SOCIAL INFORMATICS: AN INFORMATION SOCIETY FOR ALL?

In Remembrance of Rob Kling

Proceedings of the Seventh International Conference on Human Choice and Computers (HCC7), IFIP TC 9, Maribor, Slovenia, September 21-23, 2006

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IFIP – The International Federation for Information Processing

IFIP was founded in 1960 under the auspices of UNESCO, following the First World Computer Congress held in Paris the previous year. An umbrella organization for societies working in information processing, IFIP's aim is two-fold: to support information processing within its member countries and to encourage technology transfer to developing nations. As its mission statement clearly states,

> *IFIP's mission is to be the leading, truly international, apolitical organization which encourages and assists in the development, exploitation and application of information technology for the benefit of all people.*

IFIP is a non-profitmaking organization, run almost solely by 2500 volunteers. It operates through a number of technical committees, which organize events and publications. IFIP's events range from an international congress to local seminars, but the most important are:

• The IFIP World Computer Congress, held every second year;
• Open conferences;
• Working conferences.

The flagship event is the IFIP World Computer Congress, at which both invited and contributed papers are presented. Contributed papers are rigorously refereed and the rejection rate is high.

As with the Congress, participation in the open conferences is open to all and papers may be invited or submitted. Again, submitted papers are stringently refereed.

The working conferences are structured differently. They are usually run by a working group and attendance is small and by invitation only. Their purpose is to create an atmosphere conducive to innovation and development. Refereeing is less rigorous and papers are subjected to extensive group discussion.

Publications arising from IFIP events vary. The papers presented at the IFIP World Computer Congress and at open conferences are published as conference proceedings, while the results of the working conferences are often published as collections of selected and edited papers.

Any national society whose primary activity is in information may apply to become a full member of IFIP, although full membership is restricted to one society per country. Full members are entitled to vote at the annual General Assembly, National societies preferring a less committed involvement may apply for associate or corresponding membership. Associate members enjoy the same benefits as full members, but without voting rights. Corresponding members are not represented in IFIP bodies. Affiliated membership is open to non-national societies, and individual and honorary membership schemes are also offered.

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Human Choice and Computers (HCC) is the flagship conference of IFIP-Technical Committee 9 (TC9), dedicated to the study of the relationships between 'Computers and Society'. These proceedings cover the seventh of such conferences. We give as an annex to this Preface the sequence of the six first conferences as well as the references of their proceedings.

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On 15 May 2003, Rob Kling, Professor of Information Systems and Information Science and Director of the Center for Social Informatics (CSI) at Indiana University, Bloomington, passed away. He was 58 years old. The day of his death, Indiana University's Dean Blaise Cronin at the School of Library and Information Science (SLIS) said, "Rob Kling's accomplishments are legion, and well documented. He was quite simply the brightest bloke with whom I have had the pleasure of working. Infectiously curious, playfully serious, razor sharp, generous of spirit, and wonderfully open-minded." We share that appreciation, as so many of his friends.

Rob was a founding father of IFIP-TC9. For several years since the inception, he was also chair of the so-called 'American core' of IFIP-Working Group 9.2 on Social Accountability.

What is this rather new field of research that, after discussion with colleagues and friends, Rob decided to call 'Social Informatics'? [RKCSI, 1996]

> "Social Informatics (SI) refers to the body of research and study that examines social aspects of computerization - including the roles of information technology in social and organizational change and the ways that the social organization of information technologies are influenced by social forces and social practices. SI includes studies and other analyses that are labelled as social impacts of computing, social analysis of computing, studies of computer-mediate

communication (CMC), information policy, 'computers and society,' organizational informatics, interpretive informatics, and so on. SI sets agendas for all the technical work in two ways: 1) more superficially, by drawing attention to functionalities that people value, thus setting priorities for design and implementation; and 2) more fundamentally, by articulating those analytical categories that have been found useful in describing social reality, and that which therefore should also define technical work in/for that reality as well." [Kling, 2001a]

We decided to dedicate HCC7 to Rob Kling's personality and his work. He is the founding father of the 'Social Informatics' school of thought.

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'An Information Society for All?': this is the question of the second part of the title of HCC7.

Geneva 2003 (December 10-12) – Tunis 2005 (November 16-18): the two phases of the UN World Summit on the Information Society (WSIS) that mobilized international authorities, governments, civil society, business people, computer scientists… [WSIS, 2003-2005], [Civil Society, 2003-2005].

The main issue at stake, as stated in a UN Resolution [UN, 2001], was the linkage between the development of Information and Communication Technology (ICT) and the UN *Declaration of the Millennium* goals. Among these goals were the eradication of extreme poverty (1.1 billion people, World Bank estimate) and hunger and the achievement of universal primary education, the target date being 2015. [UN, 2000] In other words, and more largely: how can we build up, whatever we may call it, an Information Society, a Knowledge Society, a Digital Society *for all*?

Wasn't this a way of meeting Rob's deep insight and intuition and updating one of his ideas that we can find in another definition he gave of Social Informatics? Rob wrote: "A more formal definition (of Social Informatics) is the interdisciplinary study of the design, uses and consequences of information technologies that takes into account their interaction with institutional and cultural contexts." [Kling, 1999, Kling, 2001b] We may expand this definition in many ways, among which would be the inclusion of the critical evaluation of the benefits and beneficiaries of ICT, including those left out in the process.

Using the vocabulary of UNESCO or of the European Union, we choose to give as second part of the title for our HCC7 Conference: 'An Information Society for All?' [UNESCO, 2002], [eEurope, 2002], which was a way to take into account the UN way of thinking: "Knowledge and technology must be put at the service of development for all", as the text of the UN 2001 Resolution indicates. We believe, *if ICT are everywhere, so should Social Informatics be everywhere.*

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Social Informatics is a construction open to many different interpretations; it is nearly impossible to find the orthodox formulation to it. We asked the contributors (represented in Part 1 of the Call for Papers) to expose their understanding of Social Informatics. We also wanted to explore various applications of Social Informatics thinking (Part 2). This turned out to be the more attractive of the two parts.

Nevertheless, keep in mind that we cannot separate sharply these two parts because each contribution in the more practical application field necessarily must articulate an interpretation of the nature of Social Informatics to be qualified as being an application of it. Such an interpretation can be found in all papers, if not explicitly, at least implicitly. On the other hand, all definitions of Social Informatics are likely to be based on an intuitive understanding of the motivation of the framework, often even expressed as the desire of certain types of applications or their impacts on social affairs. This means that the two parts are overlapping to a great extent.

Observing the contributions in the two parts, what kind of picture do we get about Social Informatics and its applications?

Before we can find answers, we had better to first formulate the questions. What are the particular issues addressed in Social Informatics? What makes Social Informatics different from other disciplines or approaches? What gives Social Informatics its special profile?

One question concerns the technical characteristics of informatics, namely, how technical is Social Informatics when compared to other approaches on informatics? The clear answer of Social Informatics is that informatics is more than technical. We cannot explain or understand many consequences of information technology by means of a reference to technology alone; we must also take into account various social aspects. Nevertheless, we cannot ignore technology totally, for without it, there would be no mechanism that would create those consequences of interest we wish to study.

It is probably fruitless to debate the 'egg and hen' and which was first. The interplay between the technical and the social aspects depends upon the characteristics of both parts of the interaction. We will get more out of this confrontation when we recall other slogans frequently associated with Social Informatics. One states, 'People first!' while another proclaims, 'Information society for all'. Eureka: we need the involvement of people in informatics for it to be Social Informatics.

Fortunately, Social Informatics is not alone when demanding greater attention to human beings in the context of computing. Many current approaches to information technology also view human subjects as inseparable parts of their theoretical and conceptual frameworks. Participative design and situated action are good examples, as is the interest for tacit knowledge and communities of practice. What is important is that we do not treat people only as objects of study; indeed, we should emphasize their role as active actors. For example, we should not interpret the slogan 'Information Society for All' so that some experts should design all the features of

society and then deliver the outcome to *all* of the members of the society. This is not enough. *All* people are supposed to participate in this shaping of information society.

We objectify people when we treat them as objects of study, work, or change. It is no wonder that many people feel themselves as cogs of a machine while those who have the power or the knowledge manipulate them. Indeed, participative design has been one member in the Social Informatics family that has helped in the struggle against this danger of objectification.

Let us call this kind of denial of people as subjects 'subjectless-ness' as opposed to 'subject-ness'. However, this denial is not the only form of objectification. We can divide people into parts. Some parts that we usually envision as inherent parts of human beings are their objects and thus separated from the people themselves. This is what happens when values or motivation, knowledge or understanding are taken as objects of manipulation. When objectified, these characteristics become just another means of production. From afar, we regard human work as an object, and we bracket or ignore the genuine activity in which the actor can engage. Social Informatics has the mission to keep these people as individuals and collectives visible and significant. People first!

Another issue that Social Informatics has emphasized from its very first formulations is the concern regarding the consequences of information technology. Since many of the changes are unintended and undesired, we cannot regard the implementation as a deterministic process with discrete entities. The web of computing describes much better the situation. Notwithstanding, Social Informatics cannot stay as a 'besserwisser' (know-it-all) observatory witnessing the mistakes and breakdowns that people do with ICT. Some alternatives are good and others are bad. The choice is an ethical question. It broadens the scope of the 'ethics of computing'. While particular ethical issues still exist, Social Informatics is likely to view all aspects of the use, development, and implementation as moral questions of good versus evil, whereby people's interests should come first.

The reader now faces nearly forty contributions that display different views on Social Informatics. We could have sorted and classified these contributions in many ways. For example, there was no clear line between the two parts on what informatics is and its ubiquitous applications. The two themes on 'subject-ness' and moral issues embedded in all ICT develop from this material more than in many earlier contexts of Social Informatics. This is how we further bring the real message of 'Human Choice and Computers'. It is up to the reader to find all the themes and their counterpoint in the material of this conference. In what follows, we provide 'snapshots' of each contribution.

1   Social Informatics, What is It?

Alice Robbin, Roberta Lamb, John Leslie King, and Jacques Berleur have written a remembrance of Rob Kling as an introduction that will be found after this Preface. As it already provides one answer to the question of the identity of Social

Informatics, it nicely opens the concept remembrance itself. The authors regard remembrance as reflection, legacy, and vision. In the spirit of Vannevar Bush's visionary thinking – *As We May Think* (1945) –, they have named their chapter *As We May Remember*.

Alice Robbin and Ron Day discuss Social Informatics and the work of Rob Kling in terms of theoretical, methodological, and critical underpinnings of Kling's work. Even if he had no time to present a synthesis of all of these areas, Kling's contributions in all of them transcend many borders typical for traditional settings of research and practice. One of Kling's conceptual frameworks was Socio-Technical Interaction Networks (STIN). This is the specific object of Eric T. Meyer's paper. He gives a good overview about STIN and its application, strengths and weaknesses. STIN is not the only theoretical framework that we can successfully apply to Social Informatics. Steve Sawyer and Michael Tyworth apply another framework called the 'Social Actor Approach', first introduced by Roberta Lamb and Rob Kling on through STIN. Because of their empirical work, they discovered that these two approaches lead to different insights. Because both approaches can be both true and useful, Social Informatics is not a singular theory, but rather an analytic perspective and a set of principles.

Teaching Social Informatics

The dilemma of teaching Social Informatics is that in most of the imaginable contexts it is bound to happen to the audience who already is familiar with informatics as a technically oriented discipline. The message in such a situation often takes the form of explaining that the traditional presentation of informatics is not the truth or at least not the whole truth. It is rather exceptional for a student to start his studies at the very beginning with the conceptualizations of Social Informatics!

Lilla Juhász and László Z. Karvalics report their experiences of teaching Social Informatics at their university in Budapest. Social Informatics offers to engineering students a significant set of minor studies. They structure and justify the subject very carefully, first by interpreting information as an exclusively human phenomenon. Further discussions deal with the IT-'information and knowledge' industry, the axioms of ICT, a history and prehistory of IT, and the profession world of the information complex. This is an interesting and ambitious enterprise.

Another university with particular teaching of Social Informatics is the University of Ljubljana. Vasja Vehovar takes us to an exciting sightseeing through the history and geography of information systems research. He identifies many conceptualizations that complement each other. The concern is rather similar than in the recent debate on the IS Core: the desire of a core for Social Informatics is clear.

Social Informatics as a discipline has also been the main concern of Per Flensburg and Arianit Kurti. They are not, however, satisfied with the analysis of Social Informatics as an academic discipline; they want instead to step out to the practical problems and crises of the world. They discuss many central themes frequently found in the critical analyses of current globalization and they attribute

some fresh views toward the potential role of information technology affecting origins and solutions. To some extent, the broad legitimacy justifies the unorthodox format of the contribution.

2 'Social Informatics': Ubiquity? An Information Society for All?

In our understanding, we should not understand Social Informatics in such a way that a part of informatics is social whereas the rest of the discipline is not social. The need for Social Informatics comes from the ignorance of the social dimension of information technology that is too common still today. To the contrary, we argue that all use and development of IT are socially determined. Moreover, as ICT is everywhere, Social Informatics should also be everywhere. In today's terminology, Social Informatics should be ubiquitous. Otherwise, it would not make sense to talk about an 'Information Society for All'.

We have clustered the contributions in various classes: Ethics and Culture, Politics and Law, Information Society and ICT Policies, Economic, Organizational and Technical Issues, Methods and Concepts, and finally a couple of papers on Crosscutting Issues.

2.1 Ethics and Culture

Social Informatics is replete with ethical concerns and it has an inherently cultural dimension. In many ways, ethics and culture also complement each other; that is, one of them is meaningful only as far as it can refer to the other.

Göran Collste is concerned about the ethical principles in various applications of e-medicine. We should be aware that we do not accidentally throw away old traditional aspects characteristic of the relationship between doctor and patient. Also new situations of care will emerge in the Internet era that requires formulation of new ethical principles. Trust on information and services mediated electronically are good examples of this type of ethical concern.

The technical progress of the ICT and the relatively high degree of anonymity in Internet operations offer important new opportunities for the freedom of speech and equality. Unfortunately, it is also a free jungle for many types of criminals. Child pornography is one criminal area that has grown towards more intensive market place for this type of criminals. Marie Eneman presents an IS research agenda that aims at a better understanding of this phenomenon. Know your enemies in order to beat them!

Quite often information systems come to the desks of their users who have no other choice than to accept the artifact as given. This is because users, for all practicality, lack the ability to tailor the system or to find alternative pieces of software to accomplish the tasks they are to do. To a certain extent, the users are controlled rather than becoming controlling. Yu-Wei Lin and Enrico Zini suggest the

use of free/libre open source software (FLOSS) as one way to reduce this degree of control. They report experiences of implementing FLOSS in an Italian high school. Ubiquitous and pervasive computing also raises the concern of control to the surface. If the user cannot escape pervasive applications or if he is not aware of all active ubiquitous applications, we cannot expect him or her to be in control of the applications.

Giuseppina Pellegrino analyses the increasingly mediated character of everyday life, various types of technological artifacts are mediating our activities particularly in mobile working situations. Yet another ethical concern is the transparency of economic activity that takes place in firms. The companies do have justified business secrets, but on the other hand, they are under pressure to reveal information on their activities to convince the authorities and other interested parties about their fair and acceptable principles.

Information and communication technology allows many different opportunities to make the activities transparent. Antonino Vaccaro and Peter Madsen introduce a model called the five-force model to analyze and make sense of the pressures towards greater transparency.

2.2   Politics and Law

Societies create laws as shared and explicit expressions for rules of ethical character. They tell in more operative terms, what is right, and what is wrong. Politics should not be a reason to violate laws, even if they give greater freedom for individuals to promote their shared values. Issues in this class vary from intellectual property rights to the freedom of expression.

We may regard many databases as shared resources for all users who have access to them. Tom Dedeurwaerdere reports about the work on databases with microbiological information. He studies their production and use as public good and common pool resource. Quality forms a crucial basis for the usefulness of such a shared resource. One needs a complicated network of incentives, property rights, licenses, and contracts for the governance of the collaborative database. The databases are not the only resources shared for general benefit and creativity. Software is perhaps an even more important resource in this respect, because we view it as an intellectual property of its author(s). Paul B. De Laat offers an outline of 'open source software' and he offers various means for protecting and sharing these resources.

We can limit freedom of expression in cyberspace by various forms of restrictions on publishing expressions or on access to undesired pages. Mathias Klang presents a good overview on such censoring techniques and their backgrounds.

Information society does not come by itself; we need to welcome it by various measures performed by the society. Vasileios Laopodis presents the strategy of the European Union to introduce Research and Development Programmes. The purpose

of these projects is to use ICTs and their pervasive role in economy and society for greater economic growth, sustainable development, and social cohesion.

One part of information society is to organize a part of services electronically, with good examples of e-commerce, e-government, or e-health. Many companies develop their *Customer Relationship Management* (CRM) system utilizing the power of ICT. Francoise Massit-Folléa and Cécile Méadel introduce a parallel concept useful in electronic administration *Citizen Relationship Management* and continue by using it in order to turn the concept of administration to a more market oriented direction with its supply and demand.

The ethical concern of Social Informatics also has its long-term dimension. We should not compromise the ability of future generations to meet their needs. This general formulation of sustainability is the point of departure for Christian Fuchs in his exploration of the different facets of sustainability in the information society. He is not satisfied with the ecological sustainability alone; he is asking for technological, economic, political, and cultural sustainability.

2. 3   Information Society and ICT Policies

One may view an information society as a possible portrait of Social Informatics. Governments often show their interest and responsibility by formulating strategies and policies for promoting the development of ICT and information societies. Supporting the creation of infrastructure governments often also promote the development of various new electronic methods for government and other services.

Electronic services are an important feature in an information society because it creates the possibility to change significantly the structures of production and the delivery of services. Such changes are not deterministic and we can choose its different directions of development. Elisabeth Davenport and Keith Horton have analyzed e-government and they have been able to identify two frames. They call one the 'technology action frame' that prefers the use of processes, which is likely to lead to a dehumanized concept of a *managed citizen*. They base the other frame on notions of interaction, solidarity, and shared practice that is close to the Kling's frame of 'web of computing'.

We can agree that the Internet and the web is the engine of an information society. Who invented them? This is a wrong question in Social Informatics perspective. The Internet is not a discrete entity and its invention and governance follow much more complicated rules. William H. Dutton has applied the concept ecology of games to illustrate innovatively the indeterminist character of such processes that have multiple actors.

An Information Society for All? is the second part of the title of this conference. The IS researchers should keep in mind this slogan as well, as Tanja Urbancic, Olga Stepankova, and Nada Lavrac require. Whenever a conflict exists between people and other values, people should be in the first place. The authors make their argument more convincing by a few illustrating examples.

The scientific community does not often leave too much room for human subjects or 'subject-ness'. The desire for objectivity could easily lead to a misunderstood one-sided objectification. However, several theoretical approaches exist that address the subjective character of human beings. Katarina Lindblad-Gidlund has taken social constructionism as derived from Berger & Luckmann as such a theory. They use it as a bridge between two notions of usability: empirical usability and usability as ideology.

We would expect ICTs to promote democracy in the information society. We can make information available with the purpose of improving transparency thereby controlling and making sense of social phenomena. Simon Delakorda has taken his target in the core of democratic processes–political parties. He has reviewed the parties' web sites and found out that most of their designs were for one-way communication. Such designs foster the desire for power and control rather than a genuine social movement.

The second part of the title of this conference is *An Information Society for All?* Bruno Oudet, Jean-Pierre Pinet, Corinne Chevrot, and Gwenaël Navarette have taken this challenge seriously by bringing technology to very poor people in their project called *Internet in the Street*. They report their experiences about the problems and barriers of reaching this audience and of giving them the opportunity to use the Internet.

The digital divide is one of the concerns in information societies. It is perhaps even more critical at the global level. Access to computers is essentially more difficult if the supply of devices is scarce; however, we must also guarantee the infrastructure and availability of adequate software. Pia Krakowski analyses the use of Free Open Source Software (FOSS) in developing countries. She discovers that the issue is not only in the cost of FOSS, but also in the freedom and flexibility it gives in circumstances that did not have a high priority in the designer's mind.

2.4   Economic, Organizational, and Technical Issues

People believe that information is a more important factor of production than capital or labor. Capitalism has shifted to 'informational capitalism' in the conceptual framework derived by Castells. Rudi Schmiede assumes Castells' notion as the point of departure and takes us 'sightseeing' through the information society. He is especially concerned about human subjects and consequently about anthropocentric development of technology.

Responsibility and accountability become easily fuzzy when we introduce ICT. The danger is greater when the systems are wide and integrated. Enterprise architectures are useful for creating overview and keeping track of accountability. In their paper, Gian Marco Campagnolo and Gianni Jacucci discuss this issue on design for accountability, making use of the 'actor-network theory'. Context of an IS is an important concept for Social Informatics, because the social aspects of information technology are likely to reside in the context. One issue about contexts is whether there are any recurrent factors in contexts even if they seem to be different from one

case to another. Tuija Tiihonen, Anja Mursu and Mikko Korpela have made an attempt to identify such factors in terms of scopes, categories and levels. The authors' work in developing countries drives this attempt.

2.5   Methods and concepts

Concepts are part of the definition of the research and methods are more or less consequences of it. The contributions in this category therefore help also the building the notion of Social Informatics. It is natural that the discussion on the interpretations of Social Informatics continues here as it does thorough the entire conference. Gunilla Bradley desires to bring ICT, people, and society to a fruitful interaction. Equipped with three roles as a professional, private person and citizen, people could become empowered when these things and roles become more integrated.

The ICT has an enabling role in this convergence process. The identity of Social Informatics is not a narrowly defined entity. Even in this conference, it has received many slightly different interpretations. Pertti Järvinen draws the profile of Social Informatics by comparing it to the mainstream information systems research. He uses two stereotypic ideal types introduced by Kling and Lamb called the 'standard tool model' and the 'socio-technical model.' [Kling, 2000] He continues his discussion by emphasizing the role of human beings in information systems and in Social Informatics at least to some extent.

The 'subject-ness' is, indeed, a thoroughgoing theme in this conference. One weakness of Social Informatics is in its generality; operationalizing empirical research does not always receive very strong support. The way of research design may be long. Markku I. Nurminen suggests that we could operationalize Social Informatics more greatly and he gives an example of this by starting to define a sub-discipline that he calls *Work Informatics*.

Social Informatics also needs foundational support with deeper philosophical thinking. Rocío Riueda Ortiz, Henrik Herlau, and Leif Bloch Rasmussen do this by starting with Churchman and Singer, continuing with Kant and Habermas, and ending up to Derrida and Feyerabend. They profile nicely the particular characteristics of Social Informatics during this journey through different philosophers. The modern ICT offers the possibility to access enormous amounts of data in databases connected to the Internet or to other networks. Social Informatics has taken a critical stance on this issue as long as people regard this opportunity as merely a technical feature.

Data without adequate interpretation is worthless – if not dangerous. Klaus Fuchs-Kittowski introduces the concept of an information centre – a centre of thought that would play an important role in this challenge of collective sense making. The suggestion gives an interesting view to many problems of knowledge management and organizational learning.

Access to ICT and the Internet are important features of an information society because lack of access is likely to increase the digital divide. Access has been the object of many studies, even at this conference, that aim at finding ways to promote

the access for all. Olle Nilsson has taken the complementary approach: instead of analyzing the driving forces of access, he has decided to identify and classify barriers of access leading to a *User Centred Access Model.*

2.6   Cross-Cutting Issues

The diffusion and use of information technology is dependent on the beliefs that potential users have about this technology. Pille Pruulmann-Vengerfeldt has collected two longitudinal surveys with Estonian people. By classifying the respondents into users and non-users, she has been able to make some distinctions that indicate barriers to ICT use. Perhaps we may transcend these barriers to some degree by distributing corrective information.

Social Informatics as a key area for understanding socio-technical change is the focus of the paper by Edouard J. Simon, Monique Janneck, and Dorina Gumm. In the spirit of Social Informatics, the innovative change is also an ethical challenge by definition. The key of Social Informatics in this approach turns out to be multidisciplinary. We operationalize this by the concept of *Mikropolis*, which means the collective of researchers with a perspective from different disciplines. However, through their joint research activity, *Mikropolis* develops into a conceptual framework that we can regard as a tentative embryo for the theory of Social Informatics.

3   'Fair Globalization'

The third part of these proceedings is very short and does not fit very well with the style of the others. However, we decided to keep it for two reasons.
- People will use this text for a youth forum, which is a side event to HCC7 conference. Obviously, as this book will be published before the event, we are not able to expose its results!
- It is a text that shows how the agencies of the United Nations, namely the International Labor Organization (ILO), have adopted the goals of the *Millennium Declaration* for their own sphere of competence, and influence [UN, 2000], [ILO, 2004].

This text provides a kind of blueprint showing how an *Information Society for All* should be. In a way, it provides an agenda for such action.

4   As a Matter of Stage

In a posthumous book, Rob Kling et al. refer to three orientations of Social Informatics: normative, analytical, and critical [Kling et al., 2005]. Quoting Kling,

"The critical orientation refers to examining ICTs from perspectives that do not automatically and uncritically accept the goals and beliefs of the groups that commission, design, or implement specific ICTs. (...) It encourages information professionals and researchers to examine ICTs from multiple perspectives (such as those of the various people who use them in different contexts, as well as those of the people who pay for, design, implement, or maintain them) and to examine possible failure modes and service losses, as well as ideal or routine ICT operations."

We hope that the different contributions have brought forth a first patchwork of answers to this methodological preoccupation. It is surely of utmost importance for today when most people are fascinated by the wonders of the technology. Yet, they forget that we must develop these technologies for the people – for *all* people.

Let us return to the questions that we posed earlier. What are the particular issues addressed in Social Informatics? What makes Social Informatics different from other disciplines or approaches? What gives Social Informatics its special profile?

As a result of our reading, it seems more fruitful to ask which research questions or areas do *not* belong to Social Informatics. This is because Social Informatics can analyze critically practically any research project in terms of its people dimension, that is, Where are the people? What roles do they play? How does ICT affect them? It is not enough for Social Informatics to take into account some social factors when the social actors remain objects of manipulation. Social Informatics is in favor of 'subject-ness' and against 'subjectless-ness'.

We can interpret this so that research and development in the ICT field, the area of informatics, is too important for technical experts to do alone. We need social expertise on the side of the technical one. Nevertheless, we must continue our critical orientation to cover the work of these socially oriented experts. For example, if an organization had established an internal board for ethical issues, it would not mean that the employees should perform their jobs without any attention to its ethical aspects. Quality systems do not create quality. People must infuse quality in their own work and they must have a desire to see that quality is a genuine happening. It is not possible to outsource and ethical social issues, even if they open 'controversies' as Rob observed them [Kling, 1991, 1996].

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Annex

The *Human Choice and Computers* Conferences

The First World Conference on *Human Choice and Computers* was held in 1974 (April 1-5), in Vienna. The initiative came from Heinz Zemanek, President of IFIP (1971-1974) and at the time also President of IBM Austria. Fred Margulies, Secretary of the International Federation of Automatic Control (IFAC), who was mainly leading the reflection of unions on the computerization in the work place, assisted him.

The success of HCC1 was such that IFIP-TC9 has always considered it as a founding event, if not its birthplace. This is not the place to provide a history of TC9, as Heinz Zemanek and Jacques Berleur have already documented that narration. Furthermore, the recognition of TC9 as a technical committee within IFIP was a challenge and the leaders at that time had to overcome the opposition from the Russian Academy of Science. For convenience, the Academy preferred to consider 'computer science' as a neutral area. We can still find anachronously such information in the IFIP Statutes that state, "IFIP does not take any account of the political, social or economic aspects of its Member organizations because IFIP is totally dedicated to the transfer of scientific and technical information and experience" (art. 1).

TC9 came to birth in 1976, two years after HCC1. Its creation was fortunate: having a technical committee reflecting on the issues raised by the nascent Information Technology was a blessing.

Kelly Gotlieb (CDN) was the first TC9 Chair. With Fred Margulies, he organized *HCC2*, which took place in Baden (Austria) in 1979 (June 4-8). This was the first attempt to clarify the field of 'Computers and Society'. In the HCC2 Proceedings, Abbe Mowshowitz attempted to list the main social issues in computing.

The third world conference *HCC3* was held in Stockholm, 2-5 September 1985. 'Comparative Worldwide National Computer Policies' was its main theme. HCC3 tried to go further in the way the different nations were approaching the policies of ICT in different domains such as in working life, public policies, and culture. Hal Sackman was the TC9 Chair.

HCC4 took place 6-12 June 1990 in Dublin. TC9 prepared HCC4 with Klaus Brunnstein as its chair and with Riccardo Petrella leading the European FAST Programme. The concept of 'technology assessment' applied to the field of information technology was surely the first attempt to federate the main reflection on social aspects of science in the field of ICT.

The fifth world conference on HCC—*HCC5*—was held in Geneva (25-28 August 1998) with the help of Silvio Munari and the 'Hautes Etudes Commerciales' (HEC) of the University of Lausanne. It was the first time that TC9 faced the role of

ICT in the issue of globalization. Pertti Järvinen was the TC9 Chair.

HCC6 was in Montreal as a track of the 17th IFIP World Computer Congress. The main theme concentrated on one of the scopes of TC9. Its Aims and Scope state 'Issues of Choice and Quality of Life in the Information Society'. Klaus Brunnstein and Jacques Berleur (TC9 Chair) were at the root of that worldwide initiative. They also organized the IFIP-WG9.2 Namur Award Ceremony in honor of Deborah Hurley, Director of the Harvard Information Infrastructure Project.

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Acknowledgments

As We May Remember

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Introduction

By now, many retrospectives have been offered on Rob Kling. Some have focused on personal and professional reflections about what motivated his intellectual pursuit and shaped his socio-technical perspective. Others have looked carefully at the whole 'package' of Rob's work as a legacy of scholarly publications and a community of connected researchers who care about informatics and social worlds. His own characterization of his lifelong project was as an institution builder devoted to illuminating analytically understandings of the complex relationships between the design and use of advanced information and communication technologies (ICTs) and the character of social life in settings where people use them.

Many remembrances note that Rob was an idealist. His achievements, impressive and laudable as they were, have not yet produced a discipline as inclusive and socially realistic, nor an ICT-infused world that is as socially equitable, as Rob would have wished for. Our purpose in this short paper is to remember Rob as we knew him – warts and all – in our personal and professional lives. We have drawn together a series of historical links to events and influences that we know about to explain his approach, motivations, personal style and intellectual biases.

Remembrance as Reflection

Our first memories are a reflection of Rob over time. At the time Rob began his career in the early 1970s, discussions of the relationships between computers and society were largely speculative and prescriptive. There were relatively few computer systems and computer networks to serve as a basis for empirically anchored and analytically-oriented research, which he believed was required because social improvements do not always accompany substantial technological advances. Rob also believed that fundamental changes in science education were needed so that IT professionals would be trained to identify and evaluate the social consequences of ICT-based systems. Throughout his life he articulated a responsibility-centered role for information professionals that flowed from his convictions about the ethical self.

He was acutely mindful that technology was complicit in many aspects of human suffering, and he could not abide the dismissive or disinterested attitude of many technologists toward the growing body of empirical evidence that technology often had unintended negative consequences. He embraced a critical perspective that placed these contradictions at the heart of the technological conundrum. In executing his critical worldview, he opened the eyes of many people to the complexities of problems that seemed relatively simple on the surface. At the same time, however, many of Rob's zealous predictions about computerization failed.

Our reflections about the future of Social Informatics have begun to consider how he might have avoided some of the traps of a critical empirical approach. We remember heated arguments with Rob about socio-technical futures that stretched visions of computing to their logical (i.e. absurd) limits. But, perhaps due to inherent biases of critical and positivist perspectives, those limits were often simple linear extensions of the current context, rather than exponential or recursively accumulative imaginings of ICT-infused social worlds.

Remembrance as Legacy

We are cautiously mindful of the shortcomings that grew out of Rob's idealism, yet we are at the same time enormously admiring and appreciative of his overall legacy. Over the course of his life, Rob contributed insights from his wide-ranging empirical research and policy studies on computing, in more than a hundred articles and several books that were published in journals of diverse disciplines. He critically examined computing in the workplace. He wrote about the interactions between the public and organizations dependent on computer-based systems. He explored people's self conceptions in dealing with machines and about the computing world as a social institution. He was particularly attentive to the relationship between computing and public policy and, beginning with his first papers, addressed policy issues on privacy, the ethical dilemmas of computing, legal issues, and the social accountability of the IT professional. In one form or another his writings always addressed the normative implications of computerization, the roles and responsibilities of the public and private sectors and professions, and public policy design and its consequences for social life, work life, and the citizen.

Through European colleagues in the early 1980s, he was introduced to the term 'social informatics' to describe this research area, and he adopted the term as a workable label to facilitate the integration of a heterogeneous body of research and to help communicate key theories and findings. By 1996, he had developed what he called a 'serviceable definition' of the discipline of Social Informatics, which he wrote 'refers to the interdisciplinary study of the design, uses and consequences of information and communication technologies that takes into account their interaction with institutional and cultural contexts." He intended that Social Informatics would be a genuine socio-technical systems perspective that included analytical, critical and normative approaches, multiple methodologies, innovations in research design, and true interdisciplinarity. His corpus of work introduced North American scholars to seven important social informatics ideas:

1. The context of ICT use directly affects their meanings and roles; the design of ICTs is linked to social and organizational dynamics.
2. ICTs are not value neutral; their use creates winners and losers.
3. ICT use leads to multiple, unexpected, and often paradoxical or time-dependent, effects (e.g. the 'paperless office' has actually generated more paper; and during the 1980s and early 1990s, the introduction of technology into the workplace did not appear to increase productivity).
4. ICT use has moral and ethical aspects, and these have social consequences.
5. ICTs are configurable 'packages'; they are actually collections of distinct components whose social use of similar components may lead to different technical networks in each social system.
6. ICTs follow trajectories that often favor the status quo. 7
7. ICTs co-evolve during design, development, and use, that is, before and after implementation.

   Rob's institutional contribution was to educational program design that incorporated a study of society and technology, whose concepts he thought had been undervalued and unappreciated in science education. During the 1990s, concerned that various disciplines were not preparing their students to address the interdependencies of the social, the technical, and the ethical, he turned his attention to developing a program of critical inquiry for a Social Informatics education that would prepare IT professionals to respond appropriately and ethically in their future careers. This led to two editions of a reader designed for undergraduates, *Computerization and Controversy*, that was published along with an instructional manual for teachers (2nd edition). His goal was to provide the conceptual foundation for a critical appreciation of the benefits and limitations provided by ICTs. He believed that IT professionals needed to understand that ICT is a socio-technical process and that social and organizational forces affected the functionality embedded in ICTs; that techniques needed to be developed to help identify and evaluate the social consequences of ICT-based systems. He also believed that information professionals needed to carefully consider elements of power and influence, resources available to and employed by various interests, and the consequences of their personal decisions and of public policies. And IT professionals needed to apply what he called 'person-centered standards' for the design of computerized information systems that promoted a sense of personal competence and authority.

At the time of his death in May 2003, Rob had written the outline of a new book, provisionally entitled *Computerization Within Societies: A Social Informatics Perspective*. It was intended as a new conceptual synthesis of key ideas from social informatics research that would be translated into insightful ways of viewing the development, use and consequences of IT applications in workplaces, organizations, and institutional arenas. He wanted to explicitly articulate concepts and bring them alive with vivid illustrations, so that readers could "take them away" and apply them in their own life-worlds and their own research. The book would have a distinctive theoretical approach, one that treated ICTs as socio-technical networks, viewed the configuration of ICTs as situated in organizations or other social settings, and was also influenced by the relevant 'technological frames' that circulate through intersecting social worlds. Parts of the theoretical approach would come from neo-institutional political sociology. However, his goal was to encourage readers to understand how socio-technical configurations play a role in influencing the range of common social behavior. The first chapters on discourses about ICTs and social change and the socio-technical character of ICTs were more conceptually oriented. Subsequent chapters would examine ICT applications, including computerization in workplaces and organizations, and transorganizational ICTs, such as dot-coms, scholarly communication and distance education. The book design concluded with a discussion of information societies in critical perspective.

Remembrance as Vision

Rob Kling's last book remains unfinished as a literary work, but its outline succinctly expresses his vision for the social informatics research community. Many of us who worked with Rob believe that his greatest gift was making us think differently – whether it was about something new, thinking in a new way, or adding back in some messy consideration that had been excluded intentionally. Through decades of intense, interpersonal, scholarly interaction, he played a unique, essential, and lasting role in the creation of a domain of research called Social Informatics. He contributed to a critical perspective on the nature, role, and dynamics of computerization. He was committed to empirical evidence and theoretical analysis. He challenged the assumptions about computerization -- his work a powerful indictment against the sloppy conjecture and hyperbolic statements about outcomes from computerization. He offered a convincing alternative interpretation of society and technology. Like Vannevar Bush's vision of the 'memex' device, Rob's vision of social informatics was based on in-depth, on-the-ground knowledge about what is, what is possible, but also what is likely – without knowing exactly how and when that vision might be realized. Maybe he overcompensated in his predictions for the tendencies toward technological determinism by other scholars of computing; but in so doing he developed a set of research skills in himself, his students and his colleagues for empirical inclusion, expansive consideration, concern for those left out, analytical synthesis, rapid characterization, and concrete conceptual anchorings of scholarly work. Above all, he perpetuated an idea that, through this kind of scholarship, we can develop an informatics know-how that curbs our enthusiasm

about the technologies we love just enough to really implement better social worlds. To paraphrase Bush, Kling's social informatics disciplinary 'device' would be capable of

> *...making more accessible our bewildering store of knowledge about ICTs in social contexts; it would help us establish a new relationship between thinking professionals, the sum of our knowledge, and the implications of our actions.*

This conference honors Rob Kling's legacy and his vision. It is a testament to his commitment and to the relevance of his ideas about the value of Social Informatics.

PART 1 – SOCIAL INFORMATICS:

AN INFORMATION SOCIETY FOR ALL?