

McKinsey Global Institute



May 2011

Internet matters: The Net's sweeping impact on growth, jobs, and prosperity



The McKinsey Global Institute

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MGI research combines two disciplines: economics and management. Economists often have limited access to the practical problems facing senior managers, while senior managers often lack the time and incentive to look beyond their own industry to the larger issues of the global economy. By integrating these perspectives, MGI is able to gain insights into the microeconomic underpinnings of the long-term macroeconomic trends affecting business strategy and policy making. For nearly two decades, MGI has utilized this "micro-to-macro" approach in research covering more than 20 countries and 30 industry sectors.

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MGI is led by three McKinsey & Company directors: Richard Dobbs, James Manyika, and Charles Roxburgh. Susan Lund serves as MGI's director of research. MGI project teams are led by a group of senior fellows and include consultants from McKinsey's offices around the world. These teams draw on McKinsey's global network of industry and management experts and partners. In addition, MGI works with leading economists, including Nobel laureates, who act as advisers to MGI projects.

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2 billion

Internet users worldwide

Internet accounts for

3.4%

of GDP in 13 countries we looked at, and

21%

of GDP growth in the last 5 years in mature countries

2.6

jobs created for 1 job lost

75%

of Internet impact arises from traditional industries

10%

increase in productivity for
small and medium businesses
from Internet usage

Small and medium businesses heavily
using Web technologies grow and
export **2x** as much as others

Up to

€20

per Internet user
per month of
consumer surplus

Executive summary

Two billion people are connected to the Internet. Almost \$8 trillion exchange hands each year through e-commerce. In some developed markets, about two-thirds of all businesses have a Web presence of some kind, and one-third of small and medium-sized businesses extensively use Web technologies.¹ The Internet has transformed the way we live, the way we work, the way we socialize and meet, and the way our countries develop and grow. In two decades, the Internet has changed from a network for researchers and geeks to a day-to-day reality for billions of people. Our research sheds new light on this revolution and helps explain the direct link between the Internet and economic vitality.

Many have compared the dawn of the Internet to another communications game changer, the introduction of the Gutenberg press five centuries earlier. But a comparison with the development and commercialization of electric power may be more appropriate.² Among its many other consequences, electricity changed the landscape of cities around the world, allowing elevators that can travel great heights and heralding the dawn of massive skyscrapers. As with electricity, the Internet has changed the global landscape. The Internet bridges vast distances and has made the world flatter by allowing instant access to an almost endless stream of information that can be immediately brought into play. Its impact on economic wealth reaches well beyond pure players in the industry. Indeed, the brunt of its economic contribution derives from established industries that, in the shadow of the Internet, have become more productive, have created more jobs, have increased standards of living, and have contributed more to real growth. Our research shows that more than 75 percent of the value added created by the Internet is in traditional industries.

Also, as with electricity, the Internet has influenced every corner of the world, not just those countries that pushed its original development or were instrumental in its growth. As Internet usage spreads to even the most remote communities—where gas-powered generators and satellite links make the connection—its observable positive effects grow. As evidence, the United Nations in its Millennium Development Goals lists Internet penetration as a key metric in efforts to reduce poverty and encourage rational development.

Yet despite its ubiquity, little is known about how much value the Internet contributes to national economies. To help fill this gap, McKinsey has conducted extensive research on the contribution of the Internet to GDP and economic growth in the G8 economies and five other key countries at various levels of development: Brazil, China, India, South Korea, and Sweden.

1 The sources for these statistics are the World Bank, 2009; Gartner, 2010; Eurostat, 2010; and a McKinsey & Company Internet survey of more than 4,800 small and medium-sized enterprises.

2 Nicholas Carr, *The big switch: Rewiring the world, from Edison to Google*, New York: W.W. Norton & Company, 2009.

The study, drawn from public sources and targeted surveys, examines the Internet ecosystem, how it is being framed, and who is doing the framing. For the first time, we believe, this work offers a quantitative assessment of the impact of the Internet on GDP and growth while also considering the most relevant tools governments and businesses can use to get the most benefit from the Internet.

THE INTERNET IS CONTRIBUTING STRONGLY TO WEALTH

The Internet embraces all of us: businesses, individuals, governments, and entrepreneurs. The Web has made possible new waves of business models and entrepreneurship but has also led to radical innovations for accessing, using, and delivering goods and services for everyone. It has transformed industries and governments through innovative approaches and changed how users engage the world.

The Internet is already a significant contributor to the economies of the 13 countries we studied—economies that account for more than 70 percent of global GDP—exerting a strong influence on economic growth rates particularly in mature economies.

To measure the Internet's impact on a country's economy and to understand how the Internet is framed worldwide, we structured the analysis around its two primary components: consumption and expenditure on one hand, and supply on the other.

Internet consumption and expenditure contributes significantly to the economy

Looking at Internet-related usage through expenditure and consumption first, we see:

- **The Internet is big and continues to grow and reach everywhere.** The Internet is now used in every country, in every sector, in most companies, and by more than 2bn people and it is still growing. Internet-related consumption and expenditure is now bigger than agriculture or energy, and our research shows that the Internet accounts for, on average, 3.4 percent of GDP in the 13 countries we studied. If Internet consumption and expenditure were a sector, its weight in GDP would be bigger than energy, agriculture, or several other critical industries. The Internet's total contribution to the GDP is bigger than the GDP of Spain or Canada, and it is growing faster than Brazil.
- **The Internet is still in its infancy, and the weight of the Internet in GDP varies drastically, even among countries at the same stage of development.** While the Internet accounts for around 6 percent of GDP in advanced countries such as Sweden and the United Kingdom, in 9 out of the 13 countries its contribution is below 4 percent, leaving tremendous room for further Internet development.
- **The Internet is a critical element of growth.** Both our macroeconomic approach and our statistical approach show that, in the mature countries we studied, the Internet accounted for 10 percent of GDP growth over the past 15 years. And its influence is expanding. Over the past five years, the Internet's contribution to GDP growth in these countries doubled to 21 percent. If we look at all 13 countries in our analysis, the Internet contributed 7 percent of growth over the past 15 years and 11 percent over the past five. This is a reflection of small and medium-sized enterprises (SMEs) receiving a performance boost from the Internet. As part of our research, we surveyed more than 4,800 SMEs in the

countries we studied.³ We found that those with a strong Web presence grew more than twice as quickly as those that had minimal or no presence, an outcome that holds across sectors. In addition, SMEs that took advantage of the Internet reported the share of total revenues that they earned from exports was more than twice as large as that reported by others. They also created more than twice the number of jobs as others.

- **The maturity of the Internet correlates with rising living standards.** Leveraging endogenous economic growth theory, we have been able to show that Internet maturity correlates with growth in per capita GDP. Using the results of the correlation, a simulation shows that an increase in Internet maturity similar to the one experienced in mature countries over the past 15 years creates an increase in real GDP per capita of \$500 on average during this period. It took the Industrial Revolution of the 19th century 50 years to achieve same results.⁴ This shows both the magnitude of the positive impact of the Web at all levels of society and the speed at which it delivers benefits.
- **The Internet is a powerful catalyst for job creation.** Some jobs have been destroyed by the emergence of the Internet. However, a detailed analysis of the French economy showed that while the Internet has destroyed 500,000 jobs over the past 15 years, it has created 1.2 million others, a net addition of 700,000 jobs or 2.4 jobs created for every job destroyed. This conclusion is supported by McKinsey's global SME survey, which found 2.6 jobs were created for every one destroyed.
- **The Internet drives economic modernization.** The Internet's main impact is through the modernization of traditional activities. Although the Internet has resulted in significant value shifts between sectors in the global economy, our research demonstrates that all industries have benefited from the Web. Indeed, in McKinsey's global SME survey, we found that 75 percent of the economic impact of the Internet arises from traditional companies that don't define themselves as pure Internet players. The businesses that have seen the greatest value creation have benefits from innovation leading to higher productivity triggered by the Internet.
- **The impact of the Internet goes beyond GDP, generating astonishing consumer surplus.** Beyond its impact on GDP, the Internet creates substantial value for users, ranging from €13 (\$18) a month per user in Germany to €20 (\$28) in the United Kingdom.⁵ In total, the consumer surplus generated by the Internet in 2009 ranged from €7 billion (\$10 billion) in France to €46 billion (\$64 billion) in the United States.

3 Excluding Brazil.

4 See Angus Maddison, *The World Economy: Historical Statistics*, Paris: OECD, 2003.

5 Internet Advertising Board, *Assessing the consumer benefits of online advertising*, July 2010.

The rapidly shifting supply side offers some contrasts

Looking at the “supply” of the Internet globally, we find that countries with a strong Internet ecosystem also have a high Internet contribution to GDP. However, the global Internet landscape is shifting rapidly and offers some interesting contrasts:

- **The United States leads the global Internet supply ecosystem.** The United States captures more than 30 percent of global Internet revenues and more than 40 percent of net income. Using a proprietary model, the McKinsey Internet Supply Leadership Index, we show that the United States remains the largest player in the Internet supply ecosystem. It is the country with the most diverse structure within the global ecosystem among the 13 we analyzed in this research, garnering relatively equal contributions from hardware, software and services, and telecommunications.
- **The United Kingdom and Sweden are changing the game.** These two countries have leveraged very strong Internet usage across the board to gain greater importance within the global Internet ecosystem. This move is helped by the strength and strong performance of their telecom operators.
- **India and China are strengthening their position** in the global Internet ecosystem rapidly. Both countries show growth rates of more than 20 percent.
- **France, Canada, and Germany have strong Internet usage.** All three could leverage this usage to increase their presence in the global supply ecosystem.
- **South Korea is rapidly accelerating** its influence on the Internet economy at a faster rate than **Japan**.
- **Brazil, Russia, and Italy are in the early stages of Internet supply.** They all have strong potential for growth.

Only strong Internet ecosystems can capture maximum value. We find that to build a strong ecosystem, the best performers focus their efforts on four critical areas:

- **Promote human capital.** The United States in particular has used its vast talent pool effectively compared to other countries. Its relative attractiveness to talent with the right skills has been critical in the creation of a strong Internet ecosystem, and this human capital has been nurtured in universities, corporate research and development centers, startups and elsewhere. However, the US will increasingly compete for such talent with other countries.
- **Ease access to financial capital.** The United States, Israel, and South Korea have all ensured sufficient financial capital is available and the mechanism for capital formation in place to nurture innovation and support entrepreneurial resolve.
- **Develop infrastructure.** Infrastructure, the backbone of the entire Internet ecosystem, is an irreplaceable prerequisite. It creates the platforms upon which users, and organizations experience the Internet, and upon which entrepreneurs and businesses innovate.

- **Create an attractive business environment.** The context in which business operates is critical to the growth of the Internet ecosystem and will hold back its growth if the environment does not encourage expansion of usage, encouragement of innovation, and business investment and participation. To ensure such an attractive environment requires ongoing assessment of the frameworks that govern access, usage, protection of various rights, and considerations of security.

LEVERAGING THE INTERNET TO REVIVE THE ENGINE OF GROWTH

Armed with a better understanding of how—and how much—the Internet contributes to national economies, policy makers and business executives can focus their efforts more acutely and effectively to promote and strengthen their domestic Internet ecosystems. In particular, they should consider the following immediate practical steps:

- **Public decision makers should act as catalysts to unleash the Internet's growth potential.** Governments could leverage Internet public spending as a catalyst for innovation. Indeed, countries with the highest public investment in the Internet are also those with the largest nonpublic Internet contribution to GDP. Governments' own use of the Internet encourages citizens to use it. Government e-transformation creates large-scale, complex demand that stimulates the supply ecosystem. In addition, governments must promote Internet usage by informing and training businesses and individuals.
- **All business leaders, not just e-CEOs, should put the Internet at the top of their strategic agenda.** Business leaders must optimize the benefits gleaned from the Internet through innovation and change. It is no longer a choice, given that many businesses face competitors who capitalize on the power of the Internet to innovate business models. Business leaders should play a significant role in the spread of the Internet and systematically review how the Internet allows them to innovate more aggressively and even reinvent their business models to boost growth, performance, and productivity. In particular, businesses should constantly try to identify up-and-coming Internet trends that have the potential to increase the impact of their efforts—e.g., by applying statistical analyses to the mass of data available from the Internet or using IT-enabled services to improve production capabilities.
- **All stakeholders should take part in a fact-based, public-private dialogue** to assure optimal conditions for the development of the Internet ecosystem within each country, as well as internationally. Open discussions between government and business leaders should work toward creating a nurturing environment in which the benefits of the Internet can be better understood and the Internet ecosystem can grow. Issues such as standards for digital identities and intellectual property protection must be addressed as countries strive to stimulate usage, while topics relevant to improving the supply ecosystem include net neutrality, the availability of talent, and the overall business environment.

MONITORING THE PROGRESS OF THE INTERNET USING FOUR CRITICAL INDICATORS

Behind our analysis and recommendations are four indicators to measure the impact and evolution of the Internet in individual countries. Two, the “e3” index and the “iGDP,” focus on Internet expenditures and consumption. The other two, the McKinsey Internet Supply Leadership Index and the i4F indicator, track supply trends. Our aim is to improve and track them yearly and to review the global economy’s progress toward reaping optimal economic benefits from the Internet. Also, as we know that our indicators are still imperfect, we encourage “open-source” improvements to our methodology. We’ve made public the details and welcome any suggestions for refining our approach.

Relevant McKinsey Global Institute publications



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Growth and renewal in the United States: Retooling America's economic engine (February 2011)

To match the GDP growth rates of the past 20 years, the United States needs a 34 percent acceleration in productivity growth to a rate not achieved since the 1960s. Three-quarters of the necessary productivity growth acceleration can come from companies adopting best practice and implementing emerging business and technology innovations. The remaining one-quarter—and more—can come from government and business working together to address barriers that today limit productivity growth.



Beyond austerity: A path to economic growth and renewal in Europe (October 2010)

With multiple pressures on growth and constrained public finances, Europe needs structural reform even to match past GDP growth rates. Parts of Europe have begun to reform with demonstrable success. If the rest of Europe emulated their best practice, the region could add 4 to 11 percent to per capita GDP, without cutting holidays and leave.



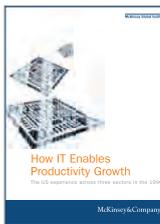
Clouds, big data, and smart assets: Ten tech-enabled business trends to watch (August 2010)

Advancing technologies and their swift adoption are upending traditional business models. Senior executives need to think strategically about how to prepare their organizations for the challenging new environment.



The Internet of Things (March 2010)

More objects are becoming embedded with sensors and gaining the ability to communicate. The resulting new information networks promise to create new business models, improve business processes, and reduce costs and risks.



How IT enables productivity growth (October 2002)

Looking at the retail banking, retail trade, and semiconductor sectors in detail, MGI finds that while IT enabled productivity gains in each sector, its impact was complex and varied. IT applications that had a high impact on productivity shared three characteristics: they were tailored to sector-specific business processes and linked to performance levers; they were deployed in a sequence that allowed companies to leverage their previous IT investments effectively; and they evolved in conjunction with managerial innovation.

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