFFUSION_INNOVATION\$1962	44	NUNNALLY_J\$PSYCHOMETRIC_THEORY\$1978	58
DELONE_W\$INFORM_SYST\$1992	39	YIN_R\$CASE_STUDY_RES_DESIG\$1984	56
EISENHARDT_K\$ACAD_MANAGE_REV\$1989	36	ROGERS_E\$DIFFUSION_INNOVATION\$1962	53
DAVIS_F\$MIS_Q\$1989	34	DAVIS_F\$MANAGE_SCI\$1989	49
WALSHAM_G\$INTERPRETING_INFORMA\$1993	32	MARKUS_M\$COMMUN_ACM\$1983	42
NUNNALLY_J\$PSYCHOMETRIC_THEORY\$1978	31	DELONE_W\$INFORM_SYST\$1992	41
CHECKLAND_P\$SYSTEMS_THINKING_SYSS\$1981	31	PORTER_M\$HARVARD_BUS_REV\$1985	41
MILES_M\$QUALIATIVE_DATA_AN\$1994	30	FORNELL_C\$J_MARKETING_RES\$1981	41
ORLIKOWSKI_W\$INFORM_SYST\$1991	28	EISENHARDT_K\$ACAD_MANAGE_REV\$1989	40
HAIR_J\$MULTIVARIATE_DATA_AN\$1979	27	FISHBEIN_M\$BELIEF_ATTITUDE_INTE\$1975	38
WALSHAM_G\$EUR_J_INFORM_SYST\$1995	27	HAIR_J\$MULTIVARIATE_DATA_AN\$1979	35
BENBASAT_I\$MIS_Q\$1987	25	ORLIKOWSKI_W\$INFORM_SYST\$1991	32
DAVIS_F\$MANAGE_SCI\$1989	24	ORLIKOWSKI_W\$ORG_SCI\$1992	32
MARKUS_M\$COMMUN_ACM\$1983	24	TAYLOR_S\$INFORM_SYST_RES\$1995	32
KLEIN_H\$MIS_Q\$1999	22	IVES_B\$COMMUN_ACM\$1983	32
DAVENPORT_T\$PROCESS_INNOVATION\$1993	20	DESANCTIS_G\$ORG_SCI\$1994	32
PORTER_M\$HARVARD_BUS_REV\$1985	19	MILES_M\$QUALIATIVE_DATA_AN\$1994	31
VENKATESH_V\$MIS_Q\$2003	19	IVES_B\$MANAGE_SCI\$1984	31
GIDDENS_A\$CONSTITUTION_SOC\$1984	19	CASH_J\$CORPORATE_INFORMATIO\$1983	31
LATOURE_B\$SCI_ACTIONS\$1987	19	MOORE_G\$INFORM_SYST\$1991	30
GLASER_B\$DISCOVERY_GROUNDED_T\$1967	18	MCFARLAN_F\$HARVARD_BUS_REV\$1984	29
DAVENPORT_T\$HARVARD_BUS_REV\$1998	18	IVES_B\$COMMUN_ACM\$1984	29
LYTTINEN_K\$SOXFORD_SURVEYS_INFORS\$1987	18	GIDDENS_A\$CONSTITUTION_SOC\$1984	28
MALONE_T\$COMMUN_ACM\$1987	17	DAFT_R\$MANAGE_SCI\$1986	28
EARL_M\$MANAGEMENT_STRATEGIES\$1989	17	ROCKART_J\$HARVARD_BUS_REV\$1979	28
PORTER_M\$COMPETITIVE_STRATEGY\$1980	16	STRAUB_D\$MIS_Q\$1989	27
ORLIKOWSKI_W\$ORG_SCI\$1992	16	KLEIN_H\$MIS_Q\$1999	26
ORLIKOWSKI_W\$MIS_Q\$1993	16	PORTER_M\$COMPETITIVE_STRATEGY\$1980	26
SUCHMAN_L\$PLANS_SITUATED_ACTIO\$1987	16	THOMPSON_J\$ORG_ACTIONS\$1967	26
ARGYRIS_C\$ORG_LEARNING\$1978	16	MARKUS_M\$MANAGE_SCI\$1988	26
FISHBEIN_M\$BELIEF_ATTITUDE_INTE\$1975	15	CHIN_W\$MODERN_METHODS_BUSIN\$1998	26
TAYLOR_S\$INFORM_SYST_RES\$1995	15	KEEN_P\$DECIS_SUPPORT_SYST\$1978	26
ZUBOFF_S\$AGE_SMART_MACHINES\$1988	15	MATHIESON_K\$INFORM_SYST\$1991	25
WILLIAMSON_O\$MARKETS_HIERARCHIES\$1975	15	NONAKA_I\$ORG_SCI\$1994	24
COOPER_R\$MANAGE_SCI\$1990	15	ZMUD_R\$MANAGE_SCI\$1979	24
FORNELL_C\$J_MARKETING_RES\$1981	14	BENBASAT_I\$MIS_Q\$1987	23
IVES_B\$COMMUN_ACM\$1983	14	COHEN_W\$ADM_SCI_Q\$1990	23
KWON_T\$CRITICAL_ISSUES_INFO\$1987	14	BARNEY_J\$J_MANAGE\$1991	23
IACOVOU_C\$MIS_Q\$1995	14	DESANCTIS_G\$MANAGE_SCI\$1987	23
CHECKLAND_P\$SOFT_SYSTEMS_METHODO\$1990	14	KING_W\$MIS_Q\$1978	23
		CHIN_W\$MIS_Q\$1998	23
		ROSS_J\$MIT_SLOAN_MANAGE_REV\$1996	23

Table 2. The most cited publications in each journal

Co-citation Results

In addition to analyzing the rates of references of the articles published in the journals we can determine if any two references are commonly referenced together, or co-cited. If some references are frequently co-cited, then this represents a structural knowledge grouping. Identifying these groupings and the relationships between and among them describes the intellectual structure of a field.

Co-citation Network Illustrations

In order to analyze the development of the structure of interactions between the co-citations as representatives of different parts of the discipline which are reflected in journals, we drew networks of the citations. The results are shown in Figures 2, 3 and 4 for three different 5 year periods of MISQ and Figures 6, 7 and 8 the same periods for EJIS.

Following Pilkington and Meredith (2009) we displayed the results graphically using the techniques developed for social network analysis (Scott, 1994; Wasserman and Faust, 1994), which allow us to show connections between citations as well as the strength between them. The resulting diagrams were produced using NETDRAW part of the UCINET SNA package (Borgatti, Everett, and Freeman, 2002). NETDRAW is one standard tool for graph mapping along with PAJEK. The figures show links in the co-citation matrix and are produced by first reducing all the co-citation values to binary zeros and ones, with the strength of the links added later in the form of line thicknesses. Node positions on the diagrams result from a spring-based algorithm developed by Kamada and Kawai (1989), which iteratively reduces the stress in the graph, from co-locating unconnected nodes together, by trying alternative node positions. So papers that are often co-cited with each other appear close together and have thicker lines joining them.

In producing the networks for the co-citations we found that if we set certain limits on the number of links shown, the number of nodes connected becomes more manageable and the relationships clearer. Thus a limit of, say, at least 5 co-citations may be set and a clear diagram produced. It is important to remember that the values represent total co-citation in the relevant database and so if a set limit were to be used, the same level of detail or congestion will not result and the diagrams for one data set may look substantially different from those for another even though the same limit was used in each. For our diagrams we set the limits to show only publications cited 4 or more times and with co-citation links greater than 3, 2 and 5 for the different periods of the EJIS data, and 4, 5 and 7 for the MISQ set, and then only to show the nodes which are still connected to at least one other node. These levels are useful in that they show the relationships between the central, most highly cited references and also, at these levels, the networks fragment to allow us to talk of groups.

The first period 1995 to 1999

The first periods in EJIS and MISQ (1995-1999) (figures 2 and 3) are characterised by a *differentiation* in IS; the positivistic paradigm is reviewed, challenged and complemented by research that shows mutual influences between technology and people. Varieties of IS research including interpretivist and critical are put forward but with different examples in EJIS (Orlikowski, WJ and Baroudi, 1991; Walsham, 1993, 1995). MISQ shows clusters characterised by some unique foci in quantitative research such as IT investment and firm performance studies (Weill, 1992), and qualitative approaches to conceptualise information processing and

organisational design (Daft and Lengel, 1986) or electronic markets (Malone, Yates, and Benjamin, 1987).

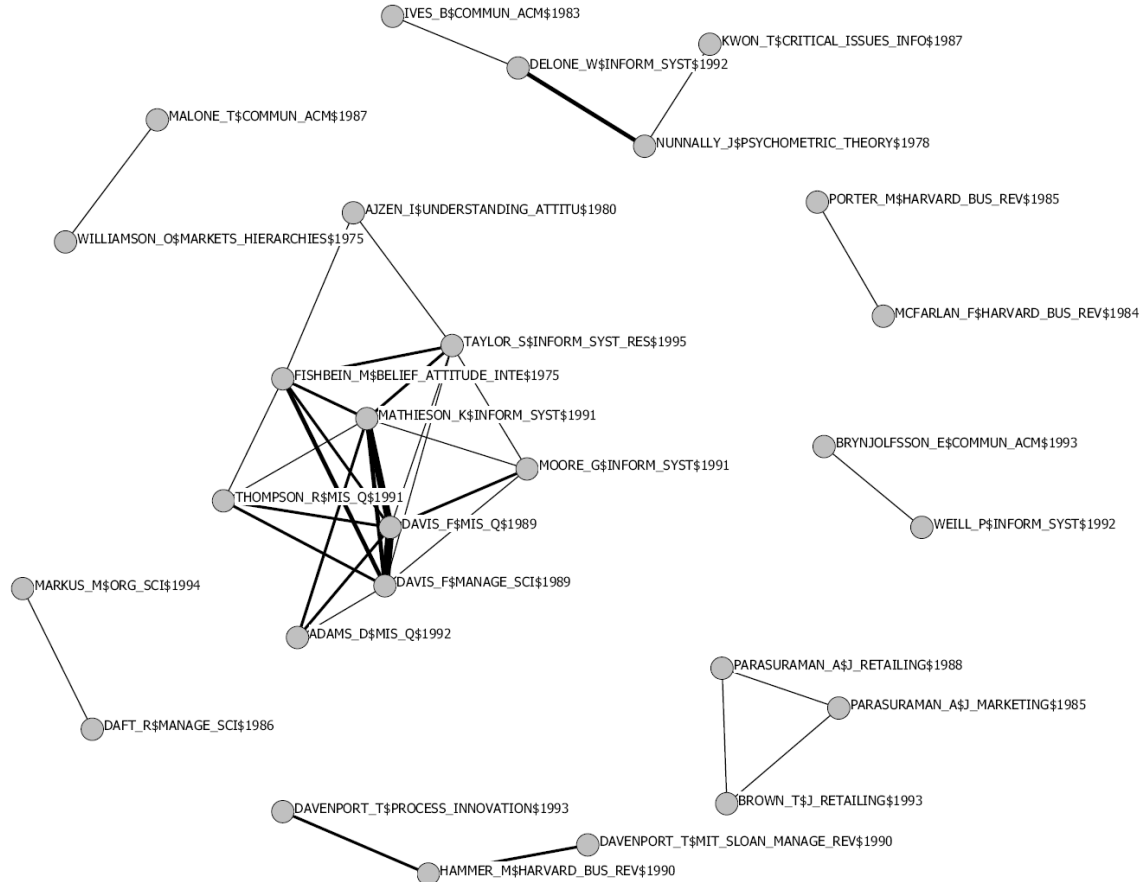


Figure 2. MISQ – Early (95-99)

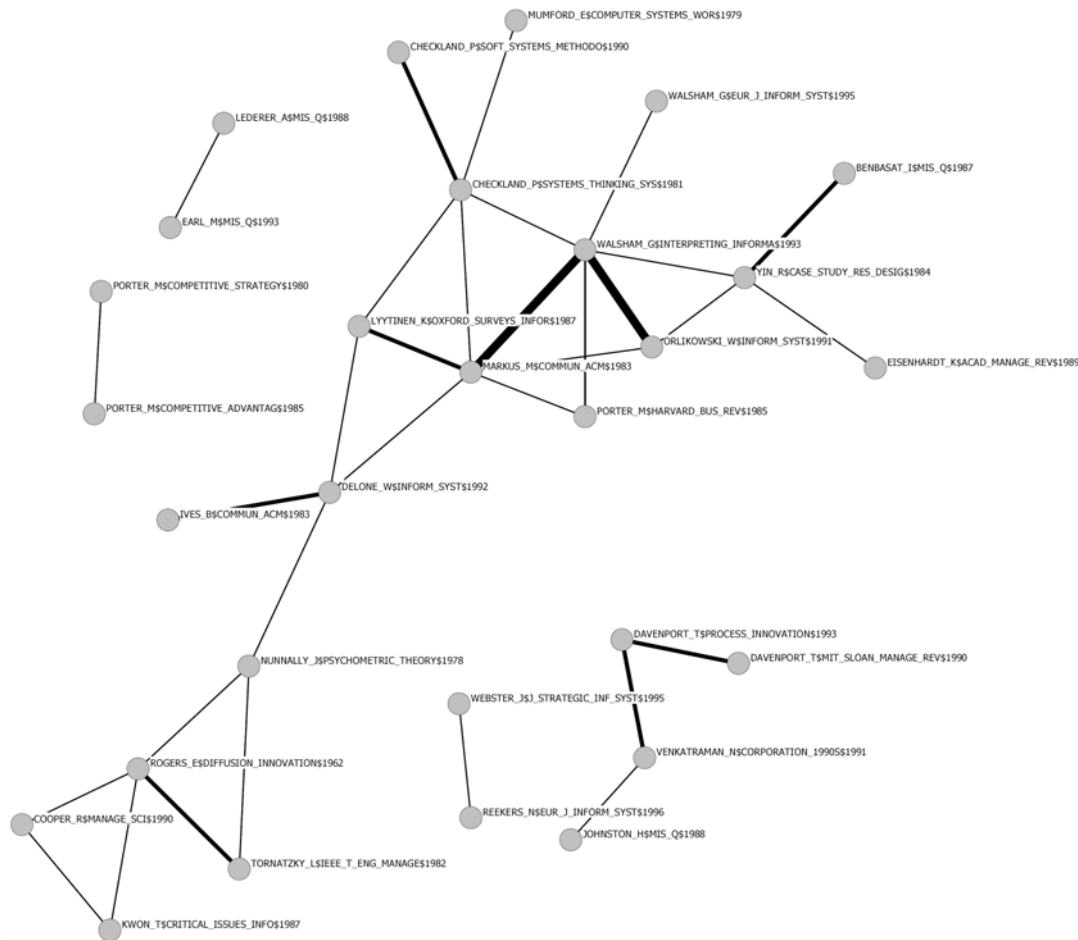


Figure 3. EJIS – early (95-99)

Both journals at this stage show efforts to claim jurisdiction on issues which were traditionally occupied by other disciplines; these also include joint efforts between disciplines or in other words inter-disciplinary research (Abbott, 2001). For instance and drawing from Strategic Management, scholars explore whether and to what extent information and information technology contributes to strategic objectives of an organisation (McFarlan, 1984; Porter and Millar, 1985). Linking into Marketing, IS research in MISQ made use of the model for assessing service quality (Parasuraman, Zeithaml, and Berry, 1985). Although topics from other disciplines are revisited, IS research adds new information and technology related views and explores boundaries to those disciplines, in particular management.

At this early point the number of claims about the diversity of IS research seems to be embodied in a reaction against positivism which can be seen as a first attempt of *differentiation* within the discipline itself. This reaction is general, and articles challenging positivist IS assumptions are linked although being driven by different orientations. This is the case for instance of articles referring to power and politics in IS implementation (Markus, 1983), soft systems thinking (Checkland, 1981) and IS for competitive advantage and value adding (Porter and Millar, 1985) in EJIS, and, information and organisational design in MISQ (Daft and Lengel, 1986).

Differentiation is manifested by a division between positivism and what appears to be anti-positivism in various forms.

This apparent stage of differentiation also generates a number of small clusters which emerge in relation to potentially different types of research but we're not yet at the point of articulating their underpinning assumptions or being consolidated under specific and linked clusters. Connections are not strong between these clusters and seminal articles where assumptions about the nature of the phenomena to be investigated are explicitly declared (Hirschheim and Klein, 1989; Orlikowski, WJ and Baroudi, 1991). Within these clusters one could see that certain linked management and IT topics have lifecycles within the relatively new discipline of IS. For example, the business re-engineering hype of the 90s is reflected by clusters in early MISQ (Davenport, 1993; Hammer, 1990) and EJIS research (Davenport, 1993; Venkatraman, 1991) but disappeared from 2000 onwards.

In what appears to be a logical link that builds on the previous claim of differentiation within IS and research that abstracts paradigms beyond IS development (Hirschheim and Klein, 1989), an identifiable cluster is on *user satisfaction*. An example is the development of constructs like that of user information satisfaction (Ives et al., 1983) and DeLone and McLean's set of constructs to predict IS success (DeLone and McLean, 1992). These constructs help to identify aspects required in designing and maintaining information systems to develop IS usage and resulting benefits. While in early EJIS research, no strong cluster emerged that focused on user satisfaction and behavioral approaches (it seems to be linked to an alternative to positivist type of IS research as mentioned previously), MISQ shows two distinctive groups. The IS success model (DeLone and McLean, 1992) defines the first cluster and the technology acceptance model (Davis, 1989) the second dominating one. The latter construct is reflected much more strongly in MISQ. It was later enriched by different variations and extensions of the model, in particular by the very successful Unified Theory of Acceptance and Use of Technology (Venkatesh, Morris, Davis, and Davis, 2003). It should be noted that both seminal articles were also published in MISQ. Interestingly, the two clusters remained separated in MISQ, while they eventually converged into one in EJIS.

The middle period 2000 to 2004

Within this period certain varieties of research are being *consolidated* within what appears to be an interpretive umbrella in EJIS (figure 4) which first appeared in the previous period as a reaction to positivism and the areas it was claiming jurisdiction in. Several articles use core works of qualitative data analysis (Miles and Huberman, 1994), evaluation of interpretive IS research (Klein, H and Myers, 1999), building theory from case studies (Eisenhardt, 1989), using case research as a qualitative approach (Benbasat, Goldstein, and Mead, 1987) and grounded theory (Glaser and Strauss, 1967). Within this core umbrella, these and other core articles have been published in MISQ or in American management journals. Within this consolidation of interpretive and qualitative research, there are varieties (and thus competitors in possible conflict), like for example building theory from case studies, grounded theory, or case research. Stemming from this umbrella in EJIS (figure 3), there are two connecting articles between clusters. The articles are: The work of Walsham in interpreting IS in organisations (1993) and the work of Markus on power, politics and IS implementation (1983). Both of these aim to capture and reflect on human aspects that influence IS implementation and use. Linked to Markus' work, one of the emerging branches is that which is focused on IS success in organisations (DeLone and McLean, 1992), now an identifiable cluster in EJIS (it was identifiable in the previous period in MISQ). Linked to Walsham but also to Orlikowski and Baroudi (1991), there is a cluster that brings sociological and cognitive theories to explain how IS are (or not) designed, implemented

and used by individuals considering their particular circumstances and what they (re) create in action (Giddens, 1984; Suchman, 1987). The branching out of clusters confirms that there is further differentiation from positivist research into qualitative and interpretive, and an emphasis in either sociological or cognitive orientations to address what appears to be a theme of (successful) implementation and adoption of IS; the latter could be considered competing clusters. Moreover, the claims leveled by Walsham and Orlikowski appear similar, giving us the impression that they are *also* competing for becoming the reference articles for interpretive studies of IS in organizations.

Furthermore and not directly connected to the above umbrella and thus showing a potential source of conflict or competition to the theme of IS adoption, in EJIS there are several other clusters whose core articles tackle topics like:

- Sociology of information systems as actors and networks (Latour, 1987)
- Successful IT outsourcing decisions (Lacity and Willcocks, 1998)
- IT investment decision making processes (Irani, Ezingard, and Grieve, 1998)
- IS Usefulness as a predictor of IS acceptance (Davis, 1989)
- Knowledge management and organizational learning (March, 1991; Nonaka, 1994b)
- Systemic thinking (Checkland, 1981)

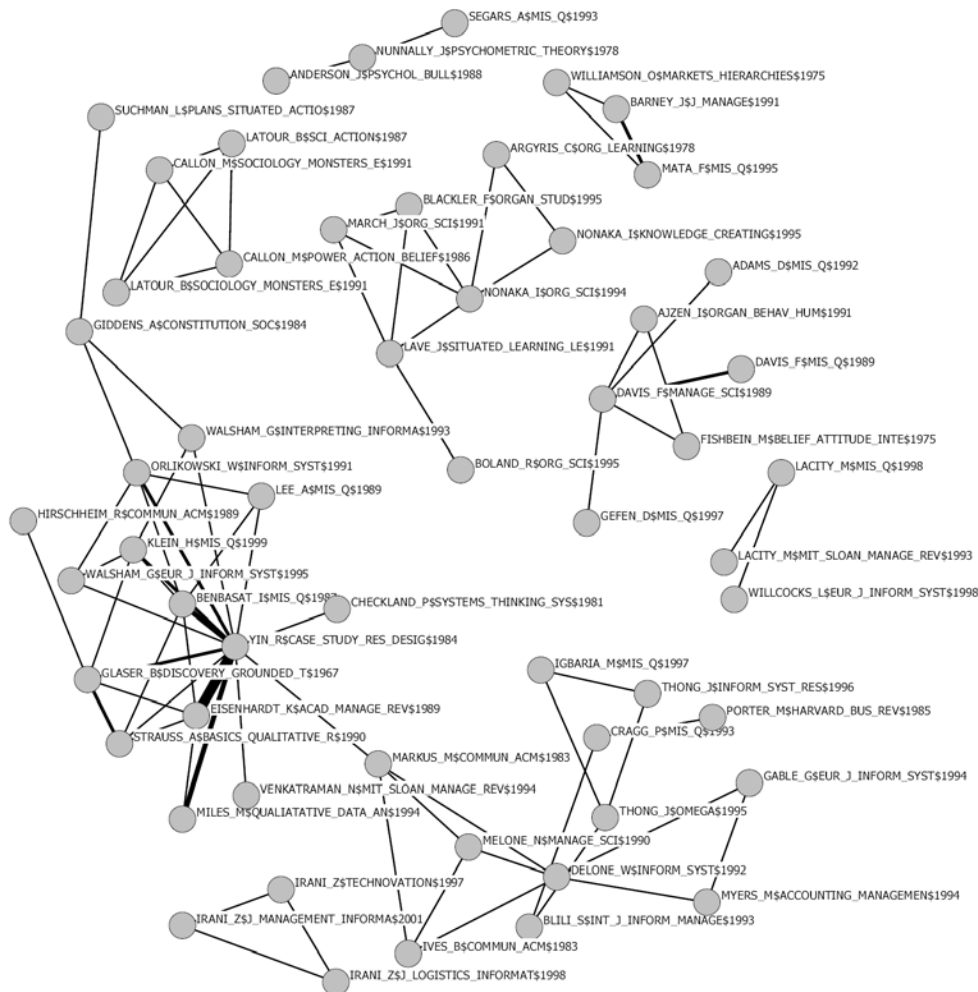


Figure 4. EJIS – Middle (2000-2004)

Some of the above clusters in figure 4 have similarities to previous ones appearing on the previous period (1995 to 1999) in MISQ regarding IS acceptance. This topic seems to run throughout both periods (1995 to 2004), and as it will be seen, research on it is now being consolidated and could be taken further in similar areas including diffusion of technology innovations.

Regarding MISQ and in relation to figure 5 below, the second period shows less diversity. While the unified positivistic acceptance and satisfaction research stream establishes itself even more tightly with links into its foundations in innovation diffusion (Rogers, 1962), a smaller connected group in the area of qualitative research methodologies emerged potentially supporting different themes in IS research. The co-citation network also shows an explicit new interlinked structure on dynamic capabilities (Teece, Pisano, and Shuen, 1997), IS capabilities and change (Rockart, Earl, and Ross, 1996), and the resource based view (Barney, 1991; Wernerfelt, 1997), which is less

pronounced in EJIS. Again, these knowledge areas are claimed from other disciplines, in this case from management.

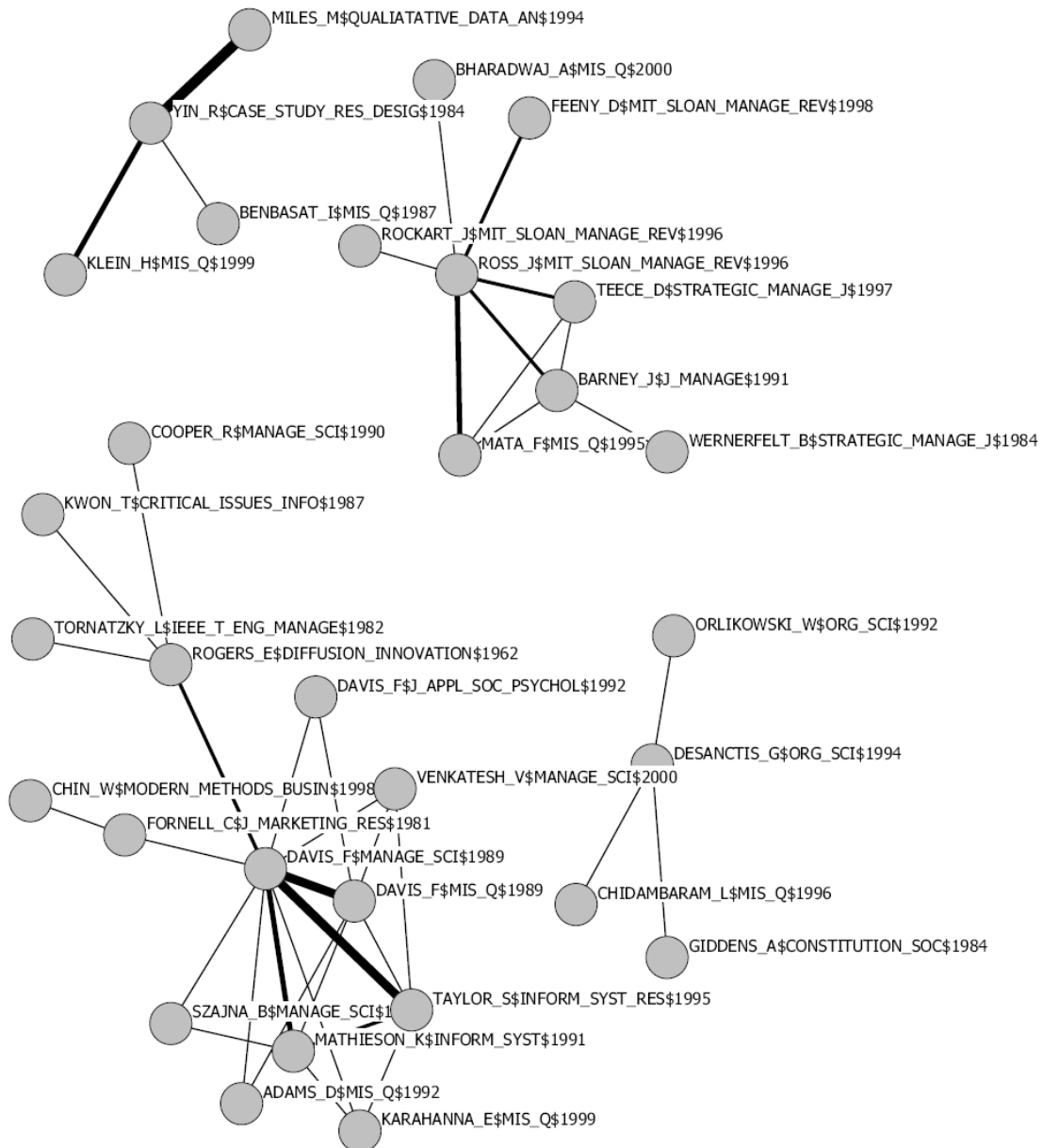


Figure 5. MISQ – middle (00-04)

Overall, this middle period of IS can be regarded as one of ‘branching out’ of IS into varied foci (e.g. IS diffusion, investment decisions, success, satisfaction). In the case of MISQ these varieties seem to be embedded into studying and managing effectively IS and its adoption in organizations. A clearer distinction of varieties of IS research can be distinguished to argue for potential competition / conflict between articles in terms of approaches within the same epistemology (interpretive and qualitative).

Last period 2005-2008

The last period in EJIS and MISQ (2005-2008) can be characterised as one in which efforts have been converging and consolidated towards the issue of understanding and managing (or even predicting) IS *acceptance* in organizations embracing previous theory at the outset of knowledge creation. IS success as a topic now is updated in a more holistic way (DeLone and McLean, 2003), possibly absorbing what the study of IS success achieved previously, and linked with similar issues like diffusion of innovations (Rogers, 1962). Similar work (i.e. satisfaction) (Ives et al., 1983) loses dominance or connection with the main issue of acceptance; acceptance is now 'better' researched in a more behavioral way (Taylor and Todd, 1995). That can be observed in both MISQ and EJIS as the following figures 6 and 7 show.

IS research focused on acceptance has taken a strong orientation towards a particular type of systems adoption (ERP) (Stefanou, 2001). In addition, it gathers but does not entirely subsume varieties of IS research epistemology regarding the focus of analysis (organisations), different human factors to be investigated in both individuals and organizations and the methods employed (case studies, surveys). Other epistemologies (qualitative research, case studies) maintain their separate identity.

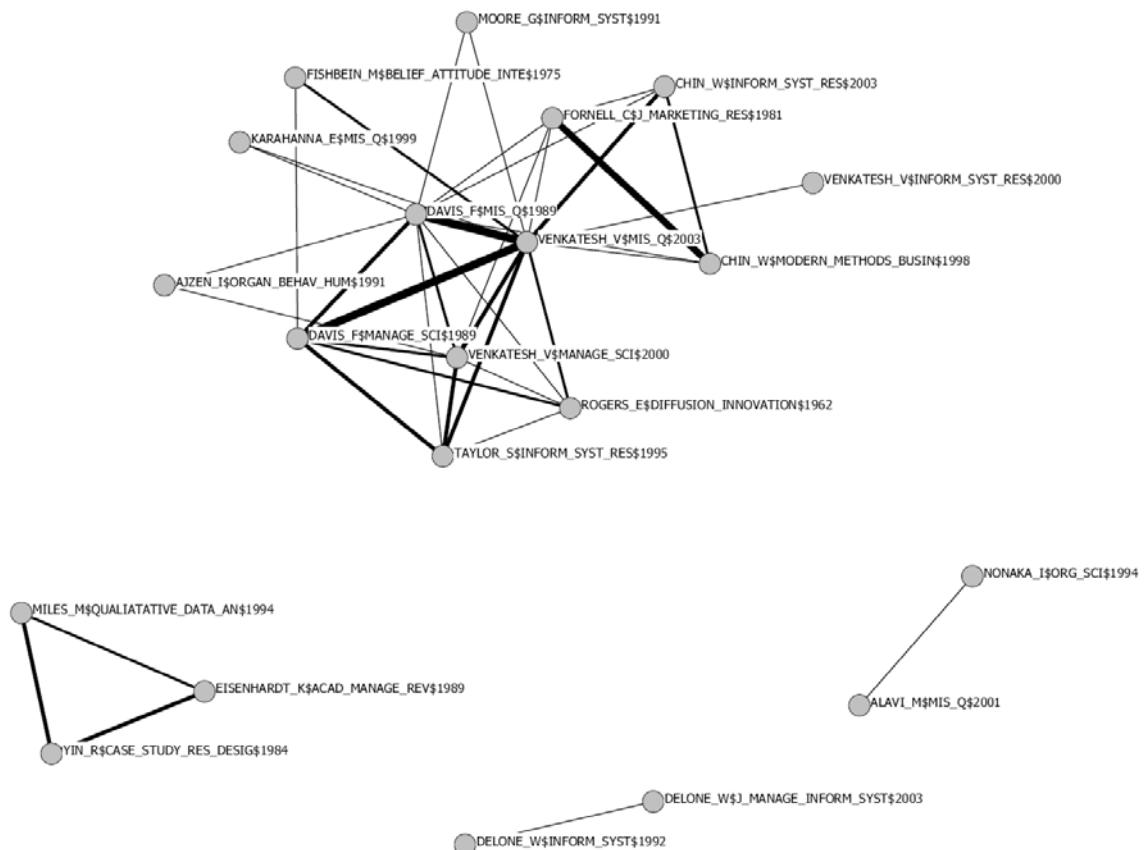


Figure 6. MISQ – late (2005-2008)

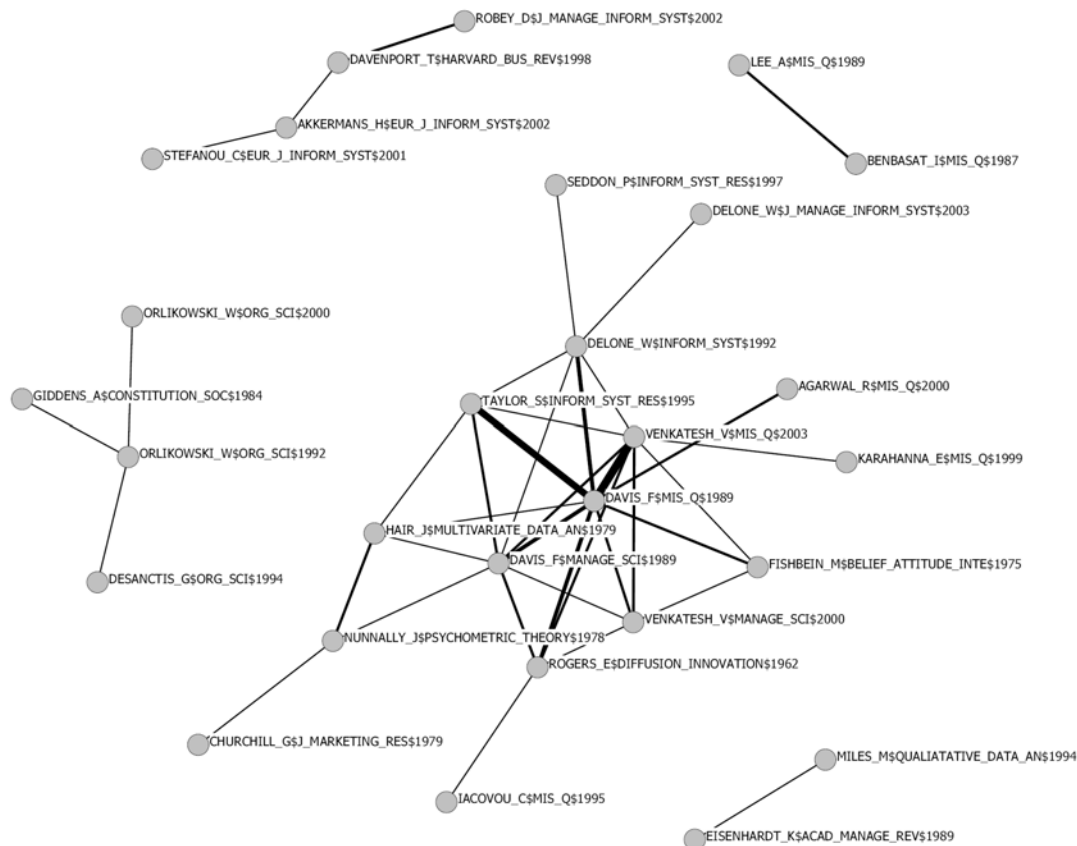


Figure 7. EJIS – Late (05-08)

Despite this dominance of acceptance, in MISQ, other competing but not dominant topics include conceptual work on knowledge management (Alavi and Leidner, 2001; Nonaka, 1994a), which temporarily appeared as dominant structure in the EJIS's previous period. In EJIS there are other varieties that up to this point in time keep their separate identity: One which values enactment and technology embedding in social practices (Orlikowski, WJ, 2000), and another that focuses on Enterprise Systems implementation (Davenport, 1998). In addition, in both journals the use of case studies and qualitative research (Eisenhardt, 1989; Miles and Huberman, 1994; Yin, 1984) remains unlinked to the main topic of acceptance, giving us support for the exploration of other (and possibly competing) foci. In MISQ though, IS research seems to be even less pluralistic, with clearer dominance of empirical, quantitative and positivist tradition.

Discussion

Our findings confirm the dominance of clusters around positivism in IS research as reported in previous studies (Chen and Hirschheim, 2004), currently focused on investigating IS acceptance as a consolidation of early work to understand user satisfaction (Ives et al., 1983) or IS success (DeLone and McLean, 1992). The findings also provide a more specific idea of the orientation of journals like EJIS on the issue of IS management in organizations (Dwivedi and Kuljis, 2008). However the lack of strong connection of qualitative and critical research (this one is absent lately) to IS acceptance led us to suggest that this type of research is not as strong as it has been

reported, or that it survives but within the margins. Moreover, it can be said that a great degree of 'consolidated plurality' of research epistemologies is reflected neither in EJIS nor in MISQ research, at least not in the ways in which people investigate IS adoption, use and acceptance.

This also means that our review of IS has shown an intensified trend towards unified positivist research in general which is more pronounced in MISQ. Constructivist and dualistic IS studies (Orlikowski, W, 1992), regardless of whether the data are qualitative or quantitative, are still present but relatively less manifested. However, IS as a discipline still sees as important to acknowledge the merits of different philosophical assumptions that can inform studies of the relationships between information technology, people, and organizations (Orlikowski, WJ and Baroudi, 1991). What we see is that there is a consolidation over taking jurisdiction on problems related to ensuring adequate IS acceptance which will continue, but plurality still operates and should continue to do so (Baskerville et al, 2010). For those who seem to be 'winning', and following Abbott (2001), for their consolidation to happen, they have to absorb the claims of those who are 'losing', which means that they will have to make sure their claims continue being comprehensive and relevant to the 'outside world' and not only self-perpetuating.

The consolidation of an area of research also means that methods and techniques to investigate it are becoming more sophisticated but also more portable so that newcomers can use them. In this case and again following Abbott (2001), IS could then be becoming more recognized by the use of a number of 'transferable' and 'portable' approaches to manage IS which could, at any time, be then at the service of other academic disciplines, in particular to investigate diffusion and acceptance of technology. This has a threefold interpretation: First, IS could be subjected to attack by other disciplines if the topic of acceptance has not been fully diagnosed, treated and classified; other disciplines can claim this topic as its own and use what has been achieved in IS to do it (to extend it or to refute it for instance). Second, it might be time for IS researchers and practitioners to infer, diagnose and treat problems *linked with* IS acceptance. Third, IS researchers and practitioners can then venture to claim jurisdiction with topics like *diffusion of technology* in different settings or different types of organizations, as this is an emergent area from which concepts and models have been imported. These are problems which other disciplines might still have control of, but could be addressed with existing methods/concepts already used in the IS field, and which are not which are not all being produced within IS as our findings show.

Limitations and further research

Two limitations of our study are acknowledged now. First, our study focuses on a particular level of analysis which might not have shown connections between articles and hence between areas which some IS researchers might find relevant to consider in mapping the unfolding of the IS discipline. In this regard, it might be worth considering a more detailed level and see if new connections modify our insights and offer new interpretation possibilities. Second, our interpretation of differentiations and consolidations has required us to assume that some groups have prevailed over others. It might well be that they have not become prominent through time due to several other issues, for instance academics and practitioners retiring or getting into other areas of practice different from IS, or environmental changes to which IS has responded (for instance the spread of internet technologies); these could contribute to influence the emergence of topics like user acceptance. We could expand our analysis in what we see as competing groups to see if they relate to each other in some way in order to fully assess the nature of 'conflict' between them, or if they have gone to publish in other outlets. In relation to these and other issues, it would be valuable to continue exploring the dynamics of IS as reported in these two *and* other journals as well as up to 2010 or beyond. For some, MISQ is the least diverse of IS journals

in the US (Vessey et al., 2002). A wider sample of journals could be chosen for further research, also considering other geographical and cultural contexts (for instance the German, Spanish or Chinese speaking communities). That will enable us to trace how IS is unfolding more globally.

5. Conclusions

In this paper a study of IS as a potential discipline has been developed which aims to understand the dynamics of IS. Using the work of Abbott on disciplines and how they unfold through stages of differentiation, conflict and absorption, we have employed a citation and co-citation of two key journals (EJIS and MISQ) analysis to distinguish certain features of the knowledge that has been produced in IS. From this analysis, it can be said that overall the multi-disciplinary and hybrid nature of a developing IS discipline remains visible over time as new topics from other disciplines emerge and submerge during our three-phased time window. These topics could be seen as fashion but others including knowledge management have become sub-disciplines or disciplines on their own. Our study can be used to continue validating previous assumptions about the extent of the knowledge base in IS in terms of how it is used within and outside the discipline.

In more detail, our insights indicate that IS has gone through stages of differentiation and consolidation, with a later stage of consolidation in what appears to be positivist research oriented to study and manage IS acceptance and use. There are still other varieties of IS-research that have been maintained through time: qualitative research and interpretive research are among them. These varieties are currently 'dormant', there is scope for thinking that their claims will resurface soon, either under another term or because IS professionals (both in academia and practice) find ways to make them more visible and with it to re-enact the status of IS within a cycle of natural regression (Abbott, 1988; Corbett and Van Wassenhove, 1993). A possible way to resurrect them is to link them to the topic of IS acceptance, or to review in more detail if dominant ways of researching it are now 'absorbing' or presenting those claims exhibited previously by alternative approaches to research it. In any case, this topic of IS acceptance merits further research and practical studies using other approaches and methods.

Our study makes the following contributions. First, it helps provide specific evidence as to how IS is currently dealing with phenomena of IS design, implementation and use in organizations. Second, it provides an approach to facilitate the identification of elements of knowledge being used in different periods of time, and in particular those elements that are still used by the IS community in their activity because of their relevance. Third, it allows us to propose a number of implications for the future of IS that we provide now for different audiences.

Those individuals interested in seeing IS as a discipline could claim that it now exhibits a selection of core concepts in particular relating to behavioral IS research on IS acceptance with common statistical measures of rigor and clear guidelines for validation (e.g. Boudreau, Gefen, and Straub, 2001). Within this area of jurisdiction of acceptance though, and according to Abbott (2001), there is scope to explore the different varieties that this type of research generates as IS continues producing new studies: Qualitative positivism, quantitative, and even critical; this could well be the first level of division of IS rather than that proposed in the past (Orlikowski, WJ and Baroudi, 1991). While established behavioral IS research seems to successfully provide generic cause-effect relations, constructivism and interpretivism to support generic means-ends relations exist but are less developed as structural knowledge groups. The current debate on IS design science calls for a change in incentive systems and stipulates abstract research processes and principles to protect a pluralism of methods (Oesterle et al., 2010). For IS practitioners this conclusion may seem worrisome, but the insights also signal that topics have matured within the

IS discipline, and they can find valuable knowledge by interacting with IS academics. In our view, this also requires IS academics, if they are interested, to facilitate further opportunities for dialogue by explaining how their research could address IS acceptance. Moreover and following from the above, IS academics could venture in further abstracting concepts, approaches and other elements to reveal regularities of different phenomena under the umbrella of IS acceptance as a way of protecting their jurisdiction so far gained. They can also use what has been done in this area to venture into other topics e.g. related to construction and diffusion. This latter aspect though, requires IS academics to continuously engage in discussions with those who up to now hold jurisdiction. If they are 'victorious', IS academics will have to absorb and enrich existing research in this area, and provide room in relation to concepts, methods and techniques used to study it.

For IS educators, our insights can lead them to support further education and research which is linked to the issue of acceptance. Our study shows how this topic has been addressed through different periods of time (IS success, acceptance, and possibly diffusion), how the study of IS in organizations has required a diversity of paradigms and approaches to deal with it, and how it still needs this diversity. This variety should be presented in equal terms to students and early career researchers. This is not to say that IS educational programmes should only be directed at studying and managing this topic. Rather, it means that IS and organizations have been linked through it, and that there are many other avenues to follow from this link, including de-linking both.

Finally, we concur with Bryant (2008)'s suggestions about the need to continue making IS as a 'permeable' discipline. Our findings show that early phases of IS focused on "ameliorating the introduction of technology into the organizational work place, where it was seen as a prime source of increased efficiency and enhance effectiveness" (2008, p.697). This needs not to be the case anymore. We should encourage our students to 'push' and 'pull', to borrow from and produce new ideas to other disciplines without trying to fully norm what happens or what does not happen within IS. IS acceptance and diffusion can be seen as signposts rather than goal posts. As IS educators, researchers or practitioners, we should support education and research which is independent from this and which, according to our findings, can stem from basic and accepted content (qualitative research methods for IS, interpretive IS research, IS case studies, enterprise systems) and which could then offer students a variety of perspectives and ideas. The door is open to continue developing IS and to continue studying problems of their adoption in organizations and elsewhere.

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