



*The Idea-Based Economy and Globalization:
The Real Foundations of American Prosperity in the 21st
Century*

Robert J. Shapiro
Chair, NDN Globalization Initiative

NDN Globalization Initiative
Bernard Schwartz Forums on Economic Policy

January 23, 2008

MIAMI • NEW YORK • SAN FRANCISCO • WASHINGTON, DC

729 15th Street NW • 2nd Floor • Washington, DC 20005 • Tel: 202.544.9200 • Fax: 202.547.2929

NDN is a 501(c)(4) advocacy organization • Contributions or gifts to NDN are not tax deductible • Paid for by NDN



The NDN Globalization Initiative and Bernard Schwartz Forums on Economic Policy

The NDN Globalization Initiative now includes the Bernard Schwartz Forums on Economic Policy. Each forum focuses on a specific aspect of the policy issues raised by globalization. While globalization benefits the U.S. economy in terms of GDP growth and productivity gains, many Americans have not prospered in this new economic era. NDN is committed to *making globalization work for all Americans* by offering a new economic strategy that would modernize our health care and energy policies; invest in our workers, students, and infrastructure; and foster and accelerate innovation across the economy. This strategy also includes measures to address our immigration system and offer universal and affordable broadband access.

This new essay – the third in the Bernard Schwartz Forums series – is by Robert Shapiro, Chair of the NDN Globalization Initiative. It examines how and why U.S. companies and workers lead the world in developing and applying new intellectual property, and why these leads in innovation constitute a critical U.S. advantage in globalization. He also shares his recommendations for preserving these U.S. advantages in IP and international trade, addressing rising health care and energy costs, improving U.S. infrastructure, and pursuing a serious investment agenda in education and human capital.

For more on NDN's Globalization Initiative, please visit our website at www.ndn.org/advocacy/globalization or contact Maggie Barker, Globalization Initiative Policy Director, at mbarker@ndn.org.

***The Idea-Based Economy and Globalization:
The Real Foundations of American Prosperity in the 21st Century***

Robert J. Shapiro

This essay is adapted from *Futurecast: How Superpowers, Populations and Globalization Will Change the Way You Live and Work*, to be published by St. Martins Press in April 2008.

Globalization and the fast-increasing importance of intellectual capital are historic developments with such force and extent, that they are transforming economic life across the world. The growth of globalization is unprecedented: Since 1990, the share of everything produced in the world that's traded across national borders has increased from about 18 percent to roughly 30 percent. By 2005, more than 180 national economies traded more than \$12 trillion worth of goods and services out of a \$42 trillion world GDP, the highest levels and the largest increases ever recorded. In the United States, imports of \$2.2 trillion in 2006 were more than the entire GDP that year of all but five other countries.

These developments rest on the emergence of a genuine, idea-based economy, especially in the United States. For more than a decade, American businesses have invested as much or more in intangibles – not only the intellectual property (IP) of patents and trademarks, but also databases, brands, organizational changes and more – than in all physical assets. And it is ultimately the massive international transfers of those intangibles, embodied largely in new technologies and business methods, that have unleashed the most rapid and widespread modernization ever seen.

The nexus of globalization and the idea-based economy is also evident in recent changes in many of the world's largest corporations. With global capital and labor now available much more easily and cheaply, and the spread of information technologies (IT) enabling companies to make greater and better use of information, intellectual capital has become a critical and scarce resource for most global companies. For the first time in economic history, most of the value of the large companies at the center of U.S. economy is now determined not by their physical assets, but by their patents, copyrights, brands, databases, organizational skills, relationships, and other critical intangible assets.

These developments are already the largest economic forces in our lives, and their astonishingly complex and interconnected facets will help shape the path of our society for the foreseeable future. Moreover, the economic prospects of every American worker will depend vitally on his or her ability to produce or work with these idea-based, intangible assets and the technologies that organize and use them. Preparing every American to do so should have a central role in the economic policies and programs of America's next president: The government and nation should ensure that every

American child is computer and Internet savvy and every worker has opportunities to become computer and Internet savvy. Tapping into the benefits of the idea-based economy also means not shrinking back from trade liberalization, while making the necessary investments in education and human capital to enable American workers to share in those benefits. This agenda also will entail increased investments in a range of infrastructure – broadband as well as roads, bridges, ports and mass transit – to ensure the efficient flow of products, services, technologies, and information. The next president also should recognize the powerful, potential impact of immigration reform on the idea-based economy, through the critical role that skilled and ambitious immigrants play in developing many of the new ideas, technologies and business methods. Finally, the next administration must protect the basic incentives for innovation in America by preserving the intellectual property rights of American innovators at home and in every market in the world.

The New Globalization of Production and Consumption

For millennia, people have bought foreign-made products that they couldn't make for themselves or that others could make for relatively less. Much of what we trade today involves the clothes, food, furniture and the like, or basic commodities like energy and metals, that countries have bought from each other for centuries. Yet, global exchanges today are different from the preceding 2,500 years of international trade. Trade is no longer a matter mainly of people in one country selling or buying finished goods or raw materials from people in other countries. The companies that make up the core of the U.S. economy today – the businesses most people work for, directly or indirectly – now operate through global networks that exist beyond the borders of any country. These networks are built on technologies developed in the late 20th and early 21st centuries, and enable corporations to break up the production of virtually everything from furniture and clothing to pharmaceuticals and computers into dozens or hundreds of discrete parts, parcel them out to facilities in scores of countries, and then assemble and distribute final products to nearly countless different markets. The new ideas and innovations embodied in the computer and web-based systems that track, transfer, amass and analyze information about all of these far-flung activities make it possible for companies to operate these global networks.

The greatest impact of these developments has been felt in some of the largest and poorest countries on earth, which have gone from economic outsiders to global players in barely a decade. In China and India, the number of people working in modern factories and offices has exploded, raising average manufacturing wages two- to three-fold since just the mid-1990s.¹ Since these wages are still a lot lower than in most other places – in 2004, an average manufacturing worker earned 70-cents an hour in China and 40-cents an hour in India, compared to \$2.30 in Mexico and \$21.00 in the United States – the addition of several hundred million Chinese and Indian workers to the global labor force has produced new pressures on the jobs and incomes of people thousands of miles from Shanghai or Delhi. Workers and companies in countries like Mexico and Malaysia feel

¹ International Labor Organization, www.ilo.org.

the most pressure because they're the ones competing directly with Chinese and Indian producers.

The rapid spread of sophisticated production operations in poor developing countries has other world-changing effects. The opportunities to attract lucrative foreign operations to societies that had long existed on the margins of the advanced world have helped convince leaders from China and India to Mexico and Bangladesh to upgrade their education and public health systems, so they can provide the workers that western businesses need and the basic amenities that foreign managers expect. In Hungary, Mexico and Guyana, for example, public spending on education doubled in the 1990s, and it rose at least 50 percent in Thailand and Bangladesh.² In a developing-world version of supply-side economics, these improvements increase the transfers of capital, technologies, operations, and other innovations, which in turn generate more revenues for governments to extend those improvements.

These leaps in progress are far from universal. Most Africans remain beyond the reach of all the economic progress, especially in the sub-Saharan countries. Moreover, much of Latin America has remained on the sidelines of globalization. Through the 1980s and 1990s, while China grew at super-charged rates of 8 to 10 percent a year and the economies of Southeast Asia expanded 5 to 7 percent a year, the GDP of Latin America grew less 2 percent a year. There's nothing in globalization that favors Asians over Latins. But foreign investors and companies did not fail to notice the regular bent of Latin American leaders for policies that led to hyperinflations, sovereign debt defaults and the periodic appropriation of foreign assets, which tightly restricted foreign ownership and encouraged widespread piracy of foreign patents and copyrights.

Globalization and the Idea-Based Corporation

The integration of many fast-growing developing countries into the economic fabric of the United States and other advanced countries is also changing the character of modern corporations. Every American who works for a living feels the effects. For centuries, large national and international companies used their heft to get sweet deals on their most basic resources, capital and labor. But globalization makes labor and capital easily and relatively cheaply available to global companies, so their basic business strategies no longer focus on securing those resources. Instead, the new and truly scarce and critical resource for most global businesses is the intellectual capital of their patents, copyrights, brands, distinctive business methods, and the knowledge and relationships of their professionals and managers.

The "idea-based" economy has been a useful metaphor for years. The current dynamics of globalization and recent technological advances have made it a reality. Federal Reserve data show that since the mid-1990s, U.S. companies have invested as much in intangibles—mainly the intellectual property of patents and trademarks, as well as databases, branding, organizational changes and the training or human capital to use these

² World Bank, Human Development Indicators, 2006.

ideas—as in physical assets, from equipment to land and buildings. For the first time, intangible assets are more important business investments than physical assets.

This shift is evident in the way U.S. and international investors value America's public companies. In 1984, the market value of the physical assets of the top 150 U.S. public companies – their “book value” – accounted for 75 percent of the total value of their stocks. A firm was worth nearly what its plant, equipment and real estate could be sold for. By 2004, the book value of the top 150 U.S. corporations accounted for 36 percent of the total value of their shares. Nearly two-thirds of the value of large companies now comes from what they know and the ideas and relationships they own.

Creating and applying valuable new ideas has always been the most important factor determining America's economic progress. Since the pioneering work of Nobel laureate Robert Solow in the late-1950s, economists of every school and stripe have recognized that the development and application of economic innovations has had greater impact on how fast the United States grows and how much the incomes of Americans rise, than how much financial capital Americans invested.

For example, 30 to 40 percent of all the gains in wealth and productivity made by the United States during the 20th century can be traced to innovation in its various forms – not only the development of new products and technologies, but new materials and processes, new ways of financing, marketing and distributing things, and new ways of organizing and managing a business. Second in importance were improvements in the education and skills of American workers – especially in the ability to work with innovations – which accounted for 20 to 25 percent of U.S. gains in productivity and growth. Only 10 to 15 percent of all U.S. economic progress stemmed from increases in the U.S. capital stock—the growth of corporate physical assets

Judging by how much businesses now invest in ideas and how much the market values their doing so, the economic role of innovation is still expanding. For a number of reasons, the central economic innovation of this era, information technologies, affects the economic lives of most people in unusually powerful ways. Compared to previous innovations such as electrification, IT continues to advance rapidly while its price declines at equally and unusually fast rates. The falling price of computing power, storage, transmission, and most recently software, is an important feature of globalization itself, because it allows these innovations to spread quickly across much of the world. It's not surprising that elaborate information systems pervade finance and manufacturing in the world's most highly-developed countries. What's unique is that the same systems have so quickly become part of most large and medium-sized businesses in places like China, India, Nigeria, and Peru. In 2005, an estimated 100 million Latin Americans were online; and even in the world's least-developed region, sub-Saharan Africa, more than 10 million people had PCs and more than 13 million were online.³

To keep their progress going, China and other fast-developing countries will have to keep on attracting and absorbing the new ideas being developed today and in the near-

³ International Telecommunications Union, <http://www.itu.int/ITU-D/ict/statistics>.

future by American and other Western companies. To do that, China and others will have to accept the strategic bottom line of modern business and adopt western intellectual property protections. They are not there yet. Much of the Chinese government and People's Army still runs on pirated versions of Windows, while the Chinese automaker Chery produces clones of GM cars. India, Brazil, Argentina and others look the other way as local businesses make and sell millions of doses of counterfeit Western drugs and pirated DVDs, CDs, and software programs.

In the end, developing countries will have no other option but to adopt modern IP protections. Their leaders know that the rapid economic progress on which much of their own legitimacy rests requires continuing infusions of new western technologies and expertise, as well as investment. American and other western businesses that provide these critical resources similarly know that their own growth depends on their ability to claim their share of the value of the goods and services produced with their ideas in the world's successful low-cost economies.

The shift to new ideas as the central asset of large companies is also changing the mix of industries that dominate global business. In 2005, 39 percent of the world's 150 largest corporations were in financial services and health care – sectors that employ large numbers of professionals and managers who create value through their knowledge and interactions. In 1984, the share of the top 150 companies in these sectors was just 12 percent. Even in manufacturing, the number of professionals and managers has been rising sharply. From 1984 to 2005, the share of General Electric employees in professional or managerial positions more than doubled to over 50 percent, even as the total number of GE employees contracted. Corporations like GE are changing in this way because in an idea-based economy, professionals and managers are the workers who generate the highest returns: Over the same period, the inflation-adjusted, net income per-employee at GE soared from \$13,000 to \$54,000.

There's no way of knowing which companies will be global market leaders a generation from now. But we can reasonably conjecture about which sectors are likely to be relatively more or less important. The likely winners will be those industries whose success depends most on new ideas and that devote the most resources to developing these ideas. That group will include the world's large pharmaceutical, biotech, and new genomic companies, especially as the elderly population grows worldwide, increasing demand for pharmaceuticals and, for the biotech sector, rising incomes in less-developed nations increase demand for genetically-modified foods. It also could be boon times for global auto makers that respond to the energy and environmental demands of the next decade with new ideas for innovative engines and vehicles, especially as fast-growing incomes and vast road building programs in China, India, Bangladesh and other large developing nations drive up demand for cars.

The next decade also looks bullish for the paradigmatic, idea-based industry – information technology and telecommunications. As the prices for computers and Internet access have declined steadily and their uses have steadily expanded, America and other advanced countries have seen these technologies spread to the smallest

businesses and low-income people. Over the next decade, this process will repeat itself across much of the developing world, starting already with cell phones and soon with the \$100 to \$200 laptop with open-source codes currently touted by the MIT media lab.

The Outlook for Americans in a Globalized, Idea-Based Economy

These developments create America's fundamental role in modern globalization as the world's largest source of new products, especially advanced technologies, and the leading source of the advanced business and financial services tied to these technologies. Moreover, America's economic success over the last decade, especially as compared to the major economies of Europe and Japan, rests as much on its greater capacity to effectively use these advanced technologies and services, as on the ability to develop them.

The nations that have successfully integrated computers and the Internet into their business and personal lives are, with the exception of the United States, small countries that have deliberately set about doing so – Sweden, Finland and Denmark, Singapore, Hong Kong, South Korea, Bermuda and Australia. Despite our vast size, deep economic inequalities, an economy with thousands of business sub-sectors and a stupefying variety of businesses of every sort, and no national policy or funding to support the spread of these technologies, in 2004 the United States had more than 76 PCs for every 100 inhabitants, and 63 percent of our population used the Internet.⁴ No other large, diverse economy came close. Japan had nearly as many PCs per 100 people, but only 50 percent of Japanese were online, while Britons were online with nearly the same ubiquity as Americans but had relatively fewer PCs. By both measures, Germany, France, and Italy all trailed England and Japan, and even more so the United States.

Europe and Japan will catch up in these areas, but 20 years of lagging behind points to important factors contributing to America's relative success among the world's large, advanced economies. Part of the U.S. continuing edge reflects what economists call a "compound first mover advantage," or the benefits that come from developing many new technologies first. America's research networks, entrepreneurial culture and business environment are not the world's best for producing some important global products – Japan, for example, is the world's strongest auto producer – but they're particularly conducive for developing and spreading new ideas and technologies. The initial technological leadership of American inventors and IT companies established reservoirs of critical knowledge and business processes, as well as networks of relationships, that extended these early leads to most of the industries' sub-segments and market niches. So, American inventors and companies came up with not only the initial rounds of IT and Internet innovation, but also much of the subsequent generations, because the United States has more of the intellectual, cultural and organizational capital to do so cheaply.

These advantages are not restricted to IT. Social scientists usually analyze a country's R&D commitment by how much of its GDP is devoted to it. But in the race to

⁴ United Nations, International Telecommunications Union, 2006.

develop new, economically powerful ideas, what matters is how much is invested, period, and how well a country commercializes what comes out of these commitments. Here, too, the United States has real advantages. In 2003, for example, the United States spent nearly \$300 billion on R&D, compared to \$210 billion by all of Europe, barely \$100 billion by Japan, and less than \$80 billion by China – and the gap in 2003 was larger than in 1990 or 1995.⁵ That’s one reason why U.S. inventors and companies have early leads in many promising and IP-intensive areas of biotechnology and nanotechnology. No one can say which new ideas ultimately will have far-reaching economic value and effects. But if any of them strike gold, it’s more likely to happen in the United States, with much more annual R&D, research universities and young companies that come up with technology breakthroughs, and private equity investors eager to place tens of billions of dollars a year in long-shot bets on new ideas.⁶

If the United States is such a powerhouse in new, idea-intensive technologies, why is the trade deficit so large in these areas? Does it mean, as one Washington analyst warned recently, that “America is well on its way to surrendering (technological) leadership”?⁷ In fact, the data show not that the United States is losing its technological edge, but rather that its technology companies are fully globalized. To begin, about half of the technology imports driving the high-tech trade deficit come from foreign subsidiaries of U.S. technology companies. Moreover, the National Science Foundation reports that American companies have increased their worldwide preeminence in high-technology products. Less than 20 years ago, Europe, Japan and America each claimed a little more than 25 percent of the world market share in this area; by 2003, the U.S. share had reached almost 40 percent, while Europe’s had fallen to about 18 percent, and Japan’s was just about 10 percent.⁸

Globalization will likely increase the significance of the U.S. lead in the development and trade of high-tech products. For one, American hardware, software and Internet companies will have a leg up as China and India go increasingly digital. In 2004, India had barely one PC for every 100 Indians and just 3 percent of its population was online, while China had about 4 PCs for every 100 Chinese and just a little over 7 percent of its people used the Internet. In another decade’s time, China could be as digital and wired as some European countries today, and India also will make substantial strides. American companies will provide much of what will then be the latest generation of these technologies and the IT services that will accompany their spread, even as much of them are produced by foreign subsidiaries and affiliates.

America’s most important advantage as an idea-based economy, however, lies not in the development of new technologies, but in how well Americans use them. Despite what most people learn in introductory economics, a succession of American and European studies have found that how much a company or a country spends on IT makes

⁵ National Science Board, *Science and Engineering Indicators*, 2006.

⁶ Money Tree Report, 2006, PricewaterhouseCooper and the National Venture Capital Association.

⁷ Clyde Prestowitz, “America’s Technology Future at Risk: Broadband and Investment Strategies to Refire Innovation,” Economic Strategy Institute, 2006.

⁸ National Science Board, “*Science and Engineering Indicators*,” 2006.

little difference in how productive they become. Over the last decade, European businesses invested nearly as much in IT as U.S. firms, relative to the size of their economies. Yet, the productivity of the industries that spent the most on these technologies increased by 3 to 4 percent a year in the United States, compared to no change at all or even slight declines in Europe.⁹

One reason for the difference is that American companies are managed differently. For example, American businesses more often use performance measures to determine pay increases and promotions, which wittingly or not create powerful incentives for U.S. workers and their managers to get more out of the IT they use. By contrast, large European and Japanese companies still base most employees' pay and promotions on tenure and other rules. Other rigidities in the European and Japanese economies also make it harder for firms to get much advantage from their IT investments. For example, labor laws and social conventions that sharply limit their firms' freedom to fire or reassign most workers often prevent firms from reorganizing their domestic operations to make their IT investments work for them. So, a French or Italian company can invest in a state-of-the-art accounting or automated phone system and find itself unable to reassign or let go any of its current accountants or operators.

With much less regulation, the competition inside the U.S. economy is more intense. America's bare-knuckled forms of competition make our workers and companies less secure, especially in a time of galloping globalization and technological progress. But domestic competition also forces many companies and workers to change all the time by using the latest technologies and business practices – the best new ideas and innovations – to improve something they make or do, or come up with new products, processes, and ways of doing business. The ultimate result has been a growing American advantage in productivity growth, compared to most of the world's other large, advanced countries.

The Social Costs of the Idea-Based Economy and How to Address Them

For all of its strengths and successes, America's new, idea-based economy does not benefit all Americans. Large, U.S. corporations clearly benefit, judging by their record profits of recent years. Those profits also benefit shareholders; and with pension funds and personal retirement plans holding more than 40 percent of U.S. stocks, some of those benefits reach nearly half of Americans. But globalization and the idea-based economy also dampen America's vaunted capacity to create new jobs and deliver higher wages based on rising productivity. The central economic role of ideas and information places a wage "premium" on a worker's capacity to operate well in the business environments created by advanced technologies. One result is that professionals and managers who comprise most of the top quarter of the U.S. workforce have seen healthy job and wage gains in recent years. However, other Americans without those skills are faring much worse, with the average wage of the remaining 70 to 75 percent of workers

⁹ Raffaella Sadun and John Van Reenen, "Intellectual property, technology and productivity: It ain't what you do it's the way you do I.T." EDS Innovation Research Programme, Discussion Paper No. 002, October 2005.

generally stagnating over the last five years, despite very strong gains in the overall productivity of the U.S. economy.

Moreover, the information technologies that are so critical to achieving productivity gains are also particularly suited to replace the jobs of many middle-class Americans who perform mental work (as opposed to physical work) that can be regularized or routinized – secretaries, inventory controllers, bank tellers, and others in the center of the economy. A recent study has found that for more than 15 years starting in the early 1980s, these kinds of jobs have both grown more slowly in good times and disappeared much faster in bad times, and achieved smaller wage gains in good times and larger wage losses in bad times, than jobs at the top or bottom of the economy. Every large, advanced economy is subject to these slow-motion shifts and shocks for workers. But the United States may be more exposed to the effects, because ours is the world's most IP- and IT-intensive large economy.

The next U.S. president should address these forces with serious programs, or millions of both low-income and middle-class Americans could see their economic prospects worsen, even when U.S. growth and productivity boom. As we noted in a previous essay in this series, the next president and Congress must carry out effective reforms to slow rising health care and energy costs, because globalization intensifies competition in ways that force many companies to cut jobs and wages when their costs rise sharply. In recent years, that's just what has happened with health care and energy costs in the United States. (See *The New Landscape of Globalization*.¹⁰)

The most important step for the next president is to ensure every American a real opportunity to build the knowledge and skills required to operate effectively in IP- and IT-intensive workplaces. This will mainly involve offering an agenda that promotes greater investment in education and human capital. As Alec Ross from One Economy and NDN's Simon Rosenberg have proposed, the federal government should ensure that every sixth grader in America has a laptop computer and the skills to operate it. (See *A Laptop in Every Backpack*.¹¹) Deficits in IT-facility, however, are most serious among Americans already in the work force, especially those aged 35 and over. As we have proposed, the federal government can ensure that every worker in America can become IT-proficient: Provide about \$125 million a year in grants to community colleges to keep their computer labs open and staffed three evenings a week and on weekends, so that anyone can walk in and receive basic instruction at no cost. (See *Tapping the Resources of America's Community Colleges*.¹²) After NDN released this new idea, it was promptly adopted by Senator Barack Obama.

As ideas and innovations grow even more important to the success of the American economy, the next president must also ensure that the United States sustains the conditions that promote the development of new ideas and their successful applications across the economy. Open trade is one of those critical conditions, because

¹⁰ www.ndn.org/advocacy/globalization/The-New-Landscape-of-Globalization.pdf.

¹¹ www.ndn.org/advocacy/globalization/a-laptop-in-every-backpack.pdf.

¹² www.ndn.org/advocacy/globalization/tapping-the-resources-of-community-colleges.pdf.

it gives Americans access to the best ideas in the world and encourages the investments to come up with new ideas by expanding the potential market for them. To earn public and congressional support for further trade liberalization – as the current administration has failed to do with the Doha round of negotiations – the next president will have to address Americans’ concerns about globalization by carrying out reforms to slow rising health care and energy costs and by making greater and better investments in human capital.

Greater and smarter investments in America’s infrastructure are also important for ensuring the efficient flow and application of new ideas, products, services, and technologies. The United States can well afford investments in the roads, bridges, ports, schools, broadband networks, and new technologies critical to our prosperity. A renewed national purpose and will to make these investments will be equally important. NDN Fellow Michael Moynihan has proposed a set of measures to accomplish this. (See *Investing in Our Common Future*.¹³) These measures include a national infrastructure bank and capital budgeting at the national level, better coordination between the federal government and states and localities, and application of new environmental standards to federal infrastructure and buildings to help address global warming and establish American leadership in green technologies.

Finally, the next president will have to work hard to maintain an economic environment conducive for an idea-based economy – one that will promote the continued development of new ideas and the continued spread of the new technologies, products, processes and business methods that embody them. To ensure the necessary investment capital, the next administration will have to seriously address the certain prospect that the retirement of the boomers will sharply drive up entitlement costs, especially in health care. The next president also will have to commit more resources to basic research and development that often provides the foundation for powerful new innovations. The next administration must also continue to maintain a progressive approach to immigration, especially with regard to the skilled and ambitious people from all over the world who help fuel American entrepreneurship and the development of new technologies and products. Finally, the next administration should be strongly committed to preserving incentives for innovation by aggressively protecting the intellectual property rights of Americans and U.S. companies, across our own economy and in the vast and fast-expanding foreign markets where thousands of products and services embodying American ingenuity are sold.

This agenda is large and ambitious, because the challenges of globalization and the idea-based economy are great and daunting. If the United States meets those challenges, however, all Americans should be able to prosper in the new century.

¹³ www.ndn.org/advocacy/globalization/infrastructure-paper.pdf.

About the Author

Robert J. Shapiro is the chairman of NDN's Globalization Initiative. He is also chairman of Sonecon, an economic advisory firm in Washington, D.C. He was Under Secretary of Commerce in the Clinton administration, principal economic advisor to Bill Clinton in his 1991-1992 campaign, senior economic advisor to Al Gore and John Kerry in their presidential campaigns, co-founder and Vice President of the Progressive Policy Institute, and Legislative Director for Senator Daniel Patrick Moynihan. He has been a fellow of Harvard University, the National Bureau of Economic Research, the Brookings Institution, and the Georgetown University School of Business. He holds a Ph.D. from Harvard University, as well as degrees from the University of Chicago and the London School of Economics and Political Science.