

Research in Information Systems: Implications of the constant changing nature of IT in the social computing era

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Abstract. The discussion of the core identity of IS research is dominated by a heated controversy between the narrow and the broad views. The paper reviews different perspectives of the core identity of IS and stand in with the broad view. We argued that the constant changes and developments of IT capabilities dynamically drive the core focus of IS research and thus a broader view should be adopted. The paper presents the recent changes and developments of IT in the social computing era where we have shown how recent developments have widened the scope of IS research by involving multiple social aspects of investigation. We concluded the paper by proposing some properties of IS research in this era.

Keywords. The core identity of IS research, IS, Changes in IT capabilities, Social Computing, Broad view, Narrow view, IS research, Social Context, IT artifact.

1 Introduction

The discussion of the core identity of IS has been dominant by a heated controversy by leading IS scholars (e.g. Benbasat & Zmud, 2003; Agarwal & Lucas, 2001, Weber, 2003, Orlikowski & Iacono, 2005; Orlikowski & Barely, 2001, El Sawy, 2003) and others. In essence, a thorough review has been conducted in attempt to classify the main views of the core identity of IS. These views have been categorized into narrow and broad views. On the one hand, the narrow view is focused on the IT artifact as the core subject matter in IS research. On the other, the broad view calls for widening the scope of research by acknowledging the diversity of theories and including multiple aspects associated with the social context in which the IT artifact is embedded and evolved.

In this sense, the paper tries to explore this controversy by discussing different approaches and philosophical understandings in an attempt to argue for adopting a broader view in IS research. The paper discusses the positivist, interpretive, and critical philosophy approaches to examine their characteristics in respect to the social context of IS. In order to argue for adopting a broader view in IS research; we have presented the recent changes and development in the current era – social computing era. Our argument is of a social constructivism taste in the sense of viewing IT systems as social products

shaping the social world. Such view implies a broader sense in IS research. At this respect, we tried to touch upon the controversy between the narrow and the broad views by reflecting on the constant changing nature of IT. In order to explicate our stance, we have discussed and presented the recent changes in IT in the social computing era, which represents the fusion of IT in our everyday lives. The paper ends up with proposing a number of properties for IS research which represent a fourth era based on three previous eras that have been discussed by Mathiassen (1998).

2 Origins of the information systems ‘discipline’

The field of Information Systems (IS) is a relatively new area of study – about 30 years – it has been mainly initiated as a response to various challenges that characterize the developments of new technological innovations and developments. Since the field’s inception it formulated itself to be used, adopted and defined broadly with different interests, subjects, domains and sciences, such as, computer science, management science, and organizational science (Baskerville & Myers, 2002; Avgerou, 2000). Thus, IS is considered to be a *multi* or *inter* disciplinary field. In this sense, the field of IS has a variety of possible reference disciplines that could deal with, this reflects on IS researchers who need to remain updated and receptive to a wide range of potential new perspectives, methods and approaches, on the issues with which they are interested and concerned (Jones, 1997). There are several prominent identifying features that play considerable roles in the establishment process of IS. The establishment of two major research journals: (1) MIS Quarterly, and (2) Information Systems Research in 1977 and 1987 respectively. Also the initiation of two major research conferences: (1) the International Conference of Information Systems (ICIS), and (2) the European Conference of Information Systems (ECIS) in 1980 and 1993 respectively (Avgerou, 2000). The field then has widely spread as an autonomous academic field in the Americas, Europe, and Australia. However, limited IS research is produced in Africa, Asia and the Middle-East.

Several IS scholars have thought that IS is an applied discipline drawing upon other fundamental disciplines i.e. computer science (Baskerville & Myers, 2002; Avgerou, 2000). This disciplinary nature of IS has been an object of discussion among scholars to define IS as a discipline governed by a set of rules, fundamentals, cumulative tradition, and routine practices (e.g. Jones, 1997; Galliers, 1992; Mingers & Stowell, 1997; Weber, 1999; Alter, 2003). In this sense, alongside the establishment initiatives and continuous developments, there have been different attempts reflecting on IS as a discipline. For instance, Weber (1999) argued that the term discipline implies control and rigor, and foundations or cores are essential to exercise them in IS. He further argued that foundational knowledge is a condition to be called a discipline and without them there is no discipline. However, Avison & Elliot (2006) adopted the definition ‘a branch of instruction or learning’ for the term discipline but rather expressed their reluctance to use it in a rigid way in a sense that implies control and obedience for IS. In contrast to these views, Baskerville & Myers (2002) have a different idea about disciplining IS. They argued that that the field is no longer emerging and has come of age, and time has come for IS to act as a reference discipline to other disciplines. These contesting views about IS

being a discipline can be rooted in the lack of a philosophical basis for IS. The philosopher, Thomas Kuhn, discussed the concept of scientific paradigms as disciplinary matrix (Ladyman, 2002). Kuhn explained that this matrix includes a set of answers for fundamental questions about what comprises the real world in the eyes of any scientific community. He further argued that the scientific community learns these answers in the course of their education before they start scientific inquiry and therefore prepares them for research and provides them with a framework within which the science operates. Hence, since and through the establishment process of IS, controversy has been prevailing in the discussions of the core identity of IS. The lack of a solid philosophical basis and the uncertainty surrounding the disciplinary nature and the focus of IS research are natural causes for this controversy which is discussed in this paper.

3 The social context of IS

There is no doubt that efficient and effective management of information requires some modern Information and Communication Technologies. However, in the field of Information Systems, technology is one of the main cornerstones but not the entire building or the essence. Information systems are essentially social systems that include information technology as an aspect (Land, 1994; Walsham et al., 1990), which is emphasized in the IS studies that are dedicated to study the social and technical aspects of organizations (Orlikowski & Barley, 2001). Many researchers such as Agarwal & Lucas (2005) suggested that “IS research should adopt a more-holistic view of the social systems (groups, organizations, societies) that we study” (p. 390). Others such as Keen (1980) argued that every research topic in the field of MIS touches on non-technical concern as social aspects. Thus, we believe, that in order to illustrate the complete picture of our research topic and to support our viewpoints, we should give attention to the social context of IS.

According to Land (1994) the real world where Information Systems exist, consists of people, objects (concrete that are concerned with actual use or practice, such as machines; and abstract which are considered apart from concrete existence, such as budgets), rules (such as, procedures, frameworks, processes), norms (such as, ways of thinking, acting or practice), and commands (such as a computer software or application). These Information Technology applications are just one part of the whole picture of the means that are required in a given work task or activity. Thus, the social context is formulated to be engaged and take place in the entire debate and disputation concerning IS, and is considered as a vital part of any discussion that scholars can not overlook. This is clearly emphasized when researchers tend to define IS, such as Avison (1997) who emphasizes the role of the social aspect of IS in his definition:

‘A system which assembles, stores, processes, and delivers information relevant to an organization (or to society) in such a way that the information is accessible and useful to those who wish to use it, including managers, staff, clients, and citizens. An information system is a human activity (social) system which may or may not involve computer systems.’ (p.115). As a result, the social context became a central element of the IS tradition in *Research and Practice*.

3.1 IS research

As stated earlier, IS research is a *multi* or *inter* disciplinary field, and it is a social rather than an entirely technical science. The foundations of this research topic can be found in various sciences, such as, philosophy, organizational, behavioral and natural sciences (Galliers, 1994). Generally, researchers, such as, Hevner et al. (2004) categorized the IS research in two science paradigms: behavioral science and design science. The behavioral science paradigm is seen to “develop and verify theories that explain or predict human or organizational behavior” and the design science paradigm is seen to “extend the boundaries of human and organizational capabilities by creating new and innovative artifacts” (ibid, p.75). From the definitions of those two paradigms, it is clear that the social context is the base in which both paradigms work on: (1) theories developed in the ‘behavioral science paradigm’ explain the human or organizational behavior which are parts of the social context of the real world, and (2) the innovative artifacts created under the ‘design science paradigm’ are mainly created to be used within a particular social context which affects their use, adoption and deployment.

Scholars also categorize IS research into two main approaches: positivist and interpretive. Those two approaches are mutually accepted and relevant to the IS research aspects, since the nature of the IS field combine both social and technical organizational aspects (Probert, 1997). However, it seems that there is diversity when it comes to adopting those approaches. From an abstract point of view, North America and Europe are two main scientific campaigns that adopt different IS approaches. Galliers (1997) and Benbasat & Weber (1996) as well as other researchers recognize that North American researchers mostly adopt the positivist approach in IS research, while European scholars adopt the interpretive approach. We are not holding an intention to debate those approaches or make a comparison supporting one in favor of the other; rather we would like to touch upon their interrelation with the social context.

According to Orlikowski & Baroudi (1991) the social context is considered as one of the focal limitations of the positivist approach; concentrating on objective reality and neglecting various influence factors of the social context, such as, time, politics, culture, and the researcher and his/her instruments may lead to an incomplete picture of the IS studied phenomena and its social context. The interpretive approach has an opposite view of the social context; researchers adopting this approach seek to obtain in-depth understanding of the IS phenomena through increasingly recognizing social and organizational aspects of the studied subject. Furthermore, the reality which is asserted by those researchers is considered mainly as a social product (Avison, 1997).

The boundaries of social aspects in IS research seems to be more open than any other aspects; it emphasized itself within a new third research approach that has been identified by Orlikowski and Baroudi (1991). This new approach ‘Critical Philosophy’ attempts to evaluate and transform the social reality under investigation in critical ways. This approach is concerned with two main issues: (1) criticizing existing social systems, and (2) revealing contradictions that may inhere within their structure. The social reality that this approach deal with is understood to be mainly produced and reproduced by humans,

taken in consideration various objective properties which usually tend to dominate human experience (Orlikowski & Baroudi, 1991). In this critical approach, the relationship between theory (research) and practice lays in the researcher's role which is to bring to awareness the restrictive conditions of the status quo, and in so doing it initiates change in the social relations and practices (Orlikowski & Baroudi, 1991). In the next section we discuss IS practice and the role of social contexts.

3.2 IS practice

The nature of the IS field impacts its influence on practice, this nature creates interrelated close links between practitioners and the developing knowledge by researchers that shaped the development, deployment, integration and management of Information and Communications Technologies (ICT) in organizations and business (Avgerou, 2000). However, it should be pointed out that both the use of IS as well as the IS development faced various challenges throughout the history of IS research. And these challenges shift the coverage of IS practice from one trend to another.

Mathiassen (1998) identified these challenges in three historical eras, where new trends lead to additional challenges in each era. Table 1. below illustrates these three main eras:

	Era 1	Era 2	Era 3
Period	Early 60s – Mid 70s	Mid 70s – Late 80s	Late 80s – Late 90s
Purpose	Productivity and efficiency	Individual and group effectiveness	Strategic and Collaborative
Applications	Automation Separate systems	Support Integrated systems Embedded systems	Strategic systems Process Integration Collaboration
Technology	Main frames Batch Processing Databases	Distribution PC's Local networks Graphics Expert systems	Global networks Multimedia Mobile computing Standard software
Skills	Programming Management	Analysis Design Collaboration	Domain Architectural
Improvement	Methods and tools Project management	Quality assurance CASE	Process improvement
Constraints	Hardware/Software	Software/User relations	User relations /Organization environment
Focus	Technical	Users	Environmental

Table 1: IS practice challenges in three eras – (modified after Mathiassen, 1998, p.71)

It can be noted from this table that during the first era, the IS was practiced as a technical discipline where the two focal purposes were mainly to increase the productivity and efficiency of automated applications. In the second era there was a shift from technology towards its use, where the main focus was on end-users and groups by improving their

practices and increasing their effectiveness of using different technologies. And during the third era, IS practice became more focused on business and collaborative strategies as new technologies within specific domains had been introduced, such as, global networks multimedia, and mobile computing.

It can be also noted that IS practice is becoming more focused on social contexts, this is indicated while it has been shifted from one era to another. In the first era the focus was mainly technical (software/hardware) which is not supposed to have a direct and clear relation with the social context at that time. Then the second era, introduced users and their relations, and moving to the third deeply introduced the focus on user, organization and their environments that show a high level of social context concentrations.

4 The core identity of IS research: broad vs. narrow

A heated discussion has been dominant among scholars about the core identity of research in Information Systems (e.g. Benbasat & Zmud, 2003; Baskerville & Myers, 2002; Agarwal & Lucas, 2005; Keen, 1980; Avgerou, 2000; Weber, 2003; El Sawy, 2003; Galliers, 1997; Alter, 2006; Orlikowski & Barley, 2001; Orlikowski & Iacono, 2001; Nambisan, 2003). The dialectic between these scholars can be found in their distinct views of whether the core identity of IS research should be broad or narrow. The critical differences between these two views are major motivations to write this paper in an attempt to reveal some of their implications in the era where computing becomes social. The narrow view that is adopted by scholars such as (Benbasat & Zmud, 2003; Weber, 2003; Avgerou, 2000; Orlikowski & Iacono, 2001) has been oriented to the IT artifact as the core focus of IS research. In their Nomological net which conceptualizes the boundaries of IS research, Benbasat & Zmud (2003) have placed the IT artifact in the forefront. Also, Weber (2003) argued that IT is the platform or resource to build IS however there is a lack of IT centrality in IS research. Other scholars such as Orlikowski & Iacono (2001) have provided different views of the focus on the IT artifacts based on examining IS literature published at the ISR. They found that the IT artifact is black boxed and that there is a need for theorizing about the IT artifact. Scholars adopting the narrow view argue that IS research should study how IT artifacts are designed, how they are used and evolved, and how they impact and are impacted by the context.

A number of controversial issues have been raised by these scholars to argue and reason for their views. First, they argue that the interdisciplinary nature is not a valued quality and that it impacts the reliability and trustworthiness of knowledge produced by IS research (Avgerou, 2000). Second, the lack of internal cohesiveness and the diversity of theoretical perspectives (Weber, 2003; Avgerou, 2000; Benbasat & Zmud, 2003; Orlikowski & Iacono, 2001) result fragmented theoretical underpinnings which therefore threatens the distinction of the field, distract IS researchers from their goals, and may result more contribution to other disciplines rather than IS (Benbasat & Zmud, 2003; Avgerou, 2000). Third, lack of clear reference disciplines and underlying philosophy of IS (Keen, 1980; Galliers, 1997; Weber, 2003). This argument is based on the need for IS to be established as a scientific discipline owning its own core and unique theory. See table 2 that represents scholars and issues of the narrow view:

IS Scholars	Narrow Views	Issues
Benbasat & Zmud (2003)	The IT artifact should be in the forefront of IS research.	1. Interdisciplinary nature is not a valued quality and the field lacks distinct theoretical core.
Weber (2003)	IT is the resource or the platform to build IS. Lack of centrality on IT.	2. Lack of reliability and trustworthiness of knowledge produced by IS research.
Orlikowski & Iacono (2001)	The core subject matter is IT. IT artifact is black boxed.	3. Ill-identified reference disciplines and lack of internal cohesiveness.

Table 2: Summary of scholars and issues of the narrow view of the core identity of IS.

However, we believe that the IT artifact is part of the whole in the sense that it is integrated in a social context and this requires IS research to take a broader view. The broad view focuses on the interplay between social and technical aspects where the IT artifact is embedded and evolved in a dynamic social context. By this, we support a number of scholars adopting the broader view of the core focus of IS research (e.g. Agarwal & Lucas, 2005; Orlikowski & Barely, 2001; Alter, 2006).

Agarwal & Lucas (2005) have acknowledged the interdisciplinary nature of IS research and call for IS to strengthen its ties with other disciplines in an attempt to support a broader view of IS research. They expressed their opposition of the Nomological net provided by Benbasat & Zmud (2003) as well as the errors of inclusion and exclusion. Their reasoning behind this opposition is that the level of Nomological density is limited and wondered if research that lies within the boundaries of the Nomological net can be related to IS. The risks that IS research could be too narrow and simplistic, overlook important organizational variables, and weaken the scope of research are reasons behind their opposition. They also expressed that IS researchers are better in doing interdisciplinary research because they understand the true essence of technology rather than social scientists. In this sense, they argued that an academic discipline such as IS should be judged on the basis of its contribution of new knowledge that could enhance human lives.

Orlikowski & Barley (2001) discussed the interplay between information systems and organizational studies to show how the two fields can learn from each other. Such interest in connecting the two fields is based on their view of technology as social and artificial artifacts that are embedded in a complex, interdependent social, economic, and political environment. They emphasize the sociotechnical nature of technology which requires a global understanding of technical systems, social processes, and interactions. Moreover, they call for getting insights from the institutional theory that can help IS researchers in developing structural and systematic understanding of technology in dynamic and evolving contexts.

At the same time Orlikowski & Iacono (2001) expressed their view of the IT artifact as the core focus, they tended to be more balanced in their view calling IS researchers to take technology as serious as the context and capabilities. The black-boxed IT view which results from their examination of IS literature as mentioned above was accompanied with their call for paying attention to the social, economical, and political aspects of IT. Their view of technology as embedded in an evolving and dynamic system requires IS researchers to theorize about the IT artifact and then to incorporate theories. The IT theorization process, according to their view, considers the IT artifact as not static but rather dynamic embedded in a social context, and consists of multiple components. See table 3 that represents scholars and issues of the broad view:

IS Scholars	Broad Views	Issues
Agarwal & Lucas (2005)	IS should take a holistic view and strengthen its ties with other disciplines.	1. The field should be judged by its contribution to other fields.
Orlikowski & Iacono (2001)	IT theorizing first then incorporate theories. Technology is embedded in a dynamic and evolving social context.	2. A narrow focus on the IT artifact may lead to failure of IS, limit the scope of research, and topics become too simplistic.
Orlikowski & Barely (2001)	Interplay between IS and organizational studies. Advocate for of technical and social dynamics of organizations.	3. Understand the transformational changes caused by IT on social systems.

Table 3: Summary of scholars and issues of the narrow view of the core identity of IS.

5 Constant changing nature of IT

The discussion of the broad view that we adopt in this paper about the focus of IS research might take a different taste. This is due to the current state of technology in this era. The era of social computing characterizes what El Sawy (2003) has coined as one of the three faces of IS research that is the fusion view. He reflected on this by viewing IT as fused in the environment in hidden ways. Nowadays, we witness increasing changes and developments in the fields of ubiquitous computing, mobile computing, social software, and ambient intelligence which represent computing technologies embedded in objects surrounding us. Such changes and developments have a considerable impact on the IT capabilities which result IT to be more fused and integrated in our environments and supports a wide range of our daily interactions and tasks. We would particularly focus our argumentation on the technological implications of the recent developments and changes of IT capabilities in the social computing era by emphasizing the sociotechnical nature of IS research. A number of scholars have reflected on the changes of the IT capabilities such as (El Sawy, 2003; Keen, 1980; Orlikowski & Iacono, 2001; Agarwal & Lucas, 2005).

El Sawy (2003) provided three faces of IS research as follows:

1. *Connection view*: IT supports people in doing their work, but if neglected, work can continue.
2. *Immersion view*: IT is immersed in the environment and cannot be separated from work. People are highly dependant on IT and if neglected work cannot be continued and completed.
3. *Fusion view*: IT is fused in the environment in hidden ways.

Another reflection that might be similar in the way of viewing the changes in IT capabilities is provided by Orlikowski & Iacono (2001). Their examination of IS literature has led them to identify five conceptualizations of the IT artifact which represent alternative views of how IS researchers have treated technology in their research.

1. *Tool view*: The tool view views the IT artifact as not problematic and independent variable. The focus is on the type of using IT either for information processing, enhance productivity, shift social relationships, etc.
2. *Proxy view*: focusing on one or few aspects of IT including logics about: human understanding of technology, diffusion of technology in organizations, the extent to which technology is integrated in the social system, and the monetary measures of technology that is the value of technology to organizations.
3. *Ensemble view*: a packaged view of technology including tasks, people, policies, devices, and how technology is the way it and how it is used.
4. *Computational view*: focuses on the computational power of IT disregarding how people interact with technology.
5. *Nominal view*: technology is absent and only mentioned by name. The IT artifact is neither dependent nor independent variable thus it's an omitted variable.

Additional views can be found by Keen (1980) who argue that the field has been driven by the changes in technology. Also, Agarwal & Lucas (2005) pointed out that technology is always about changing and transforming organizations and environments.

These views reflect the changing nature of IT capabilities. However, we believe that each phase as presented by El Sawy (2003) and the views by Orlikowski and Iacono (2001) represent not only the changing in the nature of IT capabilities but also the changes in the focus of IS research. IS research focus is by itself driven by the changes in IT. The different views/phases provided by El Sawy (2003) implies that changes in IT capabilities have changed the focus of IS research as he discussed the focuses of each phase. In the connection phase research is focused on the IT artifact, in the immersion phase research is focused on the context, systematic relationships, and mutual interdependence, and finally in the fusion phase he suggested that the focus should be to break down IT and work into finer granularities. Moreover, the views provided by Orlikowski & Iacono (2001) represent how IS researchers treated IT. We would say that their views also imply the changing nature of IT capabilities that impact the focus of research. Each view

represents different IT capabilities enabling new functional tasks and continuously shifting and driving the focus of IS research.

The fact that technology is constantly changing, we believe, is driving the focus of IS research. Continually, technology is advancing and introducing new opportunities to support and mediate human interactions and tasks in their different contexts. This fact is constantly proved by the amount of advancements and developments in computing and web technologies. Consequently, the focus of IS research cannot be fixed on the IT artifact and it's dynamically driven by the changes in IT capabilities which introduce new contexts, designs, usages, and goals. Therefore, to be able to better understand and acquire reliable knowledge by IS research and contribute to the development of human lives; IS research should adopt a broad view involving all aspects that result from the changing nature of IT capabilities.

El Sawy (2003) viewed the fusion phase as an integration or fusion of computing technologies in hidden ways in the environment. The current era characterizes this phase in the sense of the increasing human use of technology and the wide range of IT applications almost found everywhere.

Our next discussion represents the recent developments and changes in IT capabilities by explaining the current era of social computing and how the current technologies are characterized by new changes and capabilities. We will argue that research in IS should be sociotechnical oriented in the sense that IS researchers adopt a broader view to be able to study multiple aspects of existing and emerging technologies.

6 Social computing: adopting a broader view

Our intention from discussing social computing is to represent the recent changes and developments in an attempt to acknowledge and support the broad view of IS research and how these changes impact the focus of research in IS and requires researchers to maintain a broad view to handle new changes and adapt to new focuses.

A wide range of social software applications and social web technologies have emerged introducing new ways of interactions and communications, enabling large-scale collaborations and participations, collaborative creation of knowledge, and transforming organizations (Tapscott & Williams, 2006; McAfee, 2006). Much have been discussed about new concepts of collaborative work such as open innovation, collective intelligence, knowledge networks, information foraging, etc (e.g. Surowiecki, 2005; Tapscott & Williams, 2006; Mao et. al, 2007)

Mao et al. (2007) referred back to the past and present ideas of social computing. They discussed two distinct foci by early social computing initiatives: one focus on the technological issues, interfaces, user acceptance, and social effects around group collaboration and online communication. The second focus was on the computational techniques, principally simulation techniques, to facilitate the study of society. They also reflected on the tremendous expansion of the scope of social computing in recent years in

both software research and practice. Moe et al. (2007) reflected on the expanded scope of social computing and the diversity of its theoretical underpinnings as follows:

“Social computing is a cross disciplinary research and application field with theoretical underpinnings including both computational and social sciences... social computing has emphasized technology development for society on one hand and incorporating social theories and practices into ICT development on the other. To facilitate the design of social-technical systems and enhance their performance, social computing must learn from sociology and anthropology and integrate psychological and organizational theories” (p. 2)

In this sense, we would reflect that social computing characterizes the current developments which stimulates IS researchers to incorporate diverse theoretical perspectives to understand emerging phenomena. Undoubtedly, focusing on the IT artifact as the core focus of IS research in this current era would lead to failure in designing, deploying, and implementing information systems due to the necessity of including multiple social influences of technical systems. Thus, IS researchers are driven by the developments and changes in IT leading them to adopt a holistic focus of researching information systems. Bostrom & Heinen (1977) emphasized the adoption of the sociotechnical approach to overcome organizational behavior problems. He mentioned that:

‘The technical system is concerned with the processes, tasks, and technology needed to transform inputs to outputs. The social system is concerned with the attributes of people (e.g., attitudes, skills, values), the relationships among people, reward systems, and authority structures. It is assumed that the outputs of the work system are the result of joint interactions between these two systems.’ (p. 1).

Lee (2004) discussed natural science and social constructionism in terms of how researchers from both fields perceive the real world. He explicated the differences between IS researchers who subscribe in natural sciences which views the physical and natural world as the true reality. In contrast, IS researchers who believe in social constructionism view human aspects such as shared beliefs and culture to form part of the real world. Most important, he reflected on the two types of researchers as follows:

‘...social constructionists believe that these human-made entities are social objects and, in being objects, are as real for human beings as any aspects of the physical and natural world. One’s beliefs about what comprises the real world have an effect on what one seeks to observe, what one subsequently observes, how one explains what one observes, and the reasoning process by which one performs each of these.’ (p. 6)

From a social constructionism perspective, we can view current social software systems as social products originating not only from the interaction between the social and technical systems but the fusion of both systems in the environment where technology is shaping the social world.

Moving to a practical side of ‘social computing’ we adopted the concept of ‘Open Innovation’ which we referred to earlier as one of many new approaches that enhances the collaborative work. The attention devoted to this new approach has been recently grown, both in academia as well as in practice. Chesbrough (2003) was the first to coin the term describing the shifting of companies from their own traditional innovation processes (closed innovation) to the new innovation model, so called ‘Open Innovation’. The main argument is that organizations can not afford to rely on their own internal research and knowledge, but should instead become open, and combine internal and external ideas, knowledge, solutions, paths, and so on; to advance the development of new and current technologies, products and services (Chesbrough, 2003; Chesbrough et al, 2006). Eric von Hippel (1988) identified four external sources of knowledge: (1) universities, governments and private research labs (2) suppliers and customers (3) competitors (4) other nations. We think that these sources of knowledge in addition to internal ones can execute the main aim behind ‘open innovation’. As a result this would support our viewpoint regarding adopting a broader view of IS. This is because the broader view can act as a stand stage for scholars and practitioners who aim to work collaboratively by adopting knowledge from various sources. More clearly, there are various philosophical, ontological and epistemological standpoints associated with those external knowledge sources that are created by humans holding different views of the world, scientific understandings, and acting in different social contexts. Thus, and in that way we think that the broader view can cope with all these stratified aspects.

7 Proposing a new IS era: a fourth era

Earlier in this paper we have tackled the three IS eras proposed by Mathiassen (1998) and presented the changes of IT capabilities in the social computing era. We think that there is yet a place for a fourth era where: (1) social computing is the stand and base platform of our practice and research, (2) collaboration, sharing and openness (Open Innovation) are the main activities that are performed under the platform, and (3) IS broad view and all related concepts are the research strategies that can deal with research and practice activities in this era. See the following table:

Period	2000- Nowadays	Authors
Purpose	Open Strategies Social Innovation Collective Intelligence Collaborative activities	West (2003) Hall (2004) Wolpert & Tumer (2000)
Applications	Social software and applications (desktop, web and mobile)	Parikh (2002)
Technology	Web 2.0 Cloud Computing Artificial Intelligence Ubiquitous computing	Vossen & Hagemann (2007) Vouk (2008) Negnevitsky (2001) Lyytinen & Yoo (2002)
Skills	Collaborative and	Tapscott & Williams

	sharing skills. Openness, user-generated content	(2006).
Improvement	Social process improvements	Lamb & Kling (2003)
Constraints	Organization environment / Social Context	Cronk & Fitzgerald (1997)
Focus	Social Context / sociotechnical	Yoo et. al (2008)

Table 4: Properties of IS research in the fourth era

The focus of our proposed era is the social context of IS where the interplay between sociotechnical aspects take place. The purposes in this era are centered on four key issues: open strategies, social innovation, collective intelligence and collaborative activities. These purposes can be achieved and fulfilled by the implementation of various social technologies that lay under the social computing approach. This deeply supports our basic believe that the IT artifact is part of the whole in the sense that it is integrated in a social context and this requires IS research to take a broader view.

8 Conclusion

The main aim of this paper is to reveal the distinctiveness features and properties of the IS broad view and how this view can fulfill the requirements of current IS research which mainly centered on social aspects. To carry out our aim we firstly debated the social context of IS and its role in both practice and research. Then we tackled the core identity of IS research based on the broad and narrow views letting ourselves out of having an academic enemy. After that we thoroughly discussed the constant changing Nature of IT revealing the current state of technology. This current state leads us to the concept of social computing that shape the current research and practice of the IS field, and illustrating how the IS broad view is the definitive choice to be adopted for this type of current research state. Based on our arguments, literature reviews and abstract conclusions we had the ability to propose a new era in the IS world which acts as supportive position to our discussion.

9 Further Research

Our current discussion about the core identity of IS research might be limited to the American point of view of this matter. The tradition in IS research has been different when looking at the American and European research. Such difference can be found in the methods used or the worldviews driving research. At this respect, further research is needed to highlight these differences and to reflect upon the different perspectives of the core identity of IS research in both the United States and Europe. The importance of such research stems from the necessity to establish common grounds of IS research by attempting to examine the gaps between two different traditions in IS research and the impact on the field.

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