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An Exploration to Imbalance of Network Information Ecological System in an Economic Perspective

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Abstract

Starting from the characteristics of network information ecological system, this paper lists and analyzes the phenomena of imbalance of network information ecological system, i.e. the systematic nature, the openness, the diversity, the self-organization and continuous coordinative development, and the evolvement. In an economic perspective, the author analyzes certain issues concerning the imbalance of network information ecological system, such as the information overload, the information acquisition, the information monopoly, and the information pollution. Finally, the author proposes several suggestions for maintaining the network information ecological balance.

Key words: Network information ecological system; Imbalance; Economic perspective

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Today, network is playing an irreplaceable role in human life. People tend to be more dependent on the network. However, as people get benefits from the convenience of network, they suffer from online violence and pollution. To purify the network ecological environment and maintain the network ecological balance becomes an increasingly urgent mission. Everything needs balance in the Nature. The network information ecological system, as a product in a new era, is not an exception. The inside and outside of the network must achieve certain balance. However, balance is a dynamic concept. It is not an absolute stability but a relative one. Imbalance is the opposite of balance. Similar to the imbalance of Nature, the network information ecological system also faces serious imbalance issue. In this paper, the author tries to analyze the imbalance of the network information ecological system in an economic perspective, starting from the characteristics of network information ecological system, and proposes relevant countermeasures.

1. THE NETWORK INFORMATION ECOLOGICAL SYSTEM AND ITS CHARACTERISTICS

Just as the natural ecological system is consisted of human being and Nature, it is network, subjects, and surrounding environment that form the network ecological system. The network information ecological system refers to a man-made system with certain function of self adjustment, composed of information, people, and environment. Information is the key element of information ecological system. As an independent element, information serves as the bridge and the linkage. Without information, there is no interaction between human being and network information environment or human social development. People are the subjects of network information ecological system. People change themselves as well as the information environment and even the whole society by acquiring, exploring, processing, and using information. The network information environment is a part of social environment. It reflects the interaction among Nature, society, science, and technology. Judging from the components of network information ecological system, it mainly has the following characteristics.

1.1 The Systematic Nature of Network Information Ecological System

There are many academic definitions of the system. According to Webster, a system is an integration of some

parts with connections and an organized and orderly unity. The subject is an operational unit, a plan, a program, or a method. The ecological system refers to the general integration of living species and the surroundings in certain environment, in which all non-biological factors (such as air, water, soil, etc.) interact with the living species, achieving continuous exchange of materials and energies, and forming an integration (a system) by the connection of material flow and energy flow. The network information ecological system is composed of information, information person, and information environment. Similar to ordinary ecological system, the network information ecological system is an integration formed by different sections with mutual connections and interdependence. Any changes of any components in the system will affect the whole system. All subjects in the network information ecological system are supposed to achieve a systematic balance.

1.2 The Openness of Network Information Ecological System

The network ecological system is an open system. There are continuous information input and output between the network information ecological system and the surrounding environment. The network information ecological system is a reflection of real world. The information person in the network information ecological system lives in a real world. The information released or created by the information person exists in the real world. The information is spread, absorbed, and used by network, and finally affects the real world. The network information ecological system shows an open balance.

1.3 The Diversity of Network Information Ecological System

The network information ecological system is diversified because of different locations, hardware, network providers, and network qualities, which lead to quite different speeds of information production, circulation, and use. Besides, because of the openness, uncertainty, non-linear nature, and the dynamic character of the network information ecological system and the adaptation and non-complete-rationality of information person, quite a lot different people and tools cooperate in a complementary way and form the integration of information by interests.

1.4 The Self-Organization and Continuous Coordinative Development of Network Information Ecological System

A healthy network information ecological system is always in a dynamic development. The continuous introduction of new technology would make the information ecology keep in evolving. The complexity and self-organized state of the network may be reflected by the partial or special cooperation in the scope of system. The network information ecological system is a dynamic structure formed by the adaptive subjects and the environment system by mutual connection and interaction, following relatively stable laws of changes. Similar to the natural ecology, the network information ecology will also keep continuous evolvement.

1.5 The Evolvement of Network Information Ecological System

Professor Lou agreed that the evolvement of information ecological system means a process, in which the whole system develops from the low-level balance state to the high-level balance state by optimizing its internal structure and function. He pointed out the problem of integrated evolvement and the issue of optimization. The evolvement of information ecological system has two meanings. Firstly, each information group in the information ecological system needs to be optimized. Secondly, the products of information groups in the information ecological system need to be optimized.

2. ANALYZE THE IMBALANCE OF NETWORK INFORMATION ECOLOGICAL SYSTEM BY THEORIES OF ECONOMICS

2.1 Information Overload -- the Equilibrium of Supply and Demand

In economics, the equilibrium of supply and demand is defined to be the price-quantity pair where the quantity demanded is equal to the quantity supplied. The information overload means the information received by the system or the individual exceeds the process capacity. In today's information explosion, the supply exceeds demand badly. The society provides more information than actual needs, which will cause extra costs, i.e. the searching costs, reducing the efficiency of information utility. In order to solve this contradiction, we should categorize the information providers properly on one hand. On the other hand, the information users should make clear their information needs.

2.2 Information Acquisition -- the Problem of Information Asymmetry

In economics, information asymmetry deals with the study of decisions in transactions where one party has more or better information than the other. The network information ecological system provides a lot of information. But for one specific information user, the information needs are special. The specific user must acquire the necessary information from abundant information. However, individuals are not equipped with equal capability of acquiring information or same way to get information, which will inevitably cause the information asymmetry among individuals.

2.3 Information Monopoly -- the Problem of Monopoly

In economics, a monopoly exists when a specific person or enterprise is the only supplier of a particular commodity (this contrasts with a monophony which relates to a single entity's control of a market to purchase a good or service, and with oligopoly which consists of a few entities dominating an industry). Information monopoly means the condition of unreasonable and specialized possession of information resources. In the network information ecological system, there are opinion leaders, i.e. information monopolists. They dominate the direction of public opinions, affect others' thoughts, and disturb the normal communication of other information, which will decrease the efficiency of information utility.

2.4 Information Pollution -- the Problem of Externality

In economics, an externality, or transaction spillover, is a cost or benefit that is not transmitted through prices and is incurred by a party who was not involved as either a buyer or seller of the goods or services causing the cost or benefit. The cost of an externality is a negative externality, or external cost, while the benefit of an externality is a positive externality, or external benefit. In the case of both negative and positive externalities, prices in a competitive market do not reflect the full costs or benefits of producing or consuming a product or service. Information pollution means the bad influences of information pollution on the society, which is caused by the unlimited rise of information, the randomness of information transfer, and the enhancement of free separation. The information pollution will not only stop the society absorbing and using the beneficial information, but also damage the spiritual field of the society badly, which is a negative externality in perspective of economics.

3. SUGGESTIONS AND COUNTERMEASURES FOR THE IMBALANCE OF NETWORK INFORMATION ECOLOGICAL SYSTEM

3.1 Strengthen the Legislation of Information Ecological System

Network, as a new information carrier, has a special form. As for how to make up effective laws against problems in the regulatory, it has aroused enough attentions. As a matter of fact, we can promote the legislation process for network information environment from three aspects. The first is the intellectual property right. We should accelerate to draft the laws for protecting intellectual property right under the circumstance of network environment, using it against the behaviors of information infringement. The second is about the network security. We should make up codes for information security and codes for networks as soon as possible to regulate people's online behaviors. Meanwhile, we should form regulations on computer crimes and regulations on electronic information crimes, punishing online criminal behaviors. The third concerns the data protection. We must constitute the laws of data protection sooner, establish clear regulations and requirements for data export, protecting data security and punishing data criminal activities.

3.2 Enhance the Supervision over the Production of Network Information

The network information producers are the main source for information pollution. We should enhance the management over the production of network information. Government must set up information quality regulatory institutions at different levels, guaranteeing legal examinations on information communication. Use necessary ways, e.g. legal methods, administration, and economic tools, to control the production of false information, dirty information, or cheating information. Arrange assessments, examinations, and supervisions on network information production periodically.

3.3 Establish Clear Codes for Information Ethics

The information ethical codes are the basic principles for people following in information interactions, which on one hand externalize the highly-abstracted information ethical values, forming the system of information ethical codes. On the other hand, these codes provide theoretical basis for the constitution of specific information ethical standards. Although information ethics mainly depend on the self-discipline of individuals, the self-discipline is gradually in form under the guidance of other regulations. If there are not clear ethical codes, most individuals will fell lost in front of different options for various behaviors. Only by providing with ethical codes, can individuals make judgment easily. The clarified information ethical codes will give individuals legal causes for daily network behaviors. After practicing the codes repetitively, individuals would turn them into self-consciousness. Therefore, China should make the information ethical codes covering all information fields as soon as possible.

3.4 Strengthen the Moral Building of Online Communication

Similar to laws, morals are also the important tools for social control. Especially in the information society with highly-developed information technology, laws are much more lagged behind. Under this circumstance, morals should play the key role. In the building of network morals, we should emphasize on the effects of moral education and social public opinions. Firstly, to strengthen the moral education is to improve network subjects' moral responsibilities internally, making them take the social responsibilities and obligations. Secondly, enhance the management of network culture, regulate online activities, and maintain network morals. Make best use of the compulsory pressure from social public opinions and force individuals drop out immoral ideals and actions.

3.5 Improve the Information Quality of Nationals by Education

The real subjects of information activities are people. The level of people's information quality and the power of their information senses will directly affect the receiving ratio of information and the output of whole system ecological environment, especially the information quality of information consumers, which will ultimately determine the function of the overall system. Therefore, we should not only provide basic education, but also offer high-level information quality education, which is more important. Information quality education includes the basic information theory education, the information technology education, the information industry management education, the information laws education, the information ethics and morals education, and other related disciplinary education. By means of education, we can reduce the language problems, the retrieve technique problems, and the information technology problems in the process of information use, improving the capabilities of information acquirement, information identification, and information filtration. Only when the people improve their qualities completely, can it increase the quality of information production and service and reduce the information pollution to the minimum degree and maintain the system's ecological environment, and the system's balance and stability.

To sum up, the network is not the evil or the angel. As people do not have the same interests, they will show various conflicts online. We should make up practical information adjustment and regulatory laws for network ecological system. When we focus on the humanities of information civilization, we should notice the special political systems and national natures of different countries. Every country can build their special network information protection laws and regulations, only if these laws and regulations can settle conflicts and improve harmony. We should build and improve the network information ecological system. It is the network that integrates the individuals, families, organizations, nations, and states into one unity. As a matter of fact, all net citizens connect each other, with honors or disgraces. It is impossible to build a perfect network information ecological system by one individual. It needs the efforts of all net citizens. Any net citizens cannot live away from the network ecology. As they benefit from the network information, they should take the social responsibility of network information.

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