Disrupting DEVELOPMENT with DIGITAL Technologies

BROOKINGS BLUM ROUNDTABLE 2015 POST-CONFERENCE REPORT

B | Global Economy and Development at BROOKINGS

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The 2015 Brookings Blum Roundtable was hosted by Richard C. Blum and the Global Economy and Development program at Brookings, with the support of honorary co-chairs Walter Isaacson, president and chief executive officer of the Aspen Institute and Mary Robinson, president of the Mary Robinson Foundation–Climate Justice.

The Global Economy and Development program at Brookings examines the opportunities and challenges presented by globalization, and recommends policy solutions for a better world. Recognizing that the forces of globalization transcend disciplinary boundaries, the program draws on scholars from the fields of economics, development, and political science, building on the worldwide reputation of Brookings for high-quality, independent research.

To address new challenges in development assistance, **the Global Economy and Development program** established the Development Assistance and Governance Initiative (DAGI). Through targeted areas of research on aid effectiveness, governance and anti-corruption, and reform of U.S. global development efforts, as well as undertaking key convening activities like the signature Brookings Blum Roundtable, DAGI offers policy recommendations on how to improve the lives of millions around the world.

Propelled by the energy and talent of faculty and students committed to helping those who live on less than $2 a day, the **Blum Center for Developing Economies** is focused on finding solutions to the most pressing needs of the poor. Spanning the University of California, Berkeley, Davis, and San Francisco, and the Lawrence Berkeley National Laboratory, Blum Center innovation teams are working to deliver safe water and sanitation solutions in eight countries, life-saving mobile services throughout Africa and Asia, and new energy-efficient technologies throughout the developing world. The center's Global Poverty & Practice concentration is the fastest-growing undergraduate minor on the UC Berkeley campus, giving students the knowledge and real-world experience to become dynamic participants in the fight against poverty. In addition to choosing from a wide variety of new courses, students participate directly in poverty alleviation efforts in more than fifty developing countries.

The mission of the **Aspen Institute** is twofold: to foster values-based leadership, encouraging individuals to reflect on the ideals and ideas that define a good society; and to provide a neutral and balanced venue for discussing and acting on critical issues. The institute does this primarily in four ways: seminars, young-leader fellowships around the globe, policy programs, and public conferences and events. The institute is based in Washington; in Aspen, Colorado; and on the Wye River on Maryland's Eastern Shore. It also has an international network of partners.

The **Mary Robinson Foundation–Climate Justice** is a center for thought leadership, education, and advocacy on the struggle to secure global justice for those many victims of climate change who are usually forgotten—the poor, the disempowered, and the marginalized around the world. It is a platform for solidarity, partnership, and shared engagement for all who care about global justice, whether as individuals and communities suffering injustice or as advocates for fairness in resource-rich societies. In particular, it provides a space for facilitating action on climate justice to empower the poorest people and countries in their efforts to achieve sustainable and people-centered development.

FOREWORD

From August 5 to 7, 2015, nearly 60 prominent policymakers, development practitioners, and leaders from industry and academia came together from the public, private, and nonprofit sectors for the 12th annual Brookings Blum Roundtable in Aspen, Colorado. Participants from around the globe explored how digital technologies might have significant impact on global development in three major areas: money, connectivity, and knowledge, and discussed how business and aid organizations can maximize the benefits of these trends. This report includes three topical essays that highlight some of the most prominent themes discussed at the conference, while both summarizing the roundtable discussions and further exploring the issues through independent research.

Previous Brookings Blum roundtables have focused on jump-starting inclusive growth in the most difficult environments (2014); the private sector's inclusion in the post-2015 development agenda (2013); innovation and technology for development (2012); the challenges for global development cooperation (2011); development assistance reform for the 21st century (2010); tackling climate change in the midst of a global economic downturn (2009); building climate change resilience in the developing world (2008); the expanding role of philanthropy and social enterprises in international development (2007); the complex ties between poverty, insecurity and conflict (2006); on the private sector's role in development (2005); and on America's role in the fight against global poverty (2004). Reports from these gatherings are available at www.brookings.edu/bbr, along with this year's companion set of policy briefs (for more information, see page 41).

ACKNOWLEDGMENTS

The roundtable was made possible through a generous grant from Richard C. Blum, chairman of Blum Capital Partners and founder of the Blum Center for Developing Economies at the University of California, Berkeley, with additional support from Omidyar Network. The roundtable's organizers extend special thanks to Andrea Holcombe, Michael Rettig, and Madelyn Swift for their excellent event planning and coordination; and to Neil O'Reilly, Kristina Server, Jacqueline Sharkey, and Valeriya Ten for ensuring the meeting's success. We also extend our appreciation to the William and Flora Hewlett Foundation, to the Australian Department of Foreign Affairs and Trade, and to other donors for the broad support they have provided to the Brookings Institution's work on foreign assistance reform and aid effectiveness.

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INTRODUCTION

The 2015 Brookings Blum Roundtable was convened to explore how digital technologies might disrupt global development.

Our intention was to imagine a world 10 years from now where digital technologies have become ubiquitous. In this world, how would we expect digital trends and innovations to affect the work of business and development organizations? What policy challenges and risks will the new digital economy pose? And what are the constraints on making digital innovations fully inclusive and scalable?

In 10 years, the world will look very different from today. The number of people worldwide who own a telephone, have access to the Internet, have registered their biometric identity, and own a bank account is rising by between 200 million and 300 million a year.[1] These technologies are spreading at such a high speed that an era of digital inclusion beckons, characterized by universal connectivity and the frictionless movement of money and information.

History attests to the transformative effects of technology. And there is every reason to believe that the impact of digital technologies will be especially profound. The spread of mobile telephones already represents perhaps the most conspicuous change for life in the developing world over the past generation. However, the impact of digital technologies on people's well-being can be both positive and negative. The onus is on developing countries and the broader global development community to maximize the upside of digital inclusion, while managing its downside, in navigating this exciting future.

One unambiguous upside of digital technologies is to diminish the marginalization faced by many lower-income people, especially the world's poorest. Poor people have traditionally lived on the

Photo: © Omidyar Network

1 Laurence Chandy, "Connecting the poor is the best hope for ending poverty," *WIRED* 104, no. 1 (2014): 183–223, http://www.wired.com/2015/11/connecting-worlds-poorest-the-best-hope-for-ending-poverty/.

Photo: © Omidyar Network

TODAY, POOR PEOPLE ARE BECOMING MORE CAPABLE OF NAVIGATING THEIR OWN WAY OUT OF POVERTY BECAUSE THEY HAVE GROWING ACCESS TO MARKETS AND INFORMATION AND CAN ASSERT THEIR IDENTITIES.

fringes of society with only limited connections to other people, markets, and governments. The networks they depend on tend to be informal and small, and to comprise people who are similarly deprived of income, information, and power—and who are thus vulnerable to the same shocks, such as droughts.

With universal digital inclusion, however, poor people are empowered to participate in formal networks that enable them to communicate, to transact and access basic financial services, to obtain information, and to claim rights and recognition. This participation in turn creates new possibilities for poverty reduction. Today, poor people are becoming more capable of navigating their own way out of poverty because they have growing access to markets and information and can assert their identities. For instance, evidence from Kenya shows that individuals with access to mobile money networks have received remittances of greater value and from a more diverse pool of friends and family than those without access.[2]

Additionally, in the new digitally inclusive world, governments, charities, and international donors are better able to target the poor and determine their needs, thus broadening the scope of what anti-poverty programs can hope to achieve. Recognition is dawning among members of the global development community that digital inclusion and digital technologies demand a fundamental reevaluation of much of their work.

Granting marginalized populations access to economic markets provides them with benefits as consumers, producers, and workers. Their inclusion also expands and benefits the economy as

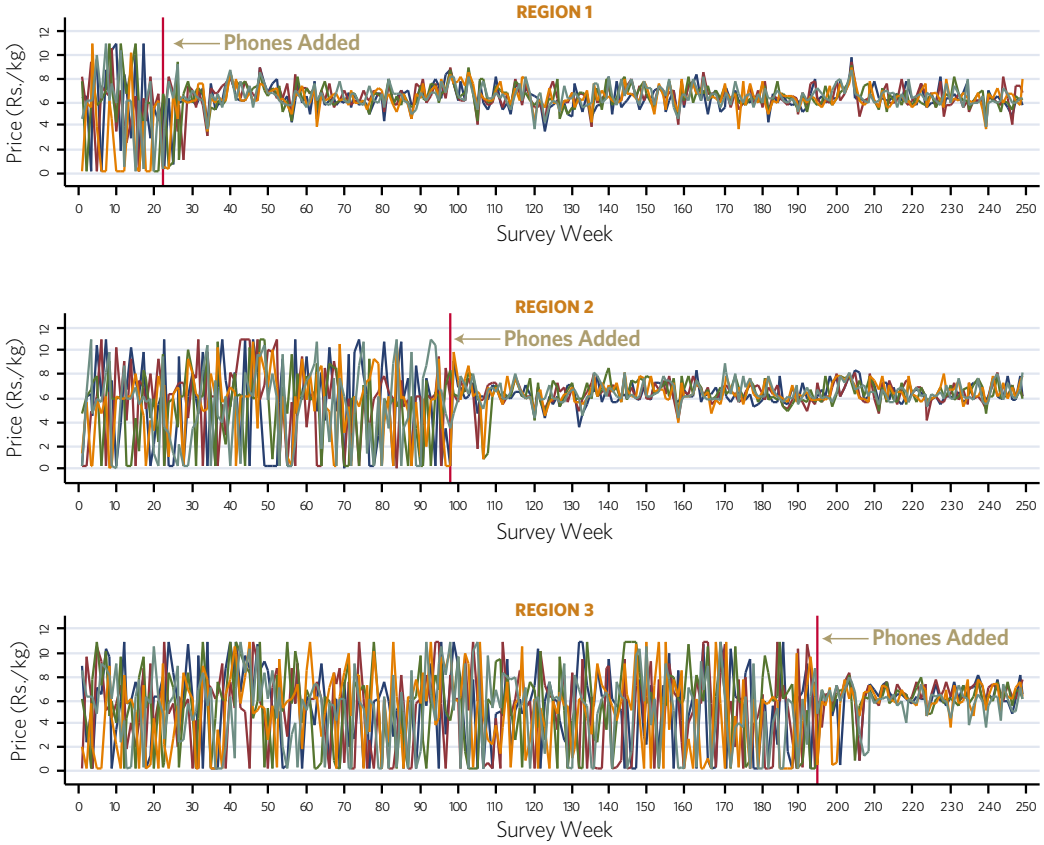
2 William Jack and Tavneet Suri, "Risk Sharing and Transactions Costs: Evidence from Kenya's Mobile Money Revolution," American Economic Review 104, no. 1 (2014): 183–223, https://www.poverty-action.org/sites/default/files/publications/jack_suri_aer_.pdf.

a whole. This is what C. K. Prahalad had in mind when he wrote about the fortune at the bottom of the pyramid.

Yet this is just part of the broader economy-wide benefits that digital inclusion promises to usher in through market deepening. High transaction costs are a defining characteristic of developing economies and a direct result of the poor quality of their infrastructure and institutions. They impose penalties on consumers and businesses in money, time, and uncertainty—whether searching for a fair price, obtaining information on the quality of a good or service, bargaining over a transaction, or enforcing market agreements. The overall effect of digitalization is to reduce these costs across the economy, unleashing new market opportunities and more efficient market outcomes.

For instance, when sardine fishermen in Kerala, India gained access to mobile telephones in the late 1990s, they were able to determine where to sell their catch for the best price by making a single call, rather than expending fuel journeying up

Figure 1. The introduction of mobile telephones across three regions in Kerala, India, led to a dramatic reduction in price dispersion for sardine fishermen[3]



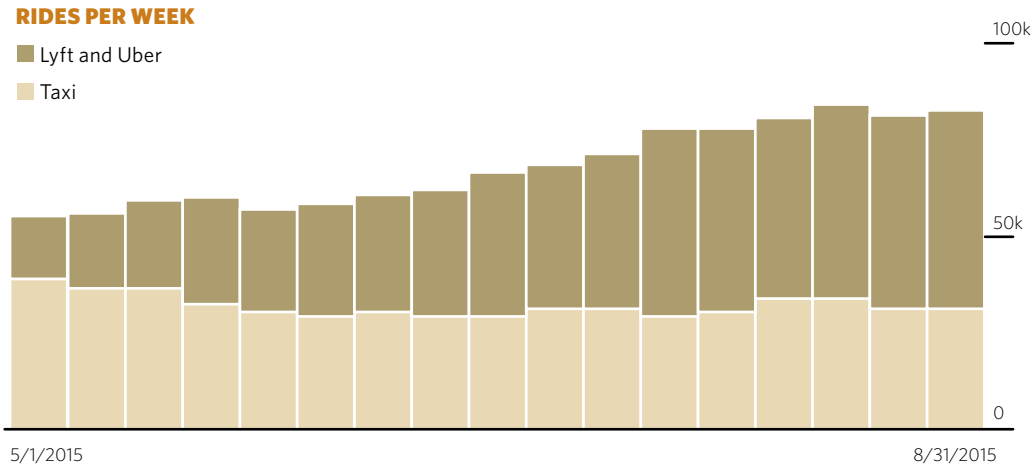
3 Jensen, Robert. "The digital provide: Information (technology), market performance, and welfare in the South Indian fisheries sector." *The quarterly journal of economics* (2007): 879-924.

and down the coast to different markets, or randomly choosing a single market and risking having to throw away their catch if that market was saturated. The result was a virtually instantaneous equalization of prices faced by fishermen (figure 1). Moreover, fishermen enjoyed an 8 percent rise in their profits, while consumers saw a 4 percent fall in sardine prices.

The promise of improved market outcomes is reflected in the emergence of new digital platforms. These serve as market makers by bringing together different actors in an economy and enabling them to make transactions. In some cases, these platforms replace a less-efficient and more localized traditional physical marketplace (e.g., the Amazon and Alibaba online retail sites). In others, they create entirely new markets (e.g., Airbnb and similar sharing platforms). Both result in a growing economy. For instance, the introduction of digital platforms for finding taxis in Portland, Oregon, led to a rise of more than a third in the total number of rides taken within just four months of their launch (figure 2). At the roundtable, pioneers of digital platforms, including an online payments firm and a logistics firm, gave concrete examples of how these new digital platforms can be a game-changer for developing countries.

Given this promise, and the extent to which digital products and platforms are already reshaping large sections of the global economy, it is something of a puzzle that the medium-term prospects for economic growth in both developing and developed countries remain weak. The only definitive evidence for the impact of digitalization on macroeconomic performance is a short-lived productivity boost in the United States in the 1990s. Opinions are divided as to whether the impact of the digital economy has been overhyped or whether its full impact will need more time to fully reveal itself.

Figure 2. The introduction of digital platforms for taxis in Portland led to industry growth



DATA: PORTLAND BUREAU OF TRANSPORTATION

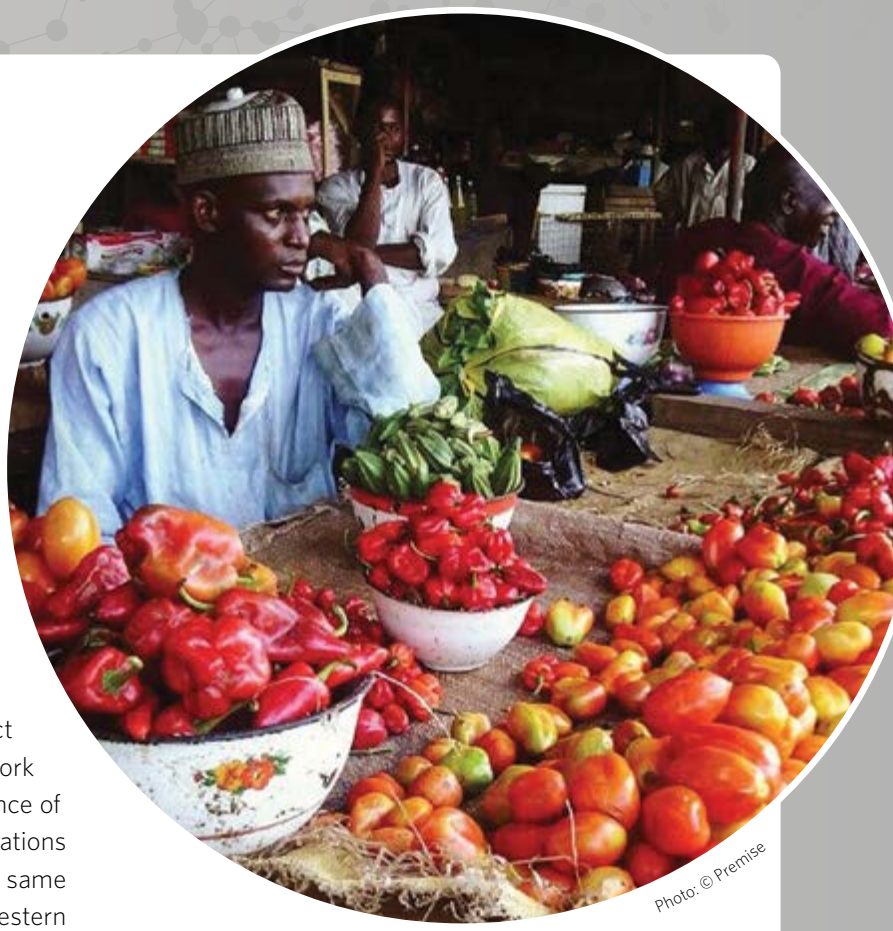


Photo: © Premise

What is more alarming is that some of the negative economic effects of digitalization have quickly surfaced. One of the historical effects of technology has been to disrupt and displace jobs in specific sectors of the economy. Though these effects are undoubtedly damaging for those who bear their brunt, history attests that more productive jobs have simultaneously been created. Overall, technology's net impact has been more as a complement than a substitute for labor. By contrast, it is feared that the net impact of the digital economy on the world of work could be pernicious. There is already evidence of the hollowing out of middle-skilled occupations in developing economies, emulating the same polarizing pattern that has played out in Western economies since the early 2000s—although the larger trend of a rapid growth in middle-class populations in developing countries remains intact.

Other downsides of the digital economy point to the importance of policy and regulation. Digital innovations, such as biometric and block chain technologies, have the potential to bolster the security of identification, asset ownership, and transactions, yet the vulnerability of entire digital networks to cyberattacks remains a major concern. The digital economy has led to an evolution of norms regarding trust, sharing, and community, but arguably its most contentious impact has been to violate standards of privacy. Finally, despite the equalizing effects implied by universal digital inclusion, digital technologies have the potential to reinforce existing inequities in income, gender, and age.

TECHNOLOGY'S NET IMPACT HAS BEEN MORE AS A COMPLEMENT THAN A SUBSTITUTE FOR LABOR.

PAVING THE WAY FOR THE DIGITAL MONEY REVOLUTION

The coming era of digital inclusion promises to transform the way in which money is stored, transferred, and governed in developing countries, ushering in what we describe as an era of "global money." This revolution has three components.

700 MILLION PEOPLE
OBTAINED A BANK ACCOUNT FOR THE FIRST TIME BETWEEN 2011 AND 2014.

Photo: © USAID

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The first is financial inclusion, which involves bringing formal, basic financial services—savings, credit, insurance, and transfers—to people everywhere. Recent years have witnessed stunning progress on this front driven by a combination of government-mandated bank accounts, the emergence of mobile money, and broad-based development, resulting in 700 million people obtaining a bank account for the first time between 2011 and 2014. Nevertheless, 2 billion people remain unbanked (along with perhaps 500 million small enterprises), while another half a billion have an account that is dormant, highlighting the challenge of generating demand for financial services and spreading financial literacy among poor communities.

The second component is the shift away from physical cash toward predominantly digital money for both storage and transactions. Today's

2

trailblazers in this area are at both ends of the spectrum. They include countries where trust in digital money, and the institutions that guarantee its value, is especially strong, such as Denmark, along with countries where trust in cash is especially weak, such as Zimbabwe. Some countries have made concerted moves toward digital money, driven either by the government, as in India, or by the private sector working as a noncompetitive alliance, as in Peru.

Photo: © Logistimo

THESE CHANGES PROMISE WIDE-RANGING BENEFITS FOR THE DEVELOPING WORLD.

The third component is the introduction of new technologies that seek to further reduce frictions in the digital payments industry. The most prominent among these is the block chain technology behind cryptocurrencies that serves as a shared, traceable public ledger to record and secure transactions without relying on a governing institution to provide oversight.

These changes promise wide-ranging benefits for the developing world. Access to and use of financial services provide people with more ways to start and expand businesses, to invest in their children and education, and to manage risk and smooth consumption over time. Digital technology enhances these benefits by making the handling of money more convenient, secure, faster, and less costly. The implications are especially profound for women, for whom convenience and confidentiality are critical to their use of financial services and broader economic engagement.

Businesses are benefiting from these changes in the digitalization of payments by reducing the cost of transactions with customers. This has spurred the creation of new business models, enabling businesses to reach geographically remote customers without an expansive physical presence, and to move quickly to scale at the national level or, on occasion, across borders. Rapidly expanding

digital inclusion creates a growing potential customer base, which has further fueled enterprise growth rates.

Governments are also increasingly harnessing digital payments in the delivery of public transfers and salaries. This can serve both to drive efficiency gains and to encourage citizens' entry into and use of digital networks. For example, Pakistan's Benazir Income Support Program (BISP), the country's largest social cash transfer program, has successful incorporated a number of payment innovations. When it started in 2008, payments were delivered in person and in cash via the Pakistan Post Office. In 2010, BISP began experimenting with delivery via smart cards and mobile telephones. In 2012, BISP transitioned to a new payment mechanism using magnetic stripe debit cards that are accepted throughout the country's financial system, thus serving as an on ramp for digital inclusion. An experiment in India found that the transition from distributing social security payments in cash through a local government official to distributing them digitally resulted in a reduction in the incidence of bribes for payments by half (from 3.8 percent to 1.8 percent of attempts to obtain payment) as well as a fall in the incidence of ghost recipients.[4]

The ability to distribute money to poor people digitally, and thus at low cost and with accurate targeting, has the potential to change both the logic and practice of the aid industry. It offers an approach to charitable giving that demonstrates humility, by recognizing the difficulty outsiders face in correctly identifying poor people's specific needs, and that is empowering for recipients, by

THE ABILITY TO DISTRIBUTE MONEY TO POOR PEOPLE DIGITALLY. . .HAS THE POTENTIAL TO CHANGE BOTH THE LOGIC AND PRACTICE OF THE AID INDUSTRY.

Photo: © MercyCorps

4 Karthik Muralidharan, Paul Niehaus and Sandip Sukhtankar, "Building State Capacity: Evidence from Biometric Smartcards in India." http://www.dartmouth.edu/~sandip/Muralidharan%20Niehaus%20Sukhtankar%20-%20Building%20State%20Capacity%20(2%20July%202015).pdf

giving them control over how charitable resources are ultimately used. It allows donors to act with unrivaled speed to help affected populations during or after natural disasters and other kinds of shocks. In addition, it can emerge as a benchmark against which other aid interventions are judged. This can encourage greater emphasis on evidence in aid programming. In addition, it can lead to a cleaner distinction between the provision of private goods to address poverty, where cash may serve as a viable substitute, and public goods, where other interventions are warranted, ultimately bringing more clarity to aid's purpose.

The prominent role of technology in bringing about an era of global money poses challenges for regulators. The wholesale application of rules intended for traditional banks and financial service products to new service providers can easily quash innovation and opportunities for greater competition and inclusion. Anti–money laundering and counter financing of terrorism regulations are an exacerbating factor, as they appear to allow regulators less discretion in adapting regulatory principles to local circumstances. More broadly, they encourage excessive risk aversion from service providers, which are loath to fall foul of the rules and face potentially hefty fines.

Regulators need to move quickly to assess the opportunities and risks posed by new actors and financial service products. Cooperation between regulators can help in sharing assessments and regulatory approaches across countries. For instance, in Brazil, nonbank entities are eligible to offer payments and savings and to directly access the central bank's clearing and settlement system, paving the way for a number of new

THE PROMINENT ROLE OF TECHNOLOGY IN BRINGING ABOUT AN ERA OF GLOBAL MONEY POSES CHALLENGES FOR REGULATORS.

Photo: © MasterCard

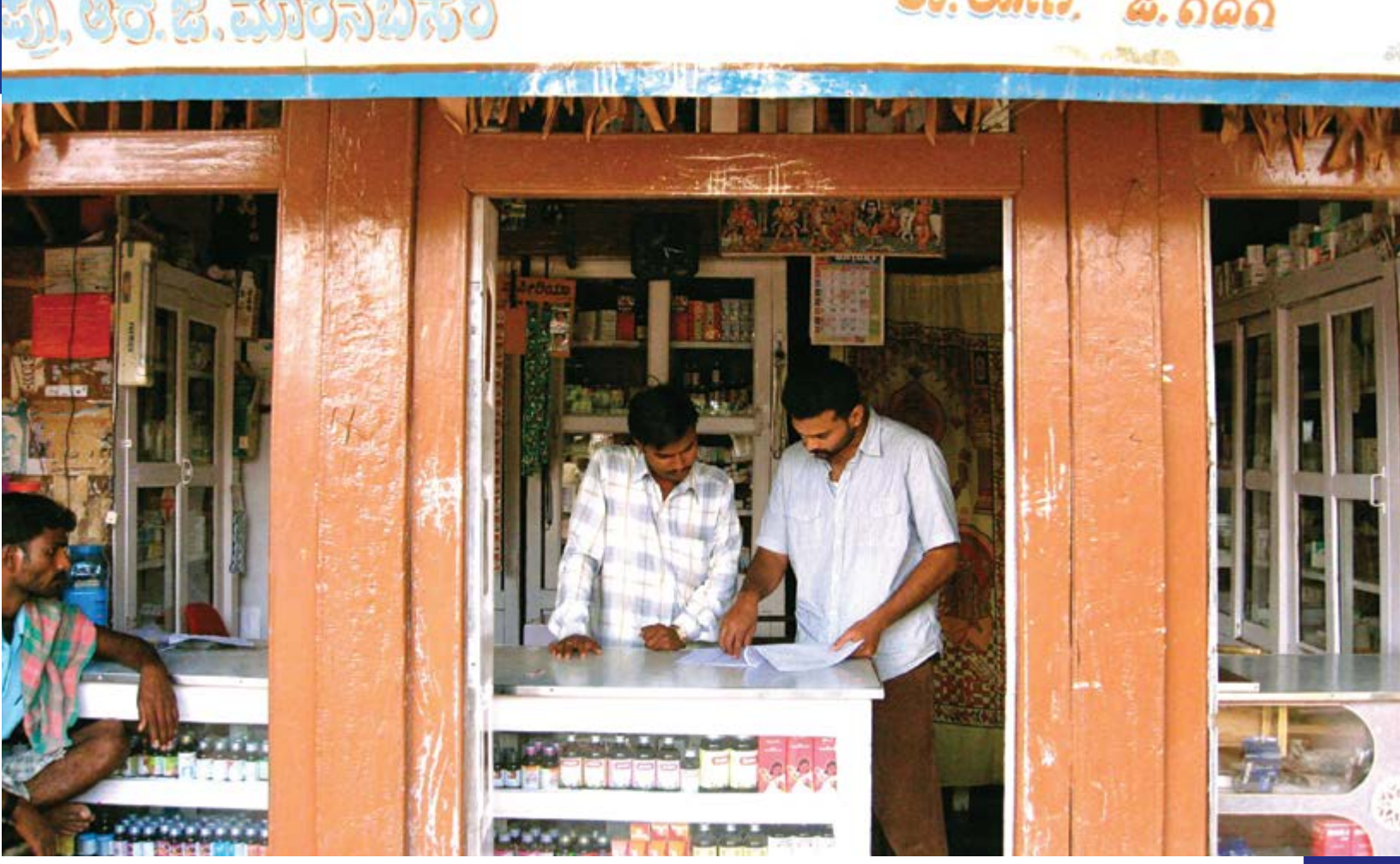


Photo: © Logistimo

commercial partnerships. Mexico's approach of tiered, know-your-customer regulations is providing more flexibility for private-sector providers who participate in the distribution of government payments.[5] International organizations from the Group of Twenty to the Financial Action Task Force have a role to play in ensuring that global financial rules do not mitigate risk at the cost of inclusion, although this is proving to be an uphill struggle, as the clampdown on remittances from the United States to Somalia shows.

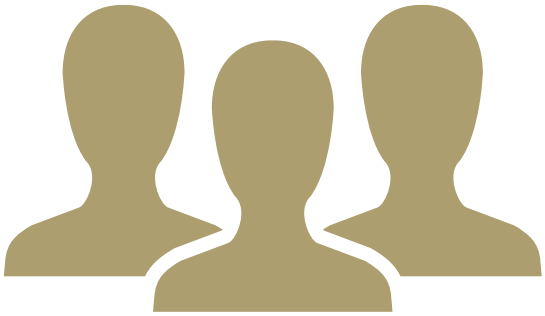
Another area where the goals pursued by regulators may be at odds with each other is the interoperability of payment services, whereby users can transact with one another regardless of differences in their choices of devices, software, or mobile applications. Regulators have tended to view interoperability as a desirable paradigm for all digital networks; yet in practice, full interoperability is anathema to the profitability and scalability of many digital business models. An exception is the payments industry, where interoperability is essential to achieving the desired network effects. A number of successful approaches have been developed that allow competing market players to cooperate.[6]

The global development community has a track record of interpreting exclusion from services as a supply constraint, only to later discover that extending the reach of services does not guarantee

5 World Bank, Development Research Group, the Better Than Cash Alliance, and the Bill & Melinda Gates Foundation, "The Opportunities of Digitizing Payments," G20 Global Partnership for Financial Inclusion, https://docs.gatesfoundation.org/documents/G20%20Report_Final.pdf.

6 Carol Coye Benson and Scott Loftesness, *Interoperability in Electronic Payments: Lessons and Opportunities* (Washington: Consultative Group to Assist the Poor, 2013), http://www.cgap.org/sites/default/files/Interoperability_in_Electronic_Payments.pdf.

Photo: © Premise



CUSTOMERS ARE MORE LIKELY TO TRUST A DIGITAL PAYMENT SYSTEM IF VENUES FOR OBTAINING CASH. . . ARE WIDELY AVAILABLE AND IF THE EXPERIENCE FOR OBTAINING CASH IS SECURE AND RELIABLE.

uptake without complementary efforts to address the demand side. The roll out of technological innovations with a consumer-driven design can succeed in addressing supply and demand challenges simultaneously, but more common is for consumer education efforts to fall short because they are underfunded and poorly implemented. This is certainly true for financial services and the use of modern payment technologies. Efforts to draw people into formal financial services and digital payments, such as by disbursing welfare payments through digital accounts, have often failed to trigger broader usage.[7]

A key demand and design issue is the digital–analog interface. Customers are more likely to trust a digital payment system if venues for obtaining cash—so-called cash-out points—are widely available and if the experience for obtaining cash is secure and reliable. More broadly, less confident users of digital payments and products are likely to opt for traditional, human-centered ways of interacting with financial service providers to manage their digital money. That means working through mobile money agents or phoning call-centers, rather than relying on Web-based or text-messaging-based platforms. Investing in the digital–analog interface can foster greater trust in and ultimately encourage greater use of digital money.

7 Consultative Group to Assist the *Poor, Social Cash Transfers and Financial Inclusion: Evidence from Four Countries* (Washington: Consultative Group to Assist the Poor, 2012), https://www.cgap.org/sites/default/files/Focus-Note-Social-Cash-Transfers-and-Financial-Inclusion-Evidence-from-Four-Countries-Feb-2012.pdf.

OVERHEARD AT THE ROUNDTABLE

GLOBAL MONEY

MICHAEL FAYE | CO-FOUNDER AND CHIEF EXECUTIVE OFFICER SEGOVIA TECHNOLOGY

"How far are we from a world in which development programs can demonstrate that they are doing more good with the dollar than the poor could themselves?"

LORETTA MICHAELS | SENIOR POLICY ADVISER FOR FINANCIAL INCLUSION U.S. DEPARTMENT OF THE TREASURY

"The poor unbanked do actually conduct a lot of financial services, but they do them in their own ways that don't necessarily get reflected in the design of traditional bank products. One of the reasons that mobile money became popular early on is because it was reflecting a behavior that people were already doing, which was sharing airtime or using airtime to pay people back."

TAYO OVIOSU | FOUNDER AND CHIEF EXECUTIVE OFFICER PAGA

"The possibilities for digitized money are really endless. Not only does it bring convenience, but also brings access to the mass market and to formal financial services, and tears down the barriers to global trade. I believe that in our lifetime we'll see at least one country go entirely digital, and it will likely be a currency that they mine themselves versus bitcoin, but leveraging blockchain technology."

TARA NATHAN | EXECUTIVE DIRECTOR MASTERCARD

"Financial inclusion needs to be economically sustainable across the full value chain. It's really important to figure out each of the steps and players involved in getting from the point where money flows into the system, to the point that someone is storing and then spending the money, and then understand what is the cost and the utility associated with each step along the way."

ISMAIL AHMED | CHIEF EXECUTIVE OFFICER AND FOUNDER, WORLDREMIT

"There is a digital audit trail for mobile money transactions. Even in some of the toughest countries where we send money to mobile wallets, we can see what the recipient has used the money for, because mobile operators often know their customers better than the banks. Mobile operators have access to a wider range of information than financial institutions, beyond transaction data."

RUTH GOODWIN-GROEN | MANAGING DIRECTOR, BETTER THAN CASH ALLIANCE

"There are over one billion women still excluded from the formal financial sector. For a program on digitization of payments to work for women, they need control, confidentiality and convenience. That holds anywhere. There's the potential for women to be the winners in the new inclusive digital payments ecosystem, which brings together key public and private sector actors, but it has to be designed appropriately."

LUIS BUENAVENTURA | CO-FOUNDER, REBIT.PH, SATOSHI CITADEL INDUSTRIES

"There's a very direct correlation between migrant worker remittances and the alleviation of poverty in developing nations. In the Philippines it's said that for every dollar that comes in there is an estimated $2.25 in economic benefit that comes out of it."

SMITA SINGH | MEMBER, PRESIDENT'S GLOBAL DEVELOPMENT COUNCIL

"What I find really exciting about this area on digital money, mobile money, is that the locus of innovation has actually been in the developing world. So much technology comes from the developed world and then gets adapted. This is a very different model and process of innovation, and I think we need to look at it and think about it for the broader development community."

FULFILLING THE PROMISE OF INTERNET CONNECTIVITY

The reach of Internet connectivity is both breathtaking and a cause for concern. In assessing its progress, the principal aspects to consider are access, use, and impact.

The Internet footprint covers 90 percent of the Earth's population, and companies like Google and Facebook are working on expanding Internet infrastructure to the remaining 10 percent through innovations like high-altitude balloons, drones, and laser technology. Despite the considerable reach of Internet access, however, only 40 percent of the global population actually uses the Internet. That means half the world's population is covered by Internet infrastructure but is not connected.

A critical question is to understand what accounts for this sharp divide between access and use. Participants at the roundtable identified a number of relevant demand and supply factors including awareness, affordability, relevant content and language, and quality of connections. Behind these factors are a number of important determinants, including energy infrastructure, education and literacy, government regulation and policy. These factors not only explain why many people choose

HALF THE WORLD'S POPULATION IS COVERED BY INTERNET INFRASTRUCTURE BUT IS NOT CONNECTED.

Those people who are online are disproportionately urban, educated, wealthy, and male—in Sub-Saharan Africa, almost twice as many men are online as women; and in South Asia, it is three times as many.

to remain offline, but point to a large, and growing, difference in the quality and openness of the Internet for users across the world. This introduces an additional layer of inequality in connectivity.

Photo: © Oxfam

CONNECTIVITY IS AT ITS CORE A SOCIAL RELATIONSHIP, OR AT LEAST DEPENDS FOR ITS FUNCTIONALITY ON SOCIAL INTERACTIONS THAT ARE TRUSTED.

Roundtable participants took opposing positions on the merits of achieving greater use at the cost of reduced openness of the Internet. Proponents argued that providing people with limited access to the Internet is better than none, that rationing access is a logical response to a world of broadband scarcity, and that limited access provides an on-ramp to broader access in the long run. On the other side, advocates of net neutrality argued that restricted openness goes against the spirit of the Internet as being open and equal, and risked creating monopolies and stifling competition, noting that web access occurs increasingly through closed-network apps as opposed to browsers, which narrows the scope for discovery.

Another factor that is critical to raising Internet use concerns trust. Connectivity is at its core a social relationship, or at least depends for

its functionality on social interactions that are trusted. One interesting suggestion on how to enhance trust is to reverse the power and structure of the traditional end user license agreement by empowering the user to decide on the use of personal data: whether for the social good by accredited organizations, for marketing goods and services to the user, or to verify the user's identity and transaction.

The adoption of digital connectivity by government can itself be an important catalyst for Internet use. At the roundtable, various participants lamented the slowness of government to adapt to digital connectivity. One pithy verdict was that "people are talking to their government using twenty-first-century technology, but government hears them on twentieth-century technology and gives them a nineteenth-century response."

The impact of Internet connectivity is undoubtedly hard to judge. Roundtable participants agreed that its potential impact is profound and, combined with the other components of the digital economy, as disruptive as the Industrial Revolution, in theory. Yet we are only in the early stages of this revolution, and the impact to date has been less than expected, especially in the developing world. Moreover, the downsides of connectivity, which were less anticipated, have begun to emerge. There is a lot that remains to be understood about the impact of connectivity and what policies might mitigate its negative effects.

Evidence of the positive impact of Internet connectivity is mounting. Connectivity expands people's reach to information, knowledge, and goods, services, and markets. It allows people to communicate—instantaneously, to diverse and here-to-unknown audiences and communities, and with pictures and video. It allows social activists to organize for advocacy. It shifts power relations and gives access and power to the marginalized.

CONNECTIVITY EXPANDS PEOPLE'S REACH TO INFORMATION, KNOWLEDGE, AND GOODS, SERVICES, AND MARKETS.

Photo: © Oxfam

Photo: © MKOPA

Internet connectivity can be a driver for reducing isolation, both economic and social. It provides women confined to home and neighborhoods with opportunities for employment and access to knowledge, services, and markets. It has been linked to a decline in domestic conflict and an uptick in women's decisionmaking role in the household.

Connectivity creates businesses and jobs. New business ventures can be launched at minimum cost and can readily access suppliers and customers. Digital businesses expand market access and segment markets into more discrete units, and permit more perfect price discrimination. Market reach to isolated areas and populations is combined with the ability to offer services anytime and anywhere. The Internet also expands access to capital and is a source of new financial instruments. Whereas the developed countries are bemoaning the changes wrought by the new so-called gig economy—employment based on short-term gigs, consultancies, and projects—in developing countries this has long been the standard means of employment and Internet platforms are viewed as systematizing the gig economy experience.

CONNECTIVITY CREATES BUSINESSES AND JOBS.

Finally, Internet connectivity reduces social and political isolation. It brings the government and citizens into closer contact, providing the tools for citizens to hold public officials accountable, facilitating transparency—allowing public officials to communicate with their constituents and allowing constituents to provide instantaneous feedback. It facilitates participatory development though crowdsourcing and the growth of social and political movements. It alters leadership structures and facilitates the decentralization of government and organizations.

Many of these positive impacts, however, are reversed by other effects. One negative aspect is the creative destruction that always accompanies market innovation. At the same time as the Internet is creating new economic opportunities, it is

Photo: © MercyCorps

CONNECTIVITY IS EXPECTED TO BE A LIBERALIZER, BUT INDIVIDUALS TEND TO USE IT IN WAYS THAT REINFORCE EXISTING BELIEFS AND BEHAVIOR.

making many existing jobs and businesses redundant. Although connectivity can liberate and empower women and provide access to new information and communities, it also can amplify existing cultural behaviors. Connectivity is expected to be a liberalizer, but individuals tend to use it in ways that reinforce existing beliefs and behavior.

The biggest disappointment of connectivity has been in the political space. Social media has been attributed both with advancing and retarding democracy. Autocrats have caught up with citizens and are learning to use social media for their own ends. The so-called Islamic State, which has deployed connectivity to expand its reach and appeal, is the most telling example of the ability to use social media for evil purposes. Indeed the last decade has seen the space for civil and political freedom constricted in many countries. And though connectivity enables political and social movements, the lack of structure and organized leadership undercuts their sustainability.

OVERHEARD AT THE ROUNDTABLE

GLOBAL CONNECTIVITY

GARGEE GHOSH | DIRECTOR, DEVELOPMENT POLICY AND FINANCE BILL & MELINDA GATES FOUNDATION

"Lack of internet adoption implies that even when we get most of the supply side basics right there's another step where people, either governments or individuals at the household level are not making it a priority to get on the Internet and spend whatever is the marginal cost to bring that into their lives."

ROSS LAJEUNESSE | GLOBAL HEAD OF INTERNATIONAL RELATIONS GOOGLE

"Broadband infrastructure is just part of the problem. We also need reliable power to provide access. We need local content that's relevant. We need people to understand that there is value in going online and in connecting."

ANN MEI CHANG | EXECUTIVE DIRECTOR, GLOBAL DEVELOPMENT LAB USAID

"We really need to also address that our core education systems have not evolved with the digital economy. We're still teaching 20th century skills in a 21st century economy. We need to modernize our educational curriculum across the world to focus on the digital skills that are required for this economy."

CHRIS LOCKE | FOUNDER CARIBOU DIGITAL

"This wonderfully interconnected web of things that was the World Wide Web starts to end up being inside a relatively small set of calcifying ecosystems that don't actually connect up and link up well together. And the power structures within those ecosystems are sometimes quite severe."

NISHA BISWAL | ASSISTANT SECRETARY, BUREAU OF SOUTH AND CENTRAL ASIAN AFFAIRS U.S. DEPARTMENT OF STATE

"Digital connectivity is values neutral. You have virtual networks that everyone is seeking to enable and empower, but you also have these vicious networks that others are seeking to inhibit. And it's an incredibly ambiguous and complex world in terms of where you align with what's virtuous and what's vicious."

ANDY O'CONNELL | MANAGER, GLOBAL POLICY DEVELOPMENT FACEBOOK

"90 percent of the people on the planet are in a place where they could be connected to the Internet given the cellphone infrastructure that already exists, but again, only 40 percent are. So, there's 50 percent of the people where infrastructure isn't actually the barrier. It's something else. And we think those barriers are awareness and affordability."

ANUP AKKIHAL | CHIEF EXECUTIVE OFFICER LOGISTIMO

"The biggest opportunities to gain traction in the developing world are wherever you touch on the most basic necessities—money, energy, and medicines. To me those are the three biggest opportunities that we're seeing where folks are willing to invest in going further. And in all cases high trust in the human network is essential to making anything scale."

HELEN CLARK | ADMINISTRATOR UNITED NATIONS DEVELOPMENT PROGRAM

"A powerful theme in the new agenda is leaving nobody behind. The digital revolution creates divides in access to information, to opportunities, and to services. And if you're left behind, you're left behind in so many ways that are fundamental to human progress. I think inherent in the prioritization of connectivity is also prioritization of access, focusing on inclusion and equitable access, especially for women, who are often more behind than others."

MARY ROBINSON | PRESIDENT MARY ROBINSON FOUNDATION—CLIMATE JUSTICE

"Digital technology for development is not an end in itself; the success of digital technology in a development context depends on how it is deployed—and is greatly influenced by existing socioeconomic inequalities and power structures."

V SHANKAR | FORMER CHIEF EXECUTIVE OFFICER EUROPE, MIDDLE EAST, AFRICA AND AMERICAS

"Digital technology enables disaggregation of activities. One of the biggest changes that digital technology allows is for multinational companies to profitably and efficiently shift from an old paradigm of "think global, act local", to "think local, act global."

RICHARD BLUM | FOUNDER AND CHAIRMAN BLUM CAPITAL

"Despite all this, never forget to walk the villages. Every time you think, well, I used to do this in whatever part of the world, and I know what goes on there—chances are, you don't. Every time you sit down with a bunch of villagers, you learn something that's new."

Photo: © Omidyar Network

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EXPANDING KNOWLEDGE NETWORKS THROUGH DIGITAL INCLUSION

The Internet and its digital reach are generally viewed as an avenue for deepening knowledge and making it more widely available.

Photo: © World Bank

EIGHT IN TEN PEOPLE
IN THE DEVELOPING WORLD OWN A MOBILE TELEPHONE

Photo: © Oxfam

The roundtable discussed three ways in which digital inclusion can expand knowledge: first, by providing access to a vast repository of online ideas, information and networks that helps to lessen information asymmetries; second, by generating new kinds of information and knowledge derived from digital products themselves in the form of big data; and third, by expanding access to skills and training through digital learning tools.

The rapid rate of progress towards universal digital inclusion—the removal of the digital divide—itself represents an important step in removing information asymmetries and expanding access to knowledge. Already eight in ten people in the developing world own a mobile telephone, and smartphone penetration is rising rapidly even in the world's poorest region, sub-Saharan Africa. As the digital divide is closed, it is reasonable to think that there will be greater equality in knowledge. Yet one of the persistent themes in the roundtable discussion was how the educated, the wealthy, the skilled, the powerful, and the urban dweller are best positioned to take advantage of connectivity to expand their knowledge and act on it. Why might this be the case?

The 2016 World Development Report puts this down to differences across people and places in the quality of competition, education, and institutions, which it refers to as the digital world's "analog foundations". These factors are pivotal in allowing individuals and economies to harness digital data and technology and transform it

Photo: © Omidyar Network

into knowledge. The low quality of these analog foundations in many developing economies can partially account for the disappointing impact of digital connectivity described in the previous section. Investing in these analogs at the same time as taking steps to close the digital divide therefore represents the only sustainable way of reducing the knowledge gap between and within countries.

The roundtable showcased several examples of the potential use of big data to support developing economies and their low-income populations. Digital connectivity leaves a "digital exhaust" that allows the tracking of behavior, markets, and the world around us. A record of individual bill paying can be used to establish a credit record for someone who hitherto lacked a bank account or identification card or credit, thereby now making that individual eligible for a loan. A record of market activities can be analyzed to better understand market dynamics: to predict and identify episodes of economic distress, to verify official data, and to make more informed business and investment decisions. Satellite data can be used to determine when insurance should be paid on weather insurance, when crops should be fed, and where atrocities have taken place.

THERE IS A TREMENDOUS OPPORTUNITY TO EMPOWER POOR PEOPLE BY ENABLING THEM TO USE THEIR OWN DATA. . .

A key question for the roundtable was how to maximize the benefits of big data for the poor. There is a tremendous opportunity to empower poor people by enabling them to use their own data—for example, telephone records to generate credit scores and insurance products, or browsing habits to inform retailers. However, seizing this opportunity depends on regulatory decisions regarding the ownership of data, for which global norms have yet to be established, and digital privacy.

Other ways to maximize the benefits of big data are to combine it with other sources of data and to establish protocols and platforms for how data should be organized, anonymized, and formatted,

and where it should be made public, where this is feasible. The open data community can offer some useful lessons here, as evidenced by the International Assistance Transparency Initiative standards for data on development assistance. Big data and open data suggest that the world is awash in data, but that data are in sore need of becoming more complete, accurate, organized, and up to date to keep up with the demands of global change and to identify new solutions to global problems.

Participants at the roundtable working in the developing world argued forcefully that traditional education systems in many low and middle income economies were failing to perform their role both to identify talent and to nurture skills. This poses an enormous challenge for economic development.

The emergence of online learning options—including massive open online courses—promises to upend the status quo and suggests failing education institutions could soon face dramatic disruption. Digital learning is already reaching millions of people who otherwise could not afford or access a high quality education. It allows individuals to proceed at their own pace, and at any time in their life, thereby facilitating lifelong learning. Yet the roundtable discussion stressed the ongoing need for fostering soft skills beyond the technical skills learnt in most courses. That suggests an ongoing need for that learning in a classroom that includes in-person interaction with others, beyond remote Internet-based solutions.

One of the common problems in education, at both the secondary and tertiary levels, in both developed and developing countries, is the difficulty in educating and training people today for tomorrow's jobs when we lack the knowledge of the real nature of those jobs and the required skills. The onus is on teaching people how to learn so they can adapt to different jobs. That is what firms are looking for.

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OVERHEARD AT THE ROUNDTABLE

GLOBAL KNOWLEDGE

TARIQ MALIK | FORMER CHAIRMAN NATIONAL DATABASE AND REGISTRATION AUTHORITY

"It is growingly recognized that good governance is impossible without states' capacity, and big data coupled with data analytics is the key enabler for smart government."

DAVID SOLOFF | CHIEF EXECUTIVE OFFICER AND CO-FOUNDER PREMISE

"A global knowledge network can deliver visibility. It can measure impact. It can fill the void of a national stats office that is either overmatched or has a conflicting agenda. It can really be a core technology for measuring progress towards all sorts of development goals. What good is a goal if you can't measure progress toward it?"

REBECCA TABER | HEAD OF GOVERNMENT PARTNERSHIPS COURSERA

"There's no reason that each facilitator of a group looking to gain skills should be coming up with their own training or trying to figure out what employers need. The scale of digital technology can result in getting the best training anywhere in the world, whether it's high-demand skills, like coding or data science, or entry-level skills, like customer service."

SAM WORTHINGTON | PRESIDENT AND CHIEF EXECUTIVE OFFICER INTERACTION

"Is there a way that public knowledge can become an echo that supports or influences positive government change? Because otherwise, you get into this negative cycle of people with some degree of empowerment taking action and then having their input limited because societies do not like the disruption."

CHRISTINA SASS | CHIEF OPERATING OFFICER ANDELA

"Currently, there are approximately 1.8 million jobs open for software developers on LinkedIn—and in the United States alone there are four open jobs for every one software developer. Our solution is to use the very best blended online and offline learning to move young people into these jobs as rapidly as possible, with a seemingly impossible goal of launching full career paths for them without any debt and without leaving home."

IRVING WLADAWSKY-BERGER | VISITING LECTURER MASSACHUSETTS INSTITUTE OF TECHNOLOGY

"When we think of skills for the digital economy, we tend to emphasize STEM skills, and those are important. But in my experience, the even more important skills are the social skills; the ability to work in teams, the ability to communicate your ideas and learn from others, the ability to write. Those are eminently analog skills, I would say. And that's critical."

DEEPAK MISHRA | CO-DIRECTOR OF 2016 WORLD DEVELOPMENT REPORT WORLD BANK

"Unless countries strengthen their analog complements, investments in digital technologies will not yield the expected dividends. Instead, it would create new risks: concentrated markets, rising inequality and intrusive states. So, let's celebrate the digital revolution, and at the same time, let's work to strengthen its analog foundation."

MIKE KUBZANSKY | PARTNER OMIDYAR NETWORK

"All technologies have upsides and downsides. And I think it's incumbent on us to figure out how to make the most of the upsides and guard against the downsides. We're hugely excited about the upside of all this technological progress—and not losing sight of what's possible in a world of ubiquitous connection which can be massively empowering for individuals."

ANNE-MARIE SLAUGHTER | PRESIDENT AND CHIEF EXECUTIVE OFFICER NEW AMERICA FOUNDATION

"Education will be lifelong from multiple sources with measureable outcomes, beyond a four-year college degree for the 40% of Americans who get one. Some of it is digitally immersive online. Some of it's in the workplace. A lot of it is augmented in different ways. But we need all of it."

JONATHAN HAKIM | PRESIDENT AND CHIEF EXECUTIVE OFFICER CIGNIFI

"Mobile data is a fundamental building block, because the way that you use your phone is a proxy for the way that you live your life. The pattern of calls, texts, internet usage not only reveals a lot about the individual customer, but it also shows me her place in a giant social network—a different kind of social network than a Facebook or Google, but in many ways, analogous to it."

KEMAL DERVIŞ | VICE PRESIDENT AND DIRECTOR, GLOBAL ECONOMY AND DEVELOPMENT BROOKINGS INSTITUTION

"Financial innovation can spell disaster, as it did with the synthetic subprime mortgage products. Or it can allow the poor to produce and access markets, as illustrated in this volume. And such is the case with technology and innovation in general: it should serve human needs and progress, not the interests of the few."

APPENDIX

ADDING VALUE TO THE DIGITAL ECONOMY IN DEVELOPING COUNTRIES

The roundtable tried to envisage how governments, business, and civil society could add value to the accelerating digital revolution, maximizing the opportunities and reducing the downsides of what is unfolding.

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One key insight is that the digital economy is reshaping the ongoing evolution of the interface between private markets and public policy in ways we can only start to imagine.

A clear theme that emerged is that the future will be one where consumers of all stripes, including people living in poverty, will be the drivers of their own destiny—more empowered, more connected, more able to build a life of prosperity. For the business world, the consumer as king is not a novel idea; but for development agencies, especially when dealing with people living in poverty, it implies a profound culture change. It encourages a shift from being service-based organizations to enabling organizations.

At the roundtable, three ideas flowed from this observation. First, making investments in enabling platforms like information and communication technologies should become priorities for development agencies, on a par with investments in traditional infrastructure, like electricity or roads. Second, with these new platforms in place, innovative private companies are likely to prove capable of producing better, faster, and cheaper solutions than many development agencies, taking advantage of the lower transaction costs and easier access to people at the base of the pyramid. Third, with more ability to target money, cash transfers can become a benchmark against which all other development interventions can be measured—the default option for development agencies, rather than the innovation.

Photo: © MKOPA

Of course, building the enabling platforms is not as simple as it sounds, especially in fragile states with inadequate physical and digital connections. The analog components of infrastructure also need to be developed in parallel. Competition, institutions, and skills are needed. Competition can determine use and affordability for everyone, although exactly how it should be promoted when network effects are strong is still up for debate. In the area of remittance transfers, where competition has been historically weak, there is a move toward price caps, but that may not be an efficient solution. Institutions from identification systems, finance, privacy, freedoms, consumer protection

. . .THE FUTURE WILL BE ONE WHERE CONSUMERS OF ALL STRIPES, INCLUDING PEOPLE LIVING IN POVERTY, WILL BE THE DRIVERS OF THEIR OWN DESTINY. . .

and safety, interoperability, and the like also need to be developed in efficient ways. Skills are too often lacking in the developing world, and digital solutions to raising skills rely on their own analog counterparts: the in-person education institutions that can nurture individuals' soft skills.

Without these analog foundations, the initial promise of digital technologies could be subverted. The Web is already moving from an interconnected system to a series of siloed applications and platforms. One example given was that rather than offering opportunities to all, know-your-customer regulations can restrict payments to potential app developers in countries without strong institutions. Another example was the proliferation of cash transfer cards and programs now offered to refugees in Syria. Compartmentalization, and the inefficiencies that accompany it, is a function of small-scale innovation pursued by individual actors; innovation is to be encouraged, but problems can arise if it creates structures that are locked over time.

Yet the acceleration of digital technologies in developing countries is palpable and is bringing rapid change in early adopters like Kenya, Nigeria, Peru, the Philippines, and India. Entrepreneurs from these countries outlined the struggles and opportunities they have faced in building scaled-up businesses. Common themes that emerged were that trust, talent, and regulations were the most significant obstacles they faced, while technology was far easier to manage.

Most businesses still find that consumers want to have a human point of contact, and that building a network of agents remains one of the most significant challenges. Many provide fee-for-service payments; for example, mobile money companies might use small shopkeepers, whereas data collection firms can offer a payment for each validated piece of information. The benefits of flexibility of such uses of the gig economy, however, need to be balanced with instilling a sense of service and trust among customers, something that remains a major challenge.

BUSINESSES THAT RELY ON DIGITAL TECHNOLOGIES ALSO NEED THE TALENT AND THE STAFF TO MANAGE THESE FUNCTIONS.

Photo: ©World Bank

Photo: © Premise

Businesses that rely on digital technologies also need the talent and the staff to manage these functions. Few rely on the formal educational system to provide such skills. They are developing their own tests for proficiency, hard work, and the ability to learn. Meanwhile, online courses and free software provide much of the material actually needed by students to develop the necessary skills. Although the roundtable reached a consensus on the importance of curriculum reform and the need to modernize education, and heard several interesting innovations that are having an impact, the pace of change in school and university reform is slow.

Regulatory uncertainty also loomed large, with issues like cybersecurity, privacy, data ownership, taxes and fees, and interoperability being discussed. What is evident is that developing countries cannot look to developed countries for best practices in these regulations and simply try and copy them, as is the case with other elements of development policy. The differences in user cases are too large. As one example, surveys suggest quite different attitudes toward privacy in developing countries, with consumers perhaps more willing to share information in return for a financial service than is the case in developed countries. So countries will need to develop their own approaches, and in the process manage the various political economy issues that arise as new companies potentially threaten existing vested interests.

The history of the rapid development and rolling out of new technologies without adequate regulation is sobering, with the global financial crisis of 2008–9 only the latest example of how private markets can fail to provide optimal solutions. The roundtable participants were divided on their views about whether Internet freedom should be absolute (what about its use for terrorist recruitment?), about how to best create a data architecture, and about how to establish a digital identification system.

Digital identification methods are central to the evolution of the digital economy, and the roundtable was reminded that most countries are starting

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ONE OF THE GREAT CHALLENGES OF THE DIGITAL ECONOMY IS HOW TO CONNECT THE RANGE OF USE-SPECIFIC ACTIVITIES THAT ARE EMERGING.

from some form of identification (ID) system, not from scratch. Compartmentalization again surfaced as an issue. Only 3 percent of people with digital IDs use them for multipurpose tasks. Indeed, only 18 percent use IDs for identification, while 55 percent use them to access specific services.[8] But use and uptake can be greater, as well as efficiency, if IDs are used for multiple purposes.

Indeed, one of the great challenges of the digital economy is how to connect the range of use-specific activities that are emerging. Nowhere is this more important than in the creation and use of data. Many development actors have their own data systems; but even when these are made open, they can be hard to access and merge with

8 Brookings hosted a follow-up conference on digital IDs, with many of the roundtable participants, in November 2015.

other systems. One example of the potential for harnessing new data sources is in the hundreds of thousands of mineral core samples collected by mining companies. Another is the potential ability of large nongovernmental organizations to help individuals satisfy know-your-customer regulations—for example, a single member of InterAction, the NGO umbrella group, has engagements with 52,000 local community organizations and 1 million families, information that could be valuable to many others.

Data creation is, however, a public good, and few organizations are prepared to fund exercises to link and connect data systems from across organizations and themes. This is a significant obstacle, for it then places most of the burden for data collection on government statistical agencies that have their own funding and staffing challenges.

Some private companies might cross-subsidize the provision of selected data using a hybrid approach—selling commercially viable data, and making more general data freely available to the public. Planet Labs, a low-orbit geospatial company, has already committed to making $60 million worth of imagery freely available in support of selected sustainable development goals. Digital will drive the data revolution but will enough providers get paid for their efforts?

Businesses, both big and small, are incorporating digital technology at speed. But these innovations are risky. They require risk-taking capital. The entrepreneurs around the table agreed that capital was often available for initial start-ups—it is small-scale, and good ideas can be funded by family and friends. Capital is also available to scale up once a proven concept has been developed. What is missing is the intermediate stage, bridging the idea to a proven concept.

Unfortunately, few aid agencies have the instruments to provide equity capital for this phase. Public-sector agencies also have a problem with risk-averse governance structures. So using public finance to support the new digital economy is fraught with problems. Some innovations, like the Global Innovation Fund, are structures designed to be more flexible, but these have not yet reached scale.

The challenges to be faced are building the infrastructure and ecosystems, developing the analog institutional capabilities, establishing trust among consumers and business, avoiding the echo chamber of structural inequalities that can be generated by connected systems that permit greater self-selection of groups, and injecting more equity finance and more public goods financing into the system. Success will bring transformative change; failure would mean a potential dystopia.

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