



# Will the Digital Revolution Deliver for the World's Poor?

Irving Wladawsky-Berger

Vice President Emeritus, IBM; Visiting Lecturer, Massachusetts Institute of Technology

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Every four years, the U.S. National Intelligence Council develops a report on the key global trends 15-20 years into the future to promote long-term strategic thinking and policy formulation. Its latest report, *Global Trends 2030*, released in December of 2012, identified individual empowerment as its top megatrend: “Individual empowerment will accelerate owing to poverty reduction, growth of the global middle class, greater educational attainment, widespread use of new communications and manufacturing technologies, and health-care advances.” Underpinning many of these trends is the blossoming of the digital economy.

The Industrial Revolution led to major improvements in the standard of living around the world. “Most people today are better fed, clothed, and housed than their predecessors two centuries ago,” wrote economist Richard Easterlin. “They are healthier, live longer, and are better educated. Women’s lives are less centered on reproduction and political democracy has gained a foothold... Although the picture is not one of universal progress, it is the greatest advance in the condition of the world’s population ever achieved in such a brief span of time.” Yet for all these gains, over a billion people in less-developed economies remain in extreme poverty, living on less than \$1.25 a day.

Can our digital technologies succeed in reaching and benefiting the world’s poor where previous ones fell short? For the past 20 years, the Internet has been a platform for innovation, enabling start-ups, institutions, governments, nongovernmental organizations, and everyone in between to quickly develop and bring to market many new products and services. It has led to the creation of all kinds of innovative applications. It has transformed many everyday activities, including the way we work, communicate, socialize, organize, shop, learn, bank, pursue leisure, and deal with government.

However the reach and connectivity we were all so excited about in the initial phase of the Internet era was in reality not so inclusive. To get online in the 1990s you needed a personal computer



and an account with a service provider. E-commerce transactions required a credit card or bank account. Major new inequalities arose because so many around the world could neither afford a personal computer (PC) or an Internet account and had no bank relationship or credit card. So, while the Internet was truly empowering for those with the means to use it, it led to a growing “digital divide” both within countries and across the world.

This digital divide is now disappearing as we **transition from the *connected economy*** of PCs, browsers, and web servers to our increasingly hyperconnected economy of ubiquitous, inexpensive mobile devices, broadband wireless networks, and cloud-based applications. Internet access and mobile phones are being rapidly transformed from a luxury to a necessity that more and more people can now afford.

In this year’s **Internet Trends Report**, Mary Meeker of **Kleiner Perkins Caufield and Byers** showed that as of 2014, there were 2.8 billion Internet users—almost 40 percent of the world’s population—and 5.2 billion mobile phone users, a 73 percent population penetration. Around 2.1 billion, or 40 percent, of those mobile phones are smartphones. Internet access and smartphone subscriptions continue to grow rapidly, adding around 200 million per year and 370 million per year respectively.

While forecasts vary, the overall picture is clear. Over time, **technology advances are rapidly expanding the benefits of the digital revolution** across the planet. Indeed, there is already ample evidence of the digital economy transforming the lives of people living on as little as one or two dollars a day through a range of applications enabling mobile banking and market information access among others.

Over the coming decade, **McKinsey estimates up to 3 billion additional people will connect to the Internet** with mobile devices and wireless networks, thus joining the global digital economy. “This rapid rise in connectivity could be a key driver in the development of communities in less developed regions, by facilitating financial inclusion and local entrepreneurship, as well as a source of opportunity to businesses wanting to be a part of the next 3 billion digital citizens’ path toward upward mobility.”

Historically businesses have shown little interest in serving the poor. Transactions costs were prohibitively high given the challenges involved in reaching geographically marginalized communities with limited purchasing power. In the digital economy, these costs are driven down, creating the potential to unleash new market opportunities for serving low-income customers.

These same factors can improve access to public and social services for the poor. Over the past 20 years, companies have learned how to leverage information technology (IT) to bring their custom-



ers higher-quality, lower-cost services. “However, such benefits have been less apparent in government, health care, and education,” notes the McKinsey report. “These vital services account for nearly a third of global GDP but have lagged in productivity growth. Until recently, they have been slow to adopt Web-based platforms, big data analytics, and other IT innovations. However, we believe government, health care, and education can enter a new era of IT-enabled productivity growth.”

“Great progress has been made in expanding financial inclusion,” writes the World Bank in its [2014 Global Findex](#) report. “62 percent of the world’s adult population has an account; up from 51 percent in 2011. Three years ago, 2.5 billion adults were unbanked. Today, 2 billion adults remain without an account.” Mobile money accounts are helping to drive financial inclusion, most notably in sub-Saharan Africa. But gaps remain: 54 percent of adults have financial accounts in developing economies, compared to 94 percent in advanced economies; and 58 percent of women have an account, compared to 65 percent of men. The continuing expansion of mobile Internet access should help narrow these economic and gender gaps.

We must also keep in mind that, for better and for worse, technological revolutions are highly disruptive to economies and societies. Electric power, the internal combustion engine, and other great 19th century innovations ultimately benefited everyone, but for the workers that made them happen, the experience of industrialization was undeniably harsh. Along with its many benefits, the [digital revolution brings serious challenges](#). In particular, few subjects are as important—or as challenging to predict—as [the future of jobs](#) in our emerging digital economy.

From time immemorial, the greatest economic problem has been coping with scarcity, as humanity could not produce enough to satisfy everybody. But this problem has been changing, not only in advanced economies, but also in most of the world. “The economic challenge of the future will not be *producing* enough. [It will be providing enough good jobs](#),” wrote former Treasury Secretary Larry Summers in a July 2014 Wall Street Journal article. “Job availability is already a chronic problem in the United States...the challenge for economic policy will increasingly be generating enough work for all who need work for income, purchasing power and dignity.”

With its dramatically lower communications and transaction costs, the Internet has helped create an increasingly global marketplace for labor and capital. Companies disaggregated their various processes and distributed them around the world to their offshore operations and to supply chain partners to optimize their overall costs. This led to higher profits for the companies, lower costs for consumers, and many new jobs for workers in developing countries. But it has also led to enormous dislocations for workers in the United States and other developed economies.



“Even as the globalization story continues, however, an even bigger one is starting to unfold: the story of automation, including artificial intelligence, robotics, 3-D printing, and so on,” wrote Erik Brynjolfsson, Andy McAfee, and Michael Spence in a [Foreign Affairs article published last year](#). “And this second story is surpassing the first, with some of its greatest effects destined to hit relatively unskilled workers in developing nations...”

“As intelligent machines become cheaper and more capable, they will increasingly replace human labor, especially in relatively structured environments such as factories and especially for the most routine and repetitive tasks. To put it another way, offshoring is often only a way station on the road to automation...In more and more domains, the most cost-effective source of *labor* is becoming intelligent and flexible machines as opposed to low-wage humans in other countries.”

Thus, access to good jobs is becoming a serious issue not only in advanced economies but also across the world. Further evidence comes from Gallup Chairman and CEO Jim Clifton, author of [The Coming Jobs War](#) published in 2011. “What everyone in the world wants is a good job,” Clifton said in a [recent interview](#).

“This is one of Gallup’s biggest discoveries ever, yet almost no leader in the world knows this...Of the 7 billion people in the world, there are 5 billion adults aged 15 and older. Of these 5 billion, 3 billion tell Gallup they desire a full-time job. Only 1.3 billion actually have a good job, which means that the real unemployment rate in the world is over 50 percent...This discovery comes from Gallup’s [World Poll](#). We have built consistent sampling frames across more than 160 countries, which are home to more than 99 percent of the world’s population...The brutal reality is we’re not creating enough good jobs to meet the will of the world—the global will to have a good job. Not meeting that need will accelerate global instability.”

Technology has been replacing workers since the advent of the Industrial Revolution. In 1930, economist John Maynard Keynes warned that we are [being afflicted by a new disease that he termed “technological unemployment,”](#) “due to our discovery of means of economizing the use of labor outrunning the pace at which we can find new uses for labor.”

But, in past [technology-based revolutions](#), these same disruptive technologies and innovations led to the transformation of the economy and the creation of new industries and new jobs. While we can be hopeful that this will once more be the case, there is no way of knowing. Technology is being [increasingly applied](#) to activities requiring cognitive capabilities and problem-solving intelligence that not long ago were viewed as the exclusive domain of humans. These technology advances are truly pushing the boundaries between human and machines.

“Previous technological innovation has always delivered more long-run employment, not less. But things can change,” is the tag line of a [January 2014 Economist article on the future of jobs](#). “Now-



adays, the majority of economists confidently wave such worries away. By raising productivity, they argue, any automation which economizes on the use of labor will increase incomes. That will generate demand for new products and services, which will in turn create new jobs for displaced workers...Yet some now fear that a new era of automation enabled by ever more powerful and capable computers could work out differently.”

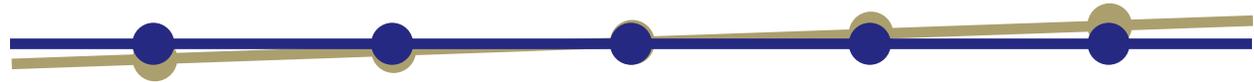
Many workers are learning to **co-evolve** with our intelligent machines, and as has been the case in the past, they will be ready for whatever new jobs are created. But, our fear is that this time is different. Technology advances are running so far ahead that large numbers of people across the planet may not be able to keep up, and the future will bring even more serious economic disruptions.

How do you balance the promise that the digital revolution will help raise the standard of living and quality of life of billions around the world, with the fears that our increasingly powerful technologies will lead to serious economic dislocations and not enough good jobs to go around? Could the economic inclusion of billions of more educated and financially empowered consumers become the engine that powers the creation of new industries and new jobs, both in emerging and developing nations? As the digital economy transitions into an increasingly **talent-centric** knowledge economy, will emerging economies be able to keep up with advanced economies?

Or are we overly impatient given that we’re still in the early stages of our digital economy, a **historical transformation** the likes of which we haven’t seen in over two centuries, when we transitioned from an agrarian to an industrial economy. The aforementioned *Economist* article reminds us that the benefits of the Industrial Revolution did not spread across the whole British economy until the late 19th century. Are we confusing the dramatic speed of our technology advances with the much slower adaptation of economies and societies to those technologies?

These are highly complex questions for which we have no answers. We need to understand how to best leverage our powerful technologies to help create a better society for everyone. Earlier this year a small group met in Silicon Valley to discuss how technology was driving economic transformation and the result was this **Open Letter on the Digital Economy**. It says that, while “The digital revolution is the best economic news on the planet... the evidence is clear that this progress is accompanied by some thorny challenges.”

To help address these challenges, the letter **proposes a set of broad policy efforts**, including education, infrastructure, and entrepreneurship initiatives to help create jobs; organizational models and approaches that not only enhance productivity and generate wealth but also create broad-based opportunity; and an ambitious **research agenda** to help understand the economic and so-



cial implications of the digital revolution and come up with innovative, long-term solutions. For developing countries with relatively weak institutions and capacity for implementing policy, this agenda is truly daunting.

In its introduction, the *Global Trend 2030* report compares our current times to the dawn of the Industrial Age. “We are living through a similar transformative period in which the breadth and scope of possible developments—both good and bad—are equal to if not greater than the aftermath of the political and economic revolutions of the late 18th century.” It then summarizes our current times with the famous opening lines used by Charles Dickens as he wrote about the late 18th century period in *A Tale of Two Cities*: *It was the best of times, it was the worst of times...it was the spring of hope, it was the winter of despair...we were all going direct to Heaven, we were all going direct the other way...*