# 審査意見（３月）（資料）

【目次】

資料1　審査意見2の参考資料①（中島秀人 **2008**）
出典:『社会の中の科学』中島秀人（2008）

もう一つの立場は，科学知識は古代ギリシャに成立したとする見方だ。というのは，それより前に自然現象の理解があったとしても，その説明は神話的，擬人的だったからだ。たとえば，古代メソポタミアでは，宇宙は神々の争いによって作られたとされた。自然は，神の恣意によって左右されるものだったのだ。これに対して，ギリシャでは，自然現象は自然そのものの原理で説明されるようになった。もちろん，古代ギリシャでも当初は神話的な説明が普通で，地震が起こるのは，海神で地震の神でもあるポセイドンが引き起こすものとされていた。だが，紀元前6世紀の哲学者タレスは，地震は大地を浮かべる水の震動だとした。神話的な説明に比べれば，合理的である。

資料2　審査意見2の参考資料②（**Kling 2000**）
出典：Learning About Information Technologies and Social Change: The Contribution of Social Informatics, Rob Kling（2000）
URL：https://www.tandfonline.com/doi/abs/10.1080/01972240050133661

Social informatics research also investigates intriguing new social phenomena that emerge when people use information technology, such as the ways in which people develop trust in virtual teams (Iacono & Weisband, 1997) and the ways in which disciplinary norms influence scholars' use of electronic communication media (Kling & McKim, in press). But these phenomena would be the focus of another article. In this article I have identified a few key ideas that come from 25 years of systematic analytical and critical research about information technology and social life. These ideas include the following central concepts about social informatics analyses[14]:

- These analyses differ considerably from the traditional deterministic impact analyses.
- Such analyses consider an array of relevant factors, including social, cultural, organizational, and other contextual components.
- Work processes and practices need to be studied *for how they are actually carried out.*
- ICTs are more usefully conceived of as sociotechnical networks than simply as tools.

資料3　審査意見2の参考資料③（**Smutny and Vehvor 2020**）
出典：Social Informatics Research: Schools of Thought,
　　Methodological Basis, and Thematic Conceptualization, Smutny and Vehvor（2020）
URL：https://asistdl.onlinelibrary.wiley.com/doi/full/10.1002/asi.24280

# Social Informatics Research: Schools of Thought, Methodological Basis, and Thematic Conceptualization

**Zdenek Smutny***
*Faculty of Informatics and Statistics, University of Economics, Prague, W. Churchill Sq. 4, 130 67 Prague, Czech Republic. E-mail: zdenek.smutny@vse.cz*

**Vasja Vehovar**
*Centre for Social Informatics, Faculty of Social Sciences, University of Ljubljana, Kardeljeva Ploščad 5, Ljubljana, Slovenia. E-mail: vasja.vehovar@fdv.uni-lj.si*

**Research activities related to social informatics (SI) are expanding, even as community fragmentation, topical dispersion, and methodological diversity continue to increase. Specifically, the different understandings of SI in regional communities have strong impacts, and each has a different history, methodological grounding, and often a different thematic focus. The aim of this article is to connect three selected perspectives on SI—intellectual (regional schools of thought), methodological, and thematic—and introduce a comparative framework for understanding SI that includes all known approaches. Thus, the article draws from a thematic and methodological grounding of research across schools of thought, along with definitions that rely on the extension and intension of the notion of SI. The article is built on a paralogy of views and pluralism typical of postmodern science. Because SI is forced to continually reform its research focus, due to the rapid development of information and communication technology, social changes and ideologies that surround computerization and informatization, the presented perspective maintains a high degree of flexibility, without the need to constantly redefine the boundaries, as is typical in modern science. This approach may support further developments in promoting and understanding SI worldwide.**

*Corresponding author

Received July 7, 2018; revised April 18, 2019; accepted June 5, 2019



## Introduction

Social informatics (SI) research has developed in environments with different intellectual traditions, and hence, is strongly associated with corresponding (regional) scientific communities, labeled here as *schools of SI*. The substantive differences among the schools make a mutual awareness difficult; this has been increased by language barriers, as well as with specifics in scientific positioning, evaluation approaches, publication strategies, academic promotion systems, and communication patterns. Relatively independently, various studies (Petric & Atanasova, 2013; Rosenbaum, 2014; Smutny, 2016; Vehovar, 2006) have identified similar sets of five to seven schools (see Schools of SI, below).

The problems with a common SI research denominator are all the more troublesome because SI addresses a broad area related to the interaction between society and information and communication technology (ICT), where many established disciplines already exist. On the other hand, there also appears to be a certain lack of conceptual grounding in some SI research, meaning it does not belong to any school of SI.

This all contributes to the fragmentation of SI among schools, but also to diversification within the schools. When discussing the developments in SI research in the United States (US) and United Kingdom (UK), Sanfilippo and Fichman (2014, pp. 42–47) understand this fragmentation as a specific SI developmental stage that began in 2006, and call it a "period of diversification."

However, this fragmentation could also have arisen because, from the very beginning, SI is not a well-defined field (Nakata, 2008), even in the foundational work of Kling, Crawford, Rosenbaum, Sawyer, and Weisband (2000). Consequently, the term *SI* can be understood in different ways (Kling, 2007). This is partially rooted in the meaning of the words *social* and *informatics*. Namely, not only in US

English, but also in general, the term *SI* is a neologism (Kling, 2007), whose meaning can be interpreted in different ways. The word *social* alone can refer to (a) society in general (that is, people, public, and humanity). However, it can also refer to (b) a specific meaning (that is, association), (c) the notion of socializing (that is, partying), and (d) social work. When translated into other languages, this Latin origin term gains further nuances. In numerous languages, the term *social* remains unchanged when translated (for example, French), or is translated more or less directly (for example, Czech *sociální*), but sometimes the root changes (for example, Slovenian *družboslovna*). The greatest linguistic difficulties arise when a direct translation does exist (for example, German *sozial*) but has a specific meaning, such as being related to social work. Increasing linguistic difficulties, the term *social* can be replaced with *socio-*, which can have various meanings, including social, sociological, and societal. Consequently, the translation to *socioinformatics* (or *socio-informatics*) can be very close to SI in some languages.

Problems can also arise from the term *informatics*. When implementing computers in the US during the 1960s, three subareas emerged (Gupta, 2007; Hjørland, 2014; Jesiek, 2013; Smutny & Dolezel, 2017): (a) the design of computers and computer systems (computer and electrical engineering), (b) computational processes (computer science), and (c) information processes (library and information science and information systems). Europe, which was divided for almost 50 years into the Western and Eastern Blocs, saw efforts to incorporate these subareas into a single umbrella term. In the Western Bloc, the French conception of informatics (Mounier-Kuhn & Pégny, 2016) emerged, with the corresponding subareas being (a) engineering informatics, (b) theoretical informatics, and (c) applied informatics. This terminology successfully spread across Western Europe as well as to other countries (Coy, 1997).

In the Soviet Union, the first unifying term for computing disciplines was *cybernetics*; the term *informatics* later emerged independently from the developments in France and had a specific ideological reason behind it: to disentangle the area of scientific and technical information from library science, which was in the firm grip of censorship (Cejpek, 2008, pp. 165–167). Mikhailov's conception of informatics (also known as the theory of scientific information) later became part of general informatics. In the 1960s, the three corresponding subareas were (a) technical cybernetics; (b) theoretical cybernetics; and (c) automated management/control systems, the theory of scientific information, economic cybernetics, and other competitive views. In the late 1970s, the word *cybernetics* was partially replaced by *informatics* (Kolin, 2006; Shkurba, 1995). In the 1990s, the notion of informatics also appeared in the US but referred to a strong application-oriented domain with roots in library and information science. Formally, in the US, the term *informatics* first appeared in the Classification of Instructional Programs in 2010 and focused on computer systems from a user-centered perspective (NCES, 2017).

Within the context of relatively independent historical developments of SI across different regions and languages, the aim of this article is to provide an overview of the schools of SI and relate them to methodological approaches and thematic areas. This forms a basis for a comparative framework that can help understand the differences in SI research developments. A related aim is also to stimulate the connections between the SI schools and to place further developments onto more solid foundations.

## Schools of SI

The literature has already identified various SI research streams, which appear under different names: SI approaches, SI paradigms, or SI concepts (Smutny, 2016); SI versions (Rosenbaum, 2014); SI traditions (Petric & Atanasova, 2013); and SI developments (Vehovar, 2006). As mentioned, in the current article these research streams are called the schools of SI. Here, the notion of *school* serves only as a pragmatic working label, while precise terminological discussions are beyond the scope of this article, particularly because even SI itself is labeled inconsistently. Namely, SI can be considered a scientific and intellectual movement (Rosenbaum, 2014), epistemic community (Sawyer & Hartswood, 2014), discipline (Vehovar, 2006), subdiscipline (Greyson, 2019), approach (Marcinkowski, 2016), or field of study (Kling, 2007). The criteria for a school of SI, as understood here, are very pragmatic:

- It has elements of a scientific and intellectual movement (Frickel & Gross, 2005).
- It addresses a combination (bidirectional relationship) of society and ICT.
- It explicitly labels its research as SI in the original language or translated into English (only in very specific linguistic circumstances is the English translation socioinformatics also considered).

Some schools define SI explicitly, others implicitly, with more or less precise borders. Some schools influence others, while some remain isolated within their groundings. Each school has its own history related to some existing academic disciplines, particularly informatics, information science, library science, sociology, psychology, media and communication studies, social work, education, sociotechnical systems research, sustainable development, and social sciences research methodology.

The domain of SI research considered in this article is based on five established bibliographic databases: Google Scholar, Scopus, Web of Science (WoS), eLibrary.ru, and J-Stage. The first three databases are global, approaching or surpassing one hundred million documents, while the latter two are region-specific (that is, Russia and Japan) with a few million documents. Among others, all available documents with the term *SI* in the titles (around 400 entries) were reviewed for the purpose of this article.

The overview below is based on SI schools identified in previous research (Petric & Atanasova, 2013; Rosenbaum,