Revising Theories of International Politics in the Information Age
By

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*Introduction*
Theories of international politics are likely to be revised in the information age as they have been in the past when new major technologies were introduced.   For example, the rise of wind power and wind-powered ocean-going vessels permitted some nations to project power over much greater distances and over short time spans than was possible prior to the introduction of those technologies.  One could argue that mercantilist approach to understanding international affairs as a consequence of an appreciation for the importance of sea power.  Similarly for the geo-political theories of Ratzel, Mahan, Mackinder, Spykman, and others arose as a consequence of the perceived importance of sea power and other transportation technologies. [1]

In the area of communications technology, waves of innovation in telegraphy, telephony, and more recently digital communications networks have occasioned a rethinking of strategic and economic strategies which in turn stimulated IR theorists to revise some of their theories.  A good example of this is the work of the interaction theorists, most notable Karl Deutsch, within the group of scholars contributing to the formulation of integration theory in the 1960s.[2]  It is not just changes in transportation and communications technologies that are taken into account in the evolution of IR theories, but also weapons technologies, production techniques, and media technologies.

Some branches of IR theory strongly integrate the idea of technological change into their theoretical frameworks.  For example, long wave/cycle theories give pride of place to technological change.  Other branches of IR theory, such as the neo-realist approach of Kenneth Waltz, give technological change relatively short shrift, arguing instead that international politics

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[1] Friedrich Ratzel, *The History of Mankind* (London: Macmillan, 1896); Halford J. Mackinder, *Democratic Ideals and Reality* (New York: Holt, 1919); Alfred Thayer Mahan, *The Influence of Sea Power Upon History* (Boston: Little Brown, 1890); and Nicholas Spykman, *The Geography of Peace* (New York: Harcourt Brace, 1944).

[2] Karl Deutsch, et al., *Political Community and the North Atlantic Area: International Organization in the Light of Historical Experience* (Princeton, N.J.: Princeton University Press, 1957).

is driven by large differences in the size and power of international actors (primarily nation-states) that are independent of technological change.[3]

In the rest of this paper, I would like to focus on the implications of the rapid diffusion of information and communications technologies for the following schools of thought in IR theory:
- Realism and neo-realism
- Liberal institutionalism
- Theories of globalization in IPE
- Long wave/cycle theories
- Marxist and Neo-Marxist approaches
- Constructivist and other approaches that stress ideas, identity, and agency.

***The Diffusion of Information and Communications Technologies***
The number of Internet users has grown rapidly in recent decades (see Figure 1 below), from zero in the late 1960s, to several millions in the early 1990s, to the currently estimated 2.3 billion.[4]  To be an Internet user, an individual must be connected to the network via a computer or a cellular phone with Internet capability.  Increasingly, people in the developing countries access the Internet via cell phones and computers in offices and cafes rather than via computers in homes, but the numbers in all categories keep growing year after year.  In the industrialized world, dial-up access to the Internet has been replaced with broadband access and speed of uploading and downloading continues to increase.

The technological changes behind the growth of the Internet include, among others, advances in integrated circuits, improvements in digital switching technology, and breakthroughs in the use of fiber optics and wireless networking technology, all of which add up to faster, easier, and cheaper computing and telecommunications for all.  That is not to say that the price is the same for everyone, or that access is equally affordable.  One of the key issues associated with the diffusion of ICTs is the so-called "digital divide" which adds a new layer or dimension to the study of domestic and international inequalities.[5]  One of the more interesting commentaries on this subject by Internet pioneer Vint Cerf asked the question: "Is Internet access a human right?"[6]

The light but robust architecture of the Internet made it relatively easy to add new nodes to the network without regard to physical location or type of computing hardware, with the result that the Internet is, to some extent, inherently global.  A number of arrangements have been made over time to ensure that the Internet would be global and the question of protecting its global status has arisen from time to time as some governments and other actors have tried to preclude

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[3] Kenneth Waltz, *Theory of International Politics* (New York: McGraw Hill, 1979).
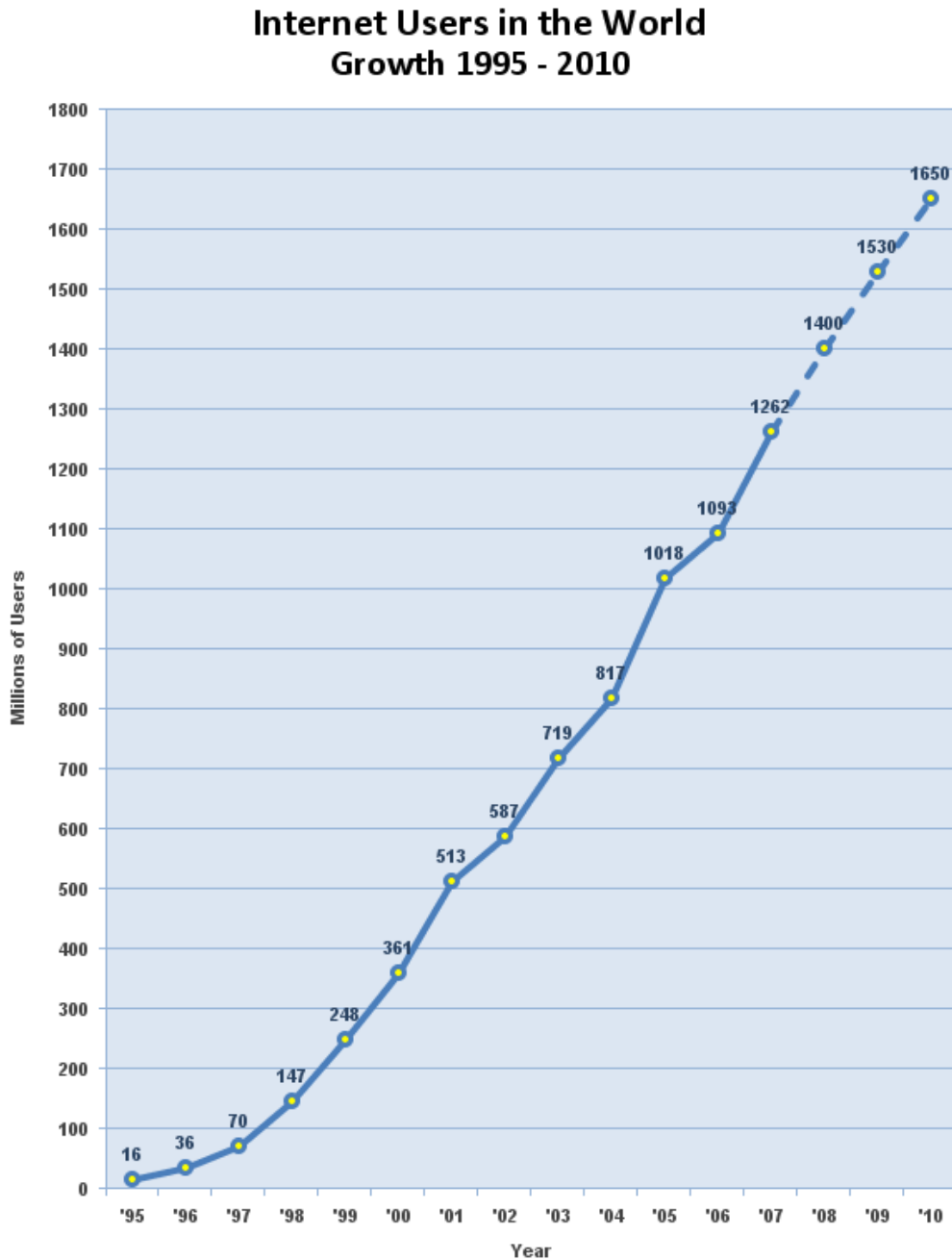
[4] http://www.internetworldstats.com/stats2.htm.

[5] Jan van Dijk, *The Deepening Divide: Inequality in the Information Society* (Thousand Oaks, Calif. :Sage, 2005).

[6] Vint Cerf, "Internet Access Is Not a Human Right," New York Times, January 4, 2012, accessed at http://www.nytimes.com/2012/01/05/opinion/internet-access-is-not-a-human-right.html?_r=3&pagewanted=all.

access because they found the Internet to be threatening to some cherished sets of values.[7]  For the most part, however, the growing role of the Internet in global commerce and cultural expression has prevented exclusion from being a widely adopted policy.

Figure 1.

## Internet Users in the World
### Growth 1995 - 2010



Source: www.internetworldstats.com - January, 2008
Copyright © 2008, Miniwatts Marketing Group

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[7] Ronald J. Deiber, John G. Palfrey, Rafal Rohozinski, and Jonathan Zittrain, eds., *Access Controlled: The Shaping of Power Rights, and Rule in Cyberspace* (Cambridge, Mass.: MIT Press, 2010).

***Rethinking Theories of Power Politics***

Power is one of the key concepts associated with realism and neo-realism. Power and the distribution of power across nations are central to those schools of thought. The phrase "power politics" is often given as the English equivalent of the German "Realpolitik." Realism starts with the assumption that the system of nation-states exists in a state of anarchy – that is the absence of governmental authority above the level of the nation-state – and, as a result, all governments are obliged to defend their interests in whatever manner necessary, including the resort to war. They may seek to build up their own power, based on the resources or capabilities that are subject to their jurisdiction, or they may ally or align themselves with other governments. The distribution of power internationally, taking into account the existence and relative strength of alliances and coalitions, is thought to determine important international outcomes. In particular, bipolar systems where there are two major coalitions that include most of the major powers and their allies are thought to differ considerably from both unipolar (one dominant power with no challengers) and multipolar (more than two major coalitions) systems. More generally, the degree of concentration of power in the international system is a key explanatory variable in efforts to test realist theories quantitatively.

Underlying all realist theories is the definition and measurement of power. It is possible that the rise and rapid diffusion of ICTs may result in a redefinition of power by key actors in the international system that in turn will affect the measurement of power and the assessment of the distribution of power. In addition, the diffusion of ICTs could conceivably affect the way alliances and alignments work in the information age. Finally, the diffusion of ICTs may affect the ability of governments of nation-states to claim that they are the sole legitimate representatives of the interests of their citizens in international affairs. That is, the diffusion of ICTs might increase the relative power of non-state actors in international affairs, particularly transnational actors like multinational corporations (MNCs), international non-governmental organizations (INGOs), transnational political movements, and transnational epistemic communities of scientists and experts.

I have argued elsewhere that the diffusion of ICTs has resulted in new ways of measuring national capabilities (one of the three primary ways of measuring power empirically).[8] Contemporary governments, for example, increasingly focus on measures of national investments in research and development (R&D), numbers of scientists and researchers, and patenting activity as indicators of potential technological capability.[9] The relative success of a country in producing or selling ICT-related goods and services is also becoming a part of many national inventories of technological capability. Access to technology on the part of the citizenry is another indicator. The number of landline and cellular telephones and Internet users and

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[8] Jeffrey A. Hart, "Information and Communications Technologies and Power," in Sean Costigan and Jake Perry, eds., *Cyberspace and Global Affairs* (Surrey, U.K.: Ashgate, 2012).

[9] National Science Foundation, *Science and Engineering Indicators* (Washington, D.C.: National Science Foundation, annual publication).

Internet hosts is monitored by the Central Intelligence Agency in its annual publication, *The World Factbook*.[10]

For example, in recent years, *The World Factbook* has highlighted the fact that the absolute number of cell phone subscribers (600 million) and Internet users (over 300 million) in China is greater than that in the United States. This fact came up at the beginning of 2010 when it was reported that Google might be forced to leave the Chinese market because of its objections to being required to censor the results of searches performed on its Chinese web site. The size of its domestic market for ICT-related projects gives the Chinese government some leverage over Google, but the growth in consumer preference for Google over Baidu (its main competitor in China) suggests the reverse, but only if the Chinese government decides to listen to those consumers instead insisting upon its right to censor Internet content.

The OECD Division of Science and Technology has been measuring indicators of ICT-related capabilities of its member states on an annual basis. It reports the household penetration rates of broadband services, for example, which has been widely reported in the press, especially because those statistics reveal that the United States in not generally in the top ten but is in fact rather far down the list. Within the G7, the United States is not first (see Figure 2 below): it is behind Japan in broadband penetration. In the OECD, the US is also behind Korea, Sweden, Finland, and Denmark. For the US not be first in this area provides ammunition to those political actors who want the US government to more actively promote the diffusion of broadband networks.

The diffusion of ICTs clearly has had an impact on power assessment using the capabilities approach. The assumption is that if a country possesses a vigorous computing and telecommunications equipment industry, then it can more easily access the benefits of ICT-related business activity. This is not just an assumption anymore, since there is increasing empirical evidence that investment in ICTs stimulates growth and economic productivity. Also, it is assumed that if a country has developed information networks that many citizens can use, then the country as a whole will have informational advantages over others and may be better able to compete internationally.

Like all observational approaches that rely on measures of capabilities, the use of capabilities to assess ICT-related power depend more broadly on the assumption that potential power as indicated by control over resources can be translated into actual power either in the relational or the structural sense. Such translations are never perfect, however, so the appropriateness of the translation assumption remains a potential weakness of the capabilities approach.[11]

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[10] Central Intelligence Agency, *The World Factbook* (Washington, D.C.: Central Intelligence Agency, annual publication).

[11] For more on this topic, see Jeffrey A. Hart, "Three Approaches to the Measurement of Power in International Relations," *International Organization* 30 (Spring 1976), 289-305.

Figure 2.
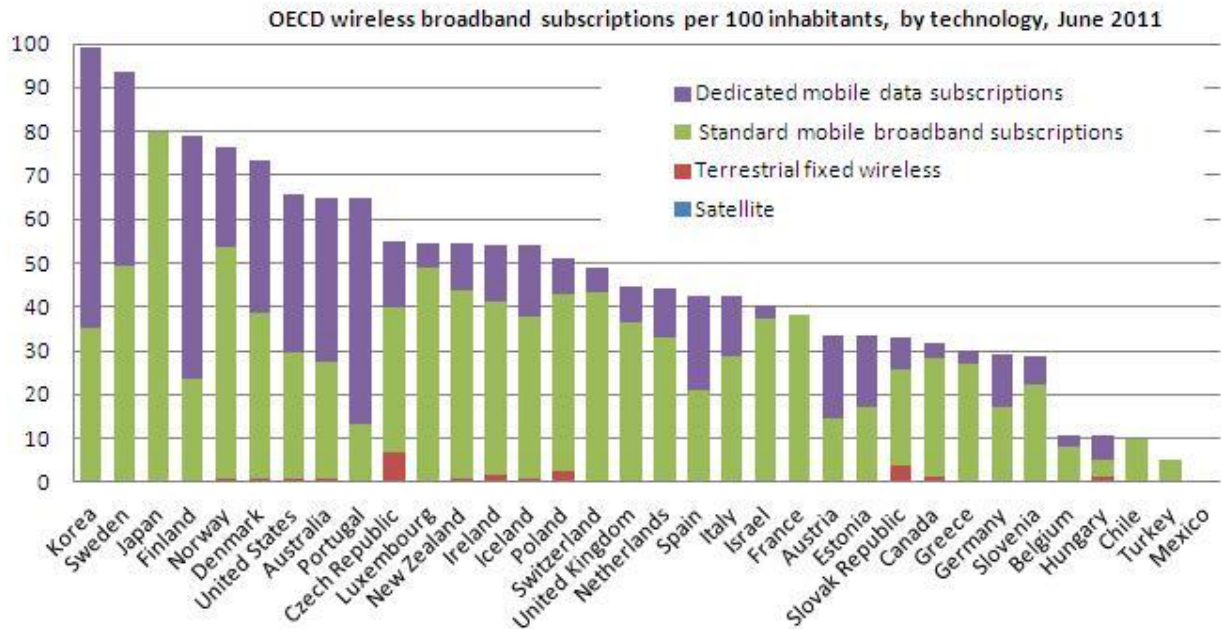


For example, despite the evident inability of the US to remain in the top position among the industrialized countries in all areas of ICT-related business activities, US firms remain powerful and sometimes dominant players in key areas. In microprocessors, for example, Intel and AMD are the dominant firms, even though in other areas of the semiconductor market US firms such as memory devices US firms are not dominant. In PC operating systems and desktop packaged software, the largest share of the market is still dominated by Microsoft. The two firms, as a result, have a lot to say about who can do what and how in the PC business. This leads some observers to speak about a new form of power peculiar to ICTs: the power to determine technical aspects of an ICT *platform* or *architecture*.[12]

Another way to measure power is in terms of power relationships between pairs or sets of actors. In a frequently cited article, Robert Dahl argued "A has power over B to the extent that he can get B to do something that B would not otherwise do."[13] This relational approach has been modified by a number of scholars over the years, but the basic definition has not changed very

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[12] Jeffrey A. Hart and Sangbae Kim, "Power in the Information Age," in Jose V. Ciprut, ed., *Of Fears and Foes: International Relations in an Evolving Global Economy* (Westport, Conn.: Praeger, 2000).

[13] Robert Dahl, "The Concept of Power," *Behavioral Science*, 2 (July 1957), 201-215.

much.  Measuring relational power requires knowledge of the initial and final preferences of the actors and of their attempts to coerce or influence each other.[14]

So, for example, Russia prefers that Estonia defer to Russia's wishes even though it is no longer part of the Soviet bloc.  When Estonia expresses preferences that differ from those of Russia, Russia may attack Estonian information networks in order to force Estonia to act in a different way.  If Estonia yields without changing its initial preferences, then Russia has exercised coercive power over Estonia.[15]

It is possible to exercise relational power without the use or threatened use of force if, for example, Actor A can persuade Actor B to change its preferences.  The exercise of this form of non-coercive power (some call it "influence") may be greatly enhanced by the diffusion of ICTs to the extent that the governments and populations of nation-states are exposed to information and ideas that make persuasion easier or more politically acceptable to the targets of influence.  The ability to bypass state-controlled information channels via email, blogs, web sites, and social networks may be crucial to this enterprise.  Realists are likely to stress the ability of the state to close down all bypassing technologies, but so far efforts to do this have been only partly successful.

Realist approaches focus on power relationships between pairs or coalitions of nation-states, but they also assert, via assumptions about the centrality of states in the international system, that non-state actors are generally less powerful than governments, especially when it comes to issues associated with national security.  In the information age, however, we have seen a number of incidents that suggest that governments are not always in control of domestic security partly because there are ways for citizens and organized groups to use ICTs to bypass the government-controlled channels of communication to mobilize political support domestically and internationally.[16]  These challenges to state authority do not go unanswered, but occasionally the state is not capable of surviving a successful mobilization of mass unrest after they have clamped down on bypassing media.  This happened before the diffusion of ICTs but it seems to be happening more frequently since then.  What is it about access to these technologies that seems to embolden the insurgents?

A third form of power is called structural power or metapower.[17]  This is the power of an actor to influence or even determine the rules that govern or constrain state behavior in the international system.  An example would be the ability of a given government to control the rules of the international trading system, currently dominated by the World Trade Organization. This type of

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[14] The best re-specification of the relational approach is that of Jack Nagel in *The Descriptive Analysis of Power* (New Haven, Conn.: Yale University Press, 1975).

[15] Thomas Rid, "Think Again: Cyberwar," Foreign Policy, March/April 2012, accessed at http://www.foreignpolicy.com/articles/2012/02/27/cyberwar.

[16] Bruce Bimber, Andrew Flanagin, and Cynthia Stoll, *Collective Action in Organizations* (New York: Cambridge University Press, 2012).

[17] Susan Strange, *States and Markets: An Introduction to International Political Economy* (New York: Basil Blackwell, 1988).

power is not generally considered in realist theories, but it is central to liberal institutionalist perspective (see below).  Nevertheless, some realist theories raise the possibility that in unipolar or hegemonic systems it is possible for a single great power to impose an international order with rules that are consistent with its visions for the how the system should operate and that all other nations must simply accept that order until the hegemonic power is successfully challenged.

There has been considerable speculation by journalists and scholars that the rapid diffusion of ICTs coincided with the revival of U.S. hegemony in the 1990s, especially in the period leading up to the bursting of the dot.com bubble.  Both Western Europe and Japan went through a period of stagnation that has not yet ended.  Globalization theorists (again see below) argue that the diffusion of ICTs created a "flat world" that paved the way to the emergence of new challengers like Brazil, Russia, India, and China (the BRICs) in the last decade.  But in the developing world, many people view the rapid diffusion of ICTs to be yet another successful attempt by the United States to hold its dominant position in the global hierarchy of nations.

A high percentage of all scholarship in the field of international relations depends upon realist theories and perspectives.  However, there have been important challenges to the hegemony of realism from other theoretical approaches in the past few decades, so I turn next to discuss the implications of the diffusion of ICTs for  those alternative approaches.

*Rethinking Liberal Institutionalism*
Liberal institutionalism stresses the importance of economic interdependence in international affairs made possible by the expansion of global trade and investment flows and of international regimes and institutions that governments of nation-states accept as a way of regulating the possible negative effects of global markets on their citizens.  The hope of liberal institutionalists is that these regimes will strengthen over time to create of form of global governance that results in a better and more cooperative world.

One immediate impact of the diffusion of ICTs is that quite a few existing regimes have had to be revised to deal with the new technologies, and some completely unprecedented regimes have been constructed to deal with issues that were not easily dealt with by existing regimes.  So, for example, international trade that is conducted electronically (via e-commerce) can be dealt with by modifying the existing international trade regimes such as those associated with the World Trade Organization and the OECD.[18]  However, providing a way of regulating the registration of "domain names" and maintaining the servers that permit the Internet to correctly route messages from one node to another has required to construction of a new regime, in this case the Internet Corporation for Assigned Names and Numbers (ICANN).[19]

The diffusion of ICTs makes it possible for new and existing regimes to conduct their business via the networks and to involve more people and more interests in information gathering and sharing and to a lesser extent in issue definition and policy formation.  Studying the role of ICTs

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[18] Sacha Wunsch-Vincent, *WTO, E-Commerce and Information Technologies: From the Uruguay Round through the Doha Development Agenda* (Washington, D.C.: Institute for International Economics, 1998).

[19] Milton Mueller, *Ruling the Root: Internet Governance and the Taming of Cyberspace* (Cambridge, Mass.: MIT Press, 2002).

in enabling the rapid mobilization of citizens, experts, and other around specific issues or problems is already reflected in the IPE literature on regimes in the information age. Have ICTs made it easier for multinational corporations and NGOs to play a role in international politics? Is the tendency for ICT-related regimes to experiment with multi-stakeholder regimes (as opposed to strictly intergovernmental regimes) likely to spread to other types of regimes?

The study of compliance behavior associated with regimes is likely to become easier with the diffusion of ICTs. There has been a rapid growth in web sites devoted to monitoring the activities of governments and non-state actors. For example, Greenpeace devotes some attention to monitoring the trade in toxic materials.[20] PETA monitors activities related to cruelty to animals. Amazon Watch monitors the activities of multinational corporations in the Amazon region. The accuracy of these monitoring efforts is not guaranteed but there does seem to be growing competition among various groups to become the most credible monitoring agent for a given type of activity.

Propagating the results of research of various kinds relevant to regimes has become easier thanks to the diffusion of ICTs. Naming and shaming of malefactors appears to be a relatively popular activity on the Internet. My guess is that an entire paper could be devoted to this subject, so I will drop it for now.

### Rethinking Globalization Theories

Globalization is "the increasing integration of input, factor, and final product markets coupled with the increasing salience of multinational enterprises' cross-national value-chain networks."[21] Digitalization is the "integration of digital technology into everyday life."[22] Both have been increasing in recent decades and so it is natural to argue that there may be a causal connection.

While the literature on globalization frequently mentions the connection between digitalization and globalization, it does not address directly the question of how much global economic activity was stimulated by the rapid diffusion of information and communication technologies (ICTs) and by the declining costs associated with them. It is much less common to find in the literature on digitalization assertions that globalization was a causal factor. However, the market for digital technology is partially a function of the cost of producing and merchandizing digital products and services, and those costs could have been affected by globalization.

The author who is generally associated with the argument that the diffusion of digital technologies have driven the current wave of globalization is Thomas L. Friedman, a journalist who besides writing popular books also pens an op-ed column in the *New York Times*. Friedman claims in *The Lexus and the Olive Tree* that he discovered globalization while covering the Arab-

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[20] http://www.greenpeace.org/international/en/campaigns/toxics/toxic-trade/

[21] Aseem Prakash and Jeffrey A. Hart, "Coping with Globalization: An Introduction," in Aseem Prakash and Jeffrey A. Hart, eds., *Coping with Globalization* (New York: Routledge, 2000), p. 2.

[22] http://www.businessdictionary.com/definition/digitalization.html.

Israeli conflict in the 1990s.  The Cold War, which was a global system based on the division of the world into two camps, had been replaced by a global system of interconnection, according to Friedman, "symbolized by a single word: the Web."[23]  Later on, when asked about the book, he said, "globalization is not a choice. Basically 80% of it is driven by technology."[24]

Friedman goes on to argue that thanks to ICTs the world is becoming flat in the sense of a more level playing field or platform for all those who want to participate in the global economy.  This means that barriers to entry have been reduced or even erased by the existence of a new technological infrastructure.  Talented people in poor countries like China and India are suddenly able to compete with people in rich countries.  The consequences of a flat world, in Friedman's view, are so deep and so extensive that wealthy countries like the United States must adjust their policies and institutions to deal with them.

Elizabeth Hanson, in *The Information Revolution and World Politics*, takes a more cautious view.  She argues that "the information revolution was a necessary but not sufficient condition for globalization."[25]  Instead, "…the extent of globalization and the form it has taken are the product of a conjuncture of technological, political, economic, and social forces interacting and reinforcing each other."[26]  My view is that Hanson is correct and that the technological determinism of Friedman's perspective is more distracting than illuminating.

The study of pro- and anti-globalization movements via the Internet is likely to produce some interesting empirical research, especially since anti-globalization forces are extremely diverse in terms of geography and the issues that concern them.  Most major movements are represented on web sites, so students of the politics of globalization can get a good start on analyzing the politics of globalization by visiting those sites.

One area in which the diffusion of ICTs has played a direct role in globalization is in global financial transactions.  The need for financial institutions to monitor financial markets so as to make quick decisions about the allocation of assets has led to the building of huge global financial databases (e.g. for currency exchange-rates, equity markets, and derivatives) and the diffusion of computer hardware and software that permits "program trading."  Very rapid movements of large sums of money can occur within and across national boundaries in response to real or perceived crises of various sorts.  The increasing severity of global financial crises in

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[23] Thomas L. Friedman, *The Lexus and the Olive Tree: Understanding Globalization* (New York: Anchor Books, 2000), p. 8.

[24] Marshall Bricklin, "Tom Friedman's view of globalization," http://www.bricklin.com/albums/fpawlf2000/friedman.htm.

[25] Elizabeth C. Hanson, *The Information Revolution and World Politics* (Lanham, Md.: Rowman & Littlefield, 2008), p. 152.

[26] Ibid, p. 154.

recent years may be connected with the diffusion of ICTs.  This is an important area of ongoing research in IPE that may eventually result in the revision of important theories.

Another area of globalization research that has been affected by the diffusion of ICTs is the study of global production networks and work the relative importance of production vs. distribution of goods and services.  With the outsourcing of labor-intensive production to low-wage countries and the growing geographic spread of MNC activity in global markets, ICTs play growing role in MNC management.  It is no longer possible to speak about national production systems anymore, except in products or services where outsourcing is impractical or forbidden by law or governmental prohibition.  The study of international competitiveness, which does not fit neatly into any of the major IR theory groups, with the possible exception of globalization studies, has had to change to reflect this sea change in production networks.

Retailing has also changed in the information age, with "big box" stores becoming increasingly important not just in the retailing sector but in determining where consumer products will be manufactured in order to guarantee low prices for consumers.  IPE research has reflected this, for example, in the work of scholars like Gary Gereffi, who argues that manufacturers are less powerful and important than they used to be because they depend so heavily on retailers like Wal-Mart for access to consumers.

A more general issue is that of "dis-intermediation" and "re-intermediation" in the relationships between consumers and, for example, bookstores, retail banking, stock brokers, the recording industry, the movie industry, real estate agents, car dealers, etc.  Many retail businesses that used to depend on intermediaries who handled face-to-face transactions with consumers have yielded ground to businesses that are completely web-based or combine store fronts with web sites (clicks and bricks).  Sometimes the old intermediaries have been slow to respond to the challenges posed by new intermediaries with the predictable result that they try to block technological changes that they blame for their fall from grace.  This is an area of theorizing that is still rather underdeveloped but I expect that there will be work in IR theory that will deal with the dynamics of dis- and re-intermediation.

***Rethinking Long Wave/Cycle Theories***
Long wave/cycle theories start from the presumption that international politics can and should be studied over long time periods.  Like realists, they give the distribution of power a major place in their theories, but unlike the realists, they connect changes in the distribution of power with the ability of major powers to respond to succeeding waves of innovation.  In this sense, the long/wave cycle theorists are well positioned, relative to other branches of IR theory, to analyze the likely impact of technological change at the international systemic level.

[need to expand this section – focus in particular on the work of Thompson, Modelski, and Rennstich]

*Rethinking Marxist and Neo-Marxist Approaches*
[focus on the work of Timothy Lukes, Mark Poster, Hardt and Negri, etc. as an example of how Marxist and neo-Marxist thinkers have dealt with technological change generally and ICTs specifically]


*Rethinking Constructivism*
Constructivism stresses the importance of human agency in bringing meaning to the basic concepts of IR theory including power, identity (particularly national identity), and international norms. It stresses the potential for change driven by the revision of shared understandings about these basic concepts.

Less a full-blown theoretical approach than realism, neo-liberal institutionalism, or globalization theory, constructivism is more of an analytical stance. There are various flavors of constructivism (to be enumerated and explained) but the core similarity of the various types of constructivism is the focus on human agency in "socially constructing" of various political institutions.

Institutions associated with ICTs can be seen in this way as well. The hardware and software of information and communications technologies was created by human beings who were pursuing a variety of personal and collective agendas. The personal computer (PC) was the product of a particular set of individuals who came of age during the 1960s and 1970s when technology was seen as a potential answer to a variety of social problems. In particular, the PC was a way of empowering individuals and small groups or organizations so that they could compete with large institutions (e.g. businesses or government agencies) that previously had privileged access to computers and telecommunications networks. The PC is a decentralizing tool or weapon in their eyes, a weapon against bureaucratic hierarchy. The mainframe computer was seen as a threat to individualism, giving large organizations the ability to monitor or even surveil the activities of individuals and take away their freedom of maneuver in the interest of conformity to the goals of the organization.

When the PC was coupled to the Internet, it became clear that individuals could be further empowered by giving them the ability to directly communicate with one another (via email, for example) and to share files and other digital content. The various TCP/IP protocols that are the essence of the Internet were built for these purposes. The actual applications were built later in ways that enabled some kinds of behavior but not others. The Internet itself grew up with folkways and traditions that have become, in some ways, like a constitution – giving certain rights and responsibilities to users. One right that remains controversial is the right to communicate anonymously with other users. Another is a norm of non-interference in the movement of packets through the Internet (in the interest of its proper functioning) that translates into the current debate over the "end-to-end architecture" and "net neutrality."

Human agency comes into play again as various political systems deal with the problem of building out the infrastructure to provide access to their citizens, with some relying primarily on

private actors like cable and phone companies to build and control the infrastructure (the United States) and other relying primarily on public institutions funded by taxpayers (e.g. Japan, South Korea and Finland).

Here the comparative political economy theories of the "varieties of capitalism" school may be more likely to be helpful than any of the main schools of thought in IR theory. Where IR theory may come into play is in analyzing the strategic interactions among different types of capitalist systems. I simply remark that neither liberal institutionalism nor globalization theory seems to be well equipped to do this sort of thing.

Constructivism, per se, is not likely to be of much help in these areas. Much of the constructivist work in IR is focused on national identity and national policy making. But the ability of some constructivist work to make linkages between national-level and systemic level phenomena may be useful and may be revised in light of the diffusion of ICTs.

Let us turn briefly to the possible impact of the diffusion of ICTs on national and transnational identities via the impact of ICTs on media environments and more broadly the creation of new cultural artifacts.

[to come]


*Conclusions*
I have focused in this paper on the possible revisions of theories of international politics in the information age, particularly in light of the rapid diffusion of information and communications technologies. The key united element is the ability of contemporary ICTs to permit new forms of communication that enable the rapid political mobilization of like-minded individuals who are increasingly exposed to informational content that moves easily across national boundaries. There remain important barriers to the movement of that content and not all individuals have effective access to it, but the numbers of potential recruits to transnationally defined movements and identities are much larger than they were in the past. Nationalism is likely to be redefined in connection with these new media alternatives, but localism and transnationalism will take on new importance as people search for and find new groups and new identities to which they can attach themselves in meaningful ways.

In his essay, J.P. Singh has stressed the potentially transformational nature of ICTs and I agree with many of his arguments. However, there is still plenty of room, as always, for people to use new technologies to bolster their pre-existing power positions, allegiances, and perspectives, thus making the institutions that existed prior to the diffusion of ICTs stronger and less change than they were before.

There will continue to be different approaches and theoretical perspectives for the analysis of international politics, and I suspect that realist approaches will continue to be hegemonial. But theoretical analysis of international politics in the information age may lead to questioning of the some of the core assumptions of realism and a greater appreciation for the approaches that are

more open to human agency and the impact of economic and technological change on international affairs.  Only time will tell.