Article:
Burgess, TF, Grimshaw, P and Shaw, NE (2017) Research Commentary—Diversity of the Information Systems Research Field: A Journal Governance Perspective. Information Systems Research, 28 (1). pp. 5-21. ISSN 1047-7047

https://doi.org/10.1287/isre.2016.0657

DIVERSITY OF THE INFORMATION SYSTEMS RESEARCH FIELD: A JOURNAL GOVERNANCE PERSPECTIVE

INTRODUCTION

Much has been written about diversity in the information systems (IS) research field — but what do we really know about it? We know that diversity has attracted a good deal of attention and that researchers differ on whether research diversity is good (Robey 1996) or bad for the field (Benbasat and Weber 1996, Benbasat and Zmud 1999). Some contributors to this diversity debate (e.g. Landry and Banville 1992, Taylor, et al. 2010) have used Whitley's (1984) schema which categorizes the intellectual and social organization of scientific fields by three key dimensions that are subject to diversity: research topics, research methods and political dependence of researchers. The IS diversity debate centers on research topics and, to a lesser extent, methods; while the third dimension, encompassing social processes that govern knowledge production, has been relatively unexplored. If the IS research field is characterized as a socio-technical system of knowledge production, then social aspects (such as the relationships between the researchers working within the field) and demographic aspects are not only important in their own right, but also because they shape the technical aspects of topics and methods, and vice versa. We believe that IS researchers should reflect more on the diversity of the field's social and demographic aspects. In this paper, we intend to shed some light on these aspects and hope to stimulate the IS community's increased interest in the important challenges thrown up by social and demographic diversity of the research field. We pose a number of questions related to the knowledge gap in this social domain: how socially diverse is the IS research field when examined through the lens of social networks and demographic variables? How do social and demographic diversities relate to topic diversity?

To answer these questions, we focus on diversity of the editorial advisory boards (EABs) of 52 journals that the Association of Business Schools (ABS) identify as comprising the IS field[1]. These related groups of academics and, to a lesser extent, practitioners, constitute key governance mechanisms for the main knowledge production process within the IS research field. Our study shows that, in contrast to the high topic diversity that the contributors to the IS diversity debate identify, diversity of EABs is low for key demographic variables, with male researchers affiliated to US universities dominating boards. A major finding is that the IS research field can be split into two similar-sized groups of EABs that differ substantially on board member demographics, journal content, journal connectivity and journal quality grounds. A core group of journals is central to the social network constructed from board interlocks. Journals in this core group have, on average, more board members than those in the peripheral group, closer affiliations to business schools, less diversity of country affiliations and higher quality ratings. The journal content of this core group relates more to the interests of business school researchers; while the content of the peripheral group of journals links more to researchers in computing and engineering faculties. In the study's implications we draw attention to a key question for the IS field; is this major separation a healthy one — or is it a challenge to the field's identity?

The paper continues with a background section in which we discuss the meaning of diversity, how its impact has grown in importance in the IS literature and how it has been studied. We explain our approach and the different types of diversity that we study. Next the sample demographics and our main findings are presented. Finally, we conclude with comments on the study's implications.

BACKGROUND

What do we mean by diversity?

The Merriam-Webster on-line dictionary defines diversity as 'the quality or state of having many different forms, types, ideas, etc.' (http://www.merriam-webster.com/ accessed 3rd January 2015). Diversity has

[1] The ABS list is updated and refined on a continual basis. We use the fourth (2010) version of the ABS list. The latest (fifth) version was published in March 2015.

been much studied, but few papers explore diversity constructs in-depth. Harrison and Klein's (2007) paper stands out and is cited rather frequently (811 citations on Google Scholar, accessed 18th May 2014). They use diversity 'to describe the distribution of differences among the members of a unit with respect to a common attribute, X, such as tenure, ethnicity, conscientiousness, task attitude, or pay' (Harrison and Klein 2007 p. 1200). Diversity comes in different types, and they identify demographic and non-demographic as two major categories (Table A1 in the appendix illustrates the different types of diversity and places the diversity of the IS field in context). Demographic diversity covers generally the six main areas: gender, age, race and ethnicity, sexual orientation, religion and beliefs, and disability, while non-demographic diversity includes various aspects, such as research topic diversity.

Avison and Fitzgerald (Avison 1997, Avison and Fitzgerald 1991) see three elements within the IS field: namely education, research and practice. The IS literature has explored diversity in all three areas, for example, in education (Galliers and Huang 2012, Yurcik and Doss 2001) and in practice (Avison and Wood-Harper 1991, Hawarth and Van Wetering 1994, Kallinikos, et al. 2013). However, most of the literature on IS diversity has focused on diversity in research topics — as we show in Table A1. Diversity in other forms, e.g. demographic diversity of researchers, is little explored. In examining diversity of the IS research field, we are particularly interested in the differences between IS community members. A key unit we look at is the journal, or to be more precise, the journal's EAB. In this paper, we focus on IS research field diversity by exploring and connecting demographic and non-demographic forms of diversity for IS researchers.

What do we mean by research field diversity?

We take research field diversity to mean diversity in variables that characterize the research field. Benbasat and Weber (1996) separated research diversity into three areas: problems, theoretical foundations and reference disciplines, and methods. The IS research field, when viewed as a socio-technical system (Mumford 2006), is comprised of both technical aspects (e.g. research topics, and research methods) and social aspects (e.g. interactions between researchers). From the socio-technical

viewpoint the approach of Benbasat and Weber, and others, focusses on technical artefacts, such as knowledge topics and methods (non-demographic) to the detriment of social aspects, such as demographics of group members. The socio-materiality perspective (Orlikowski and Scott 2008) argues for the need to recognize the intertwined nature of the social and the technical. Some writers (e.g. Landry and Banville 1992, Taylor, et al. 2010) have adopted Whitley's (1984, 2000) approach to describing the IS (research) field with a schema that recognizes the field's social nature. Whitley (2000) identified three major characteristics of a field: (a) strategic dependence — the extent of political dependence of researchers in the field, (b) functional dependence — the degree of technical and procedural coherence within a field and (c) strategic task uncertainty — the extent of conceptual coherence within the field. These three major characteristics are important in influencing a field's social organization and its success in knowledge production.

Why is research field diversity important?

Diversity of the IS research field now features prominently in the literature, and many IS researchers recognize changing diversity as an important marker of the field's progress. During 1996–2005 approximately one paper was published per year referring to diversity across the two leading IS journals, MIS Quarterly (MISQ) and Information Systems Research (ISR). In contrast, over the period 2006–2013, annual publications of diversity papers quadrupled (Web of Science; accessed 24th April 2014). In total 38 papers have featured in the two journals since 1995; although not all these papers were related to the debate on diversity in the IS research field. Figures from Thomson Reuters also show that citations to articles with diversity in the topic field in MISQ and ISR have increased from one or two in the mid-1990s to approximately 250 citations per year over the years 2010–2013. The diversity debate has not been confined to these two leading journals and, indeed, first appeared in other places (e.g. Landry and Banville 1992).

The fundamental disagreement about what research diversity means to the IS field first surfaced in ISR with the two papers by Benbasat and Weber (1996) and Robey (1996). Celebrating the 50th anniversary

of the IS field's beginnings (Banker and Kauffman 2004), Hirschheim et al. stated that diversity ''is widely accepted as a hallmark of the field'' (2012 p.193). On the one hand, (research) diversity signifies to one group of protagonists that the field is fragmented, stagnating and lacking respect. On the other hand, opposing protagonists believe that diversity enriches the field (e.g. Robey 1996) and IS researchers should let 'a thousand flowers bloom'. Taylor et al. (2010) neatly squared the circle by showing how the IS field was a mosaic of diverse clusters each containing a focused grouping of topics that have evolved over time. King and Lyytinen's (2006) book makes a key contribution by collecting together and summarizing the substantive literature on the IS field's identity and legitimacy, and connects these ideas to the field's diversity. They use the phrase 'intellectual diversity' (p. 350), which appears similar to research field diversity. Table A2 (in the Appendix) illustrates in more detail the development of this diversity debate in the IS literature.

Our approach to research field diversity

IS journals form a major source of data for empirical studies of research diversity. Past studies have focused on journal article content, co-citations and co-authorships (see Table A1) with the former occurring more frequently than the latter. While previous literature on research field diversity focused on research-topic diversity, we extend the debate to the diversity associated with IS researchers and their research communities. We examine demographic diversity of IS researchers and diversity in their social networks. This latter type of diversity, i.e. a form of non-demographic diversity, we label social diversity.

Various methods can be used to identify IS researchers for study. We chose to use the EABs of IS journals as a way of obtaining a large and representative sample of the community of IS researchers. By IS journals we mean journals that aim primarily to communicate with the IS research community through published papers and are governed by the IS community. This focus ensures that board members of the sampled journals are highly likely to be rooted in the IS community. IS researchers publish in both IS journals and in non-IS journals (for futher on IS and non-IS journals see e.g. Walstrom and Hardgrave 2001), such as Harvard Business Review, Academy of Management Review and Management Science,

but the EABs of this latter group comprise researchers from a wide range of academic fields. While some of the non-IS journals may have separate sub-sections of their EABs specifically tasked with dealing with IS papers, we chose to focus our attention only on IS journals.

In our approach, we first group researchers serving on EABs of IS journals into communities centered on research topics and then examine how topic diversity links to social diversity within journal governance and demographic diversity. We take this approach because we suspect that a research community that is not socially and demographically diverse will not fully explore the diverse research topics and methods that exist. However, we also believe there is a fundamental argument based on equity that justifies the need for social and demographic diversity in any research field.

EABs of journals are important in the context of diversity

EABs occupy a fundamental role in influencing academic behavior (Braun and Diospatonyi 2005). Bennis and O'Toole (2005) see editorial board members as key gatekeepers and argue that academics must tailor their research to reflect this influence. Despite their importance, past research into EABs has been limited and patchy (Bedeian, et al. 2009). Some disciplines have engaged more with this style of enquiry than others, e.g. accounting (Lee 1995) and sociology (Platt 2007) stand out. Researchers have introduced a novel approach recently by using social network analysis (SNA) (Scott 2003, Wasserman and Faust 1999) to gain insight into the important aspect of journal governance (Baccini and Barabesi 2010, Burgess and Shaw 2010). More recently EABs of information systems journals have been examined using scientometrics (Cabanac 2012) and SNA (Baccini and Barabesi 2011), although the latter study combined information and library sciences.

How we study demographic diversity

Harzing and Metz (2012, 2013) refer to 'diversity management theory' and propose that 'a team of individuals with a common background will share common experiences and paradigms' (Harzing and Metz 2012 p. 697) and as such be less receptive to alternative views (Feldman 2008, Ozbilgin 2004).

They suggest that teams lacking in diversity will also lack resources to be more innovative and creative (Cox and Blake 1991). Thus, demographic diversity is a key driver of organizational competitiveness (Robinson and Dechant 1997) as well as a key driver in academia for knowledge development by applying different methodologies and paradigms. Organizational research concentrates on such demographic features as gender, organizational affiliation and geographical location; these are 'visible' sources of diversity (Milliken and Martins 1996). These variables are used because of their fundamental nature, but their data are also easier to access than data on less visible sources, such as social class, economic status or race/ethnicity. In our study, we include gender, organizational affiliation, departmental affiliation and geographical location.

Gender

Research on gender is underpinned by moral-ethical and economic arguments for gender diversity and by evidence of discrimination against women in the workplace. Researchers such as Howcroft and Trauth (2008) have highlighted the issue of gender within the IS field. Metz and Harzing (2009) identify women's lack of participation on editorial boards and list three explanatory factors. (1) Many women have not been in academia long enough to reach levels of seniority associated with board membership. (2) Higher ranking journals correlate positively with a higher number of women on the editorial boards, but there aren't many journals in the higher ranks. (3) Journals with a history of female employment are more likely to have a higher proportion of women on the board, but similar to the previous point, there are limited numbers of journals of this type.

Organizational affiliation

Where a researcher works is a key pointer to her/ his research interests, expertise and status. Many researchers work in universities, but researchers also work in organizations outside of higher educational systems, e.g. corporate research laboratories, on research that may be more related to practice. High status organizations are believed to attract high status researchers; however university status is correlated with location.

Departmental affiliation

IS community members in universities are spread across faculties including business, computing science and engineering. We identify business school affiliation as influencing researcher interests and contrast it with other 'departmental' affiliations. For example, computing-affiliated scholars are more likely to be interested in the IT artefact itself, whereas business school academics are more likely to be interested in its impact.

Geographical location

Geographical location acts as a proxy for a set of cognitions and beliefs (Joshi, et al. 2011 p.10) and therefore a key factor influencing researchers. Galliers and Meadows (2003) analyzed four journals to define the 'nationality' of the journal from the geographical location of the board member's organizational affiliation. They connected the journal's nationality with the characteristic of the papers they published and showed that this related to the author's nationality and that of the literature they tend to cite in their papers. They argued that this parochialism contributed to the separation and diversity within the intellectual field.

Harzing and Metz (2013) examined the editorial boards of 57 management journals over 20 years and concluded that the internationalization of editorial boards is considered important for the creation and spread of management knowledge. They found evidence that editorial board members are likely to come from the editor's home country; journals focused on international business are more likely to have a more diverse editorial board make-up; and finally that home country domination declines over-time. Among the factors reinforcing a lack of geographical diversity of editorial board members, Harzing and Metz (2012) found a strong correlation between editorial board membership and attendance at top US conferences; however, attendance at European conferences was only indicative of European editorial board membership. They also showed poor representation of countries where 'average' levels of English language exist. English-speaking US organizations dominate academic fields (Singh, et al. 2007), as in their emphasis on 'hard science' approaches with an alleged over-emphasis on the technical to the

detriment of other issues (Swanson 2004). Vessey et al. (2002) revealed the dominance of hypothetic-deductive study methods in a review of citations in IS journals over 5 years (1995–1999). High organizational reputation is correlated with US location, and reputation is expected to impact on diversity since high status organizations will contribute prominently to any disciplinary discourse.

How we study social (network) diversity

Where a researcher serves on two different boards, then the two boards are 'interlocked'. Interlocks can be interpreted in various ways. One way is that the journals are similar, e.g. in content and/or practices, and the same researcher is seen as suitable to their needs. Another interpretation is that the interlock bridges the two boards and permits social interaction and communication between the two. The number of times that a journal EAB interlocks with other boards can be taken as a measure of diversity. Social network analysis (Scott 2013, Wasserman and Faust 1999) is a standard way of analyzing board interlocks and was applied here. SNA was carried out and diagrams (sociograms) were constructed where a node represents a journal board and an undirected arc connecting two nodes indicates that at least one individual is affiliated to the EAB of both journals. The initial sociograms in our analysis depict binary networks where a connection either exists or not. In a later sociogram, the connection is weighted by the number of EAB members, i.e. the arc is valued according to the number of members common to the boards of both journals.

How we study research topic diversity

Previous studies have taken a number of different approaches to topic diversity (see Table A1). Our focus on EABs requires an approach to topic diversity that is journal-, rather than article-, directed. We chose to cluster the sampled IS journals into seven sub-fields (communities) based on content affinity of the journals using the latent semantic analysis work of Larsen et al. (2008).

The sampled journals

Taylor et al. (2010) refer to the 'basket of journals' problem, i.e. study results on focus and diversity are sensitive to the choice of journals (Chua, et al. 2002). In selecting a comprehensive and representative journal set, we had to look further than the well-regarded, but narrowly-drawn, lists, such as the Financial Times, the Tulsa list and the Association for Information Systems (AIS) Senior Scholars' Basket of Journals comprising the eight most prominent journals in the field (http://ais.site-ym.com/?SeniorScholarBasket). We required a sample that was not limited to the so-called 'top' journals, i.e. those rated highly in terms of quality and presumably containing top academics on the EABs, since our aim was to examine diversity in a broad sample of journals that represent the whole IS community. However, within the analysis and results we do identify top journals.

Guidance on sampling usually recommends as large a representative sample as possible. This is particularly the case with SNA where high sampling proportions are required (Scott 2013). Various comprehensive lists exist of journals where IS researchers publish. However, as indicated earlier, such lists usually comprise both IS journals, whose EAB members belong primarily to the community of IS researchers, and non-IS journals, whose EAB members do not primarily belong to the IS research community. For example, as of 26th November 2014, the AIS list (http://aisnet.org/?JournalRankings) had 109 entries that included, among others, Management Science and Harvard Business Review — non-IS journals whose readership and editorial governance do not lie predominantly in the IS community. Of more relevance to identifying IS journals is the sub-set of the Association of Business School's (ABS 2010) Journal Quality List that includes 52 journals in what is termed the Information Management[2] category, i.e. journals that specifically study information systems and information technology and information processes. Table A3 (in the appendix) lists the names (in full and in short form) and ISSN codes for the 52 IS journals. The full ABS list is a comprehensive index of 813 journals that business school academics publish in. The list is divided into subject categories; and an academic panel allocates journals to these categories and also assigns a journal quality score. The ABS quality scores range from 1

[2] We choose to use the more familiar term information systems in this paper.

to 4 where 1 represents journals that are 'modest standard', 2 – 'well regarded', 3 – 'highly regarded' and 4 – 'top journals including world elite'.

Measuring diversity

We use Harrison and Klein's (2007) approach to diversity as the basis for our analysis. They identify three components of diversity between members of an organizational group: separation (differences in position or opinions), variety (differences in kind or categories) and disparity (differences in concentration of social assets or resources). All the demographic characteristics (gender, organizational affiliation, departmental affiliation and geographical location) are categorical variables and fall within Harrison and Klein's variety aspect of diversity where they recommend diversity of such a variable should be measured by one of two indices, Blau or Teachman. The Blau index is preferred because of its ease of interpretation, i.e. it takes a value between 0 and 1where 1 is the highest diversity. For dichotomous variables, such as gender, the proportion can be used in place of the Blau index. We followed the strategy of using the proportion for dichotomous variables and the Blau index for other variable types. The calculated summary measures of the (within-board) diversity for each EAB are given in Table 1.

Harrison and Klein point out that many studies of diversity are single level where analysis focusses on the diversity between individuals within the unit. If we concentrate on diversity between units, or between clusters of units, then in Harrison and Klein's terms, we are carrying out a multi-level study. When we cluster boards into communities, then each cluster becomes a unit at a higher level. With clustering the summary measures that have been calculated for each board become the characteristics that differ when we calculate the within-community (i.e. between unit) diversity. Measures, such as Blau's index for an individual organization, i.e. a measure of variety at the lower level, then fall within Harrison and Klein's scheme of separation when the diversity of the indices are assessed within-cluster. Harrison and Klein recommend the standard deviation as the measure of separation diversity. Measures, such as journal quality ratings that have a status value attached, are disparity metrics of diversity within-cluster.

Data collection and analysis

Data for the characteristics of the EAB members of the 52 sampled journals were obtained from publishers' and journals' websites and cross-checked against individuals' pages on the website of their primary organizational affiliation. Data accuracy depends on the quality of data published on websites, which can be variable. Obtaining and checking the data manually is also time-consuming and relies on fallible human beings; therefore, it would be foolish to claim 100% data reliability. However, using data from websites does have benefits in that ease of public access to data enables comprehensive cross-checking. The data collection method has been used successfully in prior studies (Baccini and Barabesi 2011, Burgess and Shaw 2010).

Earlier sections explain that the study links topic diversity to social diversity and demographic diversity; these earlier sections also explain the selected form of analysis. The analysis started with entering the collected data in to Excel and a number of validation procedures undertaken. Excel and SPSS were used to calculate measures of diversity and descriptive statistics for all demographic variables. These calculations were carried out for the seven communities arrived at by Larsen et al. (2008) based on content affinity, and for the whole data set. Differences between communities were statistically tested using SPSS. Analysis of the social network and its diversity was carried out using Netdraw and UCINET (Borgatti, et al. 1999).

FINDINGS

Sample Demographics

The IS data set covers 52 journals with 1932 individual researchers occupying 2425 editorial board memberships, and affiliated to 788 organizations located in 61 countries. The EAB sizes of IS journals vary from 15 to 93 with a mean value of 46.6 (Table 1), sizes consistent with those in Cabanac's (2012) study of 77 IS journals. The distribution of ABS scores for IS journals is not significantly different from that for the overall ABS set of journals (Chi = 2.75, p = 0.432), suggesting that in terms of ABS quality scores, IS journals are no more diverse than the general population of business and management journals.

Apart from the board sizes and the ABS scores for each journal, Table 1 contains various measures of within-board diversity. Several dichotomous variables are included, such as the percentage of the EAB who are male, percentage affiliated with a university and the percentage affiliated with a business school or similar grouping (e.g. college or faculty whose main association is with business). The individual percentages are shown for these dichotomous variables rather than Blau indices, since in this form the reader may more easily understand them. However, with dichotomous measures high (and low) values indicate low diversity, while the scale midpoint is the highest level of diversity. For those variables containing three or more categories, i.e. board member organizational affiliations and country of organizational location, the Blau diversity indices are given.

Take in Table 1

The Editorial Advisory Board Networks

Figure 1 shows the sociogram for the 19 journals in the MIS community. Each node represents a journal and an undirected arc joining two nodes indicates at least one individual that sits on the EABs of both journals. Figure 1 shows a binary (i.e. un-weighted or unvalued) network, as do Figures 2 and 3 that appear later. The more the number of connections that a journal has with other journals, i.e. the node degree, then the more centrally the journal is positioned in the sociogram. In SNA the centrality of a node can be measured in various ways, but the simplest metric, and the one we use, is the node (or actor) degree (Wasserman and Faust 1999 p. 178).

The set of journals in Figure 1 form, on the whole, a well-connected set of EABs with a network density of 46.2%. The individual journals display diversity in their connectivity within the MIS community in that IIE-T (placed at the top left of the figure) does not connect with any other journals; while the most-connected journal, JSIS, connects to 14 out of the other 18 journals and is placed near the center of the figure.

Figure 2 shows the network for all 52 journals with the shape and color of the node representing the journal's community allocation. IIE-T connects to just one of the other 51 journals while two journals (BJET and IEEE-TSMC) have no interlocks with any other journals. JSIS is again the most-connected

journal with interlocks to 26 other journals. The density of the full network is 21.9%, lower than the 46% for the MIS community. This is not unexpected since the full network includes both within-community connections and between-community connections; with the latter expected to be sparser than the former.

Take in Figure 1

Take in Figure 2

Finding 1: Social diversity of EABs and topic diversity of journals are correlated

Within the full social network (Figure 2), EABs clustered into sub-groups that correlate with the a priori communities formed on journal content. This clustering together of nodes (i.e. journals) into communities provides support for the correlation between a journal's position in the social network and their allocated community. This suggests that social diversity of EABs correlates with the topic diversity of the journals that the boards serve. Allocating the IS journals into communities presented some difficulties with identifying coherent sub-groups within the IS field, both when looking for closely-connected network components (Figure 2) and using hierarchical cluster analysis (not shown here). Such difficulties are consistent with making sense of a diverse field. However, given that the starting point was communities that Larsen et al. (2008) defined by using co-word analysis of journal article content, our analysis of EAB data generated encouraging results compatible with these structural features.

Finding 2: The journal network has a business-related core and a computing-related periphery

The EABs forming the communities were further aggregated into a core and a periphery for the overall network using an approach based on Stokman and Snijders described in Scott (2013 p. 91). Figure 3a shows the central core comprising three communities (EC, G&S and MIS); while the remaining four communities (HCI, ISR, KBS and SSE) comprise the network periphery (see Figure 3b). The connections between the two network components can be matched analogically with the well-known phenomenon of strong and weak ties (Granovetter 1973). The journals in the periphery can be seen to be connected to the core journals by weak ties, i.e. ties with a low number of interlocks, which enable the import of innovative knowledge from the periphery to the central core. In line with Granovetter, journals connected with strong ties are less likely to exchange innovative knowledge.

Take in Figures 3 (a & b)

Based on the journal content signified by the community names, the core is formed from a core set of journals with affinity to business schools (BS) — while the outer (periphery) cluster contains journals related to topics with more affinity to computing or computer science (CS). Clearly the results are a product of the 52 journals allocated to the ABS Information Management list, and a different list would contain some differences in the results; however we believe that the comprehensiveness of the ABS list enables the study to identify discernible phenomena of the IS research field.

Finding 3: The core and periphery differ significantly on both demographic and non-demographic measures of diversity

The core (business school) journals differ significantly from the periphery (computing) journals on non-demographic measures of diversity: governance structure (e.g. larger size), community relationships (e.g. higher degree), and journal quality (i.e. higher ABS score) (see Table 2). On demographic measures, the two sets also differ significantly with the business school journal set more organizationally-concentrated, more geographically-concentrated, more US-concentrated, and members are drawn more from universities than other organization types. Gender is the only measure that the two groups did not significantly differ on: males dominate both core and periphery groups.

Take in Table 2

The two groups are located in different areas of the academic terrain with presumably two different influencing cultures: computing is located in the natural and engineering sciences, while business is within the social sciences. This may explain partly the discerned differences and diversity between the two groups. Separating the IS field into business and computing elements is comparable with the technical and socio-technical split that Taneja et al. (2009) make in their citation-based SNA study of computing journals. Polites and Watson (2009) also classified journals in a related way in a similar study but of a wider set of journals.

Finding 4: Information Systems is a polycentric field

Landry and Banville (1992), using Whitley (1984), classified IS as a 'fragmented adhocracy' or a discipline that has low reliance on previous studies, little need to convince colleagues of rigor of research and no agreed hierarchy of research problems. More recently Taylor et al. (2010) have also used Whitley, but to characterize the field as polycentric. A polycentric field is characterized by high strategic dependence between researchers and high strategic task uncertainty; that is, researchers depend on strong relationships with others for reputation and resources, while conceptual coherence in the field is low. Social network analysis is an important way of making relationships between researchers visible; and offers evidence to help decide between the two diagnoses.

Diagnoses of adhocracy have tended to de-emphasize, or even ignore, Whitley's (2000) criteria of strategic dependence; whereas the diagnosis of polycentricism relies on the recognition of high strategic dependence, i.e. strong social relationships. Using SNA to connect EAB members ensures that the criteria of strategic dependence is taken formally in-to account in making a diagnosis, e.g. polycentrism is linked with a dense network. Further than this, SNA helps to identify the polycentric characteristics of focus and diversity in the field. The analysis clustered the boards in to strongly-focused topic-related communities, and then further aggregated them into the two network components of business-related core and technical-related periphery. The tension identified between the strong core and the weaker periphery can be likened to the tension between Mode 1 focus and Mode 2 diversity that Taylor et al. (2010) describe as likely to be associated with a polycentric form of organization. The analysis shows the diversity within and between the communities; and similarly for core and periphery of the network. Demographic data, such as gender, geographical location and business school membership have been useful in discerning focus and diversity between EABs of the IS field.

Finding 5: The strong ties at the center of the network do not necessarily reflect journal status

Figures 1, 2 and 3 used a binary network approach where a tie between two boards either exists (one or more members on each board are common) or it doesn't (there are no common members). We extended

the analysis of between-board diversity by examining the tie values where the value for a tie is the number of EAB members that link the dyad of journals together. The maximum tie-value in the network is 12, i.e. two journals both have the same 12 individuals as EAB members (between ISR and JAIS, and also between JMIS and IJEC). This analysis concentrates on ties with values of 6 to 12, which are treated as strong, while 5 and below are treated as weak. The network of strong ties contains five components: a central component of 15 journals, three components each comprising isolated dyads and an isolated component connecting four journals. Figure 4 presents this central component with nodes repositioned to better see the constituent journals and their relationships. Fourteen of the fifteen journals were allocated in the earlier analysis (Figure 3) to the core of the (overall) network; the exception is the Database journal, which is located in the ISR community and therefore in the periphery.

Take in Figure 4

An interesting aspect of the figure is that the two highest rated journals, ISR and MISQ (both rated 4 by the ABS), lie on the edge of the core network despite their status within the field. On the other hand, a number of lower-scoring journals occupy central positions in the network, like JAIS, JMIS and JSIS[3]. The position of JAIS is particularly notable since it connects strongly to seven other journals in the group. Why JAIS should occupy this brokerage role is not obvious; and this intriguing position is further accentuated by the majority of the journals in this set belonging to the MIS community, while JAIS is in the GS community. Unfortunately, JAIS is not included in the citation-based SNA study of Taneja et al. (2009), which would have provided a useful comparison. However, JAIS is present in the similar study (Polites and Watson 2009) mentioned earlier but does not occupy a prominent role. Conversely, in the Polites and Watson study, CACM occupies a key role in linking between IS journals and between IS and computing journals, whereas in this study, it lies in the periphery of the network and lacks prominence. Two four-sized cliques are present, i.e. sets of four journals that all connect strongly to every other member of the clique (DSS, JMIS, IJEC and ISF form one clique and ITP, IO, ISJ and JIT form the

[3] It may be that the scores in the ABS 2010 list underestimate the values of JAIS and JMIS since they were upgraded from 3 to 4 in the 2015 list http://www.bizschooljournals.com

other). Also, a number of three-sized cliques can be observed in Figure 4. Returning to the two four-member cliques in Figure 4, these demonstrate the strong connections within the central core of the network. One of the cliques is comprised of all MIS community members, while the other clique is comprised half from MIS and half from EC, showing how strongly bound these two communities are.

Perhaps the comparative isolation of both MISQ and ISR journals within Figure 4 reflects their high standing — their network position reflects their role as elite journals that are used for US tenure decisions. Noticeably the two journals are not directly linked in Figure 4, signifying an absence of a strong link, but they are in fact linked weakly. This weak connection may be by design and might reflect competition between the two journals. Citation studies do assign a prominent role to MISQ in terms of its central and bridging roles in the network, a prominence not duplicated in our study. Although networks based on citations and on EAB membership do have general similarities, the variations discussed above point to the differences between the results of the two types of studies. Although the raw material for both studies arise from social processes, citation studies presumably reflect data more indicative of an 'objective' evaluation of the validity of journal knowledge claims than EAB studies. EAB studies reflect a wider and more subjective set of factors capable of influencing appointments of individuals to EABs including eminence in the field, publishing record, and contribution to service by, for example, commitment to reviewing for the journal.

Finding 6: Demographic diversity is low in the IS field

Gender diversity

The results suggest a substantial imbalance in the gender composition of EAB members with over three quarters of the dataset male (Table 1), but the proportion varies from an equal gender representation in some journals to five journals with over 90% male representation. The average female proportion of 22.5% differs significantly on a Chi square test (Chi square = 4.1, 1 degree of freedom, p=0.04) from the 25.3% of females reported by the Association to Advance Collegiate Schools of Business (AACSB) in the Computer Information Systems (CIS)/Management Information Systems (MIS) field in 2012/2013 for

the full-time faculty in its member business schools (Flynn, et al. 2015). Because this is a cross-sectional study, the results provide a snap shot, at the time that data were collected, of EAB's gender diversity. Clearly, the IS field is an evolving one and aspects, such as gender composition, do not stand still. In that respect, today's female representations on EABs could reflect less diverse situations in the whole field that applied previously. One could argue that EAB members, by their nature, are not representative of the general set of current IS researchers, and therefore EAB diversity measures may not be representative of the IS field as currently constituted. In particular, EAB membership is expected to be correlated with career seniority, i.e. the more senior the individual's status then the more likely he or she is to be an EAB member. In this respect, it is worth noting that female representation in the AACSB dataset is negatively correlated with employment status: the proportion ranges from 17.7% for full professors, to 24.1% for associate professors and to 32.2% for assistant professors. This impact of seniority on representation is evident in our EAB dataset in that only 7.7% of editors-in-chief are female, i.e. significantly less than the 22.5% female proportion of EABs mentioned above (Chi square = 7.75, 1 degree of freedom, p= 0.005) and significantly less than the 17.7% of the CIS/MIS field that are full professors (Chi square = 4.13, 1 degree of freedom, p = 0.04).

Organizational diversity

The diversity of organizational types in the sample is low with the primary affiliation of EAB members mainly to universities and similar academic organizations, with a mean of 90.6% of this type in each board (Table 1); it is not uncommon in some sampled journals for this proportion to reach 100 percent. The lowest percentage of EAB members affiliated to academic organizations is 63% (CACM), i.e. this journal is the most diverse in terms of members affiliated to different organization types. The diversity of individual organizations within the studied boards, given by the Blau index of organizations, is high. The most-frequently occurring organization in the data set is Georgia State University with 28 board memberships split across 14 journals. Of the 24 organizations with the highest number of EAB members, 18 are based in the US, with 4 in the UK and one each in China and Singapore.

Departmental diversity

On average, within-board diversity on the affiliation to business school measure is low, given that the mean is 36.9% (Table 1). However, the value ranges from 0 to 96.3 across boards with a standard deviation of 32.6 showing that between-board diversity is high.

Country diversity

A good proportion of sampled journals' EABs are dominated by member affiliations to US-based organizations, e.g. 22 out of 52 journals have more than 50% of members affiliated to US organizations (Table 1). The mean Blau index of 0.678 perhaps understates the situation, since this value reflects that a high number of board members drawn from US organizations are offset by board members drawn from organizations in a good number of countries that only occur once or a limited number of times. For the overall data set, the top five countries are: 48.5% of board members affiliated to US organizations, 13.7% to the UK, 4% to Canada, 3.9% to Australia and 3.1% to China. These values also demonstrate the dominance by countries whose primary language is English[4] — with the first four countries comprising 70% of the board memberships. Although in general, the US dominates the data set, the between-board diversity is reasonably high as demonstrated by the high standard deviation of 21.8 (Table 1). Not all sampled journals have the US as the largest group of country affiliations of board members.

Finding 7: Demographic and non-demographic diversities are correlated

Table 3 shows significant correlations between diversity measures and, in particular, correlations exist between demographic (D) and non-demographic (ND) variables. All three non-demographic variables are significantly correlated with each other while the correlations between demographic variables are fewer and most involve correlations with business school affiliation. Board size, ABS score and degree, are positively and significantly correlated, suggesting that more successful journals (as measured by ABS score) tend to be larger and more socially-connected. Larger boards (ND) are also associated with higher proportions of members drawn from US business schools (D). It is not surprising those journals whose

[4] Canada has both English and French as the official languages of the federal government.

boards display higher levels of business school affiliation (D) are associated with higher ABS scores (ND) given that these scores are determined by business school staff for business school staff. Board size and business school affiliation correlate positively with organizational affiliation diversity, i.e. the larger the EAB and the higher the business school representation, then the more diverse the set of organizations represented on the board. However, the more that business schools and US organizations are represented on the board, then the lower the country diversity. The Blau index for countries is negatively correlated with a number of other study variables including ABS score. This suggests that the more diverse the country distribution of EAB members, then the lower the journal quality and the less central its position in the network. The Blau country index is also strongly and negatively correlated with the percentage of US-affiliated board members, i.e. the more diverse the board is, then the lower the US affiliation. Affiliation to business schools is the variable that is most correlated with others, while the least correlated variable is percent male; which is significantly and positively correlated with one other variable, that of business school affiliation. The more business school oriented an EAB then the lower the female representation, a somewhat counterintuitive finding. Notwithstanding the above points, the correlations indicate the need for further work to understand and explain the intricacies of diversity in the IS research field.

Take in Table 3

CONCLUSION

This study has systematically examined diversity of EABs for a comprehensive set of IS journals. In so doing, the study has widened out diversity research in the IS field from its existing narrow concentration on technical aspects, such as the diversity of research topics in published journal articles, to explore diversity in the social, political (i.e. journal governance) and demographic domains. The study suggests strongly that journal EABs are dominated by US-based organizations and their male faculty. We have studied the EABs within the population of IS journals both as individuals and in intellectual communities that reflect affinity through subject content. Links have been uncovered between social diversity,

demographic diversity and topic diversity. Overall, we have identified a position that fits with the Taylor et al. (2010) polycentric view of focus and diversity in the IS field. Furthermore, we have demonstrated grounds for separating the IS field in to a more focused business-school-related core set of journals and a more diverse technical periphery. Our study evidences that the two network components differ significantly on characteristics, such as EAB size, business school affiliation, country affiliation (particularly US affiliation), ABS quality score, and degree centrality. As King and Lyytinen (2006) show diversity is often discussed in conjunction with the identity of the field. Herein lies a particular challenge to the IS field in that its social, demographic and knowledge structures coincide in displaying what one could describe as a split personality.

Implications

So what are the implications from our study for those in the academy? First we argue that the study illustrates that the interest in diversity in the literature is narrowly-focused on topic (and method) diversity and in need of widening out to other social and demographic areas. Evidence exists in academia that where diversity is not valued, discrimination occurs (Barbosa and Cabral-Cardoso 2007). We contend that members of the IS field should recognize more the socio-technical basis of their research endeavors and not concentrate too narrowly on the technical side of matters in their research. We believe we have shown one way of expanding diversity study by our investigation of journal governance. In addition we believe other types of study could be, and should be, constructed to look at diversity in further facets of the IS field. Our study is very much empirically-focused and is in the vein of what Avison and Malaurent (2014) would call "theory light"; but this points to opportunities for more research of a "theory-heavy" nature.

Like any study, ours has limitations - with the main ones covered at relevant points earlier in the paper. However we make some general comments here about limitations and future research possibilities. When using social network analysis "boundary issues" are a key concern (Laumann, et al. 1983); i.e. what is

included within the boundary of the study and what is excluded. Our choice of the ABS list as our sampling frame sets the boundary for our study and excludes what Walstrom and Hardgrave (2001) term "non-information systems" journals such as Management Science. Clearly these limits leave room for future research that could be mounted, with a different boundary that could include "non-IS" journals and/or a more comprehensive set of journals. A wider set of demographic data could be collected in future studies. As Altman and Laguecir (2012) point out, this type of study could be widened out to include data on ethnicity and country of origin. The dataset is a cross-sectional one that captures a snap shot of what is a dynamic process whereby researchers join editorial advisory boards, and others leave, on a continuous basis. This points to the opportunity for longitudinal studies to explore the ongoing process. Our study relies methodologically on social network analysis and straightforward statistical analysis. Clearly there is room for future work using other analytical approaches, e.g. surveys or case studies, to extend the innovative work (Cronin 2009) we have presented here.

The findings suggest that, despite the high topic diversity that is accepted in the IS diversity debate, low diversity for gender (male predominance) and country affiliation (high representation of US organizations) is present in the IS research field. Although diversity in organizational representation can be claimed, the different organizations tend to be US-based business schools. Such dominance may be argued as common knowledge, but research is valuable when overtly substantiating such knowledge with precision and greater authoritativeness than previously; and thus challenging accountability around the issue. Our study offers some accurate benchmarks of the diversity situation that can act as a call for action, a guide for what action might be pursued and an aid to monitor progress.

What does the study mean for the individual IS researcher? Ostensibly this may be contingent on his/her demographics. If you are female, based outside the US, and working within a university's engineering faculty, then you might not feel too comfortable. However, for any researcher, irrespective of your demographic characteristics, the data in this paper might cause you to consider repositioning where you submit your papers away from the journals in the network periphery and more toward those in the core.

Doing so could well position your work more at the heart of the IS community. This research might persuade you to pursue membership of an EAB; and might guide you toward which journals you might target. The contents of this paper might even tempt you to consider carrying out research into the types of diversity we have explored! At the very least, we hope that this study better informs the individual researcher so that they better understand the environment in which they work.

One of the issues with journal governance is that, in general, the editor or a small editorial team has considerable freedom of decision-making, which can be subject to little scrutiny, even by EAB members. The individual researcher might feel that, in such circumstances, a case can be made for more transparent journal governance and more open accountability of factors linked to diversity. If you are an EAB member you might agree and respond proactively by lobbying for the criteria used in appointments to your EAB to be more clearly, and openly, articulated. Similarly you might support more open auditing of EAB demographics and the more frequent publication of results.

Publishers, and editors-in-chief, may also wish to be proactive in responding to the study findings. Our initial guidance for them would be to consider our allocation of their journal to a community, and its location in the core and periphery. To what extent do these match to the journal's expectations and aspirations as they see them? Do they see the members of the community that we identify as appropriate partners for the journal?

The next step might be to consider what form of governance might be appropriate to the journal's aims. We refrain from recommending a specific model of journal governance since we believe that diversity is to be valued in such circumstances ─ but we do maintain that diversity, openness and accountability are key principles that should be followed in the design and operation of journal governance systems. For many journals the norm of appointing a single editor-in-chief, who tends to be male, might seem ripe for reconsideration. Our study seems to indicate that large EABs go hand-in-hand with success in terms of journal quality. We note that larger EABs offer more opportunity for the involvement of the IS

community then smaller EABs.; however our personal caution would be that many of the larger journals tend to have deep hierarchical structures that may distance individual researchers from the journal and disadvantage them. We suggest that good practice would involve implementing processes to prevent discrimination occurring within EABs, e.g., by adopting gender-blind EAB appointment processes and ensuring in international journals that all major geographical areas are represented by EAB members drawn from relevant locations. One of the other things we suggest is that editors might want to consider more consciously the EAB affiliation of existing and potential members of their own EAB.

In King and Lyytinen's (2006) major work summarizing the identity debate, they conclude that there is the need to embrace uncertainty and to acknowledge the changing nature of the IS field. Clearly there are major changes at work affecting the IS field and its diversity. For example, the increasing influence of open access journals could potentially change the journal governance landscape in future. It may be that the governance of open access journals could be designed to better include the research community.

The impact of globalization on academia and research could well challenge US dominance in the research field, but might not affect matters, such as gender diversity given that the status of women differs across the globe. Globalization is also presenting challenges to the field of IS practice that will, in turn, affect academia and research. These shifts in IS practice include, for example, outsourcing to India and different technological migration pathways in Africa. The shift to India of IS-related outsourcing has profound implications in terms of technological competence, and research, being transplanted to different parts of the globe.

To finish we return to the key division highlighted in our study, the business-school-related core and the computing-related periphery. This division goes to the heart of the identity of the IS research field, a topic that King and Lyytinen show is closely coupled with its diversity. It could be seen that the exhortations to place the 'IT artefact' at the core of the field (see for example: Benbasat and Zmud 2003, King and Lyytinen 2006) reflect the positioning of technical aspects at the periphery. Our study is cross-

sectional so one could ask whether this division we point to is a transient phenomenon or a long-term feature of the IS field. Is this division to be seen as a dysfunctional aberration that is in need of removal or as essential for healthy functioning of the field? We leave that for the reader to consider.

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Table 1: Editorial board data for the 52 IS journals

Journal name	Larsen et al. 2008 comm-unity	ABS score	Number in editorial advisory board	Within board diversity measures						Deg-ree
				Perc ent male	Percent affiliate-ed to unis	Percent affiliate-ed to bus schls	Blau index orgs	Blau index count-ries	Percent affiliate-ed to US orgs	
ACM TCHI	HCI+	3	25	64.0	72.0	0.0	0.9408	0.5088	68.0	7
ACM TSEM	SSE	2	18	77.8	94.4	0.0	0.9383	0.5309	66.7	2
ARIST	ISR+	2	16	43.8	93.8	0.0	0.9219	0.5625	62.5	6
BIT	HCI	2	32	75.0	75.0	6.3	0.9590	0.8242	34.4	3
BJET	HCI+	2	27	70.4	74.1	0.0	0.9575	0.7764	14.8	0
CACM	MIS+	3	92	82.6	63.0	3.3	0.9750	0.4764	71.7	10
CAIS	EC	2	49	71.4	98.0	51.0	0.9746	0.4232	75.5	22
CJ	SSE	2	31	90.3	100.0	0.0	0.9469	0.6868	12.9	2
CSCW	HCI+	1	46	60.9	84.8	2.2	0.9660	0.8374	32.6	9
D	ISR	2	27	88.9	100.0	96.3	0.9520	0.5322	66.7	17
DSS	MIS	3	70	76.5	100.0	80.0	0.9751	0.5196	68.6	19
EJIS	MIS	3	57	75.4	100.0	64.9	0.9658	0.8033	35.1	16
ES	KBS	3	41	92.1	65.9	26.8	0.9673	0.6104	61.0	7
ESJKE	KBS+	2	28	89.3	96.4	10.7	0.9541	0.75	21.4	3
IC	HCI+	2	57	78.9	82.5	0.0	0.9775	0.8113	29.8	6
IEEE ITB	HCI+	1	65	84.6	87.7	1.5	0.9813	0.8469	33.8	2
IEEE TEC	KBS+	1	41	95.1	92.7	0.0	0.9673	0.8983	17.1	3
IEEE TSE	SSE	3	28	64.3	100.0	0.0	0.9592	0.824	32.1	1
IEEE TSMC	HCI+	1	36	94.4	83.3	0.0	0.9660	0.8503	27.8	0
IIE T	MIS+	1	65	83.1	100.0	24.6	0.9557	0.2779	84.6	1
IJC	SSE+	3	59	89.8	93.2	39.0	0.9773	0.5665	64.4	7
IJEC	EC	3	55	85.5	87.3	61.8	0.9759	0.4621	72.7	16
IJHCS	HCI	3	46	53.3	84.8	6.5	0.9716	0.7486	45.7	9
IJIM	MIS	2	26	88.5	80.8	42.3	0.9615	0.5533	7.7	10
IJITM	SSE+	1	30	82.8	80.0	43.3	0.9644	0.8711	10.0	10
IM	MIS	3	93	80.9	95.7	69.9	0.9855	0.9055	22.6	20
IMCS	ISR+	1	31	90.3	71.0	12.9	0.9615	0.7742	35.5	5
IMDS	MIS+	1	39	82.1	100.0	74.4	0.9730	0.8047	41.0	6
IO	MIS+	3	37	75.7	100.0	81.1	0.9525	0.6034	59.5	15
IPM	ISR+	3	46	69.6	87.0	2.2	0.9612	0.7958	41.3	8

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Journal name	Larsen et al. 2008 comm-unity	ABS score	Number in editorial advisory board	Within board diversity measures						Deg-ree
				Perc ent male	Percent affiliate-ed to unis	Percent affiliate-ed to bus schls	Blau index orgs	Blau index count-ries	Percent affiliate-ed to US orgs	
IR	ISR+	1	43	69.8	97.7	9.3	0.9713	0.8967	23.3	10
IR2	EC+	2	33	72.7	90.9	42.4	0.9660	0.8301	33.3	15
IRMJ	MIS	1	86	80.2	91.9	54.7	0.9859	0.6049	61.6	19
IS	GS	2	50	64.0	96.0	10.0	0.9608	0.5624	64.0	17
ISF	EC	2	52	90.4	84.6	57.7	0.9748	0.4283	75.0	17
ISJ	MIS	3	56	83.9	100.0	64.3	0.9732	0.8431	33.9	17
ISM	MIS	2	38	63.2	94.7	63.2	0.9709	0.5208	68.4	12
ISR	MIS	4	62	87.1	98.4	93.5	0.9766	0.4422	74.2	21
IST	SSE+	2	30	70.0	96.7	3.3	0.9622	0.8444	30.0	3
ITP	MIS	2	74	63.5	89.2	41.9	0.9777	0.7615	41.9	21
JAIS	GS	3	85	74.1	98.8	82.4	0.9835	0.6212	60.0	22
JASIST	ISR+	3	35	60.0	91.4	2.9	0.9649	0.6106	60.0	10
JCIS	HCI	2	15	93.3	100.0	80.0	0.9067	0.5333	66.7	8
JEIM	MIS+	1	44	86.4	90.9	38.6	0.9649	0.7996	22.7	15
JGIM	GS	2	68	75.0	98.5	57.4	0.9823	0.8746	29.4	24
JIS	ISR+	2	21	66.7	76.2	0.0	0.9524	0.8435	14.3	4
JIT	MIS	3	51	72.5	98.0	66.7	0.9612	0.7459	35.3	17
JMIS	MIS	3	59	88.1	100.0	84.7	0.9784	0.3867	78.0	20
JOEUC	MIS	1	59	66.1	100.0	64.4	0.9790	0.4573	72.9	13
JSIS	MIS	3	64	73.4	100.0	76.6	0.9790	0.7515	46.9	26
KMRP	KBS+	1	31	87.1	77.4	45.2	0.9677	0.8866	19.4	8
MISQ	MIS	4	56	71.4	98.2	78.6	0.9770	0.5721	64.3	19
Mean	IS	2.17	46.6	77.2	90.6	36.9	0.965	0.678	46.0	11.2
Std. dev.	IS	0.86	19.4	11.4	10.1	32.6	0.015	0.167	21.8	7.2

(1) Journals marked with plus in second column were not present in the Larsen et al. (2008) study and so were categorized for this study.

(2) For Blau indices, 0 represents least diverse, 1 is most

Column means are calculated from values in table and not from overall data

Table 2: Board characteristics for the Larsen et al. (2008) communities

Community	Core or peri-phery	No of jour-nals	Non-demographic diversity			Demographic diversity					
			ABS score	No on board	Degree	Per-cent male	Per-cent affil-iated to unis	Per-cent affil-iated to bus schls	Blau index orgs	Blau index countr ies	Per-cent affil-iated to US orgs
Electronic Commerce (EC)	C	4	2.25	47.3	17.5	80.0	90.2	53.2	0.973	0.536	64.1
			0.50	9.8	3.11	9.4	5.8	8.5	0.005	0.197	20.6
Global & Societal (G&S)	C	3	2.33	67.7	21	71.0	97.8	49.9	0.976	0.686	51.1
			0.58	17.5	3.61	6.11	1.55	36.8	0.013	0.166	18.9
Management Information Systems (MIS)	C	19	2.42	59.4	15.63	77.9	94.8	61.4	0.972	0.623	52.2
			1.02	18.4	5.93	8.02	9.25	22.6	0.009	0.177	22.0
Total/ Mean	C	26	2.38	58.5	16.5	77.5	94.4	58.9	0.973	0.617	53.9
Std. dev.			0.90	17.6	5.5	8.1	8.4	22.4	0.009	0.176	21.2
Human Computer Interaction (HCI)	P	9	1.89	38.8	4.89	75.0	82.7	10.7	0.958	0.749	39.3
			0.78	16.1	3.69	14.3	8.53	26.11	0.023	0.133	17.81
Information Storage & Retrieval (ISR)	P	7	2.0	31.3	8.57	69.8	88.1	17.7	0.955	0.717	43.4
			0.82	11.0	4.39	16.18	10.9	35.02	0.016	0.146	20.42
Knowledge-Based Systems (KBS)	P	4	1.75	35.3	5.25	90.9	83.1	20.7	0.964	0.786	29.7
			0.96	6.8	2.63	3.48	14.13	19.7	0.007	0.135	20.92
Systems & Software Engineering (SSE)	P	6	2.17	32.7	4.17	79.2	94.1	14.3	0.958	0.721	36.0
			0.75	13.8	3.54	10.57	7.43	20.91	0.014	0.148	24.54
Total/ Mean	P	26	1.96	34.8	5.8	77.0	86.8	14.9	0.958	0.739	38.2
Std. dev.			.77	12.9	3.9	14.1	10.4	25.7	0.017	0.134	19.9
t			1.82	5.52	8.09	0.14	2.90	6.56	3.82	-2.83	2.76
p			.075 *	.000 ***	.000 ***	.893	.006 **	.000 ***	.000 ***	.007 ***	.008 **

* T test significant at .10 level, ** T test significant at .01 level, *** T test significant at .001 level
For Blau indices, 0 represents least diverse, 1 is most diverse
For entries in community cells, first row are arithmetic means, second row are standard deviations. Totals differ slightly from those In Table 1 because of grouping in to communities.

Table 3: Pearson correlation matrix of the main variables

	Non-demographic diversity			Demographic diversity					
	No on board	ABS score	Degree	Percent male	Percent affiliated to univ-ersities	Percent affiliated to business schools	Blau index organ-izations	Blau index countries	Percent affiliated to US orgs
No on board (ND)	1	.235*	.585**	.070	.152	.364**	.758**	-.132	.278*
		.093	.000	.620	.281	.008	.000	.350	.046
ABS score (ND)	.235*	1	.398**	-.158	.130	.319*	.093	-.287*	.354*
	.093		.003	.262	.359	.021	.510	.039	.010
Degree (ND)	.585**	.398**	1	-.077	.387**	.760**	.483**	-.230	.342*
	.000	.003		.586	.005	.000	.000	.101	.013
Percent male	.070	-.158	-.077	1	-.073	.247*	.093	-.046	-.095
	.620	.262	.586		.607	.077	.510	.744	.502
Percent affiliated to universities	.152	.130	.387**	-.073	1	.505**	.032	-.142	.210
	.281	.359	.005	.607		.000	.824	.316	.136
Percent affiliated to business schools	.364**	.319*	.760**	.247*	.505**	1	.281*	-.330*	.380**
	.008	.021	.000	.077	.000		.044	.017	.005
Blau index organizations	.758**	.093	.483**	.093	.032	.281*	1	.119	.004
	.000	.510	.000	.510	.824	.044		.399	.980
Blau index countries	-.132	-.287*	-.230	-.046	-.142	-.330*	.119	1	-.867**
	.350	.039	.101	.744	.316	.017	.399		.000
Percent affiliated to US orgs	.278*	.354*	.342*	-.095	.210	.380**	.004	-.867**	1
	.046	.010	.013	.502	.136	.005	.980	.000	

Non-demographic measures are marked with ND

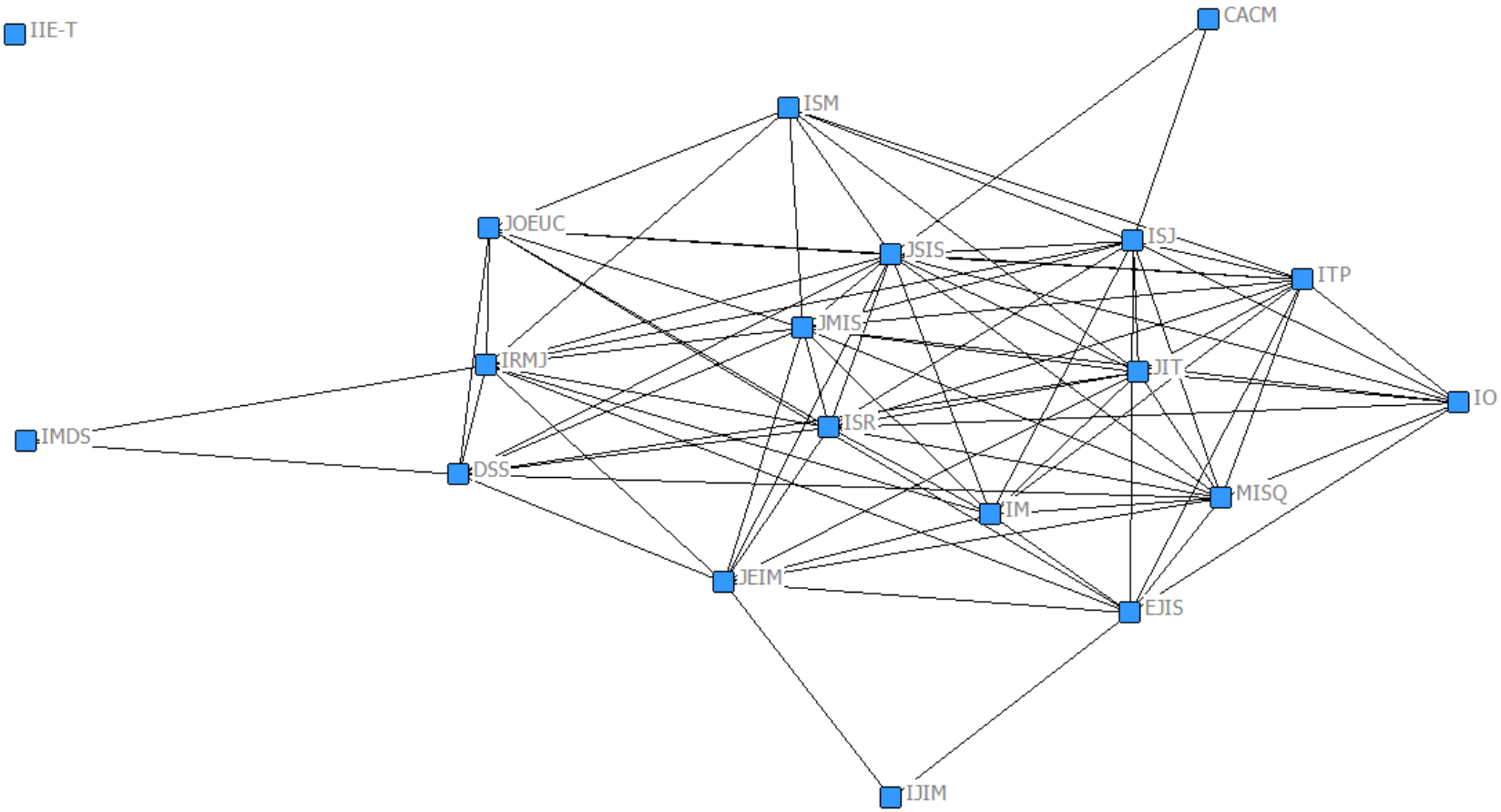

Figure 1: Sociogram showing the binary network of undirected and unvalued connections (i.e. ties dichotomized >=1) between EABs of journals in the MIS community

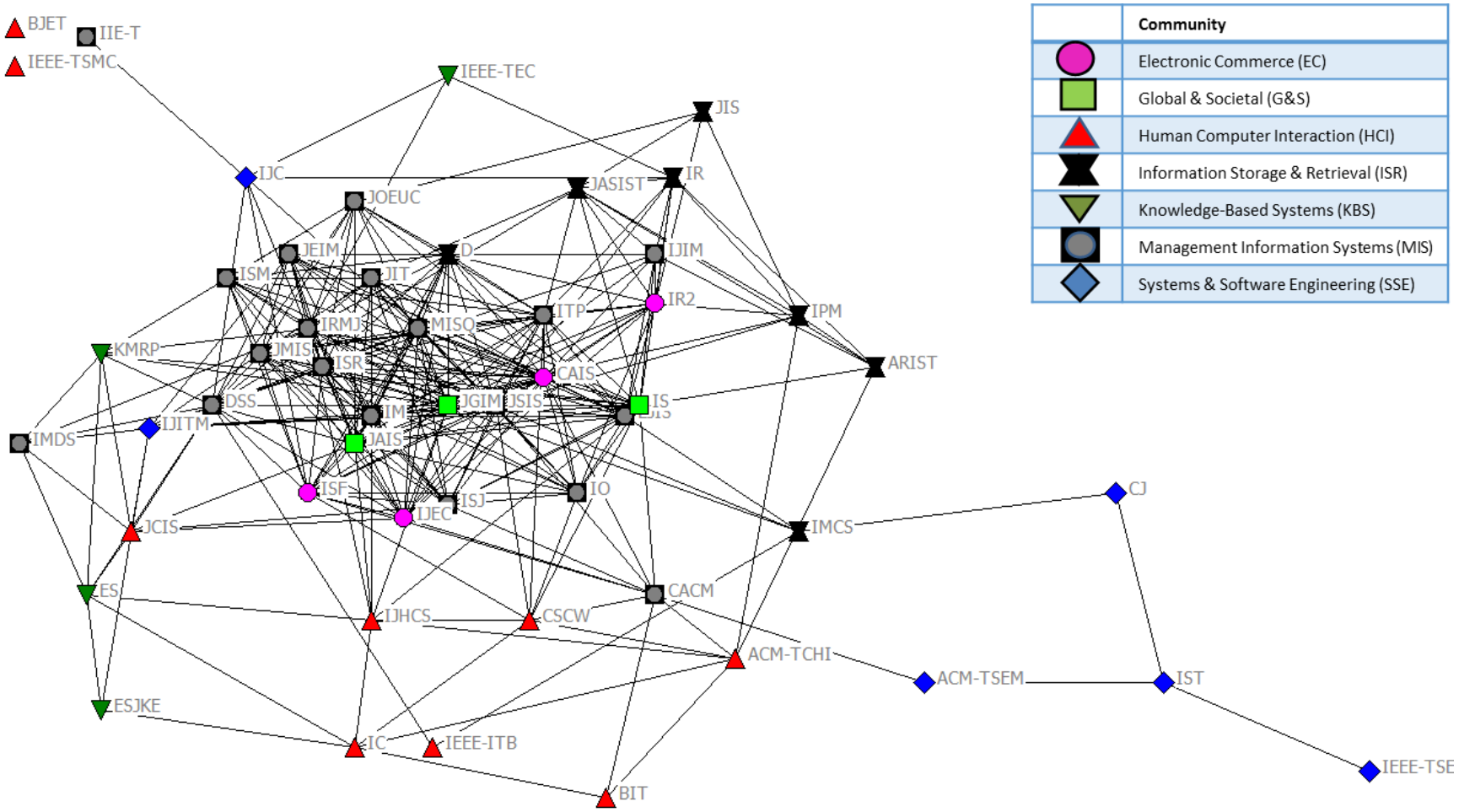

Figure 2: Sociogram of undirected and unvalued network of journals with their allocation to communities

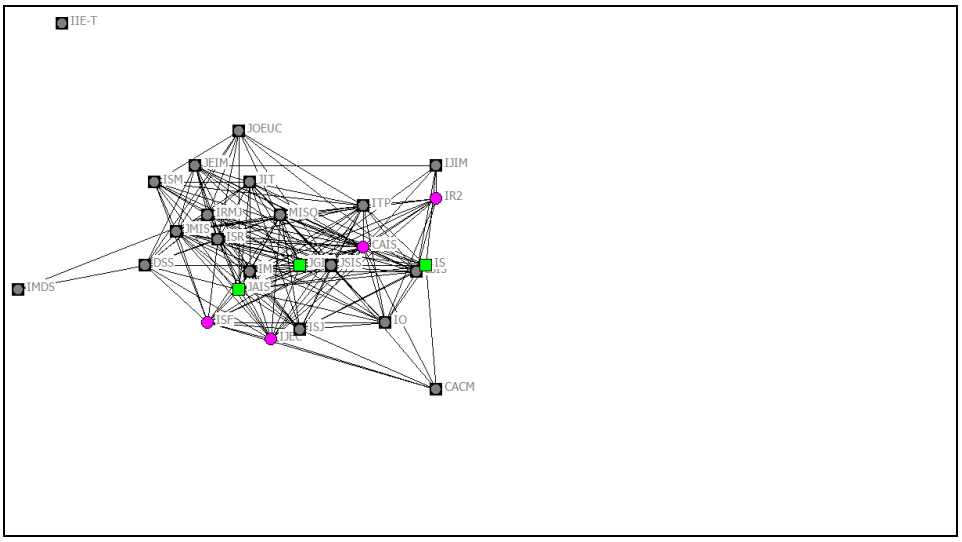

Figure 3a: Central group of three communities (EC, G&S and MIS)

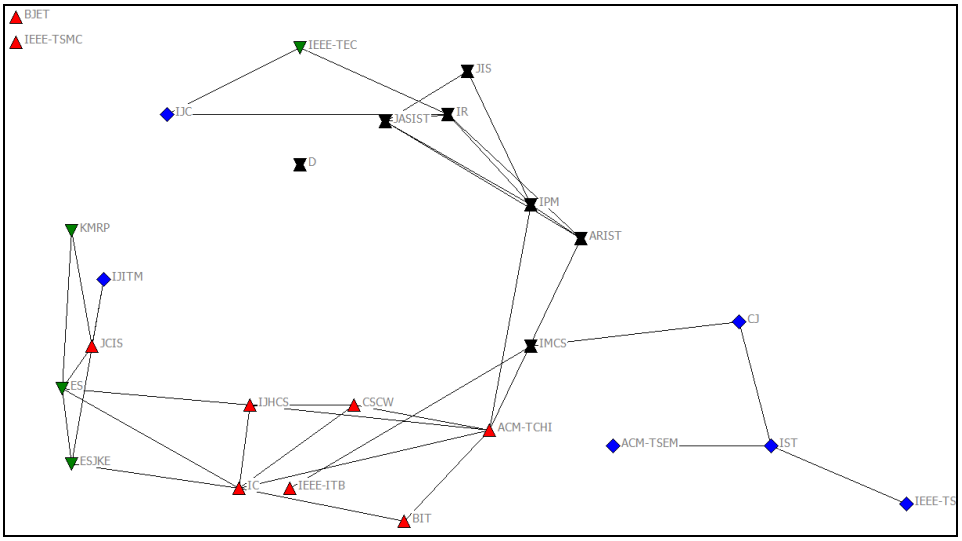

Figure 3b: Peripheral group of four communities (HCI, ISR, KBS and SSE)

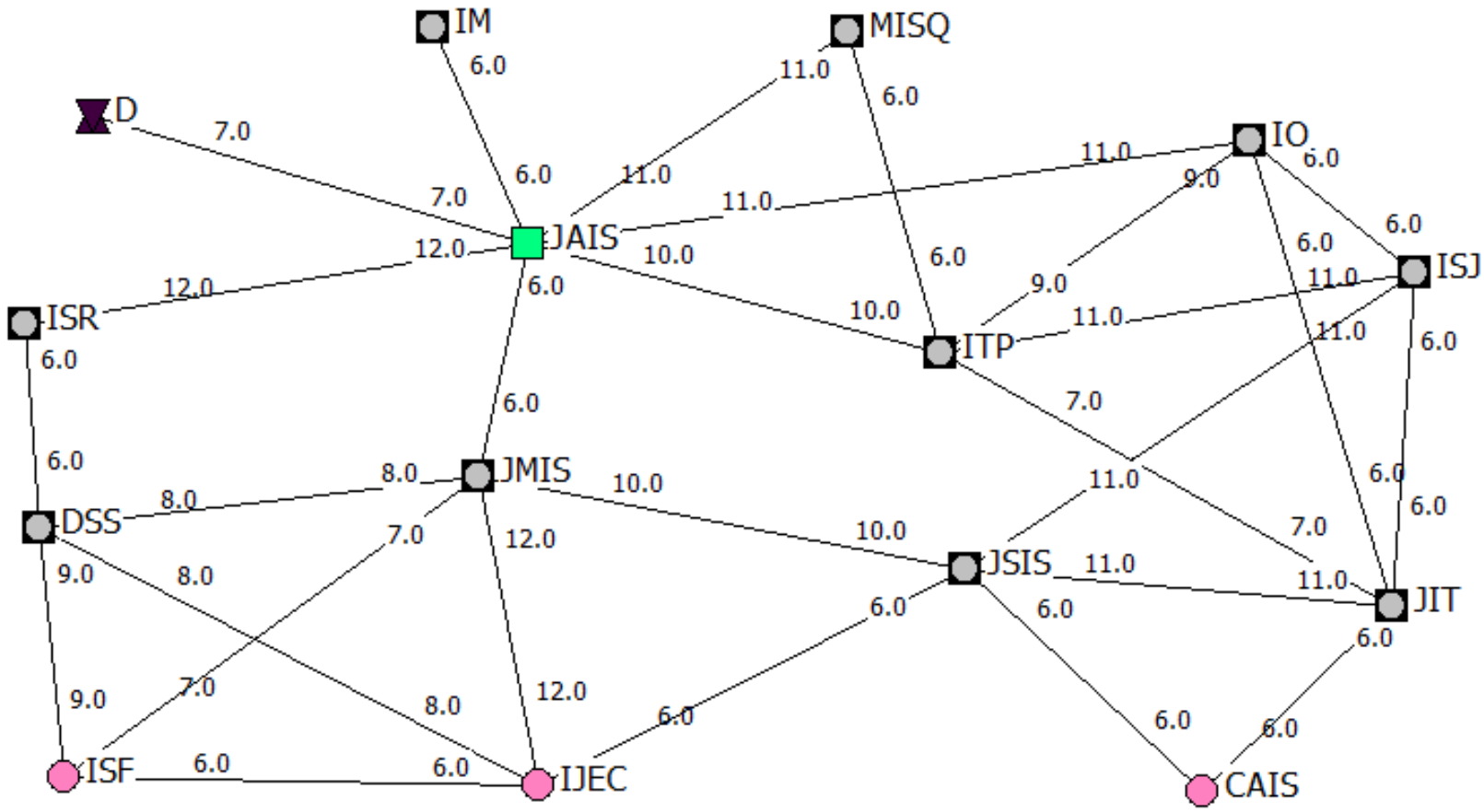

Figure 4: Central portion of valued network for ties >= 6 with nodes repositioned for clarity

(see Figure 2 for legend)