Point of View

Network-Powered Growth

How Governments Can Serve as Catalysts for Sustained Economic Growth

Cisco IBSG (Internet Business Solutions Group)

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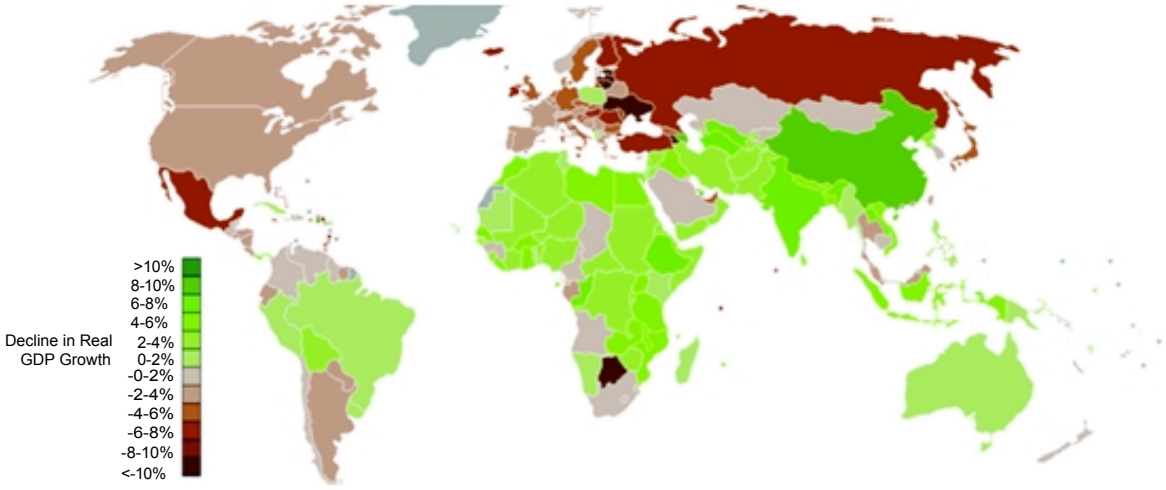
Introduction

Governments at all levels across the globe are struggling to help their economies recover from the worst financial and economic crisis since the Great Depression. High unemployment rates and shrinking tax revenues from wages, business profits, consumption, and trade sources are combining with increasing economic and social pressures to challenge governments and limit their flexibility to act. The map below (see Figure 1) shows the worldwide impact of the "Great Recession" on real gross domestic product (GDP) growth in 2009 and illustrates how most developed countries were particularly hard hit.[1]

Governments can be catalysts for growth by investing in infrastructure for communication, collaboration, and cooperation that is critical to long-term economic growth. The economic, political, and social consequences of slow growth and stagnant economies have opened a window of opportunity for governments to look beyond historical models and slow recovery scenarios. They have an opportunity to "embrace experimentalism" and use the freedom of our economic discontinuity to transition to more dynamic economic models.

Figure 1. The Impact of the "Great Recession" Hit Developed Nations Hardest



Source: CIA World Factbook, 2010

1. Real GDP growth declines in the developing world estimated as of April 2010, http://en.wikipedia.org/wiki/File:Gdp_real_growth_rate_2007_CIA_Factbook.PN

Governments that respond by combining necessary retrenchment with smart investment will bounce back as leaders of a stable economic revival. Creative leaders will embrace:

- Network-powered growth to spark innovation, stimulate their economies, and sustain long-term competitiveness and positive differentiation
- Network-powered supervision and regulation to better frame and monitor the global financial and economic ecosystem

Governments that promote incentives and innovation in networks will attract investment and build intellectual capital. They will be the first to emerge from recession and unemployment, and will become magnets for the resources and economic activity that will improve the economic and social well-being of their people.

Reversing the Spiral of Reduced Revenues

Government officials have a choice: they can reduce spending and wait for economic conditions to improve, or they can act to confront their economic challenges in more productive ways.

If they choose the first option, they are likely to be plagued by a combination of political and economic challenges that will create a spiral of declining economic activity coupled with reduced ability to respond as conditions deteriorate. Subsequent job losses will further exacerbate revenue losses for governments. They must then either cut services or fund their needs from the capital markets. Increased borrowing by governments raises their debt and the cost of capital for all their citizens and for the businesses that are critical to economic recovery. Ultimately, indebted governments (if they have the authority) can then devalue their currencies or default on their obligations. Either route will have negative consequences.

This is not only a theoretical challenge; it is a downward spiral now under way in many countries. In such an environment, the pressure on governments to satisfy their political and business constituencies creates a challenging environment for long-range planning and economic growth, and threatens a government's ability to make the right decisions, engendering public anger and opposition. Not only economic recovery but peace and prosperity are on the line.

Most governments, however, are not standing idly by. They are coupling the austerity imposed by reduced revenues with plans for stimulating economic recovery and growth. These plans are taking many forms, such as:

- Providing stimulus to fund jobs on short-term initiatives
- Investing in critical infrastructures and pure science research
- Giving tax credits to industry for research and development
- Promoting industry growth and jobs creation by linking community support to businesses and academic institutions
- Directly investing in business initiatives as a partner or as a sponsor

Networks and the embrace of diverse communities and ideas are critical to launching the kinds of innovations that can foster new economic models and increased levels of growth. Governments investing in network-powered economies will play a more balanced and nuanced role in economic markets. They will become the architects of an accountable, reliable platform for sustainable and inclusive economic growth and social development:

- A platform based on political stability, fiscal responsibility, efficient public administration, good schools and universities, modern infrastructures, and effective health- and social-care systems, promoting fair trade and competition
- A platform to create best possible conditions for new industries by amplifying local, regional, and national strengths and improving global competitiveness
- A platform that addresses systemic risks through integrated sensing (looking beyond obvious risks and evaluating contagion risks arising from possible destabilizing combinations of risk factors) and through regulations that enhance the overall resilience of the economic system (such as capital requirements and leverage rules). And governments will exercise more timely and more responsive crisis-management and decision-shaping market interventions.

What Is Network-Powered Growth?

At the simplest level, a society can increase its ability to grow by adding more paths and hubs for commercial activity. Traditionally, this has meant building highly capital-intensive projects like highways, bridges, ports, airports, and other types of complex and expensive physical infrastructure. In comparison to these investments, network infrastructure is a cost-effective alternative. A December 2009 study of 30 nations by the Organisation for Economic Co-operation and Development (OECD) found that a new broadband network platform would, on average, generate cost savings of between 0.5 percent and 1.5 percent over a 10-year period in each of the following sectors: electricity, health, transportation, and education. Even this conservative return on investment could justify the cost of building a national point-to-point, fiber-to-the-home network.[2]

Cisco® Internet Business Solutions Group (IBSG) has developed an approach for evaluating network investments in emerging-market countries called the Broadband Dynamic Value Assessment (BDVA), and has piloted this model in developing nations. The BDVA ties public-policy proposals to improvements in pillars of the economy and the broadband penetration rate, and demonstrates that these elements are linked to GDP growth.[3]

2. "Network Development in Support of Innovation and User Needs," OECD, December 9, 2009.
3. "Broadband Dynamic Value Assessment: An Introduction," Cisco IBSG Emerging Markets, September 2008.

Economic analysis[4] has shown that total factor productivity—the know-how, processes, and technologies with which capital is utilized—rather than capital intensity is the primary determinant of countries' productivity and economic growth. Mounting evidence suggests that countries with good institutions, checks on government, and environments that enable social inclusion and entrepreneurial activities tend to 1) attract investment and 2) benefit from learning, experience, and innovation. Productivity and income accelerate. Knowledge embodied in new capital investment increases the productive potential of factors in fast-growing countries, fueling an upward growth spiral.

Network connectivity has a special relationship with a nation's economic growth—not only in connecting businesses to a pool of knowledge and promoting the exchange of ideas, but also in allowing civil society to engage with government and access official resources and information.

The impact of network technology may be especially great in poor countries. This is because connectivity can help these countries access the resources commonly used in the developed world, while concurrently improving the quality of governance and institutions that enable citizens to engage in profitable economic activities.

How Can Networks Spark Economic Recovery?

Although addressing the mistakes of the past and ensuring market stability are critical to the long-range future of the world economy, governments are facing the near-term challenges of jump-starting their national economies. Innovation and knowledge are increasingly seen as central to driving economic growth. The role of Internet connectivity in enabling access to knowledge and ideas can hardly be disputed among those who communicate, trade, and learn online daily.

" Let us be the generation that reshapes our economy to compete in the digital age... Let's invest in scientific research, and let's lay down broadband lines through the heart of inner cities and rural towns all across America."

- Barack Obama, Presidential Announcement Speech in Springfield, IL, February 10, 2007

Certain countries nurture innovators more successfully than others because they encourage dynamic, young, high-growth businesses. These entrepreneurial businesses exhibit the fast, innovation-led growth that pushes the technology frontier. Such processes don't occur without encouragement and investment. Venture capital structures and economic culture are keys to the successful nurturing of these companies.

4. For a fuller treatment of the economic theory behind network-powered growth, see "The Economics of Network-Powered Growth," Dimitri Zenghelis, Peter Gruetter, Fred Thompson, Cisco IBSG, 2010.

The Global Exchange for Growth, initiated by Cisco with participation by Barcelona, Birmingham (England), Chicago, Dubai, Montreal, Paris, San Francisco, St. Louis, and Toronto, is a network of governments and entrepreneurs that opens new possibilities for experimentation, cocreation, and sharing. The Global Exchange for Growth recognizes that although cultures cannot be transplanted, ideas and strategies from one part of the world can stimulate innovations in other regions. Governments can play an important role by incubating this entrepreneurial spirit in their countries and adapting ideas to the unique challenges and opportunities of their local economies and cultures.

The interactive exchange of information over the network allows knowledge to evolve as networks of experts engage in constructive and creative dialogue and develop new ideas.

How Can Networks Stimulate and Facilitate Ongoing Economic Growth?

Though some see government as merely establishing the framework for individual commerce, government does much more than this in all societies. The history of progress and growth around the world is not one of passive government; instead, it is characterized by governments that invested in basics like education and research, in water and energy, in transportation and communication, and in institutional guarantees and fair rules to spur social and economic development.

In the 21st century, the history of economic growth will be marked by governments investing in networks that promote the free flow of intellectual property and investment capital, labor, and production in dynamic and responsive ways. Governments seeking to retreat from global competition by erecting barriers that inhibit the open exchange of ideas and commerce will find themselves excluded from the networked markets of the future.

The key drivers of economic growth are financial, intellectual, and social capital; production; transportation; markets; and governing institutions (political stability). These are not novel concepts, but each can be enhanced through network technology.

1. Network-Powered Financial Innovation.

   - Access to financial capital can be worldwide and instantaneous, and can move easily across borders.
   - Financial capital can flow to its best use when risk and investment opportunity are portrayed in transparent and accurate ways.
   - The transfer of financial capital can be accomplished through social networks connecting individual borrowers with individuals and institutions willing to lend them money. Microcredit successes have demonstrated that investments needn't be large-scale to work. A platform like Kiva (http://www.kiva.org/) demonstrates that networks can allow individuals to invest in entrepreneurs around the globe.

2. Network-Powered Intellectual Innovation.

   • Network-based learning makes general and specialized education globally accessible anywhere, anytime. Intensified intercultural collaboration and competition will result in increased diversity and excellence.

   • Network technology can attract talent through global search. With people no longer bound to physical workplaces, network-powered economies can attract new industries and new workers by creating and promoting their superior quality of life.

   • Networks and information bases that go beyond major milestones like patents and business reports to identify publications and explorations at early stages will maximize cross-fertilization of ideas and enable great ideas to attract substantial capital investments earlier in their lifecycles.

   • To adapt to the information age, Creative Commons, a not-for-profit organization in San Francisco, is proposing an intellectual property framework that allows legal sharing and collaborative enhancement among multiple creators. Wikipedia is a successful by-product of these new rules.

   • Massachusetts Institute of Technology (MIT) created an intellectual center that has stimulated enormous innovation. According to the Kauffman Foundation on Entrepreneurship, companies spawned and led by MIT alumni would constitute the 11th-largest economy in the world, creating 3.3 million jobs and $2 trillion in annual revenue.[5] Linking people, technology, and ideas has been critical to this accomplishment. Networks create opportunities for achieving these results globally and virtually for all societies that support outstanding learning centers.

3. Network-Powered Social Innovation.

   • Progress and well-being are no longer measured solely by GDP. Governments increasingly are exploring a mix of quantifiable economic, social, and environmental parameters that more fully address the true well-being of society.

   • Increasing participation in and engagement by social communities and social enterprises opens new opportunities for the third sector—nongovernment organizations and not-for-profits—to proliferate and blur the lines among commercial, governmental, and personal realms and to improve the well-being of citizens. On February 17, 2010, Ireland launched a social innovation initiative with Cisco support dubbed “Your Country Your Call," with investments of ¤100,000 in prize money and ¤500,000 in development funds to be awarded to the two best ideas that would create a “long-term positive impact on the future of Ireland, its people, and its economy.” This is an attempt to reach beyond traditional government institutional channels and engage the population of Ireland (and the entire world) in identifying projects with breakthrough potential for the country.

5. “Entrepreneurial Impact: The Role of MIT,” Kauffman Foundation, February 2009 (http://www.kauffman.org/uploadedFiles/MIT_impact_full_report.pdf)

4. Network-Powered Production.

   • Network-powered economies spur more efficient just-in-time supply and distribution chains. While instant ordering and tracking over the Internet are as easy and reliable as buying bread around the corner, distributor operations shift from the buy-hold-sell to the sell-source-ship paradigm, supported by logistics providers that transport goods from one part of the globe to another in a day.

   • Network-powered economies embrace distributed production chains and provide opportunities to nations and workers to participate in businesses they could never support if they had to build and maintain the total infrastructure for development and assembly within their borders.

   • The Boeing 787 Dreamliner, for instance, involved 17 companies in 10 nations (http://www.boeing.com/commercial/787family/dev_team.html), many of which could never have been in the airline business without the application of remote engineering, project management, product and component specification, technical development and production, and assembly strategies.

5. Network-Powered Transportation.

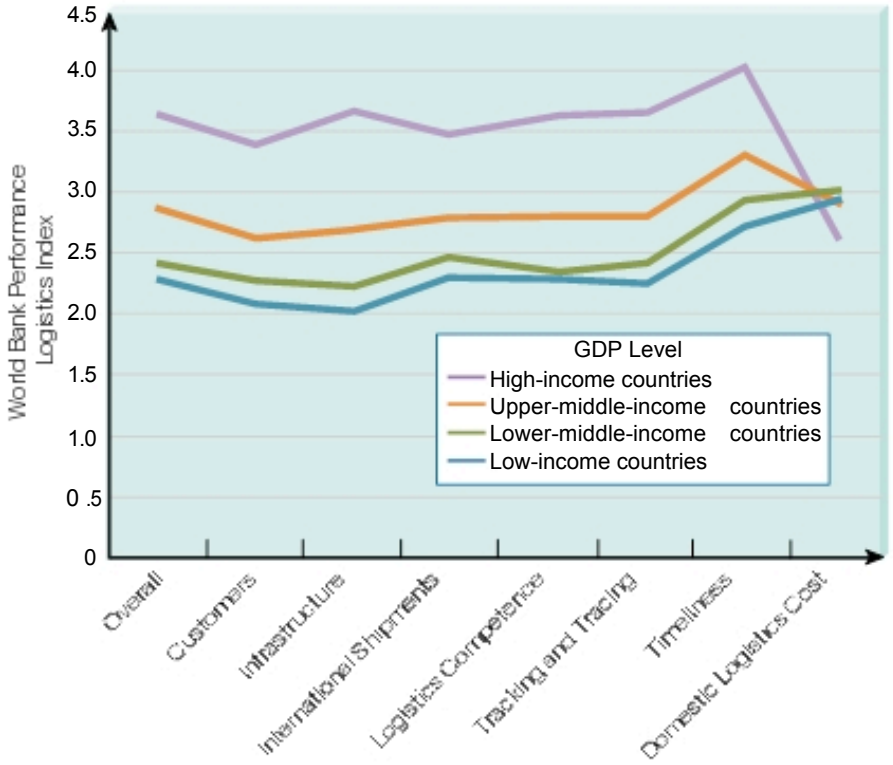
   - All infrastructure elements consume enormous public funds and are rarely approached holistically as part of a smart transportation system. Integrated, networkpowered transportation allows better orchestration and increased flow of goods and people within a given environment. (For an example of this, see what Seoul is doing to provide real-time, green-oriented transportation information to its citizens at http://www.connectedurbandevelopment.org/cities/seoul.)

   - Installation and management of advanced sensor technology can create and schedule security, shipping, and monitoring of products from international ports of entry into transportation networks, and allow detailed tracking and oversight of shipments across the globe.

   - A smart, integrated system and the related reallocations and economies can be conceived among politicians, planners, businesses, and citizens on an open Internet platform. The chart below shows the high correlation between national GDP and indexes for effective and efficient technology-driven logistics processes (see Figure 2).[6]

6. "Global Economic Prospects: Technology Diffusion in the Developing World: 2008," World Bank, 2008 (http://siteresources.worldbank.org/INTGEP2008/Resources/complete-report.pdf)

Figure 2. National GDP Is Highly Correlated with Indexes for Effective and Efficient Technology-Driven Logistics Processes



Source: World Bank, 2008; Cisco IBSG, 2010

6. Network-Powered Markets.

- In network-powered economies, all products can compete in international markets regardless of where production is located.
- Markets can be more customized, stratified, and tailored—and still be profitable because of global reach.
- Network-powered economies are characterized by accelerated growth. They are less location-bound and have an inherent tendency toward globalization.

7. Network-Powered Political and Governing Institutions.

- Network-powered service delivery engenders customer-centric operational excellence.
- The network deeply transforms basic societal needs such as education, healthcare, and safety and security, and it will ultimately speed innovation in physical technologies supporting improvements across a county's entire physical infrastructure, making sustainable growth more achievable.
- Atransparent,accountable,andreliableplatformforeconomicandsocialdevelopment encourages private investment and promotes the sharing of resources and ideas to create powerful engines for growth.

- Use of social media and collaboration technologies creates new and stronger relationships with constituencies.
- Making government records and statistics (see the U.S. Open Government Initiative) available to all citizens across the network (http://www.data.gov/) spurs civic innovation and commercial activity. Not only is information easier to obtain—the latency of waiting for a government report and the bias of cloistered analysis are removed, and greater input can be received more quickly from more diverse centers of expertise.
- Access to geoinformation, criminal statistics, restaurants' health-inspection scores, water pollution data, and so forth enables individuals, interest groups, organizations, and businesses to address specific problems and needs. Innovation emerges from dealing with challenges ranging from small, local issues (such as reporting, viewing, or discussing problems like graffiti or street lighting,[7]) to global problems such as environmental change.[8] Property rights, contract rights, government honesty, and fair administration can all be made more visible, accountable, and transparent through networked technology and open, auditable processes.
- A 2008 World Bank study found that successful technology diffusion within a country is closely linked to its economic growth and depends on the quality of governance, infrastructure, property rights, education, social inclusion, and a host of key institutional factors.[9] All of these can be made more visible and available to citizens through networked technology.
- Transparent, high-definition video technologies can maintain human interaction values while creating lasting and auditable communication records, thereby reducing corruption and stimulating trade and investment.
- Some countries, especially in Southeast Asia, are managing the transition from poverty to wealth. Such "miracles" did not happen in a vacuum. They were triggered by good governance and institutions, a rise in domestic saving to fund capital-intensive investment, and innovation based on new ideas, modern technology, and increased learning. Network-powered technologies allow governments to work more organically and with more relevance with businesses. Such goverments would benefit by developing sites such as Michigan Business One Stop, a site that goes beyond single-purpose tax collection or regulation to incorporate both of these functions with licensing, environmental management, and other areas where government and business intersect. The objective is to smooth relationships and reduce cost, redundancy, and complexity to make it easier to do business in the state. Ultimately, Michigan intends to attract businesses because of the simplified tax and regulatory environment that will emerge as this effort progresses.

7. For an example of this, see http://www.fixmystreet.com/
8. See the Planetary Skin Program NASA and Cisco launched to provide a platform for open collaboration among the public, private, academic, and NGO sectors to address the large-scale risks associated with climate change (http://www.planetaryskin.org/).
9. "Global Economic Prospects: Technology Diffusion in the Developing World: 2008," World Bank, 2008 (http://siteresources.worldbank.org/INTGEP2008/Resources/complete-report.pdf).

A New Strategy for Business Regulation and Cross-Sector / International Collaboration

Institutional decisions such as consolidating and restructuring institutional oversight take time and are complex. Creating lasting stability requires that governments create a web of cross-institutional, cross-national, and cross-industry communication so that regulators and mediators of national and supranational economies can quickly gain greater insight into interdependent economic issues and take earlier and more decisive action.

The collapse of financial markets and the bust of 2008 that triggered the "Great Recession" resulted from failures to properly recognize and communicate the true level of risk across hierarchical lines (within and among government regulators). What could have been confined to a housing bubble in the United States became a worldwide economic crisis because of the relationships of financial institutions and their approach to risks. Risky loans were repackaged into securities that could be publicly traded, as banks and other lending institutions passed the risk to other institutions or insurers. Securities dealers were able to insure their securities, so they, too, did not bear the risks. Companies insuring the securities relied upon valuations from rating services (as did buyers of the securities), and they also regarded their risk as low. The public wonders why none of the people responsible were doing their jobs to prevent this. The truth is that all of these people were operating with the best information they had at hand.

The downfall was the failure to communicate across boundaries, from one industry to another, from one regulator to another, and from one government to another. The Group of Twenty Finance Ministers and Central Bank Governors (G-20) is intensively searching for better ways to identify and control "systemic risk"—risk that is not the province of a single industry or a single regulator, but involves the interaction of many private institutions and many governments.

"We also agree to establish the much greater consistency and systematic cooperation between countries and the framework of internationally agreed high standards that a global financial system requires."

- Communiqué of G-20 London Summit Leaders Statement, April 2, 2009

Better macroprudential supervision will be facilitated by enhanced roles for the Washington-based International Monetary Fund, and by a strengthened mandate and expansion of the Basel-based Financial Stability Board.

Irrespective of new laws and structures to better define the institutional and cross-institutional roles of regulators, the heart of the solution to improved management of systemic financial risk will come from improved structures and communication channels that recognize that risk is supranational and suprainstitutional. A web of cross-institutional, cross-national, and cross-industry communication must emerge. The world's economic infrastructure has become too complex and highly integrated

to yield to traditional compartmentalized institutional regulation. Ongoing analysis and communication, supported by a global network and enriched by international conversation on a regular basis, will be key to the establishment of future world economic stability.

Governments and Citizens Connected for Prosperity

Government officials are challenged by an economic upheaval that threatens their very stability. For example, in Iceland, economic woes caused the collapse of the government in January 2010. In Greece in 2009, the party in power called for elections two years before the date they were required and lost the elections—in large part because the government couldn't gain support for an effective economic strategy.

The route to recovery and sustained growth will not be the familiar, well-trodden path of the past. Investing in network technologies and finding new ways to use networks to promote economic growth will be key elements of a successful strategy:

- Network-powered growth opens the field of worldwide commerce to small-scale entrepreneurs and nascent innovative practices.
- Network-powered growth opens markets and creates borderless social connections that improve economic and social well-being.
- Network-powered growth improves the free flow and development of all components of economic growth, including financial, intellectual, social, production, transportation, market, and public innovations that will redefine our economic future.
- Network-powered governance provides the ability to cross institutional and national boundaries to conduct open discussions for achieving a sound national and international regulation and supervision framework.

Any of the approaches outlined in this point of view can be successful in whole or in part. Without investment and policy incentives, however, none are possible. Recovery and growth will be led by governments that invest in networks that provide for and stimulate the free flow of intellectual property, investment capital, and labor in dynamic and responsive ways. They will create engines for economic and social development that will attract investment and participation. Addressing these questions requires new, nontraditional ways of working and collaborating.

Citizens are challenging governments across the globe to answer for economic mistakes of the past. But governments must do more than merely account for what happened; they must take actions and make investments that contribute to more stable and more sustainable network-powered economic growth for the future.

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More Information

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