

Information Technology and the Empowerment of New Actors in International Relations

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Reviewing the existing theoretical resources in the field of international relations, this work interprets the significance of science & technology on the international political economy, in terms of means, environment, and constructing factor, and argues for the need to recognize and analyze the development in science & technology as an internal factor in international relations. As a way to understand how science & technology works as an internal factor in international relations, this paper tries to examine how science & technology transforms the actors in international relations. The paper insists that science & technology, especially information and communication technologies (the internet, in particular), have been critical factors contributing to the emergence of new actors, such as terrorist groups, individual investors, transnational NGOs, in the areas of international security, trade, finance, production and social movement.

Keywords: *International Relations, Social Constructionism, Empowerment of New Actors, Information Technology, Internet*

1. INFORMATION AND TELECOMMUNICATIONS REVOLUTION

The expression 'information society' was used frequently for the past several decades, but it was not until the 1990s that the expression became a reality. Rapid development in information and telecommunications technology enabled the increase in use of multi-functional personal computers, a rapid growth in the Internet usage, and a diversified means of telecommunications, which has brought information society closer to us.

The enormous increase in the number of people using the Internet has made it a new medium for interactive communication of diverse contents and formats of information. The Internet is now a direct means of realizing the information society. In the late 1960s, the Advanced Research Project Agency of the U.S. Defense Ministry developed a standard communication protocol called TCP/IP (Transmission Control Protocol/ Internet Protocol) as a way to overcome difficulties in communications stemming from the different communications standards. With the emergence of TCP/IP, the networks that had been scattered around the globe began to be linked to one another, forming a greater network called the Internet (refer to the homepage of Internet Society at <http://www.isoc.org/internet/history>).¹ The number of networks connected to Internet increased dramatically as the use of personal computers became popular in the late 1980s. This entailed a series of technological developments including the establishment of DNS (a system that classifies documents on the Internet and assigns addresses to them), the emergence of World Wide Web, and the development of the Mosaic program. All of these contributed to the Internet's rise in status. The speed, at which the Internet penetrated, surpassed all other information and communication technologies. It took 38 years for the radio to attract 50 million people. It took 16 years for personal computers to reach the same number of population. However, it took only 4 years for

¹ Internet Society homepage introduces the development history of Internet in detail written by key figures who have contributed to the development of Internet-related technologies.

Internet to penetrate 50 million users (DOC 1998). In the OECD member countries, on average about a half of the population uses the Internet (as of July 2002, Denmark (63%), U.S. (62%), Canada (60%), Finland (59%), Norway (58%), Australia (53%), and Korea (51%) according to the data from National Computerization Agency in Korea).

With the rise in popularity of the Internet, it has served as a key driving force for new phenomena in different sectors of our society. Among such phenomena are e-government, electronic elections, e-commerce, information warfare, and the emergence of netizen culture. At present, an active discussion is going on changes caused by the Internet regarding the contents, implications and future directions. According to recent discussions on the social construction of technology, a technology does not develop just based on 'supply push,' or technological potential (Bijker, Hughes and Pinch 1987). Moreover, technologies do not spread out because of the fact that they are available. It has been argued that technologies are usually developed through dynamic interactions between the diverse interests of social groups and technological potentials. Once they are developed, technologies are often utilized in different ways that the inventors of the specific technologies expected them to be used. From this perspective emphasizing the co-evolutionary relationship between technology and society, it is meaningful and important to understand why and how the Internet has developed and spread rapidly from the early 1990s, as well as changes and implications the Internet has brought into the political, economic, social and cultural arena of our society.

This paper devotes a portion to reviewing the previous attempts by scholars in international relations to understand the relationship between information and communications technology and international relations. Based on the existing theoretical resources in the field of international relations, the significance of science & technology is interpreted as the changes science & technology have caused in international political economy in terms of means, the environment, and as a constructing factor. This paper then argues for the necessity to recognize and analyze the development of science & technology as an internal factor of international relations. One way to understand how science & technology works as an internal factor in international relations is to examine how science & technology multiplies the number of the actors in international relations. Viewing science & technology, especially information technology and Internet, as a critical factor to the emergence of new actors such as terrorist groups, individual investors, transnational NGOs, this paper examines how the emergence of new actors has impacted international security, trade, finance, production and social movements.

2. THEORETICAL BACKGROUND: SCIENCE & TECHNOLOGY AND INTERNATIONAL RELATIONS

Throughout human history, the development in science & technology has been a major force driving changes in international relations. In recent history, for example, the emergence of nuclear weapons changed the meaning of war and peace in international relations, creating new concepts of strategy such as deterrence and balance of terror. Advancement of telecommunications technologies after the late 19th century provided a firm ground on which international financial market have expanded and various international financial techniques have developed. Also, the emergence of Japan as a new power in the late 20th century is closely related to Japan's economic success, spurred on by advanced manufacturing technology, commonly referred to as 'lean production.' The current trend of globalization is

accelerating with rapid development in transportation and telecommunications technologies.

Despite the fact that science & technology has played a major role in bringing changes to the international political economy, it is not easy to theoretically define the relationship between science & technology and the changes in international relations in a clear and distinctive way. Many leading theorists like Daniel Bell (1976) and Alvin Toffler (1983) on information society have insisted that the information and telecommunications revolution would bring dramatic changes to society. However, their argument simplifies the process of social change and does not make sensible explanations of any specific mechanism that leads to such changes. Their theories, though, do provide us with valuable insights regarding the on-going changes that are related to technological development. If this discussion on 'technology determinism,' a leading theory that defines the relationship between technology and society in general, is extended to the field of international relations, we might argue that there is a causality between the development and diffusion of new knowledge or technology and changes in the international political economy. But obviously more explanation is needed to see how and why the new technology brings the changes in international relations.

To date the theories of international relations have not paid serious attention to the role of science & technology in international relations. It is difficult to find any explicit mention of the meaning of science & technology among realist theorists in international politics, who have incidentally provided the major concepts and theoretical frameworks to the area of international relations. Reading between the lines of some works, however, we can infer that, in a modern state system, science & technology has been closely related with the state's military and economic capacity and has been an important means of making the modern state economically rich and militarily strong (Palan 1997).

During the 'long peace' under the Cold War in the 1970s, economic trade and investment-related conflicts have been more salient in international politics, dwarfing military disputes. With the emergence of multinational corporations as important players in the international relations, a group of scholars started criticizing the limits of the established theories of international relations that offered a partial interpretation of international relations based solely on the states' military conflicts. The interdependence theory came onto the field of international relations incorporating the tradition of liberalism (Keohane and Nye 1977). The interdependence theory explains the rapid development of technology accelerates interdependence in international relations bringing major changes in the status of the nation state and the international political economy. In addition, a few theorists in the field of international relations (Rosenau 1990; Strange 1994) also explicitly mention technological development as an important source of change in the international political economy. However, all these theorists understand technology as an external variable or a background environment external to changes and argue that states adapt themselves to technological advancement in order to survive or prosper in the arena of international relations.

This paper takes an alternative position and views science & technology as a very source making important changes in international relations. Science & technology does not seem to be just an external variable which existing actors of international politics simply utilize or adapt to. It has played an internal part in transforming the international political economy. In order to fully grasp what science & technology development – including information and telecommunications revolution – means for changes in the international relations, we need a more inclusive perspective to integrate science & technology as an internal variable to the major changes in international relations, rather than simply considering it as a source of national wealth or a new environment that countries have to

adapt themselves to Recently, a few of scholars in international relations have argued for the importance of science & technology in international relations and explicitly analyzed this relationship, situating science & technology as an internal factor to modern the international political economy. In his book, *the Elusive Transformation: Science & technology, and the Evolution of International Politics*, Skolnikoff (1993) investigates how traditional geopolitical factors such as military force, economic capacity, and natural resource endowment have evolved with technological changes and how basic elements in international relations, such as sovereignty, dependence, power, have been altered by the effects of science & technology. Ironically, he concludes that technology-related changes have been incremental in nature, posing only limited challenges to traditional assumptions and concepts in international relations:

...those changes may be modifying the dimensions of national autonomy but not the assumptions of autonomy in national policies, changing the substance of dependency relationships but not the fact of dependency, altering the nature of weapons but not denying a role for power in international affairs, modifying the distribution of power and capabilities but not the significance of those attributes of state, raising wholly new issues and altering traditional issues that must dealt with internationally and thereby making foreign policy more complex not fundamentally different...

Similarly, Herrera (1995) searched for the relationship between technology and international change by identifying a set of causal links between technology, state, and the international system. According to him, the three variables are in a perpetual state of mutual and self-definition:

...States pursue power and influence in an environment constrained by the structure of the international system and the limitations of current technology. The nature of current technology and the abilities and resources of states condition the nature and efficacy of state's efforts to pursue their goals in the context of international constraints. The nature of current technology and the sophistication of states and their economic institutions condition the state's relationship to technological innovation. States' relationship to technology innovation conditions their ability to modify the technological environment to their international advantage. The transformation of the technological environment conditions the overall balance of power internationally as well as the nature and the kind of power exercised. The international system is transformed placing novel constraints on states and altering the efficacy of current technologies...

Herrera uses the German railway network of the late-nineteenth century and the American Atomic bomb of the mid-twentieth to illustrate this complex relationship. For example, he sees the railway as an important tool in Germany's rise to power in the late-nineteenth century. Railways dramatically increased the military power of states by increasing the size of armies and the speed of mobilization. On the other hand, Germany's strategic vulnerability fed the desire for unification that in turn facilitated the development of a national railway system. The railway network was a highly complex technological system. Its creation and management by German state officials, military officers, and private rail line administrators marked a significant departure in their level of public-private planning and social penetration. The construction of the German railway network was made with international rivalry and the process of state transformation.

Heavily influenced by the social constructivist's approach to technology and international political economy (which sees the formation and development of a technology and a

particular type of international order in the dynamic interaction between actors and social structure), Deibert (1997) analyzes the development of printing technology and its contribution to the formation of the modern international political economy, and the relationship between hypermedia (e.g. TV, Internet) with the post-modern development of the global political economy. According to Deibert, changes in communication technologies have significant implications for the evolution and character of society and politics at the world level, because it empowers a certain social group over other groups and transforms the distribution of power within society and the nature of social cognition, values and beliefs. All these transformation relate to the changes in costs or impacts of certain policies, which in turn has changed structural relations between existing elements of international political economy. Hypermedia, he argues, favors transnational capital, transnational social movement and social epistemology of decentered selves, multiple realities and worlds, and fragmented imagined communities, and leads to threading of new integrative seams of regional and global authority within and across states.

As seen above, there have been different ways for scholars in international relations to analyze the relationship between science & technology and international relations. The differences depend on the types of technologies, major dependent variables, and the theoretical frameworks each scholar referred to. With pioneering contributions to the understanding of the relationship, this subject awaits further research to disentangle the complex relationship between science & technology and international relations.

Rather than asking whether the information and telecommunications revolution including the Internet has been the cause or facilitator of the changes in international relations, it is more appropriate to interpret the dynamic interactions between scientific & technological innovations and the changes in the international political economy. By adopting a constructive approach to technology and international relations, this paper develops a more systematic and clear analysis of science & technology regarding it as a force dismantling, integrating, and changing the internal properties of the modern nation state, as well as constructing changes in the international political economy.

Many difficulties in the analyses of this relationship lie in the fact that changes in international relations, the dependent variable in previous researches, can be discussed at various levels and areas in international relations. While Herrera sets the relative distribution of power and the nature of power as the key variables for changing international relations, Skolnikoff covers a plethora of variables ranging from basic concepts like sovereignty, power, and dependence to political and economic structure of states, major agenda setting and capability distribution. Deibert goes further to cover social epistemology (individual identities, time and space, and communities) as well as distributional changes of power. Narrowing down the scope of the dependent variable to a specific item might be one way to further the research on this topic. In this sense, this paper reviews and rearranges major changes which information and telecommunications technologies have brought, in particular, from the viewpoint of changing status of the nation state and the emergence of new important actors in various international areas such as military, trade, finance, production, and social movement. Many scholars have already mentioned the formation and rise of new players, the so called multiplication or complication of actors (the emergence of individuals, social groups, transnational corporations, regional and transnational NGOs as well as states and IGOs in international relations) and their importance relative to the nation state - the most critical actor in modern international political economy. This paper adds a technological dimension to the changing status of the nation state and the emergence and

empowerment of new actors in international relations. Linking technology-based changes to the existing discussion on the emergence of actors in international relations, this study sees how technological changes have contributed to the formation and rise of new actors in international relations and the implication of these changes to international relations.

3. INFORMATION REVOLUTION AND THE CHANGES IN INTERNATIONAL RELATIONS

3.1. Information Warfare

Presently, the most active discussion is over the changes brought on by information and telecommunications revolution in the security and military sector. According to these discussions, the development of information and telecommunications technology has changed the way a war is fought as well as the meanings of military forces and security; restructuring international military and security order (Arquilla and Ronfeldt 1997; S. H. Lee 2001).

In this respect, the information and telecommunications revolution has been directly related to revolution in military affairs (RMA). In the information age, military power is not simply the strength of the fire force but the preciseness of the weaponry system. The precision of weaponry systems is related to sophisticated information, monitoring, surveillance, and C4 (command, control, communications, and computer), implying that the competitiveness of one's weaponry system depends much upon who obtains more strategically important information through advanced technologies and organizations.

The close relationship between military power and information-gathering capabilities has brought changes in formulating strategies. Some argue that a war in this information age will go beyond the stage of maneuver warfare to a swarming-type of warfare. In maneuver warfare mobilizing and operating multiple combat units promptly and simultaneously, using electronic communications devices, is critical. Meanwhile, a swarming type warfare involves multiple independent combat units who line up in different forms but attack the same target from all directions once the target is set. In this type of war, combat units are dispersed again after the attack is completed to avoid counterattack from the enemy (Arquilla and Ronfeldt 2000). A prerequisite of swarming is a very sophisticated network of combat units. This is why it is also called a war of networks.

Information itself has been emerging as a strategic asset that elevates the importance of the so-called information warfare to a legitimate type of warfare. Information warfare is expected to intensify in the age of information (Lee 2001). The objective of information warfare is to obtain the competitive advantage in information by interrupting the enemy's information system and computer networks. The scope of information warfare is quite diverse, ranging from infiltration into the enemy's computer network to even attacking the enemy's belief system. This implies that, in the information age, the meaning of security goes beyond the simple militaristic definition and touches upon the intangible domain of ideas.

What draws our attention to the changes that information and telecommunications revolution has brought in the weaponry system, strategic concept, and type of warfare is the fact that information technology has enabled less powerful countries, a certain groups, and even individuals to easily attack or counterattack. Even superpowers like the USA remain

vulnerable to such attacks. Modern states have exercised their military power against internal and external threats by using a legally legitimate monopoly of military forces within their territorial boundaries. In the modern state system, nations have led wars and countries with larger physical assets have had higher chances of winning. However, by lowering the cost of the attacks incurred by individuals or transnational groups while magnifying the impact, information technology has contributed to increases in the number of players who can initiate military actions that threaten security and cause military conflicts (Rothkopf 1998). The potential size of damage a small terrorist group can inflict has gotten greater and more severe, incomparable to the damage witnessed in past guerrilla warfare. This phenomena was well testified in the 9.11 terrorist attack. The deeper we progress into the information society and the tighter networks become, the more vulnerable we become to the attacks and the more we have to pay for our security. The most effective way to secure oneself in the information age seems to deprive enemies of the intention to attack. In this context, it is correct to assume that as we come closer toward an information society, the role of soft power based on persuasion and inducement will be more important than hard power rooted in physical advantage (Keohane and Nye 1998).

3.2. Global Political Economy

3.2.1. e-Commerce

In the realm of economics, the Internet has revolutionized the way firms conduct business through the introduction of e-commerce. The Internet has expedited the exchange of information and lowered the transaction costs associated with transfer of information. This has caused severe competition among suppliers, reducing buyers' purchasing costs. It has also improved management and organizational efficiency of companies, relieving them from the burden of logistics and inventory management and helping them develop effective production plans that respond quickly to customer orders. In the 1980s, companies electronically transmitted order forms, invoices, and shipping notifications using the EDI (Electronic Data Exchange). The EDI was used for converting and transmitting information between computers for different firms, creating value-adding networks. However, installing and maintaining value-added networks cost a lot, making it difficult for small and medium-sized firms to utilize them. The exclusive use of EDI by large firms impeded the realization of the full benefits of cost reduction. With the widespread use of the Internet, individuals as well as small and medium-sized companies suddenly had access to electronic transactions. This resulted in the formation of various e-marketplaces, further expanding e-commerce.

According to one report, currently 34% of the world population is using the Internet, of which 15% is making transactions through e-commerce (Global eCommerce Report, June 2002, <http://www.tnsfres.com/ger2002/keyfindings>). If we assume that the volume of the cross-border transactions is much less than that of domestic transactions, the actual size of e-commerce in the world economy might not be as significant as we expect. However, as Internet users continue to grow and regulations on e-commerce (e.g. security, consumer protection, tax) are reduced, the growth potential of e-commerce will be gradually realized. With such expectation, efforts have been made to resolve the issues that hamper the active use of e-commerce. For example, as a way to establish rules of free trade in e-commerce, the WTO has been working on the general agreement on services and trade which includes the

regulations on communications and Internet-related services and intellectual property rights (Drake and Nicolaidis 1999). It also requires a set of regulations on tariffs, which are different from those adopted in off-line trading. This does not imply a whole different set of regulations will replace rules of free trade due to the rise of e-commerce; rather, it means a partial supplement or revision of the existing global trading regulations. There are, however, clearly limitation on the capacity of states to deal with global e-commerce and regulate all the details of e-transactions as they arise beyond the territorial boundaries of states. As the size and scope of e-commerce expands, the control each country imposes over the on-line transactions is expected to weaken.

3.2.2. Global Finance and Transnational Production Networks

Since the emergence of modern capitalism, financial transactions have been actively made across borders. Until recently, international financial transactions mainly supported international trade by providing governments or firms who made inroads into the overseas markets with easy access to capital. In the 1970s, when the governments regulated financial transactions, the international financial market remained subordinate to national financial systems, where only a handful of financial experts participated in international credit institutions, foreign exchange, and stock transactions (Strange 1990). Since the 1970s cross-border transactions have increased exponentially leading to the integration of the global financial system. This movement has been propelled by a number of factors, including the increased production activities of multinational companies, the emergence of Euro dollar market after the oil shock of the early 1970s, and the deregulation and liberalization of national financial markets affected by the collapse of Bretten Woods. In this process, innovative information and telecommunications technologies have served as the major driving force for the development of global finance, enabling fast and efficient means for financial transactions and supporting the development of various financial services (Cerny 1997).

Another phenomenon that draws our attention is the formation of cross-border production network and the emergence of network companies. Though it is difficult to come up with a precise definition of 'network,' a network usually refers to a type of organization that lies in between free and competitive relations of market and the vertically integrated hierarchy (Williamson 1991; Powell 1990). Mass production and sales of standard goods required high fixed costs, making it difficult to respond effectively to the rapid changes in consumers' demands and market uncertainty. Firms reacted to these uncertainties by mobilizing resources scattered all around the world. At this point, the economics of scope, which combines scattered resources and enables cheaper and rapid production of goods within a short time, becomes more important than the economics of scale, a key benefit of mass production. Information and telecommunications technology plays a pivotal role for network firms by lowering transaction costs of resources and disintegrating and linking various functions that were hierarchically organized before. In the past, all the functions of a company - purchasing of raw materials and components, manufacturing, production, distribution and sales were vertically integrated within a firm. With the changes in the competitive environment of the world economy and the development of telecommunications technology, these functions disintegrated and sought optimal production conditions throughout the globe connecting companies horizontally. This horizontal networks allowed individual companies to combine resources whenever the need arose.

The rise of the network company as a new organizational form owes much to the development of information and telecommunications technology, even if technology is not the only factor involved in the network firm. The innovative information and telecommunications technologies resulted in expanded technology infrastructure that expedited the changes in corporate organization. Network companies' need for further development, in turn, have accelerated the speed of innovation of information and telecommunications technology. From the 1990s, the functions of a company except for its core competences were outsourced through networks as innovative technologies, such as digital telecommunications networks, computer simulated designs and R&D, virtual factories, flexible production systems, and e-commerce, were introduced (Bae 2001).

Admittedly, the development of global finance and the expansion of cross-border production networks have been pursued long before the start of the full-fledged information and telecommunications revolution. However, the globalization of finance and production combined with innovative information and telecommunications technologies produced synergies that have accelerated changes in the world economy. Under such changes, it is now increasingly difficult for states to control cross-border financial transactions or production activities, while the influence of global financial experts, investors, and multinational companies has significantly increased. It is not clear which countries, home or host countries, should regulate the transnational financial transactions or production activities because within the global networks, financial transactions run around the clock, making it impossible to determine which country initiated the transnational financial transaction. Likewise, in the case of multinational corporations who conduct several overseas R&D projects and production facilities by hiring significant numbers of local manpower, there have been consistent arguments over the nationality of the company (Reich 1991).

3.2.3. Transformation to Global Knowledge Economy

Throughout the progression of the information society, there have been many efforts to conceptualize the nature and characteristics of the changing economy. Early on, a group of scholars argued that the technological changes by microelectronics and computers formed a new economic system (Freeman and Perez 1988). According to the so-called neo-Schumpeterian 'Techno-Economic Paradigm,' some technology changes not only initiate new types of products, services, and industries but also bring fundamental qualitative changes to the overall economy. This paradigm explains that like its predecessors, such as cotton, steel, coal, and petroleum, the semiconductor chip was a key factor that brought about structural changes to the prevalent socioeconomic system. The dominant techno-economic paradigm after World War II was heavily dependent on petroleum, petrochemicals, and synthetic materials, led by the petrochemical and automotive industries. During this period, an ideal type of productive organization was a corporation with hierarchical management and administration structure. Most of the functions related with mass production and supply of standard goods were conducted inside the company. Because these types of companies demanded a large quantity of medium-skilled laborers, they created a stable source of income for workers and a distinct job distribution pattern in the economy. However, this paradigm, often called Fordism, faced a major crisis in the 1980s.

With the emergence of advanced information and telecommunications technologies based on microchips, an information-intensive company called the network firm has emerged as a new key productive organization in the economy. Establishing a new productive organization

in the economy is at the core of the transformation. By maximizing the use of new key elements, a new information-intensive techno-economic system emerges introducing a new organizational structure at the corporate and plant level, a new skills profile in the labor force, a new product mix, continuous innovations, new geographical distribution of investments, small-scale innovative companies, and a new consumption and distribution pattern. Changes in techno-economic system also transform the international division of labor, causing fluctuations in the hegemonic powers, as exemplified by the rise and fall of the U.K., the USA, and Japan in the world economy.

Another group of scholars call the emerging new economy as 'Knowledge-based Economies', which emphasize the role of knowledge and technology in promoting economic growth and productivity. The OECD defines knowledge-based economies as economies, which are directly based on the production, distribution, and use of knowledge and information. The key characteristics of knowledge-based economies are summarized as follows: knowledge-based economies are mainly driven by the development of information technology, diffusion of knowledge through advanced information technology, reduced cost of knowledge acquisition, enhanced competition with the collapse of entry barriers and the natural monopoly, important roles of high tech manufacturing (computer, aerospace) and service industries (finance, telecommunications, patent), the role of service sector as a key source of job creation, and increased demands for high-skilled workers.

During the 1990s, discussions on the so-called 'New Economy' flourished as new economic phenomena, a combination of high growth, low prices, and low unemployment, were observed in several countries including the USA (DeLong and Summers 2001). Commenting about this phenomenon, a group of scholars insist that the New Economy does not suffer from the traditional conflicts between growth and inflation as the new economic growth is based on the increased productivity through technological innovations while past economic growth was based on increasing the labor and capital input. Though this early optimism has lost its ground to some extent (Freeman, 2001), the New Economy theorists still predict that in the long run, continuous innovations in information and telecommunications technologies will contribute to the improvement of productivity through cost reduction.

Another group of analysts emphasize the digital character of the emerging economy, coining it as the 'Digital Economy' (DOC 2000). In particular, discussions on the digital economy focuses on expansions of e-commerce based on the Internet, and the formation of the network economy, developing the analysis of new economic principles in terms of externalities, increasing returns to scale, and digital convergence (Tapscott 1996).

Those who interpret current changes in the economic system as a new techno-economic paradigm, knowledge-based economy, new economy, or digital economy all believe that innovations in information and telecommunications technologies are shifting the orientation of economic and corporate structures more toward market competition, competitive advantage in technological innovation and recognize that knowledge is emerging as the core of national and corporate economic activities.

The principle of market competition, which has accelerated innovations in technology and organization, has penetrated into the overall economic system and, as a result, global e-commerce, global finance, and transnational production network activities have intensified in the off-line and on-line marketplace. Changes in the global economy have proven to be incompatible with the existing international political economy that is deeply rooted in the national economy, giving rise to new conflicts (Kobrin 2002). As various actors interact with each other by carrying out various economic activities in the complicatedly interwoven

global networks of trading, finance, and production, it is difficult to draw a line between domestic and international activities. The scope and contents of regulations traditionally imposed by individual states are now subject to changes. In order for the global economy to run smoothly, coordination among the diverse interests of multinational companies and regional organization as well as states and international organizations is required.

3.3. Global Civil Society

Another important change caused by information and telecommunications revolution is the increased transnational social movements led by NGOs. Although transnational social movements have had a long history, for example, advocating the abolition of the slavery system and various religious movements since the modern era, they have flourished with the increase of educated middle class and the diffusion of democratic values in the 20th C. Since the 1980s, international groups have actively participate in various international conferences on issues ranging from the environment, peace and anti-war, women's rights, labor, to human rights. These international groups are even capable of exerting their influence over the policies of individual countries and international organizations (Deibert 1997).

Telecommunications technologies like the telephone and fax have been used to support such international coalitions. The development of the Internet has further expanded the scope and potential of transnational NGO activities. The ability to create and diffuse mass information, which extends beyond the limits of time or space, has contributed to expanding social movements, lowering the cost of information access and providing real time information. The Internet has also changed the flow of information from uni-directional to bi-directional, allowing individuals and groups access to an interactive form of free communication (Yoon 2001).

It is almost impossible to identify all the transnational NGOs in active operation. The Union of International Association (www.uia.org) whose headquarters is located in Brussels provides information on about 60,000 transnational NGOs around the world. The actual number of NGOs currently operating most likely exceeds this figure.

Regarding the expansion of transnational social movements, two key questions could be raised. The first question is how much influence these organizations have been exerting or can exert in the international political economy. As each organization usually has its own specialized area, it is possible for an organization to exert partial influence on the relevant issues. Such partial influence is called interstitial power² different from structural power. However, it is difficult to predict whether the different organizations can cooperate together to form an alliance or exercise structural power to create an alternative economy that defies the current international political and economic order. The second question concerns the relative power between states and the transnational NGOs. Sometimes transnational NGOs operate as key actors in specific issue areas of international relations, which could be perceived undermining the authority of nations, which used to be the key players in almost every area of international relations. However, it would be a overstretch to view transnational social movements as a threat to the national authority. Rather than considering transnational NGOs as an alternate political power to nations, NGOs should be understood as channels to tackle the global issues that could not have been dealt with by any single nation. NGOs

² Michael Mann (1986) defined interstitial power as 'legitimate influence on the borders and in the margins, over specific issue-areas'(cited in Deibert, 1997).

expand the public policy choices transforming the current policy planning process. Therefore, the relationship between nations and transnational social movement organizations is not characterized by confrontations or exclusiveness but a complex interdependence.

4. CONCLUSION

The information and telecommunications revolution has been changing the weaponry system, military organizations, strategy, and even the modes of warfare. Its impact has also reached the world economic structure by consolidating the virtual markets and the transnational networks of trade, finance, and production. In the midst of these changes, various groups in and outside of a nation have been emerging as new actors in international relations and the scope of their interests has expanded touching on environmental and cultural issues that go beyond the conventional militaristic or economic agenda. Changes that are currently undergoing have developed continuously even before the innovations in information and telecommunications technologies started in a full-fledged fashion. These changes are, under the concept of transformation from a modern nation state to 'post-modern complex nation,' defined as multiplication or complication of actors (the emergence of new actors like individuals, social groups, transnational corporations, regional and transnational NGOs, in addition to states and IGOs) and their goals (e.g. pursuit of multiple goals simultaneously such as peace, democracy, balanced ecosystem, cultural diversity, informatization, and high-skill human resources development, beyond just the pursuit of military and economic superiority) (Ha 1998). Combined with the rapid penetration of the Internet, changes toward this direction have been accelerated and deepened.

Regarding the information and telecommunications revolution as a key element that induces changes in the current international political economy, this paper briefly reviewed major changes and looked over which powers or groups have been emerging as new actors in international relations. Pertinent to this discussion is the examination of the relationship between the newly emerging actors in the international relations and the nation state, which has been the backbone of modern international political economy. Though the states' control over the market and violence has weakened, the call for coordination of diverse interests and the provision of the public goods has been increasing. The most critical question regarding the changes in the international political economy is which individual, group or nation will take over the physical and ideological hegemony during these changes. The possible tensions between the different actors provide sufficient motivation to increase discussions on global governance to formulate a new order.

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