Seeking a New Paradigm for Sciences, Social Sciences and Humanities: A message to the world from the Society of Socio-Informatics

Society of Socio-Informatics
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1. Formation of the Society of Socio-Informatics

After a long wait, the Society of Socio-Informatics (SSI) was finally established in April 2012.

Over the 10-year run-up period, a new wisdom known as socio-informatics soared.

The newness of socio-informatics can be considered from three angles. First, it re-perceives the world based on new universal aspects by approaching it from the basic idea of information, which crosses over the frameworks of natural science and social science. Second, it can analyze continually from micro-phenomenon to macro-phenomenon through the essential dynamism (bi-directionality) of information. Third, it reveals the interaction of the sociality of information and new technology, as seen by the large interest in social media after events such as the Great East Japan Earthquake and Arab Spring.

From these characteristics, socio-informatics not only forms an important discipline in itself, it can act as a hub and platform for various established academic domains. In other words, socio-informatics overcomes all boundaries, acts as a catalyst to tie together various ideas, and is a place from which new civilizations and lifestyles can emerge from the conflicts of different ways of thinking.

2. What is socio-informatics?

2.1 Why information?

The key concept of socio-informatics is information. So, why information?

Interest in information appeared in response to global changes and changes in world views starting in the 20th century.

Max PLANCK introduced a new physics paradigm called "quantum theory" in 1900. It became clear that the world is not assured based by the "absoluteness of being", such as in the classical dynamics of Newton. Physical phenomenon is nothing more than uncertain phenomenon that is probabilistic but dependent on observer.

From this, interest grew in the concept of information as a controller of this uncertainty or entropy. Norbert WIENER (1950) defined information as "a name for the content of what is exchanged with the outer world as we adjust to it, and make our adjustment felt upon it." Based on this, Wiener advanced a new theory known as cybernetics, which was an important contribution to computer science.

Later, James D. WATSON and Francis CRICK showed that DNA has a double-helix structure in 1953. This discovery demonstrated that information, as genes passed from one life form to another, is physically expressed through DNA.

Thought-historian Franklin BAUMER (1977) describes this chain of intellectual development

as moving "from being to becoming". Some refer to this as the "informatic turn" of world views. As a result, intellectual paradigms to reevaluate the world, with information as their core, formed a large movement. Such paradigms attempt to decipher phenomenon using the following framework.

1.   Each element does not exist by means of absoluteness; elements are mutually dependent for existence.

2.   Interaction and interdependence among elements and between elements and the environment result from the exchange of information.

3.   Systems formed by interdependent elements self-create reflexively.

2.2 Information as the viewpoint to survey various domains

The history described in the previous section makes it clear that such a framework can be applied to various types of domains. It applies to various phenomenon, including physical phenomenon, biological phenomenon, and information processing systems.

Through these characteristics, the information concept provides an analytical axis that has never existed before for existing academic systems. For example, even in the natural sciences, current academic fields are separated into science departments, engineering departments, medical departments, and so on. They are further separated into individual sciences such as astronomical science, physical science, chemical science, and biological science. This way of separating academic fields is believed to be clear-cut and completely natural.

The separation of natural science and the humanities and social sciences is a way of separating modern-day academic fields. This is the known as the "Arts and Sciences". The latter attempts to discover universal and general laws for subjects that can be understood and analyzed objectively. The former covers phenomenon dependent and recognized through the subjectivity and feelings of individuals that do not take to universal laws. Still, there is doubt about this state of affairs, which is considered to be so clear.

In Ancient Greece, all academic disciplines were placed under the name of philosophy. Philosophy implied an academic discipline to research wisdom and principles related to the world and people and recognition of truth that goes beyond conjecture and fallacy. Similarly, "technology" and "fine arts", which today are considered to be antithetical, were both expressed by the word "art".

Even in Japan, the word *gakumon*, or learning, is word that covers all systemized knowledge explained by constant principles, all theoretically constructed research methods, and so on, and it does not separate the humanities and the sciences. The word *geijutsu*, or fine arts, originally did not distinguish between technology, fine arts, and entertainment, and was used for fine skills.

In other words, there was an idea in ancient times that the world formed a whole. In contrast, modern-day science used analytical methodology to open new horizons of knowledge and progress rapidly. This process created a separation between the humanities and science. When this stage of progress was reached, there was again doubt whether this separation was absolute.

All new academic disciplines that appeared in the 20th century have undermined the concept that there is a clear distinction between subjectivity and objectivity and life and non-life (organic and inorganic). In this way, modern-day science has come to stress the need for a new world-view that

integrates natural science and the humanities and social sciences again. In this situation, informatics is considered the key field of all the intersecting sciences mentioned above.

Wiener (1950) said the following about information: "The process of receiving and of using information is the process of our adjusting to the contingencies of the outer environment, and of our living effectively within that environment. […] To live effectively is to live with adequate information. Thus, communication and control belong to the essence of man's inner life, even as they belong to his life in society. " This suggests the possibility that existence and phenomenon, such as "machinery", "man's inner life" and "society", previously considered completely separate dimensions, can be generalized as information processes.

Our field of socio-informatics is certainly located on the foundation of such modern-day science.

3. The information society and socio-informatics

It has not been long since the words "information society" appeared, and the Internet permeated our everyday life.

Information not only improves social efficiency and convenience, but it also affects the basic structure of society and transforms the activities of the world and its people.

While this promises various possibilities and expectations, problems that must be solved and countless obstacles that must be overcome continue to appear. The evolution of information yields new learning domains that transcend time and space and grow on a global scale.

Because of this situation, we keenly realized the importance of socio-informatics, which treats information in an interdisciplinary and comprehensive manner. This discipline has been studied for more than ten years by two societies, the Japan Association for Social Informatics (JASI) and the Japan Society for Socio-Information Studies (JSIS). The two societies were integrated in 2012 to form the Society of Socio-Informatics (SSI).

The SSI attempts to answer key questions generated by its pursuits, such as "What is information?", "How is the evolution of information technology changing human relations and social structure?", and "What is the design of a desirable society?"

The range of subjects for research in socio-informatics is very broad, and the essays published in our magazine cover various themes. The following section lists some of the themes.

*Basic theory of socio-informatics

*Information, economy, and cities

*Laws and security of information societies

*Media and culture

*Communication and social relations

*Regional vitalization and information and communication technology

*Social applications of information systems

*Methodologies of socio-informatics: Social research methods, game theory, simulations, network analysis, and more

*Information education as seen by socio-informatics

Of course, various other subject areas are considered.

The three main objectives of socio-informatics are:

1. Solve problems in the various aspects of the production, circulation, accumulation, and use (consumption) of information in society.

2. Reconstruct a theoretical framework for social systems from the viewpoint of information.

3. Search for relationships between the new information/communication networks and social systems.

Socio-informatics is a new area of intellectual study.

4. Engines and leaders of socio-informatics

As just described, socio-informatics is a dynamic movement that creates new knowledge.

As shown in Figure 1, there are three engines in this movement.

They embody three approaches: basic theory that positions the target problem systematically; empirical proof and analysis that objectively describe the target phenomenon; and practical implementation for problem solving.

These three approaches do not stand alone, but drive each other to advance socio-informatics as a whole.

Figure 1. The Three Engines of Socio-Informatics

Who has the main role in socio-informatics?

Seeing the fact that the Japan Association for Social Informatics is an academic society, we should say that the researchers of Socio-Informatics naturally have a lead role.

However, the term "researcher" does not apply only to people who belong to a university or a research institution.

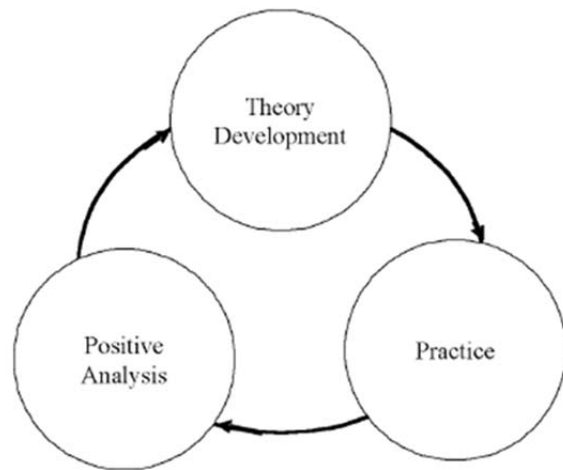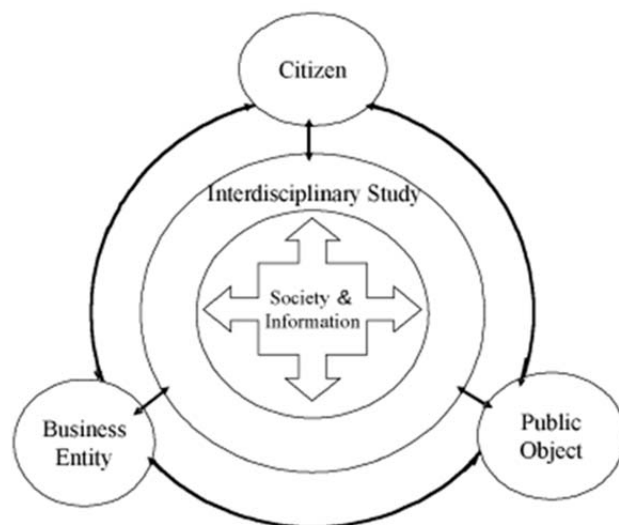All those who simply regard socio-informatics as a problem that is here now and try to solve problems

Figure 2. The leaders of socio-informatics

using a researcher's mentality are researchers. As shown in Figure 2, Socio-informatics is open to companies, self-governing bodies, and anyone who finds problems in daily life.

By utilizing this open nature, socio-informatics must reorganize various kinds of intelligence in society and design a prosperous future.

5. Publication of the English-language Journal of Socio-Informatics

The SSI publishes two academic journals. One is the Japanese-language Journal of Socio-Informatics; the other is the English-language Journal of Socio-Informatics.

The Journal of Socio-Informatics (JSI) is the official journal of the SSI. The JSI is intended to promote socio-informatics. In a single publication per year, the JSI includes essays from various fields, including communication, media research, information communication technology, business, sociology, economics, politics, psychology, education, computer science, and simulations.

6. Efforts related to the Great East Japan Earthquake

At 2:46 pm on March 11, 2011, a large area of Eastern Japan was seriously impacted by the Great East Japan Earthquake. People first searched for information during the disaster. However, the earthquake also seriously damaged the news organizations themselves. This again clearly showed the vulnerability of the media.

After the earthquake happened, broadcasting and communication lines were cut over a wide area. Even in the central Tokyo, televisions and mobile phones could not be used, despite the fact that the quick delivery of accurate information is a life and death problem for residents during a disaster.

The Great East Japan Earthquake revealed issues with social communication as a whole, including the Internet and face-to-face communication, and not just the media. These are urgent issues for our society.

Many SSI members researched the Great East Japan Earthquake and authored many essays and books. Examples include: Sociology after the Great Earthquake (Endo 2011); How Did Television Convey the Nuclear Accident? (Ito 2012); How Did the Media Report the Great Earthquake and Nuclear Accident? (Endo 2012); 3.11 Informatics (Yoshimi et al. 2012), and The Great Eastern Japan Earthquake and Japanese Sociology (Masamura 2013).

In addition, a group of young researchers in the SSI started the "Salvage Memory" project as volunteers. SHIBATA Kuniomi, a key member of the group, contributed an English-language essay "The Project 'Salvage Memories' On-line: Finding Albums and Photos for the Tsunami Disaster Victims by Using Information Technology" to *Journal of Socio-Informatics*, Vol.5, No.1, Sep. 2012.

The following is a summary of the essay:

After the earthquake hit on the day of March 11th, 2011, a massive tsunami swept away houses, and everything that was inside them. Photo albums were swallowed up and turned to waste. We began to sort out the photos and prepare them for the photos so that they can be returned to their owners in Yamamoto town. The images were cleaned and digitized captures.

The cleaning processes involve the following steps, sweep dirt and rinse photographs with water, classify, reproduce and digitize all of the photos, and find their owners by using the search system, facial recognition system. The purpose of this paper is to describe our project "Salvage Memories", and discuss the two information systems.

The project of Shibata and his group is an example of the important activities of researchers for the restoration of Japan from the Great East Japan Earthquake.

7. Subjects of socio-informatics

This final section lists future subjects of socio-informatics study.

As mentioned, socio-informatics is a new discipline for a new era. This discipline attempts to clarify the multi-modal state of the world, which cannot be contained by existing frameworks. This is the modern-day frontier, which means that there are a large number of issues. That is exactly why it is academic field worth taking on.

The biggest problem may be the inter-relationship of information and reality. Socio-informatics tries to understand the world from the viewpoint of information. However, this is different from an attitude of playful speculation about reality or the enjoyment of impractical theories. As mentioned earlier, socio-informatics takes on a circular motion that moves from theory through practice to investigation. In addition to constructing theories, we must remember to make a principle of proposals and evaluations for practical reality.

References

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Wiener, N., 1950, *The Human Use of Human Beings: Cybernetics and Society*, Houghton Mifflin & Co., U.S.A.

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The JSI is open to the public. Anyone can access JSI content and essay-submission information via the Internet (at http://www.ssi.or.jp/eng/index.html).