

Electronic interaction research 1988 – 2012 through the lens of the Bled eConference

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Abstract Electronic interaction (EI) depends on technological capabilities that have only become available during the last quarter-century. The Bled eConference has straddled this period. A review of the conference's successive themes, and of the corpus of over 1,000 papers presented at the 25 events to date, reveals three major Eras, referred to in this paper as the EDI, eCommerce and eInteraction Eras. A trace of the developments in the diverse array of EI technologies and EI-technologies-in-use shows that researchers have focussed very heavily on economic concerns, and until recent years did so almost to the exclusion of social concerns. The paper proposes that EI research needs to seek better balances between organisational and human needs. In addition, because of the instability of bleeding-edge phenomena, empirical research is being published too late to deliver much value to practitioners. The prevailing expectations of journals that rigour be pursued at all costs means that the relevance of research to the real world has become a quite secondary concern to many academics. The EI literature is accordingly at risk of following the IS literature more generally into a closed enclave, in which academics talk to one another and no-one else. Key precepts for an alternative research philosophy are proposed.

Keywords Electronic interaction · Research · Electronic commerce · Electronic data interchange (EDI)

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Introduction

Reviews of the recent past can provide an appreciation of the history on which contemporary work is building, and insights into the directions in which momentum is pointed.

The occasion of the 25th Bled eConference in June 2012 provided an impulse for a re-examination of the corpus of over 1,000 papers that have been presented at those events (Bled 1988-). The journal *Electronic Markets* (EM) also has a lengthy history, and is currently in its 23rd year. The relationship between the Bled event and EM has always been close, with many overlaps between the program and editorial committees, and many EM Board meetings held beside the lake at Bled. The analysis in this paper accordingly refers to EM publications on multiple occasions as it follows through the chronological development.

This paper takes a broad view of research in the area during the period since the late 1980s. Rather than limit the scope to a specific topic such as EDI, electronic markets, eCommerce or eBusiness, the authors have adopted the notion of 'electronic interaction', which has been the unifying element of the Bled eConference, particularly during the last decade.

The term electronic interaction (EI) excludes physical messaging such as postal services ('snail-mail') and semaphores. It also excludes one-way projection of messages and broadcast services. It necessarily involves two-way communications and 'bandwidth symmetry' (Clarke 1994b, Chapter 4).

The term 'electronic interaction' appears in the literature, although in most cases casually and sporadically rather than as a major research focus. Some authors have used it as a general descriptor (e.g. Gates 1999), and others have applied it within specific contexts such as Business-to-Business (B2B) and Inter-Organisational Systems (IOS) (Cunningham and Tynan 1993; Grilo et al. 1996; Allen et al. 2000; Lucas 2002), and in

marketing (Watson et al. 2000; Blazevic and Lievens 2008). We use the term in a less restrictive fashion even than, for example, Grilo et al., in that the interactions do not need to be between organisations. We use the following succinct and reasonably unambiguous definition which encompasses the fields of view of the Bled eConference and of this paper:

any form of communications facilitated by electronic tools,
provided that it has the capability to
support two-way communications
among two or more individuals or organisations

This paper, and the preparatory analysis reported in Clarke (2012), needed a means whereby some structure could be imposed on the large amount of material within the scope of the review. A small number of classification schemes have been previously published that were of potential relevance to this study, e.g. Barki and Rivard (1993) and Galliers and Whitley (2002, 2007) regarding the field of Information Systems (IS) generally, Elgarah et al. (2005) and Narayanan et al. (2009) both addressing EDI adoption, Ngai and Wat (2002) focusing on eCommerce, and Titah and Barki (2006) for the field of eGovernment. However none was found that addressed the electronic interaction field both in a comprehensive manner and at an appropriate level of detail.

A classification scheme was developed through visual inspection of the titles of all papers in the Bled eConference proceedings during the refereed period 1995–2011, identifying 63 keywords with 972 mentions, and then clustering them on the basis of the first-named author's familiarity with the subject-matter and his particular world-view. This gave rise to the 34 keyword-clusters within 3 major groups, shown in Table 1. No authoritative basis for the clustering is, or can be, claimed.

Categories of eBusiness were dominant, with EDI giving way early in the period to eCommerce – which was easily the largest individual cluster-count, with 14 % of the total. That in turn gave way to eGovernment, and then mobile, with marketing and then health dominating very recently. Corporate perspectives accounted for 22 % of keyword-occurrences, with interest focussed on IOS, then supply chain, and then business models and business strategy factors. A range of research topics, attracted interest, with the adoption and trust clusters the most prominent.

Any attempt to perform a sweeping review of developments over an extended period deals in generalities is inherently constrained by the blinkers and biases of whoever conducts it and whatever perspective they adopt, and is subject to justifiable criticism for its limitations. Unsurprisingly, there is only a limited literature of this nature. In addition to sub-conscious biases, the analysis that follows is expressly motivated by relevance to the real world of electronic interaction, and hence highly values publications that are accessible by practitioners in preference to those written by academics solely for other academics. An article that represents a counterpoint to this paper,

Table 1 The primary keywords in paper-titles – 1995–2011

Keyword-clusters	Main period	No. of mentions
Categories of eBusiness (58.7 %)		
EDI	1995–1998	41
eCommerce	1996–2001	140
eMarkets, directories, auctions	1998–2002	51
eGovernment	2004–2008	35
SMEs	1998–2002	53
mCommerce, mobile apps	2002–2009	56
eMarketing, CRM, consumer behavior	2003–2011	55
eHealth	2006, 2011–11	32
Social media and Web 2.0	2009–2011	18
Other (7 clusters)		90
Corporate perspectives (22.2 %)		
Inter-organisational systems	1995–1998	24
Supply chain, efficient consumer response, Intermediaries	1998–2003	37
Business models	2003–2005, 2009	29
BPR, transformation, alignment, integration	2003–2007	42
Strategic alliance, business networks, virtual organisations	2004, 2007–09	37
Other (4 clusters)		47
Research topics (19.0 %)		
Adoption, impediments, success factors	2001–2007	52
Trust, reputation, risk	2001–2004, 2010–11	37
Other (7 clusters)		96

with stronger theoretical pedigree and intellectual ambition, is Alt and Klein (2011). That paper is, however, concerned specifically with economic perspectives on electronic markets, which is a small sub-set of the broad field of view of the Bled eConference and the present paper.

The analysis presented in this paper exploits the opportunity afforded by retrospective analysis of the conference's corpus of 824 fully-refereed papers in the 18 years from 1995–2012. Although the conference management has always been in the hands of a single University, the international focus has been reflected in the role of Research Stream Chair – which, over the years, has been in the hands of 16 senior professors from 9 different countries – and in the research papers themselves – with about 50 countries having been represented on the formal program.

This paper commences with brief reviews of the conference's origins, and of the state of relevant information technologies and their applications at that time. It then traces developments through three phases, the justification for which is presented in Clarke (2012), and is supported by independent analysis in Cameron (2012). The three phases are:

- 1988–1995 – roughly, the EDI Era

- 1996–2004 – roughly, the period of the Internet and eCommerce, which the authors have referred to for convenience as the eBusiness Era
- since 2005, the present era, in which Web 2.0 and social media have been the most virile among a number of new strands of activity, and which this paper refers to as the eInteraction Era

The periods selected for these Eras were derived from data reported in Clarke (2012, Appendix 6: Keyword in Title' Analysis – Bled eConferences – 1995–2011 p. 173), and re-coded to reflect the definitions of the three Eras presented in this paper. As shown in Fig. 1, the number of eBusiness papers overtook EDI papers in 1995. In their turn, eBusiness papers were matched by eInteraction papers in 2004 and 2005, and then overtaken by them. The paper concludes by offering observations on the prospects for future developments in research within the field of electronic interaction.

The state of play in 1987

The Bled eConference was conceived by Joze Gricar in 1987, and first held in June 1988. It has been held annually since then, always on the edge of the lake of Bled, beside the Julian Alps, in north-western Slovenia. It has been organised throughout by the Faculty of Organizational Sciences at the University of Maribor, located in Kranj. It has attracted international participants since 1989, has been a fully international event since 1990, and has included a refereed research stream since 1995. Reviews of various themes are provided in a 9-paper Special section of the 25th Conference proceedings (Clarke et al. 2012a, b).

In the Information Systems (IS) arena, very few conference series are of longer standing than Bled – the Hawaii International Conference on System Sciences (HICSS) since 1968, the IS Research Seminar in Scandinavia (IRIS) since 1978, and the International Conference in IS (ICIS) since 1980. The two next most venerable series commenced several years after Bled: the Australasian Conference in IS (ACIS) in 1990 and the European Conference in IS (ECIS) in 1993.

The world of 1987 was very different from that of 2012. The world's population was 5 billion, compared with 7 billion now. The European Community was a mere 11 countries and the EU was 6 years away from being formed. Reagan and

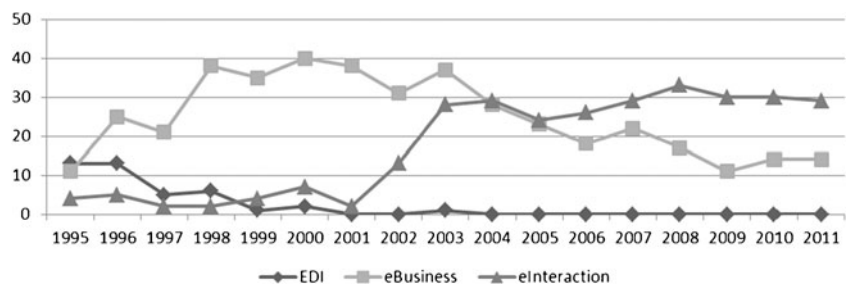
Thatcher were in power, but Gorbachev not yet. The Cold War still chilled the world. Bled was in Communist-controlled Yugoslavia, which was in transition following Tito's death in office in 1980, after 37 years in power. Gricar foresaw at least an increase in the country's economic interactions with the EU, and the possibility of a break-up – which in fact occurred, 5 years later.

In the computer world, mainframes had matured and greatly increased in power since their first applications to business and government in the early 1950s. By the mid-1980s, they were being complemented by mini-computers, whose architectures took advantage of large-scale integration of transistors. Micro-computers, exploiting a further round of miniaturisation, had become available as early as 1974, and were a (primitive form of) consumer appliance as early as 1977 with the Apple II and 1981 with the IBM PC. By 1987, however, PCs had only matured as far as the second-phase IBM PS/2. The Apple Mac had made graphical user interfaces (GUIs) widely available from 1984 – although PC interfaces were to lag for another 7 years. Meanwhile, the Mac's main memory was only 1 MB, and hard-disk storage was still an optional extra. Portables existed in name, but were heavy 'luggables' with very small screens and very limited processing power and storage.

Electronic interaction (EI) depends not merely on computing. Progress could only be achieved after the marriage of computing and communications technologies. This began about 1970, but only accelerated in the late 1980s, before becoming widely available only in the 1990s. The available communications infrastructure to support EI in 1987 comprised the following:

- for corporate telecommunications, expensive private networks and value-added network (VAN) service-providers were used, plus fax. It took a further decade for the iron grip that the PTTs (Post, Telegraph and Telephone authorities) had long held over telecommunications to be gradually released, with the result that big improvements in infrastructure availability and costs came only in the mid-to-late 1990s
- for corporate local communications, a number of proprietary local area network (LAN) technologies were available, increasingly 10Mbps Ethernet segments, and bridges between them. 100Mbps versions of Ethernet became available from the early 1990s and 1Gbps from about 2000

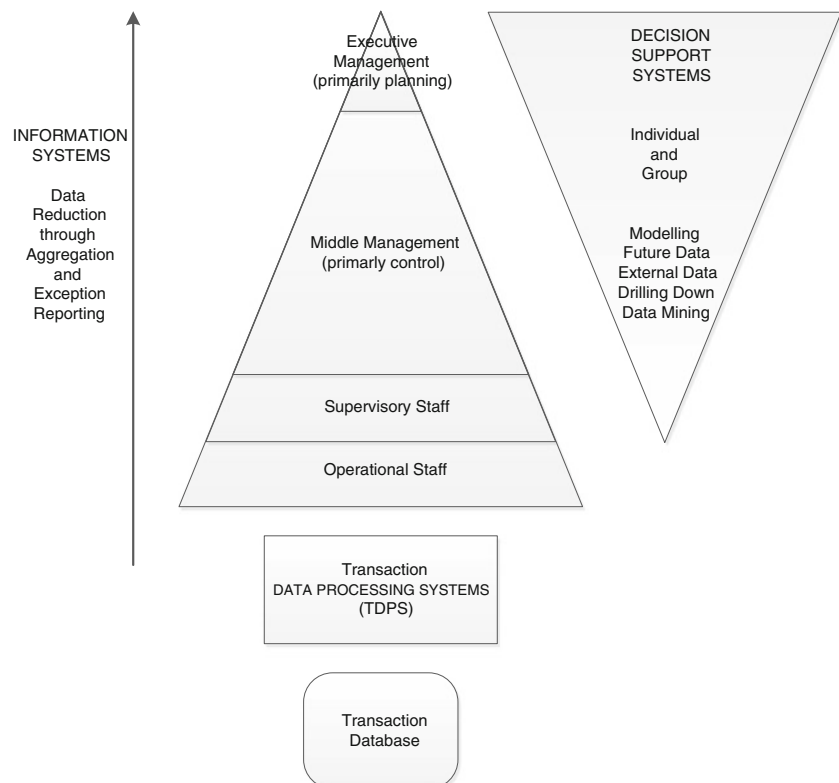
Fig. 1 Count of papers addressing each Era's focal point



- for personal and small-business telecommunications, 2,400 bps modems and bulletin board systems (BBS) were the mainstream, plus fax. It required a further 7–8 years, until the mid-1990s, before modem speeds reached 56Kbps – provided that good quality lines were available. Early broadband services (in many countries, primarily ADSL) became economic for small business and consumers a few years after that, during the late 1990s
- for personal and small-business local communications, direct PC-to-PC connection, plus (for Macs only) 230 bps Appletalk LANs. IBM PC – to – IBM System/38 connection was delivered only in 1988. (The beta-version was applied by one of the authors at the University of Bern in a Masters unit from October 1987). Ethernet became economic for small business and consumers during the 1990s
- analogue cellular wireless networks (later called ‘1G’) were very new, and supported voice only. Support for data transmission would be unavailable until 2000, when GSM/GPRS (‘2.5G’) and then ‘3G’, data services became available, although they were still slow and expensive
- wireless local area networks (WiFi) also would not become available for another 15 years, from the early 2000s

The forms of electronic interactions in 1987 were constrained by the limitations of the computing and communications

Fig. 2 The scope of information systems in 1987 (extract from Clarke (1990), as presented to a review of computing disciplines)



infrastructure of the period. Figure 2, which was in use by one of the authors at that time, reflects the conventional conception of information systems as being internal to organisations, and still mainly focussed on administrative and operational applications. Financial Management Information Systems (FMIS) remained almost entirely intra-organisational, and the term Enterprise Resource Planning (ERP) systems was not even coined for another 3 years. EI between organisations was still technically challenging, very expensive, and frustrated by competing standards and stultifying regulatory environments. A few leading inter-organisational systems existed, such as airline reservation systems, SWIFT, ATMs and EFTPOS, each using its own private network.

Strategic information systems theory was emergent rather than established. The seminal work (Porter 1980) was already several years old (Clarke 1994a), and the earliest specifically IS articles had appeared shortly afterwards (Barrett and Konsynski 1982; Cash and Konsynski 1985). Key exemplars already existed, which were much-referred to in the literature that developed from 1987 onwards. These included airline reservation systems (1968), IBM’s unbundling of software (1969), the IBM PC (1981), Ethernet (early 1980s), terminals in pharmacies (early 1980s) and GUIs (mid-1980s). Each of these would be described as a means for one organisation to achieve competitive advantage over other organisations.

This outline of the state of play sets the scene for the first phase of EI research, addressed in the following section.

Phase 1 – 1988–1995 – EDI

In both global and local political life, the period 1988–92 saw a great deal of change, with the Berlin Wall coming down, the Cold War ending, and Slovenia gaining its independence and commencing a rapid migration into the EU. Gricar conceived the Bled Conference in 1987 as a means of harnessing electronic interaction in support of the economic advancement for his country. This is an important reason why it has always featured a blend of industry, government and academic contributors and participants, and has considered national applications of EI technologies within an international context.

The 1st Bled eConference in 1988, and the following four until 1992, focussed on Electronic Data Interchange (EDI). EDI is the electronic transfer of documents in standardised electronic form, between organisations, in an automated manner, directly from a computer application in one organisation to an application in another. “The idea’s origins have an international flavour ... being traceable back to the 1948 Berlin Airlift, where the task of co-ordinating airfreighted consignments of food and consumables (which arrived with differing manifests, languages and numbers of copies) was addressed by devising a standard manifest. Electronic transmission commenced during the 1960s, initially in the rail and road transport industries. The standardisation of documents was a necessary concomitant to that change” (Clarke 1992b).

EDI is both electronic and interactive. But it involves batched data transfers, and hence, for example, a Purchase Order gives rise to a Purchase Order Acknowledgement in a timeframe that is slow by modern standards of online interactions. In addition, the focus on administrative and operational transactions meant that the strategic impact, while not necessarily trivial, was limited.

In 1991, the first journal emerged that specialised in business-oriented EI: Electronic Markets (EM). There has been an association between the conference and the journal since then, and a partnership since 2006. The opening words of the Editorial in EM 1, 1 in late 1991 were “While the application of computers within business enterprises is already measured in generations, the application of new technologies in support of inter-organisational commerce has remained to a considerable extent pioneer territory” (Schmid 1991, p.1, in German, tr. by the authors).

In the world of information systems, change was less dramatic than it had been in the political world, but it was steady. LANs became mainstream, connecting PCs to shared printers and to databases running on local micro- and mini-computers. Gradually, inter-organisational interactions became more commonplace, initially as one-to-one arrangements but

soon afterwards applying star and hub topologies. Competitive approaches to implementation were proposed, experimented with, and studied. Recognition gradually emerged that some amount of collaboration among competitors was necessary, in order to lift the whole playing field to a new level. The focus at this stage continued to be on procurement and logistics. Within 2 years, however, a lead article in EM was making the much more upbeat statement that “In many industries electronic markets are being implemented in order to improve the efficiency of coordination and/or to gain a competitive advantage” (Schmid 1993, p.3, in English).

Gricar, too, had noted that business executives were increasingly perceiving EDI as a means of communication and coordination along the industry value-chain. He accordingly adapted the conference theme to ‘EDI and Inter-Organizational Systems’ for the 3 years 1993–95. The 8th Bled eConference in 1995, which was the last of the EDI series, was also the first event at which the Research Stream was subject to a full refereeing process, and from which a selection of papers were further developed and published in a leading journal.

The Conference series was instrumental in developing the level of understanding of EDI’s promise and challenges, among business practitioners and researchers alike. This was achieved both through the dissemination of papers (literally, i.e. in hard-copy), formal communications on panels and in workshops, and informal communications in hallways and over meals. Researchers connected with users, managers and executives, ensuring a two-way flow of information. These were critical means of knowledge transfer in a period when inter-organisational email facilities were only just beginning to become available, even within many universities. Email attachments became available only from 1992 and the standard was released only in 1996.

An investigation of the EDI publications catalogued by Google Scholar was undertaken, in order to establish where and when highly-cited papers were published, and to compare the timing of their appearance and use with the needs of business, as evidenced by the themes of the Bled Conference. The study suggests that the contribution of the refereed literature to progress in EDI was very limited.

In July 2012, a total of 40 publications on the topic of EDI had in excess of 100 citations. The publications comprised 3 books and 37 articles. Half of the papers were in 6 journals – I&M (6), MISQ (4), JSIS (3), JMIS (3) and ISR (2).

Only 10 of the 40 items were published during the 1989–93 period when EDI was a leading-edge research topic and publications could deliver high value to business and government organisations seeking to exploit the new ideas. Only 17 % of the citations in the pool were to papers from this period. A further 11 of the 40 were published during the transition phase, in 1994–95, as the interests of business, government and the Bled Conference shifted to eCommerce. These account for 42 % of the citations in the pool. The remaining 19 papers,

accounting for 41 % of citations, were published from 1996 onwards, after EDI had ceased to be of major interest to business or government, or the Bled Conference.

It is also noteworthy that, of the top 10 citations, only one is from the early phase, and that is the 9th most-cited, and is a book not a refereed article. The real-world relevance factor of most of these papers is low, and particularly so of the top 5, with from 1,500 down to 550 citations each, which were published between 1995 and 2001, on adoption theory and business value topics, in top-level journals. Given that there is a delay of 2–3 years before papers gain citations, the vast majority of the thousands of subsequent papers – even if they were written in a manner accessible to professionals, managers and/or executives – were published too late to have any useful impact on early adopters or even on the early majority.

This reinforces the importance of venues such as Bled eConference. They provide a forum for information interchange between researchers and practitioners, at an earlier stage, and in a more accessible form, than the refereed literature can offer.

Phase 2 – 1996–2004 – eBusiness

At the Bled Conference in 1993, it was argued that ‘EDI Is But One Element of Electronic Commerce’ (Clarke 1993). That paper interpreted electronic commerce “as a means of drawing together a wide range of business support services, including inter-organisational e-mail; directories; trading support systems for commodities, products, customised products and custom-built goods and services; ordering and logistic support systems; settlement support systems; and management information and statistical reporting systems”. This was complemented a few months later by the following: “[Electronic Markets] in the narrow sense can be defined as market places put into action by means of telematics. ... EMs in the broader sense may be understood as information systems supporting one or more phases and functions of coordination within market systems” (Schmid 1993, p.3).

This section outlines the various threads of change that occurred during what the authors characterise as the second Phase of EI Research. Underpinning these threads were improvements in networking technologies, and the increasing public availability of the US Internet backbone, which enabled more effective and efficient communications for organisations and technically capable individuals alike. Reflecting these changes, the Bled conference underwent a progressive change of scope and name between 1994 and 1996, with the term ‘Electronic Commerce’ becoming the central theme.

By 1995, the European Commission was in the process of developing policies relating to the stimulation of e-Commerce, legislation to enable it, and funding for research programs. Bled provided Brussels with fertile ground for developing an

understanding of the emergent field and achieving contacts with both companies and academics working in the area (Timmers, personal communication, 2012).

By 1995, in parallel with the substantial industry stream, large numbers of scholars were being attracted to the Bled event from throughout the world. A Graduate Student Consortium and a Student ePrototype Bazaar were well-established. The conference’s Research Stream was accordingly formalised, with full refereeing of papers. When a second specialist journal was launched in 1996, the International Journal of Electronic Commerce (IJEC), the Bled Conference was in a strong position to provide a feed of papers to it.

IJEC’s first Editorial put it like this: “Electronic commerce (E-commerce) is sharing business information, maintaining business relationships, and conducting business transactions by means of telecommunications networks. Traditional E-commerce, conducted with the use of information technologies centering on electronic data interchange (EDI) over proprietary value-added networks, is rapidly moving to the Internet. The Internet’s World Wide Web has become the prime driver of contemporary E-commerce. ... Among the principal technologies directly enabling modern E-commerce are: computer networking and telecommunications; client/server computing; multimedia (and hypermedia in particular); information retrieval systems; electronic data interchange (EDI); message handling and workflow management systems; groupware and electronic meeting systems; and public-key cryptography. ... The set of technologies driving E-commerce is embodied (for a want of a better word) today in the Internet. This conglomerate is a transformational technology that has challenged old assumptions and helped shape new workplaces, organizations, and markets” (Zwass 1996).

This was echoed in EM Editorials: “The global information infrastructure and its current incarnation – the Internet – has the inherent potential of enabling a global marketplace, to which Electronic Product Catalogues also provide a virtual gateway to a company through which customers obtain product information, order goods and services, make payments, access customer support, provide feedback, and participate in other corporate activities, regardless of the time of day or the customers’ whereabouts” (Schmid et al. 1997), and “For over 10 years, the proliferation of electronic markets has been predicted. However, for the most part of this period, the theoretical arguments were convincing but the empirical evidence was not. The emergence of the World Wide Web has profoundly changed that situation: electronic market mechanisms gain more influence and coverage where there have been traditional markets and they emerge even in areas that have not seen markets before” (Klein 1997).

The Bled conference enjoyed special relationships with both journals, and between 1996 and 2005, ten special sections of papers arising from the Bled eConference were published in IJEC complemented by several in EM.

During this Phase, **network topologies** proliferated, moving beyond one-to-one and m-to-n linkages, and beyond hub-and-spoke networks. Cascading inter-organisational systems emerged in the forms of ‘efficient consumer/customer response’ (ECR) schemes in consumer goods sectors such as clothing and groceries, and in industry supply chains more generally.

The richer set of network topologies enabled more **sophisticated inter-organisational (information) systems (IOS/IOIS)** to emerge. The inefficiencies inherent in multiple one-to-one IOS, which result in rapidly multiplicative m-n connections, had been recognised during the EDI era, leading to the use of hub-and-spoke schemes. Cascading topologies emerged to support industry value-chains. During the early years, purchasing and marketing applications were the primary focus, but leading organisations were becoming more strategic in their outlook. The early distinction between hierarchies and markets (Malone et al. 1987), fertilised by networking technologies, gave rise to many additional organisational forms, such as strategic networks and clans (Wigand et al. 1997) and loose hierarchies, democracies and internal markets (Malone 2004 – as cited in Wigand 2011, p.11). EM’s first special section on the topic was in 1994. Bled has published 135 papers on various aspects, during 1995–98 on IOS generally, but with the focus narrowing to supply chains during 1998–2003 and to strategic alliances, business networks and virtual organisations during 2004–09.

The additional category of ‘extra-organisational’ systems had been identified some years before (Clarke 1992a). These are necessarily configured differently from IOS, because consumers and small and micro-businesses have limited technical expertise and little or no technical support. The early focus on ATM and EFTPOS networks was quickly over-run, as consumer marketers and advertisers saw the potential of the Web, and the associated Mosaic and then Netscape Web-browsers, to enable what quickly became Business to Consumer (**B2C**) eCommerce. About 20 Bled papers considered shopping carts. However, most were presented some years after the technology emerged in 1995–96 (Clarke 2004) and hence too late to benefit practitioners.

Around the turn of the century, considerable attention was paid to the **business models** that did or could support new forms of business. Key contributions were made by Timmers, in plenary and industry sessions at Bled in 1996–97, and in EM (Timmers 1998 – which is one of the most highly-cited articles in the area), and consolidated in Timmers (2000). The peak period of interest at Bled was in 2002–05, and two of the most highly-cited Bled papers are in this area – Osterwalder and Pigneur (2002) and Pateli (2003).

At about the mid-point of this Era, **mobile devices** were detected by the community as harbouring great prospects. Carlsson and Walden (2012) trace the development path of relevant papers at Bled from 2000 onwards. The Editorial for the first Special Issue on Mobile topics in EM, in 2002, noted that:

“wireless innovation is being diffused very differently around the world, due to structural, regulatory and market characteristics, the interplay of user expectations and provider capabilities, and the deployment of innovative technologies” (Rao 2002).

During this phase, **strategic IS theory** developed rapidly. Much of the literature remained, however, locked into several presumptions that can be seen as naive or self-serving. One was the tenet that control over customers was not only desirable, but also achievable and sustainable. As Malone explains in Wigand (2011, p.13), that presumption was predicated on primitive networking facilities, such as those used by American Hospital Supply in the early 1980s. Another weakness has been the prevalence of the ‘CEO as visionary leader’ mythology, despite ample evidence existing that each decision by an individual organisation is just one small intervention within a complex system, and that significant, sustainable competitive advantage from strategic decisions is uncommon: “The ventures that succeed are those that, through some combination of skills and insight, and – very importantly – luck, get enough things right that they cross some boundary into success” (Malone, in an interview reported in Wigand 2011).

Another widespread presumption has been that strategic measures are necessarily linked to the notion of competitive advantage. Yet, in many contexts, this is clearly incorrect, as in the public sector, and in not-for-profit organisations. Moreover, even in the for-profit sector, many strategic interventions that seek competitive advantage build on collaborative arrangements, including strategic partnerships and common infrastructure, and many strategic interventions are much more valuable to the system as a whole than to the individual organisation.

The mid-to-late 1990s is recognised as having involved an orgy of over-enthusiasm, with a great many ventures based on hope rather than on any recognisable business model or capturable revenue stream: “the widely expected market development [in e-business and its sub-category e-commerce] either did not occur or did not have the impact that was somewhat rashly forecast in the early stages of electronic market developments ... [This was followed by] a massive shake-[out] and a period of sober[ed] expectations” (Lutzer and Preissl 2005).

In the B2B area, it had been anticipated that new **electronic markets** would reduce transaction costs, and would feature more openness, more standardisation, and more transparency, and that the result would be a new “ad hoc collaboration of market players” which would greatly reduce the friction inherent in trading. However, “not all of the collaboration concepts worked out the way scientists and practitioners expected. Therefore, about 90 % of the electronic markets of the 1990s disappeared with the downturn of e-business shortly after the year 2000” (Österle et al. 2011, p.1, p.2). Clarke (2001b) identified the dimensions across which corporate procurement varies, and proposed that a taxonomy and contingency theory that reflected these dimensions would avoid the problems of mis-fit that were evident in so many of the failures.

Unfortunately the process of weeding out the unfit also did considerable harm to tenable businesses as well. For example, Wigand (2011, p.6) notes that Ariba was almost brought down, but managed to survive, and later flourished.

With adoption lagging well behind the inflated expectations, over 100 papers in Bled considered success and failure factors and impediments to adoption, particularly the cluster of issues associated with trust and reputation. Van der Heijden (2012) focussed on the user acceptance aspects, and reviewed the 30 empirical papers presented at Bled on that topic alone during the period 2001–11. Despite the ‘dot.com bust’ in about the year 2000, a bright future was still forecast for eCommerce: “electronic markets will become more relevant as instruments for interorganizational integration. Compared to the integration within companies, the situation in the interorganizational arena may be compared to the early 1970s when information systems were confined to isolated corporate functions” (Zimmermann et al. 2006).

eGovernment progressed through this period, but generally lagged applications in the private sector. Interest at the Bled Conference was significant, although only 35 papers focussed on it – with the peak period during 2004–08 – compared with 140 on eCommerce peaking 1996–2001, 51 on eMarkets peaking 1998–2002, 56 on mCommerce peaking 2002–09, and 55 on eMarketing peaking 2003–11 (Clarke 2012, p. 26). The Editorial in an EM Special Issue put it this way: “most governments have not offered public digital self-service to the same degree [as e-commerce applications such as net banking, e-ticketing and e-shopping] and the public digital services that have been introduced are generally used to a lesser degree than private services” (Pedersen et al. 2006).

To the extent that intellectual underpinnings existed for the profligate practices of the second half of the 1990s, they were reflected in Kelly (1998), Shapiro and Varian (1999) and Levine et al. (2000). Kelly and Levine et al. were excited stories of revolution, whereas Shapiro & Varian demonstrated how the new world was analysable, explainable and even predictable, by applying tools from information economics rather than from limited-resource economics. Shapiro & Varian was deeply rooted in the US business school philosophy of business domination of consumers, whereas the other two publications argued for a much less manipulative approach to electronic interactions between organisations and individuals.

In the same manner as for EDI, an investigation was undertaken of eCommerce publications catalogued by Google Scholar. It identifies close to 200 publications with in excess of 100 citations – 23 books, 144 journal articles and 20 conference papers. All of the papers were published during the period 1996–2008, but only 15 % of them in the decisive period 1996–2000, when early adopters were looking for information. All of the 15 publications with more than 1,000 citations were published in the period 1999–2004. As in the EDI Era, the big majority appeared too late to make significant contributions to practice.

The results in relation to both EDI and eCommerce suggest that the purpose of academic publications has only a little to do with communication to business and government, and a lot more to do with communications among researchers. However, an inspection of citations of more specific terms suggests that some qualification to that disappointing conclusion may be needed. For example, there have been substantial numbers of well-cited publications on mobile commerce from 2000 onwards.

For 9 years, from 1996–2004, the conference matured along with the burgeoning field, and researchers had no difficulty finding interesting companies, sectors and systems to study. This section has applied the term eBusiness to the Era, in order to encompass the many areas of development that did not involve the trading of goods and services. But, by the middle of the first decade of the new century, a second major scope change was taking place.

Phase 3 – since 2005 – eInteraction

The focus of Bled, and of other venues addressing similar topic-areas, has been from the outset on economic aspects. However, social dimensions had been gradually emerging not only as a complement to the economic aspects, but also as an enabler of them. As early as 1998, the conference theme referred to ‘the Information Society’; and in 2001 the scope was declared to be ‘e-Everything’, including e-Commerce, e-Government, e-Household and e-Democracy. The significance of social dimensions of electronic interaction had also been recognised in an EM Special Issue in 2000: “The successful business model [for social community building, community participation and community management] is the one that recognizes and structures the goals and values of the community” (Lechner et al. 2000).

In a Bled manifesto, thought-leader and frequent Bled contributor Peter Keen declared the magnitude of the changes that eCommerce had achieved (Keen 2004):

E-commerce is an integral part of every large organization’s basic operations. It is no longer a dot com phenomenon. ... E-Commerce needs [this] manifesto because it is now a key element in the new wealth of nations: economic, social and community wealth ... The most distinctive aspects of e-commerce [are] ... globalization, ... [de-construction and virtualization of industry value-chains] and [greatly enhanced organizational agility] ... E-commerce marks the shift from financial capital to intellectual capital as the driver of growth.

With effect from 2005, Gricar again adapted the overall conference theme. The term eConference was coined, to reflect the event’s comprehensive scope, encompassing all aspects of electronic interaction. Subsequent events have considered specific sub-themes such as integration, values, trust,

and dependability. The authors have adopted ‘eInteraction’ as a label for the current Era.

Even during this period, however, organisational applications have continued to be the dominant concern, in particular the eCommerce sub-areas of B2B and B2C, and eGovernment. Since 2006, eHealth has also attracted a considerable amount of interest, including 28 formal papers. Consumer-with-consumer interactions of an economic nature (C2C) have, on the other hand, attracted only a limited amount of attention.

A great deal of the activity has been in the B2C topics of Internet advertising and the acquisition, exploitation and sharing of consumer data in order to enable more accurate targeting of advertisements at prospects. The consumer-manipulative approach was hailed (by marketers) as ‘Web 2.0’ from 2004 onwards (Clarke 2008), and a fresh wave of wild enthusiasm has been in train: “As in the past as ‘e’ was added to many terms ... nowadays we find a ‘2.0’ added to – more or less – the same terms ... [Many of these seem to be] another hype ... But whereas in the beginning only a few Internet-savvy users were able to make use of available technologies and applications, nowadays there is a Web-generation of people that ... behave[s] very differently compared to people 17 years ago” (Zimmermann et al. 2007).

The category of Social Networking Services (SNS) emerged, funded in 2003 and launched in 2004 (Glasner 2003). Their purpose was depicted as being “to provide a forum for meeting friends of friends and professional colleagues”. Their business model was initially unclear, but quickly came to be based on viral marketing to exploit existing social networks, combined with capture of large quantities of personal data directly and indirectly from individuals, and from their interactions, in order to support accurately-targeted advertisements. The exploitative nature of the model was summed up by epithets attributed to Facebook founder Zuckerberg: “The default is social”, and “They ‘trust me’. Dumb f.ks” (Carlson 2010). At Bled, there have been 22 research contributions on the topic during 2008–12, although the first treatment of social networking in communities (Wilde and Swatman 1999) long pre-dates the emergence of commercial SNS.

SNS have since been recognised as a sub-category of a broader range of applications referred to as ‘social media’. The term has generally lacked terminological clarity. Kaplan and Haenlein (2010) offered a classification that reflected the interests of corporations in preying on consumers. Clarke (2013) presents an alternative classification scheme from the perspective of users, defining social media as any application or service that is perceived by its users to support those users in relation to interaction with other people, broadcast to other people, and/or sharing with other people. Treatment of social media in the Bled Proceedings began slowly in 2007, but, across the three events between 2010 and 2012, 20 % of the research papers addressed the theme. These services subvert,

or perhaps even pervert, the ‘social’ in order to achieve ‘economic’, in a manner similar to the endeavours of US business over the last 40 years to reduce privacy from a human right to an economic right.

Bled conferences have paid at least some attention to services that evidence less organisational aggression against consumers and social values. For example, prosumerism has featured in several Bled papers. eParticipation and eDemocracy (as distinct from the G2C and G2B notions) have been considered not only in Keynotes and Panel Sessions but also in a dozen research papers. In addition, games have been considered not only from the business perspective but also from the points of view of their users. A Special Issue of EM in 2008 addressed “Inclusive ICT business ... defined as doing business with ICT-enabled products and services that are aimed at or take into account the market of persons at risk of social or economic exclusion [including] many elderly people, persons with disabilities, groups with low income or education ... marginalised youngsters, persons living in remote locations or in disadvantaged parts of the world, and also many immigrants and cultural minorities ... – even [in] developed economies ... about 30–40 % of the population” (Timmers et al. 2008)

The scope definition of the Bled eConference in terms of electronic interaction has been broad enough that, as various social media genres arose, and as various flavours of person-with-person and person-with-community linkages emerged, they were automatically encompassed.

Prospects

History is interesting in its own right; but it also conditions our capacity to both imagine and observe the future. This section reflects on directions in which electronic interaction, and research into EI, may be, or should be, heading.

The 25th Bled eConference provided an opportunity to reflect on the past and look to the future. A Special Section of 9 papers reviewed the treatment of several topics across an extended period (Clarke et al. 2012a, b). Dreher (2012) investigated the scope for automated semantic analysis of large bodies of text such as the Bled corpus, in comparison with the manual analysis performed in Clarke (2012). Zimmermann (2012) noted that most contributions in relation to eRegions have been informal, and proposed more systematic study of initiatives and of success and failure factors. Carlsson and Walden (2012) saw mobile commerce at last maturing towards mobile value systems. Bouwman et al. (2012) foresaw improvements in tools to support the integration of business model analysis with business process analysis and enterprise architecture. Cameron (2012) showed the need to accelerate the change in project management thinking beyond its roots the era of intra-organisational systems, by paying more attention to the

social and organisational factors that primarily determine project outcomes. Bons et al. (2012) suggested more imaginative balancing between blind trust and controls, as a means of overcoming impediments to the use of inter-organisational systems. Klein et al. (2012) saw the longstanding focus on IOS gravitating towards an information infrastructure (II) perspective. Van der Heijden (2012) anticipated user acceptance research moving from surveys of what people say they do, towards more observation of what people actually do.

It could be thought that the ‘electronic interaction’ frame of reference that has provided the locus for the Bled Conferences for 25 years has run its course. But a great deal of change still lies before us – in EI technology, in EI technology-in-use, and in the politics of EI technology. For example, the trend towards mobile computing is far from complete, and the substitution of consumer services for consumer applications is in its infancy, and poses enormous challenges (Clarke 2011). In addition, the trend towards virtualisation has not only affected computers and computer-based processes and storage; it has also influenced organisational structures and employment. Virtualisation’s impacts and implications, and the means to manage them, are still poorly understood and in need of careful study.

The coming years will see yet more intensity of data collection, through such means as video cameras pointed at cars and at people, smart meters, and perhaps shortly an ‘Internet of Things’ and even ‘smart dust’. Personal mobile devices are designed to be open to malware, and designed to broadcast individuals’ locations to anyone who might like to know it, in a cavalier manner and without informed consent. Organisations are designing devices, applications and services to monitor and disclose individuals’ activities, including their communications, the content they access, and hence their interests and opinions. Coupled with this massive intrusiveness are endeavours to deny anonymity, to deny multiple identities per person, and to impose a single multi-purpose identifier on each person, together with insecure signature keys, and insecure biometrics.

The anti-social business models of social media corporations provide just one of the more extreme examples of the dominance of economic drivers over social needs, and of corporate and government interests over consumer and citizen interests. Bled needs to be at the forefront of investigations into how to achieve much better balances between organisational and human needs than presently exist.

There is also a pressing need for more diversity in the units of study used by researchers. The perspective of a single organisation is valid, but so too are those of industry segments and sectors, of regions, of nations and of supra-national economic collectives or blocs such as the EU, NAFTA and APEC. But in order to lift EI research beyond the economic to the social, it is necessary to also reflect the interests of not-for-profits, NGOs and associations, of communities, of consumer and citizen segments, of social groups, and of individuals.

Researchers are confronted with a further challenge. The old world of research has only been concerned with describing past realities. Empiricism is valuable, because it forces interpretations to be based on real-world observations. But empiricism is inherently backwards-looking – it has to wait for phenomena to stabilise before it can deliver any information of value. The subject-matter of the Bled eConference, on the other hand, is dynamic. For contributions to be design-oriented, and to point towards actionable interventions, authors have to carefully consider the level of academic rigour that can be achieved while ensuring relevance to the present and the immediate future.

It was argued in Clarke (2001a) that the IS discipline had come to regard rigour as paramount, to the extent that, where relevance conflicted with rigour, relevance had become a secondary consideration. This, it was argued, had reduced the discipline from being a service to professional practice to an ivory-tower occupation, with academics researching and writing on topics and in ways that were of interest only to other academics. The situation has become yet worse over the following decade, with the top-ranked journals focussing on papers that are neither relevant nor accessible to practitioners: “The struggle of information systems for accuracy has had a serious impact on the relevance of publications” (Österle et al. 2011, p.2).

The antidote to this malaise is an adjustment to the norms in the IS discipline as a whole, or at least in IS and cognate disciplines when they focus on electronic interaction as a research domain. The following are suggested as key precepts for the alternative research philosophy:

- in contexts of rapid change, business and government need information to assist in understanding the world that is emerging around them, not the one that is being left behind
- unstable phenomena are not amenable to highly rigorous empirical research
- relevance must become the primary criterion, with rigour as an important constraint
- articles must identify the scientific weaknesses inherent in their methods and their findings, and must discuss the extent to which those weaknesses influence the confidence with which readers should regard their conclusions
- an instrumentalist approach is needed, in order to orient research towards solving real-world problems and exploiting real-world opportunities, rather than constructing elegant theoretical constructs, ‘validating’ them inside imaginary worlds, and constructing intellectualised discourses around them

For this alternative approach to flourish, and to enable the delivery of value to practitioners, its benefits need to be appreciated not only by researchers, but also by conference program committees and journal editors.

Another issue has been that communications among researchers, and to some extent also between researchers and practitioners, has been stuck in a time-warp. The eBusiness Era saw some limited improvements in the timeliness of journal publications, but the dead weight of the small number of corporations that had achieved control of academic publishing has held back real progress. During the current eInteraction Era, as the iron grip of these corporations is gradually prised open, new approaches to research, publication, review and use of ideas will become possible (Clarke and Kingsley 2008).

Like almost all conferences, Bled is almost invisible in the Thomson Reuters Web of Science. It is much more evident in Google Scholar, however, with some 4,000 direct citations and close to as many again for journal papers whose original versions were presented at Bled. However, the accumulated proceedings of the Bled eConferences have much higher utility than those statistics indicate. All papers since 2000 are the subject of an open access copyright licence, and are publicly accessible on the conference's web-site. Downloads from there and the (pay-walled) AIS eLibrary number in the low tens of thousands, and downloads from institutional and personal web-sites in the low hundreds of thousands (Clarke 2012).

These papers, in combination with the interactions between the conference's industry and research streams, influence developments in business and government. In addition to citations and download-counts, important complementary impact measures include the number of individuals who have participated in events, and who have used conference papers in teaching, in learning, and in preparing commissioned consultancy reports and internal business proposals. It has been shown how too much of the refereed literature lags practice and hence fails to deliver relevant information to professionals, managers and executives when they need it. The Bled eConference and events like it contribute to overcoming this problem.

Conclusion

The last 25 years have seen a great deal of maturation, variously of EI technologies, of their application and management, and of research work in the area. The phenomena that lie within the Bled eConference's scope have changed rapidly, are anything but stable, and appear likely to continue to change rapidly for some time yet. People's perceptions, capabilities and expectations continue to mutate quickly as well, sometimes shifting sideways – with inevitably disruptive effects, variously economic, organisational and social.

During the coming years, some longstanding topic-areas are likely to remain dynamic, including mobile technologies and their applications, business models, and market forms. The authors believe, however, that the agenda for eInteraction research in the coming years needs to extend into broader realms that it has seldom touched on during the last 25 years.

Beyond the first-order impacts of technological interventions, it is essential that ways be found to examine and predict second-order implications. In addition, a proportion of future research work needs to adopt as its unit of study individuals as people, communities, and societies, rather than individuals as employees, organisations, and industry segments and sectors. Further, the corpus of research work undertaken in the eInteraction field needs to complement ever-appropriate financial and economic perspectives with personal, community and social perspectives. Finally, researchers must recover the lost balance between the objective of relevance and the constraint of rigour.

For 25 years, the Bled eConference has been a community of thought-leaders and early adopters, encompassing industry, government and researchers. That community has the opportunity to show leadership in the examination of applications, impacts and implications of EI technologies. The Conference can be extended beyond the annual face-to-face event, and provide a focal-point for an ongoing eConversation.

The subject-matter of the early Bled eConferences now seems quaint. But the event has given rise to a community and a tradition that will be highly valuable as the world confronts the challenges of designing and managing electronic interactions among organisations, among people, and between organisations and people.

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