

## Chapter Two The Dynamics and Processes of Globalization

**Dynamics** refers to situations where change is taking place or forces are trying to make change happen. The **dynamics** of globalization involve people, businesses, countries, and economic forces vying for advantages in the marketplace of goods, services, information, and ideas. Constant and rapid changes in one place often have consequences in other places. On a small scale global dynamics might refer to a farmer in drought-ridden area of India borrowing money to dig a well to grow enough food to feed his family, change his circumstances. That in turn would free food from the UN Food Programme for shipment to food scarce Ethiopia, a distant consequence.

Global dynamics also refers to the larger sweep of economic forces. Consider this recent scenario unfolding on the global stage. Investment banks in the United States made major investments that now are failing, and as a group they unexpectedly lack money to lend to their regular borrower businesses. Across the Pacific Ocean toy manufacturers in China suddenly find that their U.S. customers are canceling toy orders because they cannot borrow the money needed to buy toys. Other sources of credit that previously were readily available have also shrunk or vanished, as lenders lose confidence in the ability of their borrowers to repay loans. The Chinese toy manufacturers go bankrupt, their employees must find other work, and the flow of money to Chinese landlords and food sellers in China shrinks. The shipping companies, railroad services, truckers, and toy sellers accustomed to profiting from toy trade lose profits and lay off workers. As a result banks find people unable to pay the monthly mortgages on their houses, and banks begin laying off employees. Sellers of cars, refrigerators, and furniture around the world find demand for their goods dropping and lay off workers. And governments accustomed to tax revenues from these businesses and personal incomes quickly find the funds that they rely on are shrinking, forcing them to limit government services or borrow more. Such is the inter-dependent nature of global dynamics, the play of forces interwoven into the global economy.

Today's success on the global scene may be tomorrow's loss of failure, or the reverse may be true. For example, an innovation in software is being developed to create a smart power grid, making it possible for people with solar panels or wind turbines on their homes and businesses to sell electricity into the grid. Such an innovation can move communities toward the distributed generation of clean energy and away from reliance on centralized sources of fossil fuel based electric power. The dynamic of global warming would then see a reduction in greenhouse gases(GHG),benefiting everyone around the world. Such dynamics, small and large, reflect the constantly changing nature of globalization.

Globalization also has a series of **processes** that have evolved over many decades, **processes** that influence in major ways how globalization functions. New ways of *regulating global trade* have changed these processes. The end of World War II saw the creation of a new set of *non-governmental institutions*, that were also *trans-national, or supra-national*. These truly international organizations were created by the agreement of many nations and based on the principle that the old world of nation-state behavior, the system that had plunged the world twice to the brink of catastrophe, needed to be *governed or regulated* in more effective ways. The United Nations, created in San Francisco in 1945 by the collective action of 54 nations, set about establishing multinational activity on a wide variety of fronts including culture, health, and the well-being of children. Events quickly involved the United Nations in various regional armed conflicts, as it sought to keep conflicts from spreading.

Two organizations were created to deal with economics and trade. The International Monetary Fund resulted from the Bretton Woods Conference (held at Bretton Woods, New Hampshire, USA) in July 1944 by 45 nations, creating a cooperative regulatory system that would prevent the kind of high tariffs that contributed to the global Great Depression of the 1930s. The IMF has promoted international monetary cooperation with a system of rules for commercial and financial payments among the major industrial nations, that is, nations agreed that dollars, yen, pounds, lira, and other currencies would stay with certain limits of value to allow them to exchange freely. Stable monetary exchange promoted the expansion and growth of trade. Additionally the IMF took on the responsibility of making loans available to correct disturbing national economic trends that might threaten national or international trade. (Wikipedia, 2008). In the early 1970's the difficulty of keeping currency values constant led to the establishment of a system of floating values of currencies. These IMF arrangements led to the growth of international trade in currencies themselves.

The second organization, the General Agreement on Tariffs and Trade (GATT), in 1947 led toward regulation of world trade, with 23 countries agreeing to a set of rules governing tariffs. Over the post-war decades an increasing number of countries held eight rounds of meetings to establish the basic principles that govern international trade. In 1995 the GATT countries reorganized themselves into the World Trade Organization (WTO), then composed of over 130 countries (and presently including 153 countries). The basic rules of world trade include: **One**, the *most favored nation* principle, which holds that any trade concession negotiated between any two member countries must apply equally to all others); **Two**, the *national treatment rule*, which requires that imported goods be treated in the same way as domestic goods; and, **Three**, the *generalized system of preferences*, which granted preferential access for developing country goods versus those of developed markets—textile manufacture was an exception.

The Uruguay Round of negotiations that lasted from 1986 to its conclusion in 1994 created the basis for the current framework of trade, including agriculture, textiles, and clothing. Additional agreements were made for the first time on the General Agreement on Trade in **Services** (GATS), indicating the increasing role that services have throughout the international trade system. Today, the rule-making actions of WTO cover over 30,000 pages of regulations (Dicken, 2002).

Some nations believe the present **processes** regulating trade need major improvements. From the perspective of the poorer or developing countries of the world, trade controlled by these agreements tends to benefit the richer countries at the expense of poorer nations. In some sense, the richer countries still make up a kind of club into which entry for others comes with difficulty if at all. Joining this club, however, can make great differences to a country: witness China's entry into the World Trade Organization in 2002. China continues to develop into a major acknowledged power in global trade. Despite their arguments favoring free trade, richer countries continue to impose higher tariffs on the goods of poorer countries.

In July of 2008 the most recent round of WTO talks, the so-called DOHA round being held in Geneva, Switzerland, collapsed. Commentators advanced a variety of explanations for the collapse of the talks, ranging from farmers in the European Union insisting on continued crop subsidies, to China, India, and Brazil becoming much more powerful participants in global trade. We discuss this issue further in Chapter 15.

## **Migration**

The planet is in the midst of the largest migration of persons in its history: more people have relocated over the past two decades than ever before. Migrations reflect peoples moving toward something or away from something, or both. Over history people have migrated in search of food, shelter, and land; from relatively isolated rural settings to more cosmopolitan urban settings; usually as a result of natural disasters, wars, or civil unrest that has destroyed their way of life. Empire, conquest, religious intolerance, and slavery have motivated populations to move from one part of the globe to another. But perhaps the most common reason people migrate is to seek work to better themselves, their families, and their group in more favorable economic climates.

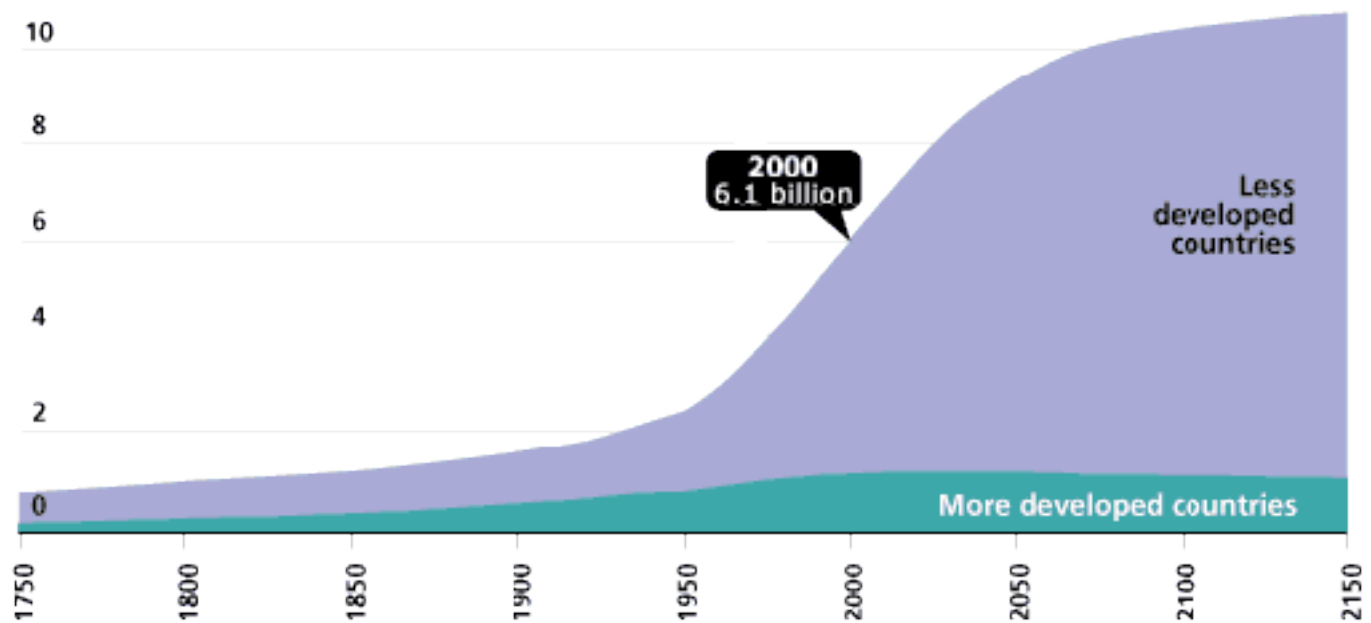
Historically migrations have occurred within or between political units (country, nation-state, empire). Waves of migration also have accompanied technological changes in agriculture, industry, transportation, or the way that knowledge is produced and used by society. Migrants from Europe, Asia, and Africa have commonly extended the cultural influences of their places of origin, with cities such as New York, Boston, San Francisco, London, and Paris reflecting a new mix of immigrant cultures.

Economically motivated migration has usually led to an accompanying increase in urbanization. Cities, especially the European and American industrial cities of the 19<sup>th</sup> and 20<sup>th</sup> century, grew up around great manufacturing enterprises. From the mid-1950's to the present manufacturing has shifted from the older industrial counties (primarily of northwest Europe and North America) to the developing regions of the world such as Mexico and China. Capital and labor also relocated to these regions, largely in search of cheaper labor. The 1960s witnessed new players in global manufacture. First the “four tigers of Asia” (Korea, Hong Kong, Taiwan, and Singapore) and to a lesser extent other Asian economies such as the Philippines, Indonesia and Thailand, joined the rebuilding economies of Japan and Germany (then West Germany). Other new players entered global production, such as Mexico and Brazil, undergoing extraordinary intensification of urban labor markets and the stimulation of migration. This, however, was merely a prelude to what would happen with the spectacular economic growth in the 1990s and into the current century of India and China.

This current migratory period has brought people into urban settings to a greater extent than every before. By the year 2000 more people lived in cities than outside them for the first time in human history. In 2000 the world supported over 411 cities with populations of more than a million. This figure will rise to 550 by 2015. The growth of megacities with populations that exceed 20 million is represented on all continents except Australia. Many of the megacities are actually even larger as they become the site of giant *conurbations*, aggregations of cities and their surrounding population clusters. Witness Mumbai (formerly Bombay), the New York-Philadelphia urban complex, and greater Tokyo (UN Habitat, 2003).

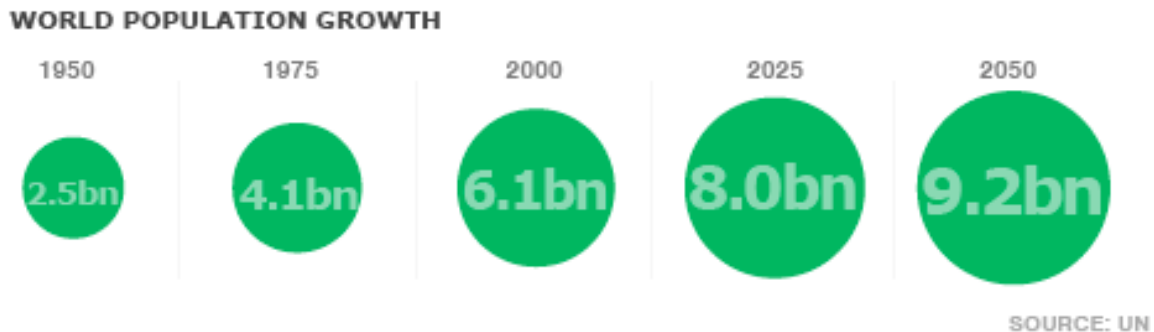
Contemporary globalization-driven migration dwarfs that of preceding periods in part because of the sheer numbers involved. The enormous increases in world population that started to take effect in the 1950s and 1960s cascaded into the huge populations of the 1990s and beyond. Figure 2-1 gives an indication of the spectacular growth in the world's population, and especially that of the developing countries, many of which were/are in Asia. For further information see: [www.prb.org](http://www.prb.org).

Figure 2.1 World Population Growth  
Population (in billions)



Source: United Nations, *World Population Prospects, The 1998 Revision*; and estimates by the Population Reference Bureau.

Figure 2.2 displays this extraordinary population growth using a different visual representation.



Source: BBC, 2008

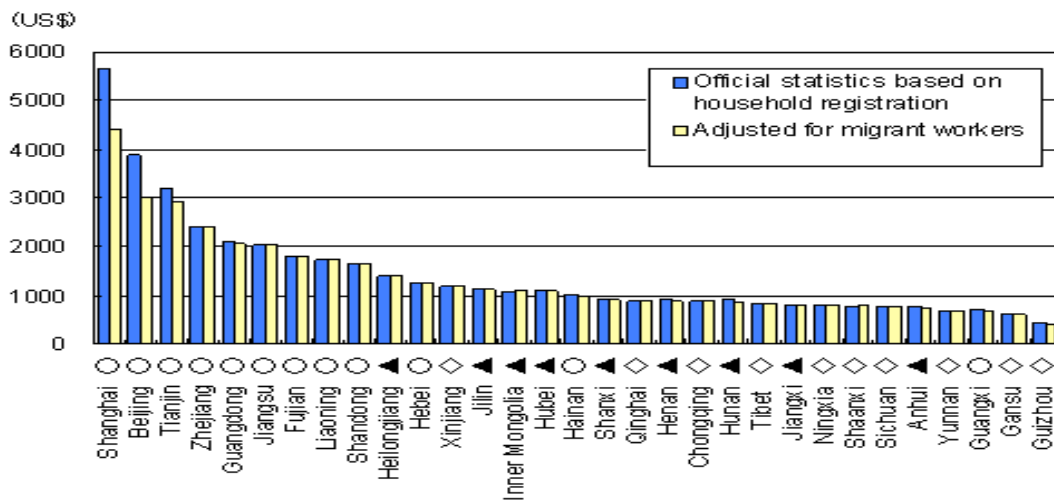
As global manufacturing and commerce developed throughout the world in the post-WWII period, migration from the developing countries to the developed increased as well. While the developed economies were losing jobs to the new economies (a process called at the time “de-industrialization”), the transformation

into service and knowledge-based economies made them attractive migration destinations for those from developing economies. The extent of between-country global migration can be gained from this *World Bank* summary:

In 2000 some 175 million people, 3 percent of the world's population, lived in a country of which they were not a citizen or in which they were not born. In developing countries the foreign population stock almost doubled, from 44 million in 1960 to 86 million in 2000. In high-income countries the migration stock increased from 29 million to 89 million during the same period. The net outflow of people from developing countries to high-income economies has grown considerably. During 1960–65 developing countries sent 2.8 million people to high-income countries. During 1995–2000 the number increased to 13.6 million. The greatest numbers came from East Asia and Pacific, Latin America and the Caribbean, and South Asia. In addition to trade and investment, migration can also be important for global integration (World Bank Group, 2005).

It warrants adding that a rising tide of refugees from climate change and sea level rise now seek survival elsewhere, many of them in sub-Saharan Africa .

**Figure 2.4: Variance of incomes (measured by GDP per capita) by Province in China (2003)**



Note: Coastal Region ○, Central Region ▲, Western Region ◇  
 Source: *China Statistics Yearbook*, 2004.

Within China, the pattern of income inequality (see also the next section) as illustrated by Figure 2.4 linked closely to the internal migration during the 1990s, which some commentators have called the greatest migration in human history, estimated at some 150,000,000 people in a decade. Some economists argue, however, that remittances to their place of origin from migrating workers provide an important corrective to this income inequality effect. They propose that as trade within China becomes more active, and authorities repeal household

registration limiting where one can live, migrating workers will distribute remittances more broadly across the population.<sup>1</sup> (Financial Express, 2008).

### **Inequality and questions of equity**

A variety of inequalities are created by globalization. Inequality of income, wealth, access to health care and education, etc., are all outcomes of globalization. Because of the feedback loops within the global system, inequalities also become part of globalization dynamics -- drivers of the globalization process. (These are often also termed “equity issues” referring to the idea that inequalities of access lead to inequities.) For example, the data over the past three and a half decades indicate that, measured in various ways, inequality has increased both between countries and within countries. We observe that these data hold true for developed, developing, and under developed countries.

Within the developed countries, the portion of wealth and income held by the top brackets has steadily increased. Worldwide, we may be witnessing the greatest period of inequality the world has ever known. For example, witness the claim of the University of California Atlas of Inequality that “Global income inequality is probably greater now than it has ever been in human history. Currently, the richest 1 percent of people in the world receives as much as the bottom 57 percent” (UC Atlas of Inequality, 2005).

In simple terms, while economic globalization is producing ever-greater wealth in the world, the rich are getting richer and the poor poorer. The United Nations, the World Bank, and the International Monetary Fund (IMF) all acknowledge this pattern, but do not agreed upon is how to change it. World Bank and IMF strategy has been to promote free trade, to open patterns of investment, and to restructure rules in developing societies to favor private investment. Critics believe that these demands have been responsible in past decades for continuing poverty and income inequality. This debate continues in China, where the development of private capital and economic liberalization is producing wealth for many, while others lose out (referred to in China as “the left behind”). Again, Figure 2.4 demonstrates the stark inequality of income between the coastal regions of China and the interior.

The United Nations Development Programme(UNDP) approaches this same pattern of painful inequalities quite differently, by advocating that all nations (189 nations participating) pursue eight Millennium Development Goals:

- Goal 1: Eradicate extreme poverty and hunger
- Goal 2: Achieve universal primary education
- Goal 3: Promote gender equality and empower women
- Goal 4: Reduce child mortality
- Goal 5: Improve maternal health
- Goal 6: Combat HIV/AIDS, malaria and other diseases
- Goal 7: Ensure environmental sustainability

## Goal 8: Develop a Global Partnership for Development

With a series of clearly identified targets and Indicators, the UNDP developed a Road Map Toward Implementation, hoping to achieve and report progress. (Millennium Development Goals, 2000). Despite the pressures from globalization, the initiative has made some progress. See the website of The 2005 World Summit at <http://www.un.org/summit2005/> (United Nations 2005 World Summit)

### Exchanges and Transactions in Globalization

Globalization proponents tend to view the world as a global marketplace for the exchange of goods and services. To gain a sense of how the global marketplace functions, it is useful to ask: what is being exchanged in the global marketplace, by whom, and with what results? This inquiries lead to still more questions, such as how are such transactions established and conducted? The primary exchanges involve moving manufactured products to market, along with arrangements needed to supply the natural resources, transportation, and energy that make both manufacturing and product use possible.

Increasingly, however, we see that globalization encourages the exchange of services as well as goods. The forms in which information is now created and exchanged have made global exchanges of services possible, especially those exchanges of digital information. Traditionally healthcare was bound to the time and place where the service provider interacted with the client. Now, however, in radiology X-rays and scans, those scans made in wealthy nations such as the U.S. are transmitted digitally by Internet to a interpreted by trained professionals in India, where labor costs are cheaper. This digital outsourcing has become one of the principal ways used to exploit global labor. Support services for computers and other technological goods increasingly have come to rely on digital outsourcing, with offshore workers supplying services by telephone or email. In a sense, much of what can be digitized can be outsourced to a cheaper labor market. Within the English-speaking world, India is the leader in developing such information-outsourced labor, from software engineering to radiology to transcription of medical notes. (Increasingly the term *off-shoring* has come to mean the same thing as *outsourcing*. For more on this subject see <http://www.outsource2india.com>).

The American political economist Robert Reich, who became U.S. Secretary of Labor under President Clinton (1993-2000), refers to such knowledge workers as *symbolic analysts*. The term means that the work they do actually involves manipulating letters, numbers, words, and symbols, which among speakers of English means that the work can be done anywhere. Among those Reich saw in this category were architects, engineers, educators, journalists, and advertisers. The numbers of occupations that fit into this category appear to be increasing with the general expansion of globalization (Reich, 1991).

Increasingly exchanges in globalization involve symbols that operate as the *languages* of contemporary globalization. English has in fact become the pervasive language of global exchange. Those who lack this particular symbol set function at a distinct disadvantage in the exchanges of global commerce. Some suggest that for contemporary globalization, one really needs four languages to be successful: one is the mother tongue, the language one initially learns within the family; the second is the national language, which is often the language of work; the third is English as the language of global commerce; and the fourth is some combination of computer literacy skills which collectively can be seen as making up a kind of language. Other symbolic exchanges occur in global accounting, in which entirely novel ways of constructing accounting systems have arrived with the dominance of global corporations.

### **Symbolic activity**

These symbolic processes influence the dynamics of globalization. Educators throughout the world are becoming aware that national education needs to be geared toward preparing individuals for employment that is increasingly determined by the needs of the global economy. Recognizing that English has become the language of globalization, many Asian countries have undertaken extensive efforts to expand English language instruction. Even in countries where English is common, however, such as India, education in general has been criticized for not preparing graduates for the global labor force (Chronicle, 2005).

So one view of globalization depicts it as organized around various sets of words, numbers, and images, each a form which – if used artfully -- can suggest more than it states. Global advertising promotes the images of celebrities (think of the American golfer Tiger Woods and Nike products, or before him Michael Jordan, or Yao Ming and the promotion of the National Basketball Association and other commercial products). Some scholars see advertising as an alternative education system aimed at teaching populations a grammar of consumption to help sell goods and services across national cultural barriers (Henry, 1965). As consumers we use these celebrities as models and points of reference in making a range of choices, e.g., how to dress, whom to admire, whom to emulate, who to marry, etc. Older social traditions tended to see customs, mores, and social conventions as a part of society that could be taken for granted, meaning that they had their origin deep within existing social structures. Increasingly, students of globalization understand that identities and notions of self and other are socially constructed, in large part by the symbolism used in global advertising and routine trade exchanges.

### **Globalization Processes**

In the first part of this chapter we examined some dynamics that give shape and form to globalization. In this part, we examine more ways of seeing how globalization processes operate, and with what consequences.

### *Convergence*

Many of the services and products selling on a global scale lead people in different countries to have common experiences. Because so many people in differing cultures use the same cars, computers, Internet services, containerized shipping, commercial jet aircraft, cell phones, televisions, forms of packaging, McDonald's and Starbucks food and drink, and hundreds of identical or similar other items and interactive processes, globalization tends to homogenize cultures toward a single *global culture*. Observers call this process *convergence*.

When Barnett and Cavanaugh (1994) talk about the world increasingly being drawn together through common patterns of consumption, they are referring to global convergence. Seeing the world through a lens of convergence heightens our awareness of how many of the world's goods and services are shared across the globe. Microsoft has become one of the most powerful corporations in the world, and its founder Bill Gates the richest man in the world, precisely because Microsoft operating systems are present on the vast majority of the world's computers. Hundreds of millions of people share the common experience of the Microsoft operating system. Indeed, such giant global firms have become so because convergence tends toward creating oligopolies, a few large firms controlling an entire industry.

As the world's wealth increases in these giant firms, so do their capabilities of controlling more of their markets, furthering convergence. The concentration of ownership of corporate assets in the world, and the relative domination of world commerce by an ever-shrinking number of firms is a feature of contemporary globalization. For example, just seven global energy firms earned 3.5% of the total global income in 2007. Additionally, fifteen global media companies, dominate the production of films, television and related products throughout the world. They are Time Warner, News Corporation, General Electric, CBS, Walt Disney, DirectT, Bertelsman, Cox Enterprises, Advance Pubs, Gannett, BSKyB, Clear Channel, Google, Tribune Corporation and Yahoo. The addition to this list in the past several years of Google and Yahoo signal the changes taking place in how video and film arrive on screens. For the older, more conventional media, McChesney has detailed how throughout much of the globe the few "top tier" media firms exist in relation to a "second tier" of firms that are smaller and less dominant globally, but tend to be the largest media companies within their own home nations. Over the whole sweep of media throughout the world, then, we observe a pattern where a few large companies dominate markets (McChesney, 1999).

Another part of convergence toward a global culture lies with video games, which now outsell movies in the global marketplace (Ulmer, 2005). The vast majority of

video games are produced by a small number of companies, and run on a few platforms. The predicted global market in 2008 is approximately \$55.6 billion with an annual compounded growth rate of 22 percent. Three platforms dominate the market: Sony's PlayStation 2, Microsoft's Xbox, and Nintendo's GameCube. The annual sales market for platforms has been estimated at \$3.5 billion in 2007.

This concentration in ownership and domination of global markets can be illustrated in other important commercial areas as well. In 2003 the following instances of concentration were in place.

- Pharmaceuticals: The top 10 companies control an estimated 53 percent market share of the world's leading 118 drug firms.
- Biotech and Genomics: The top 10 firms account for 54 percent of the biotech sectors' \$42 billion annual revenues.
- Animal Pharmaceuticals: The top 10 companies control 62 percent of the \$13.4 billion world market.
- Seeds: The top 10 companies control one-third of the \$23.3 billion annual commercial seed market.
- Pesticides: The top 10 firms control 80 percent of the \$27.8 billion annual global pesticide market.
- Food Retail: The top 10 firms control 57 percent of the total sales of the world's leading 30 food retailers.
- Food and Beverage Processing: The top 10 companies account for 37 percent of the revenues earned by the world's top 100 food and beverage companies; the top 20 account for 53 percent of the top 100's total.
- Nanotechnology: Public & private sector investment in nanotechnology is an estimated \$5-\$6 billion per annum (Organic Consumers Association, 2003).

Other examples of convergence can be easily identified in such diverse fields as medical care and technology, fashion, construction equipment, etc. Interestingly, convergence has not occurred among national economies. As we saw above regarding inequality, while global economic production and growth have continued, economies themselves have not on the whole converged (World Bank, 2005).

### *Differentiation*

Despite the strong influences toward convergence, globalization also has dynamics pushing it in the opposite direction, toward difference, or what observers call *differentiation*. When we adopt the lens of differentiation, not surprisingly we see globalization differently. For example, if a society, a country, or a region is highly homogenous, as in, say, Japan, the intrusion of styles, products, goods and services from abroad may push its citizens to want to hold on to the traditional culture and its practices and values. People resisting the pressures to adopt new ways emphasize differentiating the new from the customary and familiar parts of local culture. It is often then the case, however, that the intrusive, foreign elements begin triggering a move to isolate the new

influences. As global influences enter societies, the overall effect may be to set off reactions against them, as well as to start movements to embrace them. This process is familiar in the tension that people often see between the global or foreign versus the local.

When global influences are viewed as forms of control by large global corporations whose wealth and ways are themselves foreign to the local, they can provoke resistance. Such resistance seeks to preserve the way of life existing before the intrusion, to conserve traditional values and customs. Please note that differentiation identifies what was there before globalization intruded, as well as the values and behaviors that arise in reaction to globalization. Consequently we characterize differentiation as a process through which globalization sets off reactions against it.

### *Innovation*

Innovation is one of the principal features of contemporary globalization. We can all easily point to innovations in a wide variety of areas (e.g., technology, architecture, science, communications, administrative practices, trade agreements, etc.). As we saw in the previous chapter, for those who adopt the progress narrative, innovation and its exploitations are the basic drivers of global wealth creation. Innovation moves from the research in science and technology on to manufacturing or service establishment, then on to the arrival of new products and services. In developed countries, innovation is measured by various indicators of gross domestic expenditure on research and development (GERD). The more its research and innovation, the more a country is deemed to have an economy that is *advanced*.

Innovation is taking place throughout the global system. As we have seen, innovations in accounting systems led in part to the successful expansion and dominance of multinational corporations. As a secondary result, major accounting firms of the U.S. and Europe also became multinational corporations in their own right.

Constant innovation drives global commerce and patterns of exchange. Innovations in organizational management have also become another force shaping globalization. Management innovations emerged in the 1970s and 1980s regarding how private firms should maximize labor outputs, produce large and consistent returns to invested capital, and establish the complicated exchange arrangements necessary to run far-flung global corporations. For example, just-in-time parts delivery for factories became a standard way to cut the cost of parts sitting idle in inventories. As a way of cutting overhead expenses, offshoring and downsizing became common. Many of the largest transnational corporations have as many or more employees working outside their country of origin as within it. As the ninth largest corporation in the world in terms of income, General Electric had 310,000 employees worldwide in 2005, approximately 158,000 of which were employed in the United States, while 152,000 worked out outside the

U.S. Seeking organizational efficiency, GE subsequently eliminated more than 150,000 jobs worldwide (Fortune, 2005; GE Union, 2005). In the economic decline of 2008, nearly all companies found their forms of management being tested to see if their similar assumptions about business operations might also lead to similar forms of failure under stress.

The spread of management innovations throughout the world means that as countries develop, especially as a result of foreign direct investment (FDI), the form and the practices of the leading corporations in any country will follow those dictated by successful management systems. This distribution of similar management practices signals us that innovation is closely interlinked with diffusion.

### *Diffusion*

Diffusion refers to the process by which an innovation spreads from one place to another, or spreads throughout a market over time. Models of diffusion are used to introduce a new product (e.g., athletic shoes), new technologies (e.g., the Internet) or to track the spread of disease (e.g., SARS). Diffusion models help predict the ultimate level of distribution or market penetration of the thing being studied. Ultimately, full penetration would equal saturation—everyone in the market would have the thing in question. When this situation occurs, the overall diffusion model predicts new innovations will enter the market to encourage new consumption.

In various ways, of course, innovation and its diffusion have always been part of human society. In contemporary globalization we see the accelerating speed with which diffusion can ripple throughout societies. Such diffusion can take spectacularly dimensions in how infectious diseases spread from one population to another. Studies show epidemics relying on: 1. a host living organism, either human or animal; 2. an appropriate set of environmental conditions; and 3. a suitable means of transmission. (Diseases that originate in animals and spread to humans are called zoonoses.) Modern transportation systems assure that infected hosts can move from one part of the planet to another with the speed of air travel, as demonstrated in recent years by the spread of SARS and Ebola fevers. Diffusion models permit epidemiologists and public health officials to predict how disease will spread., and in turn develop interventions designed to interrupt the diffusion pattern.

Similar patterns operate with positive innovations. Table 2.2 demonstrates the rate of Internet diffusion among subscribers in contemporary China.

Table 2.2 Internet Subscribers in China

YEAR	Users	Population	% Pen.	Usage Source
2000	22,500,000	1,288,307,100	1.7 %	ITU
2001	33,700,000	1,288,307,100	2.6 %	ITU

2002	59,100,000	1,288,307,100	4.6 %	ITU
2003	69,000,000	1,288,307,100	5.4 %	CNNIC
2004	94,000,000	1,288,307,100	7.3 %	CNNIC
2005	103,000,000	1,289,664,808	7.9 %	CNNIC
2007	210,000,000	1,330,044,605	15.8%	CNNIC

Source: Internet World Stats, 2008

Similarly, cell phone use in China shows a diffusion rate of 25% a year, adding 8.7 million more cell phone users per month, leaving China presently with over 600 million cell phone users, (Cell Phone Users, 2008) The global total of cell phones soared past 3.3 billion in 2007, meaning half of the world's population had access to a mobile phone, with new businesses developing to supply live video to hand held devices. (Wikipedia. Mobile Phone, 2008)

Models of the diffusion of innovations tell those selling them about the kinds of things they can do to maximize the probability of adoption. The combination of innovation and its diffusion contribute to the shrinking of time and space by modern communications and transportation. These dynamics are one of the more dramatic features of globalization and accelerate the process of change.

#### *Coherence and Conservation*

Events over the past two decades, especially since the development of the Internet, accounting for the vast spread of information have created a new need to make sense of all this information. For example, the number of medical articles produced in medical journals throughout the year exceeds one million. As such information proliferates, traditional means of search and organization are overwhelmed. The Internet quickly gave rise to the development of search engines, which in turn were winnowed down to a surviving few, with Google emerging as the clearly dominant search engine by the year 2000, but which in 2008 faces significant new challengers to its dominance. Other major players in the information search and coherence business, especially Microsoft and Yahoo, have invested billions of dollars in research and design in an effort to develop comparable systems. The importance of search engines and information handling became all the more evident when Google sold its initial shares to the public (a process that is known as IPO-initial public offering); its opening share price was the highest in the history of the New York Stock Exchange. Making sense of the world's information has turned into one of its major businesses (Battelle, 2005).

Along with the need to make vast bodies of information coherent comes the need to conserve it. This need has produced an entire industry providing for the backup and preservation of electronic information. Firms in this industry face very important questions about what information will be conserved, by whom, and for what purposes. These issues will, we believe, come to be of extraordinary

importance in a world in which the production of information has the planned intention of some possible use as a product (e.g., newspapers, television, research reports, etc.) yet also becomes the subject of overt and covert forms of surveillance by authorities for so-called purposes of security. The terrorist events in London, England in 2005 remind us of the commonplace use of surveillance cameras in public places, a growing trend in many of the world's cities. The control of and intrusions into electronic communications by both governments and private companies has reached unimagined dimensions. In the United States a number of important court trials have been decided on the basis of email correspondence that was several years old, and which was believed by those who wrote it to be destroyed, but which had been saved in central servers. In the United States, the National Security Agency (NSA) routinely monitors millions of telephone communications and then sorts through them for matters of interest to it. The combination of this deliberate conservation of information and unintended surveillance is an important feature of how globalization dynamics are changing the world in which we live.

The changing nature of information conservation also raises questions about the relationship of information to knowledge. Information refers to the production and dissemination of content through many different technologies and sources. To be informed in the modern world means to have access to and to be a recipient of numerous information sources, especially those relevant to one's important social groups. For example, what it means for a chemist to be informed and what it means as a citizen, or a sports fan involve different bundles of information, although they can overlap in important ways.

What constitutes knowledge is a different matter. That term has meant in the past not only the capacity of being informed, but of being conversant with a body of information and its uses, especially those uses highly regarded by some group in society, such as a command of medical or legal knowledge. Thus, the knowledge of science, literature, medicine, philosophy and culture, just to name a few, have been deemed by societies to be of particular importance. They are the kinds of resources that institutions of higher learning such as universities have been organized around.

The information explosion creates enormous tensions between those knowledge traditions honored in the past and what is considered important information in the present. All universities, for example, are under pressure to re-evaluate their curricula to assure their relevance, especially their relevance for preparing people for employment in the global marketplace. Innovations and increases in information pose challenges regarding how people learn and how educational systems may be organized to maximize learning. The processes societies use to determine what information will be conserved and what will not, may determine the kind of world we experience in the near future.

## **Materials for Further Study**

Keeping up with the kinds of changes taking place in the global system is beyond any single person, or research organization's capacity. However, various organizations publish websites that provide very useful data and ways of understanding the relationships discussed in this chapter.

*Worldometers* publishes a variety of data in real time. For example, by clicking on the website you can watch the world's population change, second by second, or the rate that top soil is eroding, or the cumulative hours in a year people wait for websites to download, and many other facts that help to document the rate of social change in various dimensions. See: <http://www.worldometers.info/>

A series of relatively brief presentations has been developed and widely disseminated through youtube.com bearing either the title "Did you Know?" or "Shift Happens." The materials presented in these videos emphasize some of the change dynamics present in globalization. Reviewing them will contribute much to this chapter as well as to Chapter Four that focused directly on change. They can be referenced at: <http://www.youtube.com/watch?v=ljbl-363A2Q>.

TED stands for Technology, Entertainment, Design. The website, available at [www.ted.com](http://www.ted.com) provides a wide-ranging collection of talks and presentations by some of the world's leading innovators.

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## Endnotes

<sup>1</sup> In an attempt to stimulate its economy through market expansion, China is striving to sign free trade agreements with neighboring countries. Standard economic theory suggests that the greater the interdependence among members of an FTA, and the stronger the complementary relationships among them, the larger the "trade creation" effect will be. It is the various regions within China, rather than China and its neighbors, which meet these conditions most fully. However, regional trade barriers still exist in China, and it has yet to become a unified market. In order for the economy to develop further, China should

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vigorously pursue an FTA that brings together its own provinces before seeking such agreements with other countries. This would also help correct regional disparities.

In particular, if the barriers restricting the flow of labor, such as the household registration system, were to be removed, workers would most likely flow from inland and rural areas where wages are low to the coastal and urban areas that are rapidly industrializing. Production will increasingly become concentrated as a result, but income levels in the country will tend to equalize. This is because remittances by migrant workers can provide an important source of income for inland regions. In addition, the inflow of labor can help curb increases in wage levels in the coastal regions while in the inland regions the outflow of labor will help raise wages. More than 100 million people are already said to have become migrant workers, but because these people do not have permanent residency in the places to which they have moved to work, they face various forms of discrimination including medical care, education for their children and social security. The current household registration system, which restricts the flow of people, must be revised to allow the free movement of people so that these problems can be corrected.