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Twenty years of the European information systems academy at ECIS: emergent trends and research topics

Article (Accepted version) (Refereed)

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That men do not learn from the lessons of history is the most important of all the lessons of history Aldous Huxley, *Collected Essays*

Abstract

While the Information Systems (IS) community is increasingly international, it is reasonable to expect that different regions might display different research approaches, interests and publication orientations. This paper contributes to the growing number of historical accounts in the IS field by further developing the profile of European IS research that was reported on in EJIS following the first ten years of the European Conference on Information Systems (ECIS). Based on an analysis of all papers published in ECIS proceedings during the ten year period 2003–2012, the paper highlights three key characteristics of the developing European IS research profile: 1) continuation of the traditional European IS research profile as developed in the first decade; 2) convergence with aspects of the North American tradition, and 3) development of a distinct approach to design science. We place these observed characteristics within broader historical and contextual features such as the changing European academic landscape, with increasing pressures to "publish or perish" in order to be internationally competitive. Our contribution lies in providing a contemporaneous account of the dominant contextual factors influencing the European IS academy in recent years as well as our interpretation of the developing research profile, thus informing future understanding of European IS research and the choices facing individual IS researchers.

Keywords: European Information Systems Research; European Conference on Information Systems; History; Research topics; Research methods

Introduction

This paper reviews the state of the European Information Systems academy as represented by papers presented at the European Conference on Information Systems (ECIS) following its 20th anniversary. During the first ten years of ECIS (1993–2002) "significant patterns to European IS research" were identified, some of which were "distinct from those in evidence in the North American IS research tradition" (Galliers & Whitley, 2007 p. 26). This paper updates our knowledge about the European IS academy by reviewing the trends and research topics presented over ECIS's twenty-year history (1993–2012).

Over this twenty-year period, the IS community has become increasingly international and there have also been significant changes to the ways in which

funding for academics is administered. What is less clear, however, is what effects, if any, such trends and changes have had on research presented at ECIS. For example, is it still possible to identify patterns in IS research presented at ECIS that differ from North American IS research? Moreover, does ECIS provide evidence for emergent trends in IS research more generally? The purpose of this paper is to characterise the European IS academy at ECIS by addressing these and other questions.

The paper develops a similar profile for ECIS at 20 as Galliers and Whitley did for ECIS at 10 (Galliers & Whitley, 2007). This allows for a detailed understanding of the emerging trends at ECIS, in particular by comparing patterns from the second decade with those found in the first. Whilst the results may, or may not, be surprising, there is nevertheless value in presenting these data as the paper makes an important *contemporaneous* contribution to the ongoing understanding of the IS field internationally.

The structure of the paper is therefore as follows. In the next section, the paper argues for the importance of contemporaneous accounts of IS research as a means of developing a detailed understanding and history of the field. This is followed by a section that reviews the evolving European IS research tradition, in context. This provides a backdrop for the discussion of the first twenty years of ECIS, which identifies three paths along which European IS research may develop in the coming years. The paper then briefly characterises the first ten years of ECIS before presenting the findings for the twenty years of ECIS, highlighting significant trends observed in the second decade of the conference. The paper ends with a discussion of the broader trends of convergence, conservatism and diversity in IS research in relation to identified profile of the European IS academy, as represented at ECIS and the consequences for individual IS researchers developing their research profile.

The importance of historical accounts

The Association for Information Systems (AIS) History Website (AIS, 2014) notes that "the history of any academic field plays an important role in shaping the field's present state and giving the field its unique identity. The information systems field has a unique yet rich history of its own. It is important for all involved to study its past to understand its present, and to guide its possible future" (AIS, 2014). The AIS historian, Dr Ping Zhang, of Syracuse University adds, "one aspect of history that I am still learning is that a collection of facts is not necessarily valuable or can be considered as history; but the interpretation of that collection should be" (Zhang, 2013). This paper provides both the facts about ECIS over its first twenty years and adds an interpretation grounded in the experience of two of the authors who have been closely involved with the conference over this period, and in the changing context in which European research is conducted.

In addition to the AIS History Website, the *Journal of Information Technology* has published two special issues on history in IS (Volume 28, Issues 1 and 2), with the stated view that a joint understanding of the field's history can help form a shared vision and identity for the field (Bryant et al., 2013). This paper therefore represents one among the growing number of efforts (e.g., Hirschheim & Klein 2011; 2012) in this line of historical and longitudinal study focusing, as it does, on the past, present and potential futures of IS research in Europe.

Contemporaneous accounts can be particularly relevant in shaping the future understanding of events. Unlike retrospective sense–making activities, contemporaneous accounts can provide insights into what were believed to be dominant contextual factors at the time the accounts were recorded, even if these beliefs later turn out to be misplaced (Bryant et al., 2013). Thus, whilst there might be limited novelty in some of the patterns observed, research interests wax and wain over time, as do centres of research excellence. Contemporaneous accounts can shed light on such changes by contextualising them. The paper begins, therefore, by reviewing the European IS tradition.

The European IS tradition

Although much of the early activity in the IS field took place in North America—primarily in the USA, as noted by Hirschheim and Klein (2011; 2012), the origins of the European IS tradition go back to the first business application of Information Technology (IT)—the LEO computer, launched in 1951 (Caminer et al., 1998; Ferry, 2003; Glass, 2005), and the first university programme in IS —in Stockholm. The journal *Wirtschaftsinformatik* was launched early in the development of the IS field—in 1959, with an English language version published under the title *Business and Information Systems Engineering* appearing from 2009 onwards (BISE, 2014). In addition to illustrating the changing role of native languages in IS research, the journal also exemplifies the changing perception of "information systems" as seen through the evolving titles of the journal. Until 1970 the journal was given the title *Elektronische Datenverarbeitung* (Electronic Data Processing). During the period 1971–1989 it ran under the title *Angewandte Informatik* (Applied Informatics), and from 1990 under its current title *Wirtschaftsinformatik* (Hasenkamp & Stahlknecht, 2009). For another account of the BISE tradition and its contribution, see Buhl et al. (2012).

The European movement gained further momentum and growing international recognition with the launch of four major IS journals in the late 1980s and early 1990s, each of which has since been recognized as being amongst the eight "top journals in our field" by the Senior Scholars of the Association for Information Systems (AIS, 2011): *JIT* (launched in 1986), and *EJIS*, *ISJ* (originally, *JIS*) and *JSIS* (each launched in 1991). The launches of *EJIS*, *ISJ* and *JSIS* were, in part, timed to coincide with the first International Conference for Information Systems (ICIS) to be held outside the USA—ICIS 1990 in Copenhagen. Additionally, the *Scandinavian Journal of IS* (*SJIS*) was also first published around the same time, in 1989. These latter events may be seen to have presaged the development of what was to become a Pan–European movement, in the form of ECIS, the first conference being held at Henley Management College to the west of London, in 1993.

Despite this increased activity within the European IS academy, very little was known about the range of research interests and favoured journals for European academics until the late 1990s. The first survey of European IS academics took place in 1996 (Avgerou et al., 1999), which followed a somewhat similar survey of the UK IS community some two years earlier (Galliers et al., 1997). In addition, Nurminen (1997; 1999) analysed the contributions to the IRIS conference during its formative stages (i.e., 1978–1981 and 1982–1988), and Iivari and Lyytinen (1999) provided an account of research on IS development in Scandinavia

Galliers and Meadows (2003) compared citations between two European–based (*ISJ* and *JSIS*), and two US–based (*MISQ* and *ISR*) journals, concluding that there is a degree of parochialism in each community, which is more marked in North America. Citation patterns were also the subject of Whitley and Galliers' (2007) article. More recently, Avison et al. (2008) considered the geographical, paradigmatic and thematic development of *ISJ* publications from 1991 to 2007 (see also Avison & Fitzgerald, 2012), while Galliers et al. (2012) reviewed the first twenty years of *JSIS* (see also, Gable, 2010), and Dwivedi and Kuljis (2008) described the profile of IS research as published in *EJIS*. Pouloudi et al. (2012) have similarly developed a profile of IS research in the Mediterranean region, and Clarke and Pucihar (2013) review the research presented at the Bled e–commerce conference between 1988 and 2012.

This more recent reflection on IS research activity in Europe can be contrasted with the long–standing tradition in the US of analysing the quality and standing of— and citations in—"their" journals; a tradition that stretches back to 1980 (e.g. Chen & Hirschheim, 2004; Clark & Warren, 2006; Culnan, 1987; Davis, 1980; Dean et al., 2011; Gillenson & Stutz, 1991; Hardgrave & Walstrom, 1997; Im et al., 1998; Jackson & Nath, 1989; Lowry et al., 2007; Nord & Nord, 1995; Nunamaker, 1980; Vessey et al., 2002; Vogel & Wetherbe, 1984; Walstrom & Leonard, 2000).

The later reflections on European activity in the field may arguably be a contributing factor in its only quite recent recognition by the international—

particularly the North American—academy as being of high quality. The basket of eight "top" journals (containing four journals emanating from Europe originally) was eventually adopted in December 2011 and it was still being argued that the European academy was not publishing at such a standard only four years previously (Lyytinen et al., 2007).

It was in this light that, following ECIS's 10th anniversary, Galliers and Whitley (2002; 2007) and Vidgen et al. (2007) set out to provide a commentary on the nature of the European IS academy, based on the ECIS experience. In arguing for a review of European research activity based on conference papers, Galliers and Whitley (2007 p. 21) made the point that there is an important temporal element to be taken into consideration: "there are likely to be lag–effects as new researchers join the field, as new conferences are formed and as new journals emerge with their own agendas". They questioned whether claims that there are few differences between the North American and European IS research traditions—such as those made by Evaristo and Karahanna (1997)—are accurate, arguing that their data may well have been skewed, taken as they were from a relatively short, prior period (1985–1990). Galliers and Whitley (2007) also raised concerns about articles that drew on existing studies of North American publishing and citation preferences. In particular, they raised the issue of path dependency, in which later studies (such as those referenced above) had often based their analyses on the journals considered in earlier research, thus contributing to the lack of recognition of the European academy in certain international circles.

In addition, even assumptions that the most prestigious journals in the field would be representative of all traditions (Claver et al., 2000; Nord & Nord, 1995) may have been be problematic in the European context, where computer science, systems development, implementation and qualitative research (including action research), had often been a major focus in contrast to the organisational and management orientation of the MIS tradition in the US (cf. Avgerou et al., 1999). Differences between the 'typical' papers published in journals considered more

European (e.g., *EJIS* and *ISJ*) and more North American (e.g., *I&M*) were confirmed by later studies as well (Dwivedi & Kuljis, 2008).

The changing European context

In understanding the development of the European IS academy, it is important to understand how the European research landscape has changed since the early 2000s (coinciding with the second decade of ECIS). In 2002, talks began regarding the establishment of the European Research Council (ERC) as a mechanism for centralized support for basic research in Europe with a view to increasing the competitiveness of European science, emulating the National Science Foundation (Nedeva, 2013). The ERC was formally established by the European Commission in 2007. In terms of IS research, the EU Seventh Framework Programme for Research and Technological Development (FP7), covering the time period 2007–2013, funded 690 IS related projects. In addition, the Horizon 2020 programme, beginning in 2014, is expected to invest €70 billion over 6 years in European research (Galsworthy & McKee, 2013).

Despite these funding opportunities, it has been suggested that European institutions generally lack competitiveness (Portes, 2005), and while the creation of academic positions is positive, changes in the tenure system in line with budgetary constraints and changes in funding schemes imply that many of these positions may be temporary. Increasing numbers of young researchers work on fixed–term contracts, funded by grants from agencies such as the ERC (Kaplan, 2010). While this means higher job precariousness, it also can mean more scientific independence, often with little or no teaching obligations, thereby enabling full–time focus on research and high quality publications (a major criterion for future funding, job retention and salary increases) (ibid.).

All this suggests that the European research landscape is in the midst of significant restructuring and that any developments in IS research should be contextualised in an environment marked by changing funding schemes and

academic recruitment, with, increasing pressures to be more competitive ("publish or perish"), while also being rooted in the traditional centralized manner in which funding is managed and allocated.

Two examples of these pressures can be found in the changing value of ECIS conferences for academics based in Germany and the UK. In 2008, papers published in ECIS proceedings earned a B rating in a list of outlets ranked by the Verband der Hochschullehrer für Betriebswirtschaft (Association of Business Professors in Germany). This put ECIS proceedings in the same rank with many well–known European journals, including *ISJ* and *JIT*. In contrast, in 2003, the same association did not incorporate ECIS proceedings in its ratings at all. An inverse pressure, attributable to the UK's periodic Research Assessment Exercises, now the Research Excellence Framework (REF, 2014), that have been conducted since 1986, can be seen to apply to UK academics, where there has been an increased pressure to publish in "leading" journals (often ranked according to the UK's Association of Business Schools Journal list (ABS, 2014) rather than conference proceedings.

Current trends in IS research: Convergence or conservatism?

It has recently been suggested that IS research is currently going through a phase of absorption—consolidating much of its research around the topic of IS acceptance, which at its core, lends itself best to predictive models, and positivist, quantitative research (Córdoba et al., 2012). By tracing the development of IS research (as published in *EJIS* and *MISQ*) across the time period from 1995 to 2008, Córdoba, et al. identify a clear trend towards convergence in the 2005–2008 time period. This convergence around the theme of understanding and managing IS acceptance in organizations would suggest that the differences observed in European and North American IS research traditions (e.g. Evaristo & Karahanna, 1997), including differences in what 'typical' journal articles look like (cf. Dwivedi & Kuljis, 2008), are becoming less pronounced. Perhaps it can be said that some form of vision or

identity around the largest body of work in the field on IS acceptance and use (Burton-Jones & Grange, 2013) is emerging.

This initial evidence of convergence may also be seen to support the argument of a trend towards conservatism—that is, despite its engagement with a phenomenon as dynamic as IT, it has recently been suggested that IS research is somewhat conservative (Avison & Fitzgerald, 2012). Reflecting on their time as editors-in-chief, Avison and Fitzgerald (ibid., p. 180) note that *ISJ*, based in Europe and established to be methodologically diverse and willing to take on risky topics, has, over the years, internationalized and lost some of its 'edge'. Of course, what constitutes risky or edgy topics is difficult to determine and these reflections are based on the experiences of the editors of a single journal. However, other prominent researchers and journals have also called for a (re)vived engagement with topics that seem to be disappearing (cf. Baskerville, 2012), experiment with less traditional genres (Rowe, 2012) or consider impact beyond academia (Desouza, et al., 2007; Niederman et al., 2013).

In sum, these two perceived recent trends in European IS research denote two related paths of development and suggest alternative patterns that one might expect to see in the future. The convergence trend sees North American and European IS research as coalescing, perhaps around the topic of IS acceptance and use (Córdoba et al., 2012) and suggests a vision and collective identity in the IS community forming around this topic. This allows for the dominant methods, theories, etc. related to studying this topic to become more recognized and transferable to newcomers and other academic disciplines according to Córdoba and colleagues, although they also note a lack of pluralism in methods and research paradigms when it comes to investigating IS acceptance at both *EJIS* and *MISQ*. Adopting an accepted quantitative method in the positivist tradition, which "boxes in" the research approach (Alvesson & Sandberg, 2014) may be done for 'safety' and risk avoidance reasons (cf. Benbasat & Barki, 2007). As a result, it may be seen to be in line with the trend of European IS research becoming more conservative, as

observed by Avison and Fitzgerald (Avison & Fitzgerald, 2012). For example, it is common for attendees at doctoral consortia to be advised to leave what are commonly seen to be innovative approaches "until after you have got tenure" (Galliers & Huang, 2012, p. 128).

One potential consequence, therefore, would be for future European IS research to see both convergence and conservatism. In particular, given the increasing pressure to compete with other institutions in Europe as well as across the world, European IS researchers may likely see convergence around the choice of IS acceptance–related topics and the adoption of tried and trusted methods as a wise career move – especially as these types of papers appear to be frequently published in the 'top' journals (Córdoba et al., 2012). Conservatism would also suggest more studies replicating the Technology Acceptance (Davis, 1989) and other well-established models in the research area of IS acceptance, in different contexts or in making minor adjustments to such models (the decision by AIS to publish a new journal *AIS Transactions on Replication Research* providing further evidence of this trend).

Understanding the trends in European IS research: Twenty years of ECIS

In light of the observations outlined earlier in the paper, and given the 20th anniversary of ECIS in 2012, the time seemed ripe to consider the development of the European IS research profile as presented during the first twenty years of the conference (Galliers et al., 2012). To maintain compatibility with the 10th anniversary study (Galliers & Whitley, 2002; 2007), this paper begins by developing a profile of the conference. This profile is obtained in a similar manner to the first study and the method used is detailed in Web Appendix: Research Method. From this profile it is possible to address questions raised by the first study, including: 1) How has European IS research been developing over the period? Can one discern patterns in the topics being studied? 2) What research methods are popular among ECIS

authors? 3) What sources are commonly cited by ECIS authors? By comparing the answers to these questions for the second decade of ECIS with those obtained for the first, it is possible to uncover particular threads emerging from the two decades of ECIS (e.g., around the themes of convergence and conservatism outlined above), and to locate these trends within the wider IS discourse internationally, bearing in mind the debate initiated by Lyytinen et al. (2007) and responded to by Galliers (2008) in relation to the quality of IS research and doctoral programmes in Europe. We continue by providing a brief reprise of some of the key findings from the first 10 years of ECIS. We then describe the results of the current analysis, compare the findings across the two decades, and discuss the findings in light of the existing profiles of IS research and the issues raised above.

The first ten years of ECIS

From relatively humble beginnings in 1993, ECIS had grown, by 2002, to be the leading European IS conference—recognised as the AIS Region 2 conference, and representing all major European countries. While focusing more on Western Europe in the early years—the exception being Athens, Greece in 1995—representation from Central and Eastern Europe was already emerging by the time that the conference was held in Bled, Slovenia and Gdansk, Poland, in 2001 and 2002 respectively. Despite this breadth of representation, however, the native English–speaking countries contributed the highest proportion of papers during the first decade: the UK (34.2%), Australia (13.2%) and the USA (12.3%)—with these three countries alone accounting for almost 60% of the total (Galliers & Whitley, 2007).

Some of the distinctly European characteristics of the research presented at ECIS during this first decade included the prominent role of books in citations (see also Lyytinen et al., 2007) and the large number of references to qualitative and interpretivist research approaches (e.g., Yin, 1989 and Walsham, 1993), and to leading European IS researchers (e.g., Checkland, 1981 and Earl, 1989). However, the influential role of a more North American tradition is clearly visible also, as

leading North American journals (*MIS Quarterly*; *Information Systems Research*; *Harvard Business Review* and *Organization Science*) were among the most frequently cited sources. In terms of topics covered, a general conclusion was that ECIS papers had tended to focus more on the organizational and strategic (33% of the total); social (14%), and economic and market (12%) aspects of IS than on the IT artefact itself (6%) and related design, development (10%) and HCI (4%) considerations, of the kind Benbasat and Zmud (2003) had called for. In addition, the greater use of social theory in ECIS papers than in the US tradition was also noted, with 29% of the papers citing at least one social theorist, with Rogers (1995), Giddens (1984) and Williamson (1975) heading the list (Galliers & Whitley, 2007).

These trends reflect the general state of European IS research during that time. For example, *EJIS*, *ISJ*, *JSIS* and *JIT* were publishing qualitative and interpretive research, which—at the time—was relatively rare in North American journals. All also embraced IS as an interdisciplinary field and sought to publish papers dealing with the organisational, societal and human issues around IT, rather than focusing purely on the technical aspects (e.g, Avison & Fitzgerald, 2012; Córdoba et al., 2012; Galliers et al., 2012).

Findings from twenty years of ECIS

During the first decade of ECIS, a pattern emerged for the conference to be held in early summer (May–June) throughout various locations in Europe. The second decade of ECIS conferences continued this tradition, but expanded the set of locations to include South Africa in 2010 (see Web Table 1). This was the first time ECIS left Europe (but remained within AIS region 2). The overall number of papers presented at each conference has been steadily growing since the inception of ECIS, with occasional peaks and dips during certain years (see Web Figure 1). The number of accepted papers reached an overall high in 2012—with 303 papers (including posters and panels) being presented in Barcelona (Web Table 2).

Geographical Trends

While in the years 1993–2002, ECIS rapidly expanded within Europe every year, between 2003 and 2012 the geographical expansion understandably slowed and new participants in the conference came largely from countries outside of Europe—from Arab and African countries; Southeast Asia; the Caribbean; mainland China, and South America (see Table 1). Further expansion to Central / Eastern Europe is also noticeable (e.g. Romania and Croatia). Mimicking trends in European IS journals (Avison & Fitzgerald, 2012; Galliers et al., 2012), ECIS became an internationally appealing outlet for papers during its second decade.

Year	First papers from
2003	China (mainland); Iceland; Romania
2004	N/A
2005	Malaysia
2006	United Arab Emirates
2007	Croatia; Liechtenstein
2008	Jamaica
2009	Chile; Pakistan; Saudi Arabia
2010	Ethiopia; Ghana
2011	Indonesia; Luxembourg
2012	Cuba

Table 1 – First papers by country and year

Twenty–five countries have had at least ten papers published in ECIS proceedings over the years 2003—2012 (see Web Table 3). Visible geographical trends in the second decade as compared to the first include the rise of contributions from mainland China, South Korea, Taiwan and Singapore (AIS Region 3), together with Ireland; Austria; Norway; Sweden, and Finland (AIS Region 2). Overall, from the twenty–five most frequently represented countries at ECIS, nine are not European. These findings are in line with the conclusions drawn from Table 1—ECIS has reinforced its appeal to a truly international set of countries during its second decade. The findings also raise the question of how becoming more 'generalist' and international can influence a conference's (or a journal's) ability to sustain its distinctive character and value, and the issue as to whether internationalisation is related to the issues of convergence and conservatism introduced above.

The top four contributing nations—Germany; the UK; Australia, and the US—have maintained leading positions since the inception of ECIS. Quite strikingly, however, Germany shows a clear pattern of significant increase in participation since 2007 (see Figure 1). As noted above, the considerable increase in participation from German institutions can probably be explained by the B rating awarded to ECIS papers by the Verband der Hochschullehrer für Betriebswirtschaft. Similarly, the relative drop in yearly contributions from the UK (top contributor in the first decade) (Web Table 3) may well be due to RAE/REF pressures to publish in leading journals as against conference proceedings.
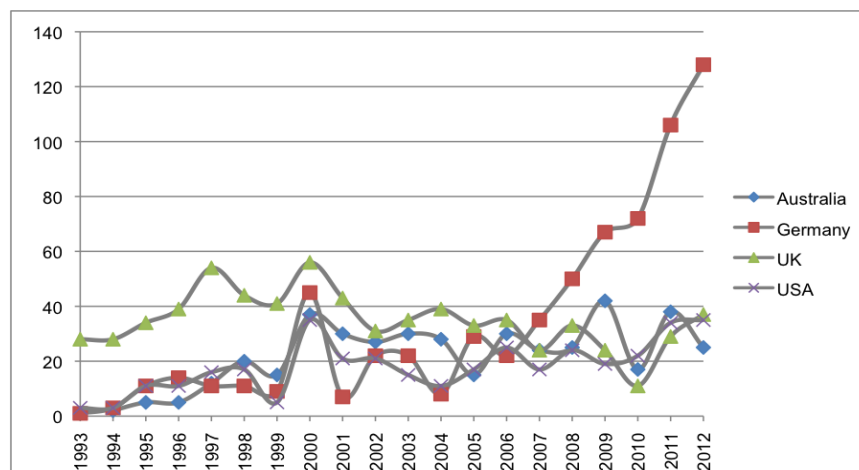

Figure 1 – Participation by top 4 countries (1993 – 2012)

Trends in Frequently Represented Institutions and Authors

Consistent with the top three contributors being Germany, the UK and Australia, the top ten most frequently represented institutions include two German schools (Münster, TU Munich), two UK schools (Brunel and LSE) and two Australian schools (QUT and UNSW) (see Table 2). Other institutions that frequently contribute to ECIS include University College Cork (Ireland); the National University Singapore; Copenhagen Business School (Denmark) and the University of St. Gallen (Switzerland). Interestingly, the European institutions that are frequent contributors to ECIS have all been heavily involved in hosting and / or organising ECIS conferences, and some institutions have deliberately chosen to become

involved with hosting an ECIS conference to both build up their international reputation and alliances with leading international scholars who, for example, have acted as research chairs for the conference.

Compared to the first decade (dominated by institutions from the UK), the changes reflect the general geographic trends discussed above. For example, no German institutions were amongst the top ten most represented institutions in the first decade, even though contributions by German academics were significant. In the second decade, German contributions grew larger in number and also included significant contributions from particular institutions.

There appears to be a correlation between significant participation in ECIS conferences and publication in the AIS 'Basket of Eight' leading journals. For example, Table 2 compares the total number of papers published by these institutions in the AIS Senior Scholars' 'Basket of Eight' journals during the period 1993–2012 (Venkatesh, 2014). The 'Basket of Eight' rankings include many institutions that have not had a major presence at ECIS, although seven of the ten most frequently represented institutions at ECIS are also present in the top 100 list of institutions publishing in the 'Basket of Eight' between 1993 and 2012. Interestingly, German institutions that are heavily represented at ECIS have yet to appear consistently among the top 100 publishers in these leading IS journals over this period (although they do appear when limiting the period to more recent years).

Institution name	Country name	ECIS 2nd decade		ECIS 1st decade		'Basket of Eight' Publications (1993-2012)	
		Count (2003-2012)	Rank (2003-2012)	Count (1993-2002)	Rank (1993-2002)	Count (1993- 2012)	Rank in Top 100 (1993-2012)
University of Münster	Germany	73	1	N/A	N/A	N/A	N/A
University College Cork	Ireland	57	2	28	3	29	26
National University of Singapore	Singapore	53	3	15	18	75	6
University of St. Gallen	Switzerland	47	4	17	13	N/A	N/A
London School of Economics	UK	47	5	55	1	79	2
Copenhagen Business School	Denmark	47	6	25	4	37	38
Brunel University	UK	44	7	21	6	44	15

Queensland University of Technology	Australia	43	8	18	8	16	94
University of NSW	Australia	43	9	16	16	35	35
Technical University of Munich	Germany	39	10	N/A	N/A	N/A	N/A

Table 2 – The most represented institutions (2003–2012 compared to 1993–2002) in terms of papers published in ECIS proceedings; compared to institution rankings based on publications in the AIS Senior Scholars' 'Basket of Eight' Journals

The number of authors who have published six or more papers during the second decade has increased significantly compared to the first decade (Web Table 4 shows the authors with nine or more papers only). Not surprisingly, the most frequent authors are affiliated with the most prolific institutions (e.g., TU Munich; Münster; Cork, and QUT). From the twenty–nine most prolific authors at ECIS, six are also represented in the top 100 list of most prolific researchers publishing in the Basket of Eight during the period 1993–2012 (Venkatesh, 2014).

In sum, the trends observed in the most frequent institutions and authors publishing at ECIS suggest some interesting dynamics between ECIS participation and publishing in leading IS journals. While both may be a function of large institutions and IS departments being better represented in such lists due to the capacity to produce a higher volume of papers, the recent increase in German institutions publishing in the 'Basket of Eight' suggests a growing capability / desire to publish in these journals as well as ECIS under the new funding arrangements.

The pattern also reflects the increasing pressure to compete *internationally*, but suggests the spread of this differs within Europe. While the UK's increasingly internationally–focused RAE and REF (all REF quality assessment ratings above two require international recognition) have emphasized high–quality and high–impact publications since 1986, German IS research has had a long–standing commitment to practice, industry collaborations and business relevance (Buhl et al., 2012; Hasenkamp & Stahlknecht, 2009; Niederman et al., 2013). Again, the experience of the journal *Wirtschaftsinformatik* is instructive in that it now publishes both a German–language and an English–language version and two separate journals (one

oriented towards business practitioners and the other towards the scientific community) (Hasenkamp & Stahlknecht, 2009).

Trends in Cited Sources

Another means of considering how the ECIS research community has changed over time is by comparing the most cited articles in the first and second decades. In the first decade, the top most cited authors list was dominated by works on strategy issues (e.g., Porter; Earl; Hammer); works by leading European researchers (e.g., Checkland and Earl), and works on research methods (e.g., Yin and Walsham). Table 3 shows that articles and books on research methods continue to be well cited in the second decade. Guidelines for both realist and interpretivist case research (e.g., Yin; Klein & Myers; Eisenhardt; Miles & Huberman; Walsham) are among the top ten most cited sources. This suggests that both these types of qualitative research approach are commonly applied and is indicative of the continued popularity of qualitative (in both the positivist and interpretive traditions) research in the European IS community, as compared to many North American IS journals, and the North American tradition more generally (e.g. Galliers & Huang, 2012).

Rank	Count (93-02)	Count (03-12)	Cited item
1	N/A	124	Davis, F. (1989). Perceived Usefulness, Perceived Easy of use and user acceptance of Information Technology. MIS Quarterly, 13(3), 319-340.
2	N/A	118	Hevner, A. R., March, S. T., Park, J., and Ram, S. (2004). Design Science in Information Systems Research. MIS Quarterly, 28(1), 75–105.
3	17	99	Miles, M. B. & Huberman, A. M. (1994). Qualitative Data Analysis: An Expanded Sourcebook. 2nd ed. Sage Publications, Thousand Oaks.
4	74	96	Yin, R. (1994). Case study research. Design and methods, (2nd ed.), Thousands Oaks, CA: Sage Publications.
5	26	95	Eisenhardt K.M. (1989). Building theories from case study research. Academy of Management Review, 14 (4), 532-550.
6	N/A	94	Klein, H. & Myers, M. (1999). A set of principles for conducting and evaluating interpretive field studies in Information Systems. MIS Quarterly, 23(1), 67-94.
7	N/A	89	Venkatesh, V., Morris, M. G., Davis, G. B., and Davis, F. D. (2003). User Acceptance of Information Technology: Toward a Unified View. MIS Quarterly, 27(3), 425-478.
8	N/A	89	Yin R.K. (2003). Case Study Research. Design and Methods. 3ed., Sage Publications, Thousand Oaks.
9	42	77	Rogers, E. M. (1995). Diffusion of Innovations (4th ed.). New York: The Free Press.
10	16	76	Walsham G (1995). Interpretive case studies in IS research: nature and method, European Journal of Information Systems, 4(2), 74-81.

11	N/A	70	Davis, F. D., Bagozzi, R. P. and Warshaw, P. R. (1989). User acceptance of computer technology: a comparison of two theoretical models. Management Science, 35(8), 982-1003.
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21	36	48	Giddens, A. (1984). The constitution of society: Outline of the theory of structuration. Cambridge, UK: Polity Press.
22	10	46	Davenport, T. H. and Prusak, L. (1998). Working Knowledge: How Organizations Manage What They Know, Harvard Business School Press, Boston.
23	23	44	Orlikowski, W and Baroudi, J (1991). Studying Information Technology in Organisations: Research approaches and assumptions. Information Systems Research, 2(1), 1-28.
24	N/A	42	DeLone, , W.H. and E.R. McLean (2003). The DeLone and McLean model of Information Systems success: a ten-year update. Journal of Management Information Systems, 19(4), 9-30.
25	N/A	41	Webster, J., and Watson, R. T. (2002). Analyzing the Past to Prepare for the Future: Writing a Literature Review. MIS Quarterly, 26(2), xiii-xxiii.
26	N/A	40	Shapiro, C. and Varian, H.R. (1998/1999). Information Rules: A Strategic Guide to the Network Economy. Harvard Business School Press, Boston.
27	N/A	39	Rogers, E. (2003). Diffusion of Innovations, 5th Edition, Free Press, New York.
28	33	38	Nonaka, I. and Takeuchi, H. (1995). The Knowledge Creating Company. How Japanese Companies Create the Dynamics of Innovation. Oxford University Press. New York/Oxford.
29	45	37	Davenport, T.H. (1993). Process Innovation, Reengineering Work through Information Technology. Harvard Business School Press, Boston.
30	N/A	37	Gregor, S. (2006). The Nature of Theory in Information Systems. MIS Quarterly, 30(3), 611-642.
31	24	36	Orlikowski, W. J. (1992). The duality of technology: Rethinking the concept of technology in organizations. Organization Science 3(3), 398-427.
32	19	35	Markus M.L. (1983). Power, Politics, and MIS Implementation. Communications of the ACM 26(6), 430-444.
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35	N/A	34	Davenport, T. H. (1998). "Putting The Enterprise Into The Enterprise System." Harvard Business Review 76(4): 121-131.
36	42	32	Malone, T.W., Yates, J. and Benjamin, R.I. (1987). Electronic Markets and Electronic Hierarchies. Communications of the ACM, 30(6), 484-497.
37	N/A	32	Nunnally, J.C. (1978). Psychometric Theory. McGraw-Hill, New York.
38	N/A	31	Wenger, E. (1998). Communities of practice: Learning, meaning, and identity. Cambridge University Press, New York.
39	63	31	Hammer, M. and Champy, J. (1993). Reengineering the Corporation: A Manifest for Business Revolution. Harper Business. New York.

Table 3 – The top cited articles (based on 2003–2012 data). N/A means not listed in Most Cited Sources (Table 1), in Galliers and Whitley (2007).

It is also possible to observe a growing number of citations of papers related to knowledge and learning (e.g. Davenport & Prusak, 1998; Nonaka & Takeuchi, 1995). Conversely, the number of citations of authors such as Checkland, Earl and Hammer has declined considerably in the second decade. These citation patterns reveal the lag and path dependency effects mentioned earlier, such as certain sources being continually heavily cited over the two decades (e.g., research method sources), while others have lost momentum (e.g., soft systems methodology, strategic IS planning and business process reengineering) as current topics of interest shift or more recent sources on the topic become more popular.

Two of the most striking trends in citation patterns relate to the growing number of citations to *design science* and *technology acceptance* and *adoption* research. The paper by Hevner et al. (2004) on *design science* was only published in 2004 but is the second most cited source in the second decade, suggesting that design science has gained in popularity in a relatively short period of time. The pattern around *technology acceptance* and *adoption* research is even more pronounced. For example, Davis's classic paper on TAM (Davis, 1989), which was published in 1989, was the most cited text during the *second* decade, while it was *not* among the most cited papers during the *first decade*. Three other texts on acceptance and adoption are now among the top 15 most cited: Venkatesh et al. (2003), Davis et al. (1989) and Moore and Benbasat (1991). Such citation patterns suggest the presence of considerable changes, in comparison to the first decade, in the kinds of topics and research

approaches that ECIS participants engage in and adopt. We now turn to a discussion of these trends.

Trends in Research Themes

Web Tables 5 and 6 demonstrate that, during the second decade, the ECIS community has placed an even greater focus on *organisational* and *strategic* aspects of IS (42% of papers in 2003–2012 in comparison to 33% of papers in 1993-2002). Attention to topics related to *systems development* has increased slightly, from 10% in the first decade to 12% in the second decade. *Human–computer interaction* issues have also gained more attention in the second decade (from 4% to 7%). These increases align well with the ECIS community's growing interest in *design science* and *technology adoption* and *acceptance* (at the organisational and individual level), which were revealed from the citation patterns (Table 3).

The breadth of topics covered under these themes has increased further during the second decade. The boundaries of European IS research, therefore, appear to be somewhat fluid and follow certain trends in society at large. For example, during the latter half of the second decade, together with the rise of Facebook and Twitter, studies of social media (and their role in organisations and society) have grown considerably in numbers. A similar pattern can be observed for the interest in 'Green IT' and sustainability; Mobile technology (its adoption; strategic value; design considerations, etc.); IS in healthcare and knowledge management. All of these topics have had entire tracks devoted to them in recent ECIS conferences. Another notable trend is the increasing attention that ECIS researchers are paying to specific concepts that have gained widespread use in industry contexts. Examples include service–oriented architecture (SOA), agile development methods and cloud computing.

When looking at popular research topics on this general level (Web Table 5), there seem to be few surprises. The findings confirm a number of characteristics considered particular to the European IS research tradition. For example, the

organizational and strategic, and systems development themes were found to be the two most popular, accounting for 42% and 12% of papers published, respectively. IS management and IS development have also been shown to be the most popular topics in two European–based journals, *ISJ* and *EJIS* (during the time period 1997–2007 for *EJIS* and 1991–2007 for *ISJ*) (Dwivedi & Kuljis, 2008), and of course, *JSIS*, given the focus of the journal (Gable, 2010; Galliers et al., 2012).

Trends in Research Methods

Web Table 7 reveals that, during the second decade, ECIS papers most commonly adopted four types of research approaches: case study; conceptual; survey, and design science research (Figure 2). The proportion of design science studies has grown throughout the second decade, in line with our citation analysis, with Hevner et al. (2004) being the second most cited source. With the increasing interest in technology acceptance and adoption, it is also not surprising that studies using a survey methodology have generally been growing in numbers with some peaks and dips (Figure 2). In addition, and with increasing concern for impact on practice (e.g., Buhl et al., 2012; Peppard et al., 2014), the number of conceptual papers has been declining during the period.
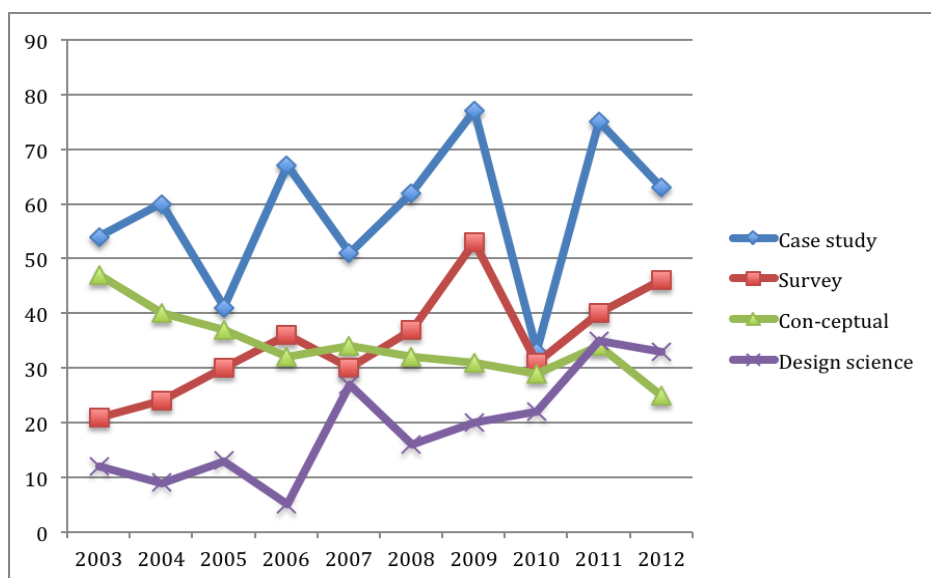

Figure 2 – Adoption of top 4 most popular research methods over years (2003 – 2012)

To summarise, these trends give support to the argument that the ECIS research profile can currently be characterized as: 1) a continuation of the traditional

European IS research profile as developed in the first decade (the use of qualitative and interpretive approaches, including case studies; the application of social theories, and interest in IS management and organizational issues), and 2) a convergence with aspects of North American tradition (acceptance and adoption research, and the use of surveys). However, when the ECIS papers on technology acceptance and, particularly, design science are looked at more closely, counter examples to the convergence / conservatism trends start to emerge. These are discussed in more detail in the next section.

Thoughts on Popular Sub-themes: Design Science and Technology Acceptance

Regarding the increasing interest in design science (cf. von Krogh & Haefliger, 2010), the papers published in ECIS proceedings can broadly be categorized into two: 1) the papers that *use* design science (DS) as a research approach, while investigating various IT / IS phenomena (see Web Table 7 and Figure 2), and 2) the papers that *reflect on* the design science research approach. The former are more numerous as many researchers engaging with development and design–oriented research have, in DS, found a suitable genre for presenting their work (cf. Lee et al., 2012). However, it appears that the European IS community is also keen to reflect on this trend—multiple papers having offered their perspective on how to evaluate design science research results (e.g. Aier et al., 2011; Pries-Heje et al., 2008) and how to expand design science to also provide useful design theories for IS use and management (Hrastinski et al., 2008). There have also been more critical considerations, which suggest that a potential drawback of design science may be the commodification and reification of IS (Stahl, 2008). Alternative, non–positivist views on design science have also been offered (Levy & Hirschheim, 2012).

Concerning the large number of technology acceptance—and adoption–oriented studies, the technology acceptance model (TAM) (e.g. Davis, 1989) and theories of planned behaviour (TPB) / reasoned action (TRA) (e.g. Fishbein & Ajzen, 1975) are most commonly adopted (see Table 3) in what are typically survey–based studies.

ECIS researchers have, in addition, also proposed alternative models and applied more qualitative methods when investigating technology acceptance (e.g. Riemer et al., 2012).

In addition, a small number of literature review articles, reflecting on the state of play in acceptance / adoption research, have appeared (e.g. Dwivedi et al., 2008). In general, there are six types of acceptance and adoption papers that are being produced by members of the ECIS community (Table 4). The first two types—studies focusing on the acceptance / adoption of a particular technology or studies trying to extend and / or integrate existing acceptance / adoption models—are the most common. Comparisons of different models; alternative perspectives; detailed examinations of particular acceptance/adoption constructs, and reflections on the state of the research on this topic are all less frequent. Not included in this table are the increasingly frequent studies on *IS / IT use*, rather than acceptance / adoption per se.

In terms of the authors investigating technology acceptance, there are no clear patterns in their affiliations and geographical locations. Acceptance–related papers are published by authors from all three AIS regions, suggesting a more general trend of gravitation towards this topic (i.e., convergence), rather than the topic being introduced to ECIS by its increasingly international, non–European, participants.

Type of study	Typical theories/models/perspectives/constructs included in the study
Acceptance/adoption of a particular technology (e.g., internet banking, corporate intranet, negotiation support system, smart cards, e-learning, e-government, RFID, etc.)	Technology Acceptance Model (TAM); Unified Theory of Acceptance and Use of Technology (UTAUT); Innovation Diffusion Theory (IDT); Model of Adoption of Technology in Households (MATH); Technology-Organization-Environment (TOE) framework
Extensions and integrations of existing acceptance/adoption models (e.g., adding digital divide perspective, cultural values to acceptance; proposing an integrated model)	Traditional acceptance/adoption theories (see above) + social capital theory, Hofstede's national culture theory, digital divide theories, personality theories from psychology, etc.
Comparison of different acceptance/adoption models	TAM; TPB; etc.
Alternative perspectives on acceptance/adoption	Critical realism, practice view, sensemaking, Adaptive Structuration Theory (AST)
Examinations of particular acceptance/adoption constructs, theory behind the constructs and measurement of constructs	Social norms; Perceived usefulness
Reflections on the state of the research (literature reviews, citation analyses)	Citations of UTAUT; literature review on acceptance, adoption and diffusion

Table 4 – Types of acceptance/adoption papers published in ECIS proceedings (2003–2012)

Conversely, these trends confirm prior findings that the differences between the European and North American traditions are no longer quite as significant as prior research has indicated (Córdoba et al., 2012). As argued by Cordoba and colleagues, based on their analysis of papers published in *MISQ* and *EJIS* during the period 1995–2008, "acceptance seems to have 'won the battle' against other organisational models (based on strategic thinking) to ensure IS / IT effectiveness" (ibid., p. 489). However, our findings also suggest that there is notable *diversity within* acceptance / adoption research at ECIS (see Table 4). This is not necessarily characteristic of this type of research, since it is typically associated with quantitative, positivist and survey–based studies. In short, based on broad categorizations of research into topics, one can observe significant convergence, but when opening up the 'black–box' of the topic it is also possible to find considerable diversity.

The observed trends also suggest that the ECIS community is generating a growing number of studies engaging with "IT itself" (Baskerville, 2012), for example, through design science oriented studies. Furthermore, the lively *conceptual* development of design science research, as well as critical reflections on it, suggests that this may be an area that could become *a distinctive feature of the European IS tradition* in the future.

Concluding discussion

The longitudinal analysis of papers published by the ECIS community confirms a number of characteristics considered particular to the European IS research tradition. For example, in their comparison of the research published in two European–based journals—*ISJ* and *EJIS*—Dwivedi and Kuljis (2008) show that in both journals the most popular topics (during the time period 1997–2007 for *EJIS* and 1991–2007 for *ISJ*) were related to IS management and IS development. During the second decade of ECIS, the IS organizational and strategic and the systems development themes

(see typical keywords for these themes in Web Table 8) were the two most popular, accounting for 42% and 12% of papers published, respectively. More limited attention is given to economic issues and specific technologies. As expected, the popularity of some themes seems to fluctuate with time (e.g., electronic markets have both gained and then lost momentum, while human-computer interaction issues have grown in popularity). Furthermore, European researchers have been found to favour interpretive, qualitative or conceptual papers, using a case study approach, literature analysis, but also surveys (Dwivedi & Kuljis, 2008). The findings presented here confirm the overwhelming popularity of both realist and interpretive case studies. Having said that, however, diversity in research methods is also notable, with conceptual papers (17%); survey–based research (16%), and design science research (8.5%) all having their adherents.

In addition, ECIS has, during its second decade, attempted "… to investigate IS acceptance from non–positivist and non–behavioural perspectives" (Córdoba et al., 2012 p. 491). Considering that applications and extensions of existing models have been considerably more popular than studies taking an alternative perspective on acceptance / adoption, there is still room for further commentary, especially if the goal is to generate healthy debate and avoid conservatism and complacency with regard to the *status quo* (Benbasat & Barki, 2007).

Diversity in European IS research has recently been called for on a number of occasions (e.g., Baskerville, 2012; Rowe, 2012). It is argued that European research should avoid the dominance of any *one* kind of research and should avoid falling into the stereotype that European IS research is only qualitative, interpretive and dominated by sociology (Baskerville, 2012). Baskerville (2012 p. 589), echoing Benbasat and Zmud (2003) and reflecting a general growing interest in studying the social and the material together (cf. Cecez-Kecmanovic, et al., 2014), specifically calls for the (re)development of research into information technology (IT) itself, because "there is a wealth of European experience in IT design science research that has the potential to lead the IS discipline in its advance to its next level: significant,

widespread IT research that takes the IS consequences beyond just adoption". The evidence in this paper suggests that the ECIS community is generating a growing number of studies engaging with "IT itself" – for example, design science was the fourth most popular research approach adopted during the period 2003–2012 (Web Table 7). Furthermore, the lively *conceptual* development of design science research, as well as critical reflections on it, suggests that this may be an area that could become another distinctive feature of the European IS tradition. The European tradition, as a distinct ensemble of *social and technical (design)* studies of IS management and development, would in some ways reflect the historical stages of differentiation, competition and absorption (Córdoba et al., 2012) coming full circle to one of its (historical) roots in the sociotechnical systems perspective that grew out of the Tavistock Institute in London in the 1950s and 1960s (Leonardi, 2012; Tavistock Institute, 2014). This distinct 'European' approach to design science research may have some affinity to one of the strategies of design science research (DSR) recently discussed by Iivari (2014). Much of existing DSR has focused on producing conceptual IT meta-artefacts such as an innovative concept for a software-hardware system or a new systems development approach, method or technique. These concepts or approaches can then facilitate the realization of a particular class of *a priori designable systems* (strategy 1). However, DSR could also take a slightly different approach (strategy 2) – starting from a real system implementation as a specific solution to a problem encountered in practice, then abstracting the specific solution to innovative design principles that can more easily facilitate the conception of *emergent ensemble artefacts* the properties of which "emerge from design, use and on-going refinement in context" (Iivari, 2014, p. 4). Starting from a real-world technical problem encountered in a particular social setting requires precisely the kind of socio-technical perspective observed in the emerging European design science tradition (e.g., von Krogh & Haefliger, 2010). While this strategy is recognized as requiring extensive resource and time investment (often a longitudinal action research project), it can also be very rewarding and provide a DSR

contribution that is practically relevant and scientifically innovative (Iivari, 2014, pp. 7-8). Furthermore, recognizing and distinguishing this approach as a valid strategy for DSR provides researchers with a way to justify their study design and methodological choices, thereby also facilitating publication in top journals.

One final reflection on the influence of the trends of convergence and internationalisation on the kinds of papers typically presented at ECIS remains. Is ECIS "edgy"—willing to question the mainstream, or more conservative—an outlet for "safe" papers? The findings show that the ECIS community has an element of both. It is true that the majority of ECIS papers do tend to follow the, by now, dominant paradigms of a qualitative paper dealing with IS management or development issues using a case study approach. Similarly, there is a notable convergence around the topic of technology acceptance, with most papers on the topic applying the standard models to specific technologies, or offering minor extensions to these models. This suggests a conservative and incremental approach to research, rather than a more discovery–oriented path. Given the increasing publication pressures discussed above and the strong emphasis on theory use and theory building in top journals (Avison and Malaurent, 2014), it is unsurprising that researchers stick to "popular themes" and a "recognizable formula" in their studies and writing (ibid., based on Straub, 2009). However, as Avison and Malaurent (2014) point out, the IS community needs to exercise care not to unfairly reject interesting "theory light" papers – suggesting that the requirement of a "contribution to theory" in many top journals should be replaced with a requirement of "a high likelihood of stimulating future research that will substantially alter IS theory and / or practice" (ibid., p. 8).

In the ECIS community, we note that the on–going debate and development within the sub–theme of design science research is positive in this regard. Following 'strategy 2' of DSR (Iivari, 2014) has high potential of producing interesting "theory light" papers that can make a great contribution to the IS field. While not in the majority, there are studies offering alternative viewpoints, methods and

paradigmatic assumptions also within the technology acceptance theme, suggesting a differentiation *within* convergence. The recent emergence and success of an *alternative genres* track (at ECIS 2012 and ECIS 2014), as well as the establishment of the *Claudio Ciborra Award* for the most interesting and novel papers, are also noteworthy. Creation of an official outlet and an award for the most creative, controversial and / or unorthodox in format (video, theatre, performance, etc.) types of studies in IS can encourage researchers to publish more of such work, enriching the European community further. However, as Rowe (2012) points out, there is also the danger of any work labelled as *alternative* being disregarded as 'outsider work', rather than valid, rigorous scientific work. Kuhn (1962) differentiates between "normal science" and "paradigm shifts" and, within the IS field, the existence of these forms of "alternative" work can be seen as either an indication of the field's strength (Galliers, 2003) or of crisis (Benbasat and Zmud, 2003).

In line with these trends of convergence, conservatism, and differentiation within convergence, we would suggest the current research profile of ECIS can be characterized by three elements: 1) continuation of the traditional European IS research profile as developed in the first decade (keywords: qualitative, interpretive, social theories, case studies, IS management and organizational issues); 2) convergence with aspects of the North American tradition (keywords: acceptance and adoption research, surveys), and 3) the development of a distinct perspective and approach to design science (keywords: a distinct ensemble of *social and technical (design)* studies, critical). These observed characteristics are in line with the contextual features considered above: the path-dependency of research, the changing European academic landscape with increasing pressures to "publish or perish" as well as the increasing pressures to be internationally competitive and enhance the prestige and value of European science (cf. 2020 Horizon initiative and central funding bodies such as ERC). It will be interesting to see how this profile develops over the next ten years of ECIS.

The trends in the European IS academy as evidenced by papers presented at the first twenty years of ECIS reflect the choices made by researchers when deciding which topics to focus on and how to research them (as well as at which outlets – including ECIS – to present the research results). Some authors (e.g. Avison and Malaurent, 2014; Alvesson and Sandberg, 2014) are asking whether academics are too focused on filling gaps in "research boxes" and producing results that are of little relevance to either practitioners or the public. Thus, identifying and reflecting on the trends at ECIS is also an opportunity to prompt individual researchers to reflect on the motivations for their research and justifications for their future research plans. While there is an important role for research that refines our understanding of key concepts such as technology adoption, or that replicates existing studies, the field also needs individuals who are offered a space (such as at ECIS) for more critical, reflexive questioning of the topics and methods of IS research. As our analysis shows, ECIS provides one such outlet for research that could transform the shape of the IS field (and *EJIS* has an espoused editorial commitment to non-mainstream research, including alternative genres (Rowe 2012)). The availability of these potential outlets needs to be paired with an adequate supply of such research.

In sum, our aim with this paper was to provide a contemporaneous account of the dominant contextual factors influencing the European IS academy at this moment as well as our interpretation of the developing European IS research profile. While our interpretation may turn out to be misplaced (Bryant et al., 2013), we argue that it will nonetheless be relevant in shaping future understanding of European IS research.

Acknowledgements

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