

# Social Informatics



Social Informatics:  
Past, Present and Future

Edited by

Pnina Fichman and Howard Rosenbaum

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**P U B L I S H I N G**

Social Informatics: Past, Present and Future  
Edited by Pnina Fichman and Howard Rosenbaum

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## REVIEWS

“This volume is a valuable entry point for students and other “new to SI” researchers as they engage the key issues, phenomena, and intellectual puzzles that have long been the concern of Social Informatics. At the same time, the chapters challenge scholars familiar with and working in Social Informatics to think bigger, broader, and deeper about the interplay of technology, people, and society. By facilitating the development of new thinkers and challenging the assumptions of established thought, the authors chart a strong, achievable direction for the future of Social Informatics.”

Dr Brian Butler, Associate Professor,  
College of Information Studies, University of Maryland

“The editors have orchestrated a purposive sample of authorial voices whose points of view collectively demonstrate the vigor and range of scholarship in social informatics. In this volume, students and scholars alike will find both harmonies and creative cacophony in this emerging field.”

Dr Gary Marchionini, Dean and Cary C. Boshamer Professor,  
School of Information and Library Science,  
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“The term ‘social informatics’ has partially fallen out of favor, especially since the untimely death in 2003 of its chief advocate, Rob Kling. However, with the increased capabilities of information and computing technologies and their continued rapid diffusion, it is more important than ever to study information and information technologies in their social context. This interesting collection of essays takes a critical examination of the roots of social information, describes in a way that nobody else has done how social informatics has had numerous intellectual offshoots over the past ten years, and presents various competing visions of the future of social informatics. This book has important things to say to STS scholars,

sociologists, historians, and technologists, as well as to those who regard themselves as social informaticists.”

Dr William Aspray, Bill and Lewis Suit Professor of Information Technologies, School of Information, University of Texas at Austin

“This is an important and interesting text that will appeal to both novice and established researchers whose work is concerned with exploring the relationships between people and technologies in communities, ICT design, and ICT use. The editors have brought together an impressive selection of papers that enhances our understanding of the impact of computerization in our work and ‘social’ lives, and informs the social informatics research community of future possible research directions. With its analyses of the deep roots of social informatics by domain experts and accounts of more recent research by doctoral students, this text is bound to become essential reading within the social informatics community, and beyond.”

Dr Hazel Hall, Professor of Social Informatics and Director of the Centre for Social Informatics, Edinburgh Napier University

# INTRODUCTION

The study of people, technologies and the contexts in which these technologies are designed, implemented and used has long interested scholars in a wide range of disciplines, including the social study of computing, science and technology studies, the sociology of technology, and management information systems. Driven initially by a growing awareness that the integration of information and communication technologies (ICT) into organizations was changing organizational structures and processes, researchers began to ponder how the routinization of ICT in the workplace was also changing workers' practices. As ICT use has now spread from organizations, various networked devices have become routine information appliances in people's social lives, and the web has become an increasingly pervasive and important source of information, communication and connection, researchers have begun to ask deeper and more profound questions about how our lives have become bound up with technologies. A common theme running through this research is that the relationships among people, technology and context are dynamic, complex, and critically important to understand. Beginning in the early 1980s, scholars have been peering into and attempting to untangle the complexities of these relationships; many of these investigations were undertaken using the rubric of social informatics (SI). Since the mid 1990s, research and theorizing in SI has picked up in pace, even as the breadth and depth of the work has inspired a new generation of scholars.

We believe that this volume will be useful for scholars and researchers intrigued by the questions and issues that characterize this critical approach to the study of the complex relationships among people, technology and context and who want to assess the current state of SI. The work presented here will be especially useful for students and new researchers who are beginning to ask questions about the impacts of our technologies and digital services on our lives. In fact, the organization of the book fits well into an academic course covering SI. Students can begin reading about the intellectual history of SI, follow up with exemplars of contemporary research that uses an SI approach and finish by exploring speculations about the future of SI, a future in which these students can play an important role.

Since 2005, SI researchers have gathered every fall at the Annual Social Informatics Research Symposium, organized by the Special Interest Group in Social Informatics (SIG-SI) of the Association for Information Science and Technology (ASIS&T). The Symposium, which has been held in conjunction with the ASIS&T annual meetings, is now a meeting place for people interested in exploring the social aspects of computerization. Over the years, it has attracted a vibrant mix of established scholars, newcomers to SI and, importantly for the future of this field, many doctoral students from a broad range of disciplines. Some of the symposia papers have been empirical and others conceptual; some authors have presented research in progress or posters, while others have presented fully developed papers. Not surprisingly, the topics and approaches in these papers have varied widely over the years, but the common thread has been the focus on people, technologies, and contexts of ICT design and use. At recent Symposia, SIG-SI and the Rob Kling Center for Social Informatics at Indiana University have presented two awards, one for the best SI paper published in the preceding year and one for the best SI paper published by a student in the preceding year.

This book grew out of the 8th Social Informatics Symposium, which was held in Baltimore in the fall of 2012. A series of very interesting papers were presented that focused on the past, present, and future of social informatics, exploring a wide range of topics relevant to the field. Cambridge Scholarly Publishers approached the Symposium organizers, Pnina Fichman and Howard Rosenbaum, to develop the Symposium theme into what has become this edited volume. Seven of the papers presented at the 2012 Symposium have been expanded into full length chapters and are included in this book along with five papers that were solicited by the editors from presenters at previous SI symposia. The result is a volume with 12 chapters that provides a look backward to the origin of SI, several examples of current research by SI scholars and several chapters that offer different visions of the future of SI.

The first two chapters in this book, which make up the section on the past of SI, provide new perspectives that trace and assess the evolution of SI and speculate on its future as a discipline. Rosenbaum's critical historical narrative of the evolution of SI as a scientific and intellectual movement draws on social movement theory. He focuses on early developments in SI and traces them back to Europe, the USSR and Japan, challenging the conventional belief that the origin of SI was in a 1996 US workshop where Rob Kling and colleagues sought to gather their disparate research in the social aspects of computing under a common conceptual umbrella. Rosenbaum's story concludes in 2005. Sanfilippo and Fichman

review three decades of SI literature and identify four distinct periods. They also trace the origin of SI to the 1980s, before the term was used by North American scholars who conducted what might now be considered SI research. Sanfilippo and Fichman identify a period of foundational work, followed by development and expansion prior to 2000. Two periods that contribute to SI research follow afterward: a robust period of coherence that was influenced by Rob Kling and a period of diversification that started shortly after his death and continues today. They conclude by raising questions about the possible future expansion or extinction of SI research.

Five chapters provide a sense of the variety in current SI research and exemplify what Sanfilippo and Fichman call its period of diversification. Diversification in SI goes well beyond these examples and includes research in the history of computing, network science, some science and technology studies, information technology in organization and society, and more. Each of these chapters describes work that pushes SI into a different direction and suggests new paths for SI researchers. Meyer is concerned that SI may become irrelevant if it cannot be more deeply integrated into mainstream sociotechnical research and theory. He claims that although we understand the complexities of socio-technical configurations better today than we did 15 years ago, the volume of SI in curricula and gray literature rather than in the published and peer-reviewed journal literature is both encouraging and troubling. Meyer – like Sawyer and Hartwood, who write on the future of SI later in this volume – suggests that SI focus on the hyphen in socio-technical, affording equal importance to the “socio” and the “technical” and differentiate itself from other socio-technical approaches that typically privilege one over the other. He finds much of value in the socio-technical interaction network (STIN) strategy which, he argues, is a contribution that comes from the SI literature and is an alternative to the social construction of technology (SCOT) approach and actor-network theory (ANT). The STIN strategy allows us to draw on the useful insights of SCOT and ANT but does not wholly embrace a relativist perspective and is skeptical of the possibility that non-human actants can exert agency in social situations.

Fleischman seeks to bring the concept of value closer to the core of SI, arguing that a concern for human values was present implicitly, as a key element of the essential institutional and cultural contexts, in Kling and colleagues’ definition. Fleischman finds in pioneering SI work insights about values and value conflicts in computerization that laid the groundwork for what he calls “value sensitive design.” The concept of values and instances of value conflict have been investigated in a wide

variety of disciplines and he carefully builds a case that these should be studied in SI as well because of the clear entanglement of values and value conflict in the design, implementation and use of ICTs. To illustrate the utility of this approach, he describes several cases of “design interventions” that forge connections between the design of ICTs and the values of users and speculates about the future of values and design and how they are transforming and will continue to transform SI.

Hara and Fichman take a conceptual approach and apply an SI lens to social media, focusing particularly on knowledge sharing in online communities and the concepts of boundaries and boundary crossing. This is interesting and important, they argue, because knowledge sharing in online communities is an integral part of the social web and, unlike the organizational context of most early research in SI, is occurring outside of organizations, therefore challenging taken-for-granted assumptions and prior research findings about ICT, people, and context. Drawing on insights from the research literature on boundaries, boundary crossing, boundary spanning, and boundary objects, they propose a typology of frameworks for the analysis of boundary types and properties, distinguished by the presence or absence of physical, cognitive, social, and political components. With this typology, they suggest, SI researchers may have the conceptual tools to examine knowledge sharing in online communities that exist outside of traditional organizations and to test and modify these early conceptualizations in light of their usefulness in and fit with new and different socio-technical contexts.

Eschenfelder introduces a theoretical framework called “use regimes” that focuses on a particular area of inquiry – the practices through which people arrange and carry out the transfer of intellectual and cultural works. More specifically, use regimes are temporary stabilizations of networks of associations related to the practices of transferring or distributing creative and intellectual works. The use regimes framework reflects many of the tensions currently felt in SI. On one hand, it embodies the core principles of SI (e.g., ICT are interpreted and used in different ways by different people; ICT enable and constrain social actions and relationships, etc.). On the other hand, the framework expands what is commonly understood to be SI research in several ways detailed in her chapter.

In the last chapter in this section, Burnett and colleagues describe a site-specific empirical study of scientists at work that demonstrates the utility of an SI perspective for untangling the complexities of the uses of ICT in scientific practice. Their case study focuses on the collaborative work done by distributed teams of scientists who work remotely on long-term projects and gather periodically at the National High Magnetic Field

Laboratory in Florida for brief, intensive periods of work. Using a theory of information worlds that foregrounds the uses of a range of ICT both to enable and to hinder communication among researchers, they study the impacts of social, technical, institutional and disciplinary factors on the conduct of complex, multidisciplinary scientific research over time.

After these exemplars of contemporary SI research, the concluding section of the book addresses a critically important question: what is the future of SI? It is clear that a growing cohort of scholars and researchers have a deep and abiding interest in understanding the tangled web of connections and interactions among people, technology, and context and it is also clear that these researchers are approaching this domain from a variety of perspectives and with an impressive range of theories and methods. It is also worth mentioning that many more scholars around the globe conduct work, which has not been included here, that looks at the same problems and asks similar questions about the relationships between people, technology, and context. The diversity is evident in the previous section is a good indication that SI as an approach to research is thriving and helping to generate useful insights; the themes running throughout the work have become a part of a common intellectual tradition that forms the core of knowledge characterizing contemporary SI. Interestingly, many of the chapters that address the past and present state of SI also make reference to future directions of SI in research, teaching and institutional infrastructure.

The five scholars who explicitly take up the question of what should happen next describe different futures for SI, grounded in their disparate visions of the trajectory of the discipline. SI researchers, in their opinions, should revive concepts and approaches already known in socio-technical research and renovate them conceptually with an eye on cognate disciplines and methods, as well as utilize some of the unique insights and concepts of SI. These include the potential of the socio-technical interaction network (STIN) as a sensitizing concept, a rehabilitation of the critical impulse of SI, a serious exploration of a philosophical approach, critical realism, and a practice approach to ground SI conceptually and extend its utility. Moreover, these chapters call for collaborative large-scale research and for a synergy between micro and macro research as ways to develop SI. Taken together, the authors in this section raise several pertinent questions about the scope and boundaries of SI.

In the first of the chapters reflecting on the future of SI, Lessard argues that one way forward is to foreground critical realism as a philosophical basis for studying and theorizing the relationships at the core of the field. Arguing that SI research has been criticized for a reductionist approach to



the relationship of mutual shaping between ICT and the people who design, manage, and use them, she suggests approaching mutual shaping as a problem of the relationship between structure and action. One key insight from critical realism with significance for SI is that socio-technical interactions are ontologically distinct from the structures and generative forces that cause them. This distinction, she argues, will allow research to consider analytically the role of structure in shaping but not determining action and provide a stronger basis for mid-range theories of ICTs and people in organizations, and in particular, of the information infrastructures that should be the focus of SI research.

Simpson argues that SI, taken as a critical approach to the study of the sociotechnological production and use of artifacts, can be enriched by drawing on the material semiotics of ANT and, from the humanities, textual studies. Humanistic inquiry has a place in SI, he contends, particularly as SI recovers its critical impulse. Carefully developing an argument for the relevance of bibliography and textual criticism in SI, he describes an expansive conception of text that includes technologies of inscription, material artifacts, and the social practices that are bound up in them. He calls for researchers in SI and the humanities to take up this critical approach, using digital humanities as an example of the fruitful cross-pollination that can occur from such boundary-spanning activities.

Cox investigates the implications for SI of a shift in research and theorizing from current concerns to a focus on practice, arguing that the resulting attention paid to the concepts of materiality and embodiment show much promise when studying people's uses of ICT in a wide range of settings. Tracing the rise of what he calls "practice thinking" in different social sciences from foundational thinkers including Wittgenstein, Giddens, and Bourdieu, he argues that concepts such as communities of practice and sociomateriality began to appear in information science, information systems, and science and technology studies at the turn of the twentieth century. Describing four main assumptions of this approach, Cox uses the example of food blogging to illustrate how SI research can be deepened and enriched with these concepts and assumptions.

Allen suggests that SI return to its roots and explore the impacts of the cultural and institutional contexts of formal organizations, specifically business organizations. In doing so, he positions SI as a critical alternative to conventional approaches for studying the complexities of global business, thus reinvigorating SI research and theorizing and also laying the groundwork for business reform. He argues that SI can explain the new productivity paradox – the inability of the digital economy to generate prosperity and opportunity in sustainable ways – and in doing so, the

approach will have demonstrated its value and ensured its continued existence in the academy.

In the final chapter, Sawyer and Hartswood make a case for the continuing relevance of SI by arguing that its focus on the complex interconnections among technology, people, their interactions with each other and with ICTs, and the setting in which this all takes place provides a needed corrective to studies of computerization. To conceptualize the socio-technical nature of computing in society, it is necessary for SI researchers to have a shared sense of what to investigate and how to investigate it. They suggest that the materiality, meaning the form and function of the computing artifact, and performative nature of computing are useful grounds from which to begin this work.

The collection of papers in this volume presents a view of SI that emphasizes the core relationships among people, ICT, and organizational and social life from perspectives that integrate aspects of social theory. Reading these chapters reveals that SI is, in fact, a lively and dynamic problem-centered approach to the study of computerization and society that provides researchers with organizing principles, insights, and concepts that drive critical, theoretical, and empirical research. Social analyses of computing have been at the core of SI for almost four decades and it has never been a more necessary research endeavor than it is now. Ubiquitous computing, the internet of things, the social web, the pervasiveness of big data – all indicate the extent to which computerization and ICT have become deeply entangled and routinized in our lives in taken-for-granted and uncritical ways. SI is therefore an increasingly important perspective through which the invisible can be made visible and its hidden assumptions brought to light for careful critical examination. This is an important and necessary endeavor as the speed of technological change increases, challenging our abilities to reflect on its development and impacts. Because the future of SI depends on its continued institutionalization and its take-up by a new generation of scholars and researchers, we hope that this volume entices and intrigues researchers and theoreticians to engage with the challenge SI poses.

Of course, the approach presented in these papers is not the only standpoint from which to view SI but we hope it will be considered, adopted, criticized, and perhaps modified by others. Many scholars working in and around the domain of SI define their research more narrowly and identify themselves with specific societies and groups (e.g., Internet Research, Human Computer Interaction). However, a continued, productive, and recognized scholarship that self-identifies as SI is clearly critical; any intellectual movement needs a coherent and shared core body

of knowledge, but this by itself, is not sufficient. The diversity of philosophical and methodological perspectives described in the chapters that follow demonstrate that the domain of SI is one of active debate where scholars from a wide range of backgrounds are thinking clearly and deeply about the foundations of SI; it is the churn of ideas makes SI of contemporary interest. For SI to thrive, it needs an institutional infrastructure of departments, research centers, degree programs, conferences and publishing venues that support SI research and teaching. There is evidence that such institutionalization is progressing, but the question remains whether the current state of SI is helping or hindering its growth and development. We believe that these issues need to be thought through and hope that this volume is an early contribution to the discourse.

## ACKNOWLEDGEMENTS

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**PART I**

**PAST**

# CHAPTER ONE

## THE PAST: SOCIAL INFORMATICS AS A SCIENTIFIC AND INTELLECTUAL MOVEMENT

HOWARD ROSENBAUM

Most movements have inconspicuous beginnings. The significant elements of their origins are usually forgotten or distorted by the time a trained observer seeks to trace them out. Perhaps this is why so much theoretical literature on social movements concentrated on causes (Gurr 1970; Davies 1962; Oberschall 1973) and motivations (Toch 1965; Cantril 1941; Hoffer 1951; Adorno et al. 1950), while the ‘spark of life’ by which the ‘mass is to cross the threshold of organizational life’ (Lowi 1971, 41) has received scant attention. (Freeman 1999, 7)

In 1996, some participants in this research community agreed that the scattering of related research in a wide array of journals and the use of different nomenclatures was impeding both the research and the abilities of ‘research consumers’ to find important work. They decided that a common name for the field would be helpful. After significant deliberation, they selected ‘social informatics.’ (Kling, Rosenbaum and Sawyer 2005, 30)

### **Introduction**

This chapter explores the emergence and rise of Social Informatics (SI) using a framework based on a social movement theory that views such domains of scientific activity as scientific and intellectual movements (SIMs). Based on a powerful analogy that will be explained below, this approach is useful because it employs conceptual and methodological tools of social movement research to provide an interesting perspective on the rise and fall of scientific disciplines. It will be used here to examine the trajectory of SI between the early 1980s and mid 2000s and will provide a corrective to the conventional origin story about SI that pinpoints its creation in a discussion that took place at a 1996 workshop in the US.

What, then is a social movement? Tilly (1984, 306) describes social movements as

... a sustained series of interactions between power holders and persons successfully claiming to speak on behalf of a constituency lacking formal representation, in the course of which those persons make publicly visible demands for changes in the distribution or exercise of power, and back those demands with public demonstrations of support.

According to Snow, Soule and Kriesi (2004, 11), social movements are

... collectivities acting with some degree of organization and continuity outside of institutional or organizational channels for the purpose of challenging or defending extant authority, whether it is institutionally or culturally based, in the group, organization, society, culture, or world order of which they are a part.

Why do social movements emerge when they do? Are they brought into being by an influential person whose presence and activities provide the impetus for a movement to begin? Can a movement be touched off by the publication of a seminal paper or monograph? Can a critical incident be the point of origin of a movement? Could the process be more complex and nuanced, rooted, for example, in particular social, organizational, and historical contexts? Although the significant individual, publication, and incident certainly have roles to play in the histories and development of social movements, many researchers have moved past the great person explanation, the myth of the “big book,” and other similar origin stories when studying the emergence of social movements. Meyer and Rohlinger (2012, 137) explain that, like the great person claim, the “big book myth is a variant of an ‘immaculate conception’ ... story of movement origins, in which mobilization occurs suddenly, without apparent antecedent, through a few dedicated individuals, and produces relatively quick political response.” The problem, they argue (2012, 145), is that this type of explanation “encourages a fundamental misunderstanding of the process of social change” and ignores the hard work and participation of many individuals and groups who are typically written out of the history of the movement by this approach. In contrast, much more attention should be paid to the role of social, cultural, political, and other macro-level factors as key components in enabling and constraining social movements.

One assumption that underlies the argument in this chapter is that the rise and fall of scientific worldviews, which include such components as epistemologies, ontologies, key concepts and ideas, theories, perspectives, frameworks, research, methods, and findings, can be more clearly

understood when framed as social movements. This assumption is drawn from Frickel and Gross (2005), who propose a theory of scientific and intellectual movements (SIMs), which, they suggest, can better account for the central mechanisms of social change in the world of science, knowledge, and ideas. Anticipating the rejection of what would come to be called the “immaculate conception” explanation of social change (Meyer and Rohlinger 2012, 137), Frickel and Gross (2005, 204) argue that when considering the social and historical trajectories of SIMs,

... an adequate sociohistorical understanding ... cannot be had by focusing exclusively on the actions or contributions of any one individual (e.g., the intellectual leader of the movement) except insofar as those actions affect the web of social relationships that comprises the SIM.

Further, they assume that many of the insights that have come from contemporary social movement research can be used to explain the trajectories of SIMs and claim that (2005, 204)

... the history of almost every field of study ... is a history of new scientific or intellectual movements that rose up to challenge established patterns of inquiry, became the subject of controversy, won or failed to win a large number of adherents, and either became institutionalized for a time, until the next movement came along, or faded into oblivion.

Following their lead, SI is seen here as a SIM, meaning that it is a collective effort “to pursue research programs or projects for thought in the face of resistance from others in the scientific or intellectual community” (Frickel and Gross 2005, 206). Because of the assumption that a SIM is analogous to a social movement, its emergence and development involve collective action, recruitment, training, strategic decision making, and collective action frames intended to mobilize members, acquire and use resources, and raise the movement’s profile in a relevant academic community. To be considered a SIM, a movement must develop around a “knowledge core” towards which “participants are consciously oriented, regardless of their understanding of it” (Frickel and Gross 2005, 207). The movement’s early leaders tend to be high status academics who are able to articulate the essential elements of its knowledge core and engage in network and institution building. At least initially, the expression of the SIM’s intellectual scope involves the assertion that some part of the conventionally accepted worldview in a discipline is in need of reformulation, or has not been sufficiently theorized or researched. In some cases the claim may be advanced that an entirely novel theoretical approach is being proposed that challenges the fundamental assumptions



of the status quo in a discipline. In general, however, when a SIM is forming, the set of practices, insights, beliefs, findings and other components of the knowledge core are typically formulated in opposition to the conventional worldview of the field into which the movement is emerging. Although this assertion echoes a Kuhnian (1970) approach, it does not have to be triggered by mounting instances of stubborn research anomalies nor does it have to lead to instances of paradigm change.

Once the scientific and intellectual movement has emerged, its early members begin to develop internal social structures and routine scientific practices, refine its knowledge core, and engage in the work of research, publication, and presentation. This is critically important because, as Frickel and Gross (2005, 213) explain, “(l)ike social movements, SIMs do not just happen, but once their key ideas are formulated, they must be orchestrated, coordinated, and collectively produced.” These early members make use of their social networks to publicize the movement to external audiences and attract new members, both established academics and, equally importantly, new students. As the movement attempts to take its place in its corner of the academic environment, pressures emanating from the larger web of academic, institutional and exogenous stakeholders in which it is enmeshed will enable and hinder its progress. Some of the factors that play a role in shaping the trajectory of a SIM include the ability of members to access and mobilize organizational and institutional resources to build, maintain, and extend the basic social and intellectual structures of the movement, the extent to which they are able to demonstrate the impact of their research through funding, publication and citation, the ability of new and established members to compete for and obtain positions in appropriate research universities and funding institutions, and the extent to which they develop a shared scientific and intellectual identity. Frickel and Gross (2005, 225) point out that:

Like social movements, SIMs represent contentious challenges to normative practices and institutions and, as such, are inherently political. Requiring ongoing coordination at various levels of organization, SIMs are episodic creatures that eventually and inevitably disappear, either through failure and disintegration, or through success and institutional stabilization.

The framework they propose to explain the rise and fall of SIMs will be used here to help explain developments in the emergence and evolution of SI. It is useful because it focuses on “the ways in which social processes and events shape the internal content of intellectual and scientific inquiry” and establishes conditions under which a movement may “gain control, if only for a limited time, of what Collins (1998) calls the ‘intellectual

attention space.” (Frickel and Gross 2005, 204). It can account for the processes through which SI has emerged, attracted scholars’ interest and support, attempted to gain prestige and influence in the landscape of socio-technical studies of computerization in society, and sought some degree of institutional stability. In brief, the earliest use of the term to describe a research domain was in Norway in the early 1980s. Degree-granting academic programs in SI were established in Norwegian and Slovenian universities in the mid to late 1980s. Around the same time, scholars in the former Soviet Union also established an ambitious program in SI research and education. A few years later, in the early 1990s, Japanese scholars began to engage in institution building and publish SI research. At this time in the UK, several programs and centers devoted to investigating computerization from an SI perspective were established at leading universities. In the mid 1990s, American researchers began to describe studies of the social aspects of computing as SI research. In the past two and a half decades, SI research, researchers and programs emerged in at least six different regions of the world with the American version seeming to have had the greatest impact in terms of the numbers of publications, conference papers, workshops, and research centers.

This chapter explores the emergence and development of SI as a preliminary step in untangling the complex background of the concept and the discipline and sketching the boundaries of the research domain the concept is intended to cover. The SIM framework will be used to illustrate the ways in which various factors helped and hindered the emergence and development of SI in its current form. Some basic assumptions that underlie SI research are described after which the chapter concludes with comments about the potential of SI as a SIM. A caveat in what follows is that all source materials are published in English, so it is possible that nuances in discussions of SI in other languages may be lost in translation.

## **A Brief History of Social Informatics**

What constellation of factors led to the emergence of SI as a scientific and intellectual movement? When did it first appear? What type of trajectory has it had since its emergence? There is a tradition of studying technology and society theoretically and empirically in a range of disciplines including but certainly not limited to history, sociology, communications, anthropology, management information systems and, more recently, science and technology studies. With so much activity in so many disciplines, what need was SI intended to fill and where would its intellectual home be?

The history of informatics (without the modifier) stretches across much of the 20<sup>th</sup> century. Brookes (1984, 221) notes that in 1917, the term was part of the political and academic discourse in the Soviet Union, arguing that Lenin's "role as the founder ... of Russian *informatics* is not as well known in the West as it deserves to be." This version of informatics was defined as "the study of the general properties of scientific information processes" which was distinct from the "science of information" (Brookes 1984, 223). According to Brookes (1984, 222), although "the information technology of the early 1920's was of course limited," Lenin "sought to exploit all that was then available" and oversaw the development of information systems in Russia intended to manage the flood of scientific and technical information occurring in the world following the first World War. One example (Brookes 1984, 222) was the Foreign Science and Technology Bureau, established in 1920 to

... collect foreign patents, note new discoveries, acquire, translate and publish selected books and journals, notify Western Europe about developments in Russia and buy foreign exhibitions displaying scientific and technical advances for display in Russia.

After this early use of the term, there was not much intellectual activity around the concept until 1957, when a German computer scientist, Steinbuch, "coined the word *Informatik* by publishing a paper called *Informatik: Automatische Informationsverarbeitung*" translated as "Informatics: Automatic Information Processing" (Absolute Astronomy 2013). Although associated with computer science, the concept became broadened in the mid 1960s by a Russian information scientist, Mikhailov, who (Le Roux 2009, 4)

... worked at the Russian Scientific and Technical Information Institute of Russian Academy of Sciences ... [and] redefined "informatika" as an independent discipline that refers to the "theory of scientific information", and not merely applied information technology, that investigates the structure, properties and specific content of scientific information, as well as the regularities of scientific information activity, its theory, history, methodology and organization.

In the 1960s the term was used in proceedings of a 1965 UCLA symposium on on-line information systems. As early as 1971, the Organization for Economic Cooperation and Development gave the term prominence in a set of publications titled "OECD Informatics Studies" with informatics defined as "the study of information content, representation, technology, and the methods and strategies associated with

its use” (Niblett 1971; Kimbel 1973). Brookes (1980, 20) argues that in the late 1970s, informatics was at the core of information science and since this time, the term has been used to describe “the study of information content, representation, technology, and the methods and strategies associated with its use” (Sawyer and Eschenfelder 2002, 431). In 1989, the first UNESCO Congress on “Education and Informatics” was held in Paris with a goal of “using collective experience and joint exploitation of limited resources in the sphere of new information technologies in education” (UNESCO, nd). The second Congress was held in Moscow in 1994, and, according to UNESCO (nd) “Russia represented not only the country-organizer ... but also one of the most advanced countries in the field of education and application of new technologies for education development.” Aspray (2011, 233) recently offered a clear definition of the term

The field of informatics is about the application of information concepts and technology to an application domain, but it studies these issues from the information perspective; it foregrounds the information concepts and methods and backgrounds the specific application, whether it concerns health, engineering, biology, or real estate.

However, tracing the history of the term “informatics” is beyond the scope of this chapter. More important for the matter at hand is that throughout the 1980s, the term “informatics” began to acquire modifiers describing the varied domains in which computerization was beginning to have an impact; early examples include medical and legal informatics. For this chapter, the most important modifier appeared in early 1980s when Norwegian social scientists whose work focused on the intersections among technology, organizations, and work began to describe what they did as “social informatics.” Roggen (2005) claims that “social informatics, the interdisciplinary field of informatics, ... [was] established as a science in 1982 by Stein Bråten” at the University of Oslo. Originally called “socio-informatics,” Bråten saw it as a “scientific domain between psychology, sociology and informatics” (Roggen 1998). At this time, Bråten and colleagues, including Jahren, Jansen, and Roggen, began researching, publishing, and teaching SI. Soon after, the Ministry of Education established an academic program in SI at the University of Oslo in 1985 (Vehovar 2013a). A notable pedagogical contribution was provided by Roggen, who, in 1996, introduced “the Sociology of the World Wide Web ... as a web science, based on the principles of social informatics” (Vehovar 2006).

Similar activity was occurring simultaneously to the east where the Faculty of Social Sciences at University of Ljubljana, Slovenia established a program in SI in 1985 (Vehovar 2013b). In their version, the term “relates to interaction between society and information-communication technologies” at macro and micro levels of analysis. As a consequence of all of this activity, according to Robbin and Day (2006), SI was beginning to achieve status as a discipline. The collective actions of these researchers and academics set the stage for the development of SI as a SIM, particularly the collective action frames intended to recruit, train and mobilize members, acquire and use resources, and that would, as a result, raise the movement’s profile in their countries.

Around the same time that scholars in Norway and Slovenia were forming academic units around SI similar efforts were underway in the Soviet Union. The oldest scientific paper in ISI’s Web of Science explicitly related to SI is “On the shaping of Social Informatics,” published in 1989 by Russian philosopher A.D. Ursal, affiliated with the USSR Academy of Science (Vehovar 2006, 76). This is an important paper because Ursal (1989, 12; 15) describes the emergence of SI as a consequence of the increasing pervasiveness of information technologies in scientific activity and argues for its centrality among forms of inquiry focusing on the study of information, information technologies, and society:

The increasing interaction between social sciences and informatics not only manifests itself in particular aspects of this interaction, but also causes new systemic (or, in other words, synergistic) effects that testify to integrative processes in this field moving to a qualitatively new level. First of all, we mean here the line in scientific research that is called “social informatics” or “socioinformatics.”

Social informatics is supposed to integrate social and natural-technical knowledge, hence it should belong to the family of complex or even general-scientific discipline ... As an integrative and general-scientific form of knowledge, social informatics must thus serve as a connective and consolidating link between all major branches of modern science (along with philosophy and other general-scientific means).

In this paper, he articulated several of the themes that would become central to the version of SI popularized by Kling and colleagues in the mid 1990s. For example, Ursal (1989, 10) argues that SI is a new scientific discipline uniquely positioned to study the impacts of what he called “informatisation,” a “socio-technological” process “based on the production and implementation of electronic computing technology,” the

purpose of which is to employ information technologies to gather and use information to improve the human condition. In a prescient insight, Ursal (1989, 10) describes the relationship between society and informatics as being characterized by mutual shaping because “informatisation constitutes only one characteristic of the interaction between society and informatics; another is the reciprocal impact of society on informatics development.”

Unpacking this insight, Ursal sees SI as having two main precursors that he describes (1989, 10) as “the informatisation of society and the socialization of informatics” First, he (1989, 10) points to the increasing pervasiveness of informatisation, as a “process of gaining information with the help of informatics means to secure the survival of mankind and a further acceleration of its progress.” Second, he argues that SI arises from the interactions between informatics, a scientific and technical discipline, and the social sciences, which focus on humans and society. In more practical terms, he believes that SI has been deeply influenced by the spread of computerization into the social sciences which has given “rise to a new type of research and, in general, mental activity marked by a higher accuracy, logical strictness, analytical and constructive advantages over the conventional level (Ursal 1989, 12).” Further, Ursal (1989, 12) explains

The personal computer does not serve as a mere tool for computations, but as a new means of intellectual activity helping to shape a new “informational” world-outlook and methodology. New information technology changes the methodology of scientific research proper and hence, the understanding of scientific activity.

Therefore, SI, in his view (1989, 10; 13) provides “in-depth studies of actual trends and patterns in the interaction between society and informatics;” it earned its modifier because “science is much closer to such humanities as psychology or sociology, which deal with the complexity of human existence with its unclear essence.” In another prescient insight, he (1989, 11) also sees in SI a deeply critical impulse, claiming that

Practical information activity in our society demonstrates dangerous deformations. These include an almost complete disregard of public opinion, exaggerated optimistic presentation of the current state and silence over errors, wide-spread deliberate disinformation by giving false (higher) figures, etc. Social (including scientific) information being an important characteristic of society, bears its imprint, since it immediately reflects the state and dynamics of the social system within which it functions.