

The Concepts and Issues of Societal Innovation Policy

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ABSTRACT

Innovation Policy has evolved to solve social problems through technological innovation. Industrial innovation policy promotes technological innovation so that it consolidates industrial competitiveness and aims at economic growth; however, societal innovation policy promotes technological innovation in the social service domain to improve the quality of life and strengthen sustainability. A different policy regime is required because the objectives and directions of societal innovation policy are different from those of industrial innovation policy. This report consolidates the concepts and characteristics of societal innovation policy that suggest policy options.

KEYWORDS: societal innovation, societal innovation policy, policy integration, quality of life, sustainability

1. INTRODUCTION

Innovation policy has evolved to use technological innovation to solve social problems (NESTA, 2007). The Netherlands has promoted innovation policy to cope with social problems such as energy, water, health, education, sustainable development, and security as a multi-agency business since the mid-2000s. As a part of the policy, Flood Control 2015 for a coastal protection project and Building with Nature for an ecological design project have been launched. Japan is also promoting a multi-agency and public-private partnership strategy called Innovation 25. The project will be performed under objectives of making healthy, safe, and reliable societies through technological innovation.

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This kind of innovation policy contrasts with industrial innovation policy. Industrial innovation policy promotes technological innovation to consolidate industrial competitiveness and aims at economic growth, while societal innovation policy promotes technological innovation in the domain of social service to improve the quality of life and strengthen sustainability.

The interest in 'societal innovation policy' has recently increased in Korea, because a necessity of reinforcing public-interest in science and technology innovation policy is widely discussed (National Science and Technology Council (NSTC), 2009). Private innovation capabilities are currently improved through an industrial innovation policy with the consequential development of global enterprises; as a result, the focus of policy should shift to innovation activities in the public and social sector. As well, there is an additional requirement to enhance social services through societal innovation and intensify social integration in order to respond to increasing social bi-polarization.

Innovation policies that emphasize societal innovation have appeared in Korea. The suggestions in the *Innovation Plan for Improvement of Quality of Life* published by the NSTC in 2007, has dealt with an innovation policy for an improved quality of life (NSTC, 2007). While the momentum of this plan has weakened, it has been followed by *Public and Safety Research Project* implemented by the Ministry of Education Science and Technology, and *Quality of Life Technology (QoLT) Development Project* promoted by the Ministry of Knowledge Economy.

The interest in societal innovation policies has been enhanced in Korea; however, discussions about concepts, its direction and operating system are not easy to define. It is a new type of policy in the infant stage and often promotes a project that belongs to industrial innovation policy.

This report will consolidate the concepts of societal innovation policies from the perspective that societal innovation policy is necessarily differentiated from industrial innovation policy and suggest policy alternatives for the promotion of societal innovation policy in Korea.

2. CONCEPTS AND CHARACTERISTICS OF SOCIETAL INNOVATION POLICY

2.1 Definition and Characteristics of Societal Innovation

2.1.1 Definition of Societal Innovation

Societal innovation is a materialization of new ideas that achieve social objectives in health and welfare, medical care, education, hygiene, environment, and safety sectors. Industrial innovation is an activity that develops a new products, process and business models to generate revenues and societal innovation is an activity that solves social problems through the development of new products, process, services, and business models (The Young Foundation, 2006; Mulgan et al, 2007).

Societal innovation can be divided into organizational innovation and technological innovation. They are not mutually separated because organizational innovation requires reciprocal technological innovation and vice versa. However, innovation with its organizational starting point can be distinguished from innovation with its technological field starting point. The development of vaccine, implementation of a new drinking water supply and drainage system, health care system, and internet-based education system, and expansion of renewable energy are societal innovations based on technological innovation; this report discusses technology-based societal innovation.

TABLE 1 Types of Innovation

	Societal innovation	Industrial Innovation
Organizational Innovation	Open University National Health Insurance	Consulting Firms Marriage Match-making Services
Technological Innovation	Development of Vaccine and Implementation of Drinking Water Supply and Drainage Systems	Internet-based Shopping Drug Development

Societal innovation is often not based on highly advanced technology and is characterized as a disruptive innovation consolidating technological innovation created through the integration of existing technology and business models (Christensen et al, 2006). Societal innovation has similar features with disruptive innovation since: 1) it targets sectors and users where no social services are provided by the government or market, 2) the utilization of simple, easy, and user-friendly technology rather than highly advanced technology, 3) the requirement of a new business model that simultaneously pursues social objectives as well as revenue generation (Willis et al, 2007).

2.1.2 Actors of Societal Innovation

A civil society, the public sector, and the corporate sector all participated in societal innovation. There are some differences between industrial innovation and societal innovation by their participants; The main actors for industrial innovation are firms and implement innovation for revenue generation. Government or public research institutes support industrial innovation to encourage economic development and employment. Civil society and consumers are often passive subjects in the process of industrial innovation. Recently enhanced information and knowledge of consumers has been identified as a catalyst for participation; however, they are still not in the position to lead innovation.

One of the societal innovation's characteristics is that civil society and the public sector play an important role in innovation activities. Societal innovation through a civil society is mainly promoted by social organizations such as cooperative, social enterprise, social movement organizations. For example, wind-power technological innovation in Denmark based on the cooperatives aiming at self-reliant electric systems, organic food development through eco-friendly agriculture methods, development of user-driven open source software are all societal innovations led by civil society (Hess, 2007).

The public sector is also an important actor in societal innovation (Windrum and Koch, 2008; Louis Lengrand & Associates, 2008). For example, local government can implement new processes and participate in the waste recycling business. In addition, public sector changes the incentive system for the private sector through the regulatory system or subsidies and promotes corporate societal innovation. For example the encouragement of green technology development through the regulation of carbon dioxide emissions can be an example.

Private companies can generate revenues as well as promote societal innovation if they develop new technology and business models that implement previously overlooked societal innovation. MinuteClinic, a leading innovator of medical services provides health examination services conducted by highly experienced nurses with equipment that can examine physical conditions in a shopping mall (Christensen et al, 2006). Corporations carry out societal innovation as a part of corporate social responsibility (CSR) for the improvement of corporate reputation and image.

2.2 Societal Innovation Policy

2.2.1 Objectives and Process of Societal Innovation Policy

Societal innovation policy promotes innovation that supplies socially desirable and useful social services and goods. The reduction of environmental pollutant emissions, reduction of carbon dioxide emissions, health care problem solving, prevention of zoonotic epidemics, building of eco-friendly housing, energy conservation, renewable energy sources, and the establishment of disaster prevention systems are important objectives for societal innovation policy.

The implementation of technological systems is a necessary condition to solve social problems. This should be continuously disseminated and utilized in society to coincide with the arrangement of a social system that can contribute to accept and use the technological system. For example, a technological system (such as railroad and automobiles, energy supply system, road traffic system) and a social system (such as insurance system, life style, environmental regulation, and transport ownership) should be simultaneously established in order to establish sustainable transport system. Technology to solve specific problems requires a new socio-technical system (Geels, 2004; Foxon and Pearson, 2008).

To construct a new socio-technical system, it is necessary to create knowledge and information through a small-scaled experiment since it is impossible to understand in advance how the new technological system works and what kind of social system is connected to the technology to solve problems. In addition, a small-scale experiment of a new socio-technical system can avoid an active opposition by a group that supports the existing socio-technical system. If the experiment is successful, it can be expanded on a larger scale and steadily developed into a new socio-technical system area (Kemp et al., 1998; Ieromonachou et al., 2004).

2.2.2 Examples of Societal Innovation Policy

In the 2000s, societal innovation policy for quality of life or environmental problem solving has been actively initiated for in many countries. Japan has established the Research Institute of Science and Technology for Society (RISTEX) under the Japan Science and Technology Corporation (JST) and operates a 'Science and Technology for Society program'. The program was established in 2001 and has the mandate to create new social and public values through R&D by solving social problems. RISTEX projects focuses on tangible results that can be implemented within 5 years.

The program organizes various research studies, investigations and symposiums to identify social problems. At this time, social science expertise and civil society as well as scientific research institutes participate in this. A special demonstration project for technology test-bed is being operated because it emphasizes the implementation and utilization of R&D results. The program is conducting the following projects as main research areas; the establishment of a regional low-carbon society, protection of youth at risk, information and society, human resources and society.

In the Netherlands, social issues such as energy, water, health, and safety have become the main themes for innovation policy. In regards to energy policy, the Ministry of Economic Affairs published a document Innovation in Energy Policy - Energy Transition: State of Affairs and Way Ahead (Ministry of Economic Affairs, 2004) in 2004, and presented a system transition strategy called Energy Transition for a sustainable society. Energy Transition started as a small-scaled policy; however, it has now emerged as the main energy policy and become an important model for the transport and agriculture sectors (Geels et al, 2008; Kemp et al, 2007, Foxen and Pearsonl, 2008).

3. MAIN TASKS OF SOCIETAL INNOVATION POLICY

3.1 Clarification of Identity of Societal Innovation Policy

A societal innovation policy that is differentiated from ‘industrial Innovation’ is imperative. Societal innovation policy has been processed within its existing framework which has been designed for industrial innovation policy. R&D projects for public health have focused on industrial competitiveness and its objectives have often been inverted. Although it is an R&D project for development of social problem solving, the secondary objectives such as industry promotion and competitiveness have been emphasized over the priority objectives, and such as quality of life and sustainability.

A good example is the *Development Project of Environmental Technologies Initiative 2010* implemented by the Ministry of Environment. The objectives of the initiative are defined as the ‘promotion of environmental industry as national strategic industry and as support of development of environmental technologies to solve national and international environmental issues.’ The major objectives of the project is to improve the environmental industry’s competitiveness through the development of critical technology. The priority is to promote an environmental industry.

3.2 Policy Integration

In order to implement an effective societal innovation policy, it is necessary to strengthen policy integration through the understanding of societal innovation from a ‘systemic perspective’. Current public R&D projects related to health and medical care are often techno-centric and dominated by R&D suppliers. A study by the Korea Institute of S&T Evaluation and Planning (KISTEP) indicates that the ratio of individual research without cooperative research among national R&D projects in the public health sector is 43-44% (Hong, Jeong-seok et al, 2009).

This techno-centric characteristic of R&D projects comes from the linear model of technological innovation. In linear models, research → development → commercialization → diffusion → social impacts process will be naturally explored.

Innovation is not explored in one direction, it is a complex process based on mutual interaction and feedback between each innovation stage. In order to prevent zoonosis, it is necessary to develop technology through the interaction of livestock farmers, pharmaceutical companies, hospitals, public health centers, patients, and epidemiologists. This shows that integrated approach is required to consider the identification of social needs – technological development – production – service transfer.

These views should be reflected in the process of policy development. R&D projects in the public sector are often launched without a connection to social and environmental problem solving programs. Within social policy authorities, health and environmental projects and R&D projects are separately operated.

3.3 Promotion of Societal Innovation Actors

Societal innovation policy requires new behavioral modes of innovation actors and new innovation actors. Action is required to foster technology-based social enterprises and to promote CSR-driven innovation of private enterprise (Hockerts, k. et al, 2008).

Technology-based social enterprise is an organization that supplies social services based upon innovative technological knowledge. They have professional knowledge in regards to energy conservation and environmental protection that supply new services or products related to green innovation or the

supply of services such as prevention and the treatment of epidemics. Technology-based social enterprise can be used as a tool to execute efficient societal innovation policies. Technology-based social enterprise has a role in the creation of the development of a niche through the generation of social markets that have been overlooked by private enterprise because the market share is small.

To strengthen the societal innovation activities of profit organizations is another alternative. Some foreign enterprises execute reverse innovation and apply societal innovation as a catalyst for industrial innovation. Reverse innovation is an innovation strategy that applies the results of innovation activities for developing countries or low-income peoples in order to enter into a global market. It contrasts with a strategy that applies technological developed in advanced countries or main markets into underdeveloped countries or low-income markets; it does apply technology developed in developing countries and low-income markets into advanced countries. For example, inexpensive and portable ultrasound equipment that GE China developed was applied and entered into the market of portable ultrasound equipment that is used in the emergency rooms of advanced countries (Immelt et al, 2009).

A policy to establish a cluster that can motivate societal innovation is necessary through the collaboration and networking of innovation actors. The cluster can be a positive tool to promote and to disseminate societal innovation by creating regional externalities. Societal innovation clusters includes enterprises, universities, and research institutes that execute various types of societal innovation and generate a synergy effect in the innovation processes.

Innovation actors that participate in societal innovation emphasize social objectives and thus they can easily share the social capital required for cluster development.

4. POLICY PROPOSALS

This chapter suggests several policy proposals in order to implement societal innovation policy.

TABLE 2 Main Tasks and Policy Proposals for Societal Innovation

Tasks	Policy Proposals
Clarification of identity of societal innovation policy	<ul style="list-style-type: none"> - Management of a societal innovation program - Establishment of a research center for societal innovation - Management of education programs for societal innovation
Policy integration	<ul style="list-style-type: none"> - Establishment of an integrated societal innovation policy
Nurturing of societal innovation actors	<ul style="list-style-type: none"> - Activation of societal innovation in the private sector - Activation of societal innovation through the ODA business

4.1 Management of Societal Innovation Programs

In order to promote societal innovation, it is necessary to manage the *Program for Societal innovation* as a R&D project. When designing this program, it is necessary to allow an approach for universities, research institutes, social enterprises, and civil society to participate in the design, evaluation, and execution. In addition, through a connection between governmental procurement in the social policy sector and R&D projects, the creation of a market for societal innovation and the development of

technology-based social enterprises should be linked. For the evaluation of the program, there is a need to emphasize the index of social values greater than the index of economic and technological output such as patents, papers, and economic performance.

4.2 Establishment of a Research Center for Societal Innovation

A Research Center for Societal innovation should be established for professional research activities in order to solve social problems and promote societal innovation through a national R&D project. The center should exclusively execute societal innovation R&D. The research center will require approaches different from traditional R&D centers in terms of organizational structure, task management, and evaluation.

This center will help improve the technical competence of technology-based social enterprises.

4.3 Management of Education Program for Societal Innovation

Various education and training programs for social entrepreneurs are emerging. For an active technology-based social innovator, an education and training program is necessary that includes the application of science and technology knowledge to solve social problems along with management competence.

Recently several universities have organized or are managing a program called *Creative Engineering Design Program for those Alienated 90%* as a part of engineering education innovation. This program educates students while designing and developing user-friendly technology within the context of underdeveloped countries.

This education program for societal innovation should emphasize the dissemination and utilization of 'technology at its social context.' The program should not be confined to a single event or volunteer work but connected to societal innovation and it requires a long-term view of a socio-technical system transition.

4.4 Establishment of 'Integrated Societal Innovation Policy'

There should be an effort to connect and integrate policies such as innovation policy and health and welfare policy, environmental policy, labor policy, and cultural policy in order to systemize the societal innovation policy on a national scale.

A "Societal innovation Special Committee" should be established under the National Science and Technology Council (NSTC) for the integrated societal innovation policy. Here it is necessary to develop R&D projects that can be connected to public procurements in the social service sector. The special committee should include various interest groups such as social policy experts, social scientists, social service groups as well as scientist and engineers in order to avoid a techno-centric approach.

4.5 Activation of Societal Innovation in Private Sector

Technology-based social enterprise can be the main actors in societal innovation. To organize a contest to develop social enterprises for the exploration and experimentation of new business models is a useful tool for promoting technology-based social enterprise. An Index Award is an excellent exam-

ple of this. A Non-profit Organization Index initiates a 'Design to improve life' and organizes various events to consider what kind of design can contribute to the solution of social problems.

4.6 Activation of Societal Innovation Through ODA Business

The importance of ODA activities is increasing in Korea. ODA activities have expanded the science and technology sectors (Kim, Ki-kook 2009); however, social in korea infrastructure applying technology of developing countries is not sufficient and the performance is mediocre. Because the equipment and facilities are idle due to the lack of maintenance and managerial competence after the technical support project is completed.

Societal innovation can be an alternative to solve this situation. Technology used in societal innovation is small-scale technology that is easily repaired and preserved through learning within local society. The technology and services has an affinity with the social and economic context of developing countries that is easily applied and disseminated within that society. Consequently, it can contribute to the solution of social and economic problems in developing countries.

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