



WORLD DEVELOPMENT REPORT 2016

CONCEPT NOTE

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*“There have been moments in history where the invention of new technology has completely rewired the way our society lives and works. The printing press, radio, television, mobile phones, and the **Internet** are among these. In the coming decades, we will see the greatest revolution yet, as billions of people connect to the **Internet** for the first time.”* Mark Zuckerberg, Co-founder of Facebook

*“The hype, skepticism, and bewilderment associated with the **Internet**—concerns about new forms of crime, adjustments in social mores, and redefinition of business practices—mirror the hopes, fears, and misunderstanding inspired by the telegraph (in the nineteenth century) ... Such reactions are amplified by what might be termed chronocentricity—the egotism that one’s own generation is poised on the very cusp of history.”* Tom Standage, Author of *The Victorian Internet*.

The internet profoundly affects the lives of billions of people. The **2016 World Development Report** will examine how it can be a force for development, especially for the poor in developing countries. The Report will explore the internet’s impact on economic growth, on social and economic opportunity, and on the efficiency of public service delivery. It will analyze the factors that have allowed some businesses, people, and governments to benefit greatly from the internet—and others not. And to help countries better leverage the internet for development, it will identify the policy reforms in the information and communication technology sectors, in complementary sectors, and in the development community.

Why this topic

1. **We reside in a physical world, but live an increasingly digital life.** Trips to the library, music store, bank teller, travel agent, and even government offices are gradually becoming a distant memory, replaced by their digital incarnations. People are finding love and countries are waging (cyber) war on the internet (box 1). The Arab Spring has shown the power of the internet for social mobilization.¹ Behind these activities is an explosion of digital activities: 6,000 tweets each second, 100 hours of video uploaded on YouTube each minute, 240 million Google searches each hour, 106 billion emails sent each day.² The digital revolution has changed the daily lives of billions of people, though billions more have yet to go fully online.³ How is the internet reshaping the contours of economic development? That will be the focus of this WDR.

Box 1: Internet as shorthand for digital technologies

The digital revolution is powered by ever-faster processors in computers and mobile devices, high resolution displays, and optical fiber networks pushing data around the globe at the speed of light. Focusing on the impact of advanced communication and data flows on development, the 2016 WDR will examine three foundational technologies most relevant to development: the internet itself, mobile communication, and the World Wide Web. These three technologies are now fully integrated. For instance, smartphones use cellular networks for standard mobile voice communication, but can also access data services over the internet or route calls using voice over internet protocol. The Report will use “internet” as shorthand for advanced digital technologies and services that greatly facilitate the *creation, storage, analysis, and sharing of data and information*.

2. **The rapid diffusion of digital technologies to developing countries is unprecedented.** For Indonesia to reap the benefits of steamships took 160 years after their invention, 60 years for Kenya to have electricity, 15 years for Vietnam to introduce computers.⁴ The number of smartphone owners in developing countries now exceeds that in the developed world, even if basic mobile phones still dominate. **More households in developing countries own a mobile phone than have access to electricity or improved sanitation facilities (figure 1).** The

¹ See Howard and Hussain (2013) and Adi (2013).

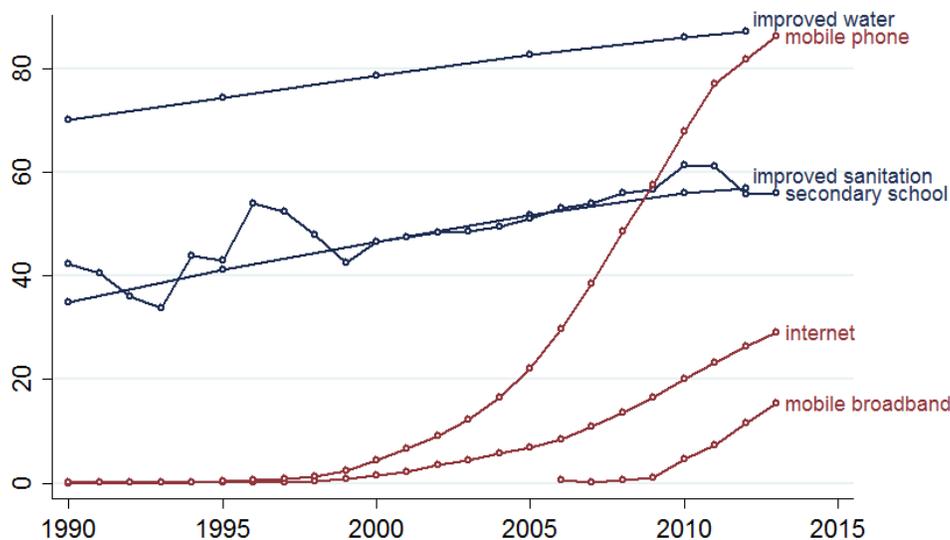
² See Internet Live Stats (<http://www.internetlivestats.com/>).

³ See MGI (2014).

⁴ Comin and Hobijn (2010) have argued that while the adoption lag of new technologies between countries is falling, the diffusion lag within country is widening.

penetration of fixed-line internet has been relatively slow, but the use of mobile broadband is accelerating.⁵ With the price of smartphones declining rapidly, perhaps an additional one billion people will gain access to the internet by 2020, greatly widening access to a vast pool of information and ideas.⁶ While almost everyone in high income countries now has constant internet access, the greatest impacts of the digital transformation for most people in low and middle income countries are still in the future.

Figure 1 While the use of mobile phones has exploded in the developing world, the use of the internet and mobile broadband has increased more slowly



Note: ICT and infrastructure indicators (mobile phone subscriptions, internet users, mobile broadband subscriptions, improved water, and improved sanitation) are per 100 individuals. Net secondary school enrollment is the percent of the relevant age group that is enrolled.

Source: World Bank, World Development Indicators; International Telecommunication Union, ITU World Telecommunication/ICT Indicators.

3. **The rapid penetration of digital technologies is changing the lives of the poor.** Look at some remote areas in Niger, where the reduction in grain price dispersion has improved the welfare of millions of poor people as traders use mobile phones to search and sell in more markets.⁷ Citizens in Bangladesh, India, Peru, and Uganda use one-stop portals to register birth certificates, drivers’ licenses, and land records without having to travel long distances, visit multiple government offices, or pay bribes. Millions of Kenyans use mobile money to pay bills and send money to relatives—services not available even to most people in the advanced countries.⁸ Alibaba, the largest global electronic marketplace, has dramatically reduced the search cost of trading by helping thousands of small Chinese manufacturers connect to buyers over the internet. Several hundred million Indians, most living on less than \$2 a day, use their

⁵ Even without a smartphone, users of mobile phones can access information on the internet. A software product called txtWeb allows users to access bite-sized chunks of information on the internet via SMS. It has 1 million monthly active subscribers and receives nearly 5 million requests a day on issues ranging from stock prices to cricket scores.

⁶ See Schmidt (2013) and Cerf (2014).

⁷ Aker 2010.

⁸ Suri et al. 2012.

unique biometric identification to use public and private services.⁹ Some of these benefits—such as reduced prices or public service portals—extend even to those who lack access to a mobile phone or the internet.

4. **Despite these and many other examples, broader understanding of the impact of the internet on economic development remains incomplete, influenced by anecdotes more than rigorous analysis.** In fact, many of the examples just mentioned are among the relatively few success stories in developing countries that have been repeatedly cited elsewhere, a sign that systematic analysis is lagging behind.¹⁰ Incomplete understanding of the impact of the internet on economic development has hindered the design of effective policies to help countries take full advantage of these technologies. So, much is at stake for developing countries as their success or failure in leveraging the internet for development will determine how quickly they catch up with wealthier countries—or whether they fall farther behind.

5. **While many of the internet’s profound transformations are beneficial, rapid changes are always disruptive, creating many winners but also losers.** Digital technologies disrupt established businesses, increase efficiency, expand markets, create new products, and lower prices, but their use can be impeded by entry barriers and regulatory obstacles that risk widening the income divergence between rich and poor countries. Internet businesses may also be less amenable to standard regulatory tools, prone to concentrations of market power and information in the hands of a few dominant firms.¹¹ While digital technologies allow many people to pursue opportunities previously closed to them, they are also changing the nature of work, raising skills requirements at a speed that makes it harder for education systems to keep up. Together with technological advances that make automation in manufacturing and services increasingly common,¹² these forces could displace jobs and reshape the world of work, breaking traditional links between employers and employees and between work and benefits. Another negative is that many governments have wasted resources on digital technologies, with large cost overruns and limited take-up of e-services.¹³

6. **The 2016 WDR will argue that the internet has made the world smaller and the world economy bigger but that it also risks making societies more unequal and life more intrusive.** It will document how the internet raises the fortunes of countries and improves the lives of the poor. But it will also identify and analyze the potential downsides of the digital economy—rising disparities, displacement of jobs, overload of information, loss of privacy, and the growing threat of data theft. From this analysis will emerge areas where public policy can boost the benefits from digital development while managing the downsides. Some will be in the digital economy itself (sectoral policies), but many will require cross-sectoral reforms (national

⁹ The Economist, *India’s identity scheme: The magic number*, Jan 14th 2012. (<http://www.economist.com/node/21542763>).

¹⁰ After being frequently shown a few scattered case studies on the impact of ICTs on development, an Indian policymaker was quoted as saying “*Please do not show me another video that shows all the wonderful things you have done. Show me actual data on the impact you have had.*” Expressing similar frustration, the former New York City mayor Michael Bloomberg, apparently quipped, “*In God we trust. Everyone else, bring data.*” See M World (2012).

¹¹ Shapiro and Varian (1998) argue that sectors producing information products are more susceptible to ‘natural monopoly’ than other sectors of the economy.

¹² Brynjolfsson and McAfee 2014.

¹³ Heeks 2006.

policies) or cross-national action (international policies).¹⁴ More specifically, the Report will present the evidence, identify the main channels for the internet to affect development, and discuss the policy implications.

- **Facts.** The Report will document the speed and pace for digital technologies to diffuse to businesses, people, and governments across and within countries, with a focus on the poor. It will report how digital technologies make existing markets more efficient and expand and create new markets and products. The Report will also document instances where the internet is creating new challenges or where the expected benefits have fallen short.
- **Analysis.** The Report will discuss the mechanisms for the internet to advance economic development: overcoming information asymmetries and frictions (for greater inclusion), lowering the cost of existing transactions (for greater efficiency), and allowing greater automation of products and processes (for greater scale). It will argue that while these mechanisms have been a source of significant benefits, they could also involve sizable risks to the world economy.
- **Policy.** The analysis will identify the most important complementary factors—such as competition policies, skill upgrading, and political incentives—that need to accompany digital policies to ensure that internet access is universal, affordable, safe, and open. The Report will propose ways for countries to strengthen these factors, focusing on how digital technologies change the way policymakers traditionally think and how digital technologies can be part of the solution.

Key hypotheses and emerging cross-cutting messages

7. **The Report will assess the impact of the internet in the context of past industrial revolutions and future possible developments.** It will compare perceptions of the potential impact of historical technological breakthroughs (steam engine, telegraph, electricity, automobile) with actual developments. It will analyze how historical experiences might guide the expansion of the internet in lower income countries. It will also discuss what the future may entail for developing countries as the internet becomes ubiquitous and its effects on jobs, inequality, and privacy become more evident. And it will briefly explore the potential impact of emerging digital technologies that are likely to mature over the next few years (Internet of Things and 3D printing), though much will necessarily be provisional.¹⁵

8. **The Report will discuss some of the prominent conjectures and prognoses accompanying the internet's advent.** Has the internet meant the death of distance? Has

¹⁴ Romer 2010. Paul Romer argues that different types of technologies (T) have different interactions with rules (R), where T is the stock of technologies in a developing country and R is a country-specific factor that influences the rate for ideas from the rest of the world to enter the country. He maintains that the full benefits of T can be realized by better understanding the differences between the types of ideas or technologies (T) and how they interact with various local systems of rules (R).

¹⁵ For the topic of this Report, the dangers of over- or under-estimating the impacts of future developments are great. This is nicely summarized in Gartner's hype cycle, which documents the various stages of a technology's progression: trigger, inflated expectations, disillusionment, enlightenment, and finally productivity. See <http://www.gartner.com/technology/research/methodologies/hype-cycle.jsp>.

agglomeration declined and the world become “flat”? Has the internet democratized information and ideas and empowered the poor? Will automation, not just in manufacturing but also in many services, lead to massive unemployment and social instability? Has the internet facilitated direct democracy and peer-to-peer capitalism, attenuating big government and big corporations? Is it different this time—is the digital revolution fundamentally different from past industrial revolutions both in its upside benefits and in its downside risks? These are difficult questions, many without clear answers. The Report will muster the best available empirical evidence to inform these debates.

9. **The Report will argue that the impact of the internet on economic development is shifting in two important directions.** First, given the slow growth, aging population and near-saturated market penetration in the advanced economies, most of the expansion of the internet-related market will take place in developing countries. The *internationalization of the internet*—with the share of developing countries in the internet economy (measured in US dollar) is expected to increase from less than 30 percent in 2010 to more than 50 percent in 2025¹⁶—presents a historic opportunity for the poor and for developing countries. Second, the notion of *what the internet can do is rapidly evolving*, from making markets more efficient to tackling complex development challenges. In advanced economies, where markets and governments tend to work fairly well, the internet has made existing systems more efficient. The patrons of the internet in developing countries—facing numerous government and market failures—are likely to expect more from the internet: to create markets where none exist, to turn around failed public services, to reduce market frictions, to solve agency problems, and so on.

10. The WDR team’s initial research and consultations yield the following cross-cutting messages:

- **The internet can be a significant source of increased global prosperity, though a large part of it accrues in nonfinancial terms.** Massive investments by businesses, people, and governments on digital technologies can reduce costs, increase competition, expand markets, and through the Schumpeterian creative destruction process, boost productivity and income. This benefit can accrue to everyone—even those who do not own any digital technology—in the form of lower prices, increased choices, more convenience, increased consumer surplus, and greater freedom and voice, few of which are captured in the national accounts. However, the monetary payoffs of the digital economy, which are part of GDP, may be less uniformly distributed than the nonpecuniary gains.
- **By amplifying differences in capabilities, the internet can increase inequality and divergence, at least in the short or medium term.** The analogy of globalization is illustrative here. While global trade has existed for hundreds of years, it was the sharp rise in container shipping in the 1980s that considerably reduced transport costs and triggered explosive trade growth, with big benefits for countries that took advantage, notably in East Asia. Just as with globalization, those best prepared for using the internet—smarter firms, higher skilled workers, better performing governments—reap the benefits first, while others remain behind. Although the internet can help low income countries and the poor, it can also widen the gaps between national economies, increase inequality among

¹⁶ See Cisco and GBN, 2010.

households, and add to differences in the quality of local and national governments. Are these trends temporary, and will the laggards catch up? Will public policies encourage convergence and ease the hardships of a disruptive transition? These are open questions.

- **The internet produces the greatest development benefits when it complements, not just substitutes, other factors.** Internet investments by businesses, people, and governments can affect development in different ways. In some cases the new technology simply replaces other factors. Just as intelligent robots could lead to “lights-out manufacturing” in factories without workers, the internet will enable the automation of many service tasks, including customer service, financial advice, and insurance underwriting. This will reduce demand for many routine skills that may only partially be offset by rising demand for non-routine lower skills (such as janitors) and higher skills (managers). Automation lowers the costs and raises the productivity of a firm or government, but it can also be disruptive, possibly lowering the overall development benefits.
- **The internet has not made governments less important—indeed, smart policymaking is now even more crucial.** The rise of the internet confronts governments with new demands, and they need to respond. Sometimes this means doing more or doing different things. Regulation becomes more complex because sectors intensive in digital technology are prone to natural monopolies, online outsourcing is often outside traditionally regulated work, and many regulations for a physical world are ill-suited to a digital world. The government can also develop platforms for better public and private service delivery, such as those for digital IDs or the regulatory framework for mobile money. And sometimes the government should do less or even nothing. For example, overregulation of new internet-based services such as digital payment systems might deprive consumers of major benefits. Internet governance relies on a nongovernmental, multistakeholder model, enabling a global network fairly immune to narrow national interests. The internet also gives firms and governments new tools for collecting, monitoring, and managing information. To ensure high economic returns from internet investments, firms and governments must resist the temptation to control rather than to empower customers and citizens.

How the internet affects development: three mechanisms

11. **The internet affects almost all social and economic spheres, often in complex ways.** One task of the 2016 WDR is thus to provide an intuitive framework that can guide discussions about the internet’s impact, to identify areas where public policy action may be needed, and to propose ways to rank and sequence reforms for countries at different stages of digital development. This section and the next discuss the main mechanisms through which the internet affects development, and identify risks that require policy action. As shown in the outlines for Chapters 1–3 in the Annex, this concept is then applied to understand the internet’s impact on growth, opportunity, and public service delivery.

12. **The obvious benefit of the internet is that it lowers the cost of participating in a market, often dramatically.** In advanced economies with relatively complete markets, benign governments, and rational and informed economic agents, the largest benefits of the internet are

likely to accrue in lower transaction costs and more efficient functioning of markets.¹⁷ But in many developing countries, not only are markets inefficient—they are also incomplete due to extensive government failures and market failures. The most commonly observed government failures include inadequate public service delivery, widespread corruption, excessive waste, and weak property rights. The market failures include credit rationing and the underprovisioning of such public goods as knowledge. The internet can help in these circumstances by overcoming persistent information asymmetries and frictions in development.¹⁸ Finally, digital technologies allow businesses and governments to automate routine transactions, which yield economies of scale and enable network effects.

13. Analyzing how new information, lower transaction costs, and scale economies affect different parts of the economy yields insights to guide the 2016 WDR. Consider the range of costs of participating in a market before and after the introduction of the internet. These costs are measured on the y-axis (in figure 2); the x-axis shows all the transactions in the economy, arranged from highest cost on the left to lowest cost on the right. Pre-internet costs on the left side of the graph were extremely high—so high, in fact, that there was essentially no market, primarily because of significant government and market failures. For these activities, the internet expands the market and promotes inclusion.

14. Government and market failures due to information barriers are widespread, disadvantaging the poor, who are excluded from product or labor markets or cannot access government services. Most poor farmers or the self-employed cannot obtain credit because banks have no way of gauging their creditworthiness.¹⁹ Women or persons with disabilities are sometimes unable to engage in work outside the home.²⁰ Many poor or disadvantaged populations do not receive public services because governments cannot verify their eligibility.²¹ And skilled workers and small firms in poor countries cannot trade their services in global markets where they could earn higher returns. These are instances where the internet, by addressing information asymmetries, contributes most clearly to greater inclusion—through peer-to-peer lending, crowdfunding (Kickstarter in the United States), and the sharing economy (Uber and Airbnb), through enabling people to perform tasks over the internet from home (Elance-ODesk), through digital identification systems that match government services with beneficiaries (Aadhar in India), or through online trading and job matching platforms that vastly expand markets (Alibaba in China or Souktel in Palestine). While billions in low and middle income countries remain without affordable access to the internet, some of these benefits are accessible for owners of basic mobile phones as well.

¹⁷ Transaction costs—the costs of making an economic exchange beyond the price of the good or service—include information costs such as the time and effort to learn the characteristics of a product or government service, or the attributes of a potential customer. They also include the search costs of finding a buyer or seller, matching a worker with a job, or connecting citizens with a public service provider. The costs of bargaining and deciding—and of monitoring and enforcing—are also transaction costs (Allen 1998).

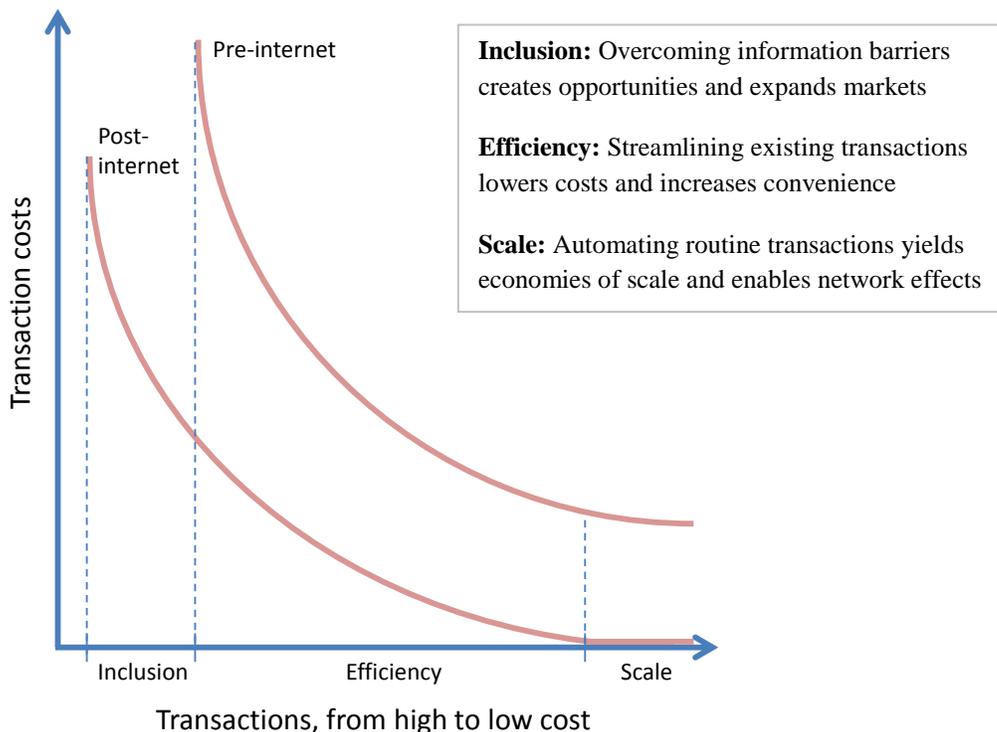
¹⁸ World Bank 1999.

¹⁹ Suri and others 2012; Gine and others 2014; World Bank 2014.

²⁰ Melhem and others 2009.

²¹ Gelb and Clark 2013.

Figure 2 What the internet’s lower transaction costs make possible



Source: WDR Team.

15. **By dramatically lowering transaction costs, the internet makes it possible to perform existing tasks much more efficiently.** The area in the center of figure 2 is what most people experience in many aspects of daily life. The internet makes things that are already possible or available much more convenient—much more quickly and cheaply. It raises the efficiency of a vast range of activities. Purchasing goods, executing bank transactions, searching for a home or a job, paying taxes, or renewing a driver license generally used to require a trip to a shop or office but can now be done with a click or a tap. Similarly, the internet has reduced costs for businesses when connecting and negotiating with buyers or suppliers, finding workers through job matching services, and monitoring contract fulfilment or employee performance. Many of the same benefits extend to governments as well. These (individually unspectacular) efficiency gains may, in aggregate, well represent the lion’s share of benefits from the internet, even if inclusion and scale receive far more attention.

16. **The most dramatic impact of the internet is felt when transaction costs fall to zero, generating scale economies that are often reinforced by network externalities.** For many internet-based businesses or services, fixed upfront costs can be high, but once the online platform is in place, each additional customer, user, or transaction incurs very little extra cost.²²

²² Brynjolfsson and McAfee (2014) argue that when goods are digital, they can be replicated with perfect quality at nearly zero cost, and they can be delivered almost instantaneously, which they refer to as the economics of

In many cases, the marginal transaction cost is essentially zero because what previously involved routine human labor can now be fully automated. And for purely digital products, such as e-books, the marginal production cost is also close to zero. Such transactions are on the right of figure 2. This cost structure gives rise to various types of scale economies.²³ Supply-side scale economies, where average costs drop with an increasing number of transactions, favor a high degree of concentration among providers or even monopolies. In fact, many internet-based markets—such as web searches, mobile payments, or online book stores—are dominated by a few firms. Many of these firms sell digital products such as digital music (Spotify in Sweden), e-books (Amazon in the United States), and online news and data.²⁴ Others sell highly automated brokerage or match-making services for travel, jobs, merchandise, or ride-sharing. Network externalities and high switching costs (demand-side scale economies) can further raise the likelihood of winner-takes-most outcomes. The more people use a social media platform, auction site, or digital cash system (M-Pesa in Kenya), the more valuable it becomes to its users and the more new users it attracts.

17. The Report’s framework can also help explain some of the dark sides the internet. For example, the same technology that allows the poor to overcome information barriers also allows trade in child pornography on the internet. While the internet makes international trade more efficient, it also facilitates drug markets, money laundering, and other underground activities. It helps citizens to overcome collective action problems but also makes it easier for the government to undertake surveillance of its citizens. Lowering the cost of participating in a market place therefore cuts both ways: it increases the benefits of living in a digital economy, and it heightens the risks.

18. The framework illustrates the main mechanisms underpinning transactions in a digital economy, but the boundaries between these mechanisms are blurred in practice. Most important, there are always at least two and sometimes more parties to each transaction, and their experience may vary. For example, a transaction in the sharing economy (say, with Uber’s car sharing service) could be the result of all three mechanisms: it is *inclusion* for the driver taking advantage of a previously unavailable economic opportunity, *efficiency* for the passenger who benefits from lower fares and greater convenience, and *scale* for the company that has automated the core task of linking service providers and customers. This also implies that transaction costs do not fall uniformly for all tasks in an economy, so the rank-ordering of transactions will change as the internet affects more and more sectors. In some instances, a task previously infeasible may rapidly become so cheap that it is more appropriately characterized as a scale effect rather than inclusion.

Structure of the Report

19. The 2016 WDR will analyze the impact of the internet through the lenses of businesses, people, and governments, corresponding to the major policy objectives of leveraging the internet to accelerate growth, expand opportunities, and improve service

abundance. Shapiro and Varian (1998) maintain that information is costly to produce but cheap to reproduce. So the cost of producing the first copy of information may be substantial, but the cost of producing (or reproducing) additional copies is negligible.

²³ Varian and Farrell 2004.

²⁴ Shapiro and Varian 1998.

delivery (box 2 and figure 3). The Report will describe how inclusion, efficiency, and scale, through various channels (in italics below), affect these major development objectives.

- For businesses (chapter 1), the internet raises the productivity of existing processes and makes new production processes possible, promoting growth. It facilitates new and more intensive *trade*, boosts the *quality of capital*, for example through greater capital utilization, and increases *competition* as internet-using firms become more efficient.
- For people (chapter 2), the internet opens *access to jobs and inputs* such as financial products, especially in developing countries and importantly for disadvantaged groups. It affects the returns to *human capital*, with significant effects on labor markets. And by exploiting scale economies, internet firms create new and cheaper services that promote *consumer welfare*, such as easier price comparison, new forms of leisure, or instantaneous access to knowledge.
- For governments (chapter 3), the internet affects the core aspects of governance. It can help increase government *capacity* to deliver services more conveniently, at lower cost, and to all citizens. And it can support efforts to increase government *accountability*, through voice, client power, and collective action.

Box 2 Table of contents

Overview: Digital Development

Part I : Diagnosis and analysis

Chapter 1: Accelerating growth: Helping businesses to connect and compete

Chapter 2: Expanding opportunities: Making the internet work for all

Chapter 3: Delivering services: Connecting for a capable and accountable government

Part II: Policy implications

Chapter 4: Enabling digital development

Chapter 5: Making the internet universal, affordable, open, and safe

Chapter 6: Implementing development in a networked world

20. **While the internet’s potential contribution to development is overwhelmingly positive, it poses several risks for firms, people, and governments.** The Report will assess many of them but will focus on the most critical. The three candidate issues, based on a first scan of the literature, are:

- The large *concentration and market dominance* of international firms in many internet-intensive sectors as well as the vested interests of existing firms could hinder market entry for new firms and restrain the growth of domestic internet firms. This will reduce market competition and could lead to *divergence* between firms and between countries that is unrelated to market forces.

Figure 3 Roadmap to the Report

Mechanisms	The internet lowers transaction costs which leads to:		
	Inclusion: Overcoming information barriers Efficiency: Streamlining existing transactions Scale: Automating routine transactions		
Objectives	Accelerating Growth Chapter 1 Business	Expanding opportunities Chapter 2 People	Improving services Chapter 3 Governments
Channels	<ul style="list-style-type: none"> • Trade • Quality of capital • Competition 	<ul style="list-style-type: none"> • Access to jobs and inputs • Human capital • Consumer welfare 	<ul style="list-style-type: none"> • Capacity • Accountability
Risks	<ul style="list-style-type: none"> • Concentration • Divergence 	<ul style="list-style-type: none"> • Falling labor income shares • Inequality 	<ul style="list-style-type: none"> • Elite capture • Wastage and abuse
Policies	Chapter 4 Enabling digital development <ul style="list-style-type: none"> • Competition policy • Skill development • Incentives 		
	Chapter 5 Making the internet universal, affordable, open, and safe <ul style="list-style-type: none"> • Access • Affordability • Internet governance • Privacy and cybersecurity 		
	Chapter 6 Implementing development in a networked world		

- Evidence of a *falling labor income share* could at least in part be a consequence of the internet’s role in automating many routine service tasks. By significantly changing the returns to different levels of human capital, the internet could contribute to *inequality*.
- The persistent digital divide and the limited ability of poor citizens to organize to hold policy-makers and providers accountable could exacerbate *elite capture*: it is possible that elites are better able to exploit digital technologies to further their interests thereby widening *dispersion* in access to, and quality of, services.

21. **Some of these risks are already apparent, though often in anecdotal evidence rather than data.** For others, historical or industrial country experience suggests that these are issues that at least some low and middle income countries need to attend to. Overall, based on available evidence, the adoption of the internet has generally been successful for businesses, outcomes have been mixed for people, and (with notable exceptions) benefits have been slow to materialize for governments. The Report will analyze each of the risk factors, drawing on an

established literature that will be applied to digital technologies and isolating the barriers or missing ingredients for realizing higher returns on internet investments. For the dominant risk factors, this would be the literatures on market structure (such as Baldwin and Cave 1999), on skill-biased technical change (such as Goldin and Katz 2008), and on government accountability (such as World Bank 2004).

22. A core policy message of the 2016 WDR will be that investments in digital technologies alone are generally not enough to yield significant development benefits (chapter 4). They need to be accompanied by policies that strengthen vital complementary factors, particularly:

- Sensible *competition policy* that lowers the cost of starting firms in the digital economy while avoiding monopolies.
- *Education and skill development* that prepare students, managers, and government officials for an increasingly digital world.
- Institutions that increase the *incentives* for good governance, primarily in the public sector but also among private firms.

23. The 2016 WDR will concentrate on issues directly pertinent to the internet and where the internet itself can help design and implement policy instruments. Examples include online learning and internet-based performance monitoring. The Report will work closely with the Global Practices, Cross-Cutting Solution Areas, and Regions to develop a policy agenda in chapter 4 that takes account of the diversity in country endowments and capabilities.

24. The Report will look at ways to bring the internet to the more than four billion people not yet fully integrated into the digital economy (chapter 5). With increasing internet penetration, the information and communication technologies (ICT) policy agenda is becoming more complicated, shifting from a primary focus on infrastructure to far more complex challenges related to governance, openness and safety.

- *Access* to digital communication technologies is now very high, even in poor countries, but this is overwhelmingly thanks to low-cost basic mobile phones. Bringing the internet to places not yet within reach of advanced data services remains an important policy objective.
- The range in the prices paid internet access is surprisingly large across countries. *Affordability* relates only in part to the cost of service provision. The Report will assess how much regulation matters.
- The internet emerged as a lightly regulated, open, and global system, but questions of *internet governance* are coming to the fore. The Report will analyze the economic consequences of greater intervention by national interests that could affect how the internet is organized internationally and how openly citizens can access the global pool of information.

- The costs of intrusion into people’s online lives by state and nonstate actors are increasing. *Privacy and cybersecurity* are protracted challenges, and the Report will review how different countries have addressed them.

25. Beyond the policy issues most pressing for national governments, the 2016 WDR will also assess how new digital technologies can improve the practice of development by multinational institutions, national and private donors, and nongovernmental organizations (chapter 6). The Report aims to stimulate the debate about how the internet can be used for faster learning and knowledge diffusion, better data collection, and more efficient public goods provision.

Brief chapter summaries

26. **The planned structure of the 2016 WDR is quite simple.** After an overview, three chapters assess the internet’s impact on growth, opportunity, and efficiency of government services. Then two chapters look at complementary policies required to get the most from ICT investments and at ICT policies for ensuring internet access for all. A sixth chapter discusses the implications for the development community. Additional topics will be covered in spotlights, extended boxes, and other “movable parts.” To limit the Report’s size, the team expects that some of the material will be disseminated only through online and app versions. The following summarizes the main messages of the six chapters, followed by a list of shorter contributions. More extensive descriptions are in the annex.

27. **The Overview will provide an integrated summary of the Report, highlighting the main findings and messages.** It will also include general expositions relevant to all the chapters, such as a discussion of the economics of the internet and a historical perspective on technological change and its impact on economic growth.

Part 1: Diagnosis and analysis

28. **Chapter 1 looks at the internet’s impact on growth, investigating what the digital revolution means for businesses.** The internet can make firms more productive and support the development of new products and services through such channels as trade, the quality of capital, and competition. But the substantial variation in the adoption and impact of ICTs across countries and firms can produce greater divergence across and within countries. One reason is that the economics of internet-based businesses—with very low marginal costs—favor a market structure dominated by one or a few firms. A second is that many countries have a business climate that does not make it easy to start and run a company—for instance, by protecting incumbents or dominant (international) champions. Harnessing the growth opportunities of the internet requires institutions that promote competition and encourage all market participants to adopt new technologies and upgrade skills and management practices.

29. **Chapter 2 assesses how the internet and associated technologies can promote access to economic opportunities for people and explores the aggregate impacts on formal and informal labor markets.** There is considerable evidence that the internet can create jobs and overcome barriers to finding jobs, with significant benefits for disadvantaged and often excluded groups, such as women, minorities, persons with disabilities, or people in remote and lagging

regions. For many of these groups, mobile phones do the same. While new digital technologies can be a force for inclusion, they can also automate many tasks, and trigger disruptive changes, with many jobs disappearing and new ones requiring different skills. This can exacerbate inequalities and perhaps even create a digital underclass. The main insight is that labor markets in the internet age reward different skill sets, and in the race between technology and education the internet has given technology a massive head start. To fully reap the benefits of a modern, rapidly changing economy, countries need to better prepare their citizens for the demands of a changing labor market, and they need to adjust tax and social protection systems to ease the transition.

30. **Chapter 3 shows how the internet can improve public service provision.** Many examples from around the world suggest that the internet has made some governments more efficient. It has also provided new channels for citizens and businesses to engage with and influence governments, leading (at times) to significant service improvements. But government ICT investments have often failed, and citizens have either not used the technology or been unable to influence government behavior through the internet. Scarce public sector capacity is one factor, but the main reason is the weak accountability of governments. A successful policy agenda of internet-enabled incremental reforms (such as digital IDs) can create the space for transformational changes. There are encouraging signs of ICT improving accountability and transparency, even in very difficult environments.

Part 2: Policies

31. **Chapter 4 will propose policies that improve the most important complementary factors that ensure a large social and economic return from ICT investments.** These reforms will often be harder than those in the ICT sector, but the internet itself can be a tool for policy analysis and implementation. The reform agenda in this chapter will be determined by the empirical facts and analyses in chapters 1, 2, and 3. They are consolidated in this chapter because of significant interaction between these policies across the three domains. For the economic growth objective in chapter 1, the discussion will likely focus mostly on creating a business environment conducive to competition, easy market entry, and efficient firm operation. This may include ICT-specific issues such as setting open standards and enforcing interoperability between systems to prevent monopolies and lock-ins. To increase inclusion and respond to the labor market disruptions laid out in chapter 2, the priority is to support skill upgrading that prepares young people for a labor market shaped by the internet and facilitates life-long learning. Internet-based delivery of education services will play an increasing role. And related to the central role of accountability for public sector performance identified in chapter 3, this chapter will propose steps that governments and citizens can take to increase transparency, participation, and public sector capacity—and use the internet to do so.

32. **Chapter 5 will discuss ICT policies to ensure universal, affordable, open and safe, access to the internet.** The first two goals—universal and affordable access—are on track to being achieved, for mobile phones at least, and prices are falling in most countries thanks to first-generation policies that promote market competition, private sector participation, and light-touch regulation. The same model can be used for internet access which currently serves only around 40 percent of the world's population. The major challenges going forward are to ensure a safe and open internet. Today's internet-based digital economy requires next-generation policies to

deal with new vulnerabilities in the way infrastructure is deployed and services are used, and for which a global consensus is still evolving—especially in cybersecurity, privacy, open information access, and internet governance.

33. **Chapter 6, a shorter supplemental chapter, will ask how the internet can help make development practice—by the World Bank and by other development partners—more efficient and more effective.** It will be motivated by the fact that the development context is changing in a way that puts greater demands on development agencies and requires much higher information flows. Development agencies can respond by using the internet, and especially mobile phones, to enable fast learning and rapid feedback to improve implementation, encourage quicker diffusion of innovations, target funds to higher-return investments based on evidence, and invest in public information goods and platforms.

Spotlights and background papers

34. **The 2016 WDR will commission background papers on specific topics.** Material from these pieces will be integrated in the Report and presented as spotlights or extended boxes, and the full papers will be disseminated on the web. These may include the following themes and questions:

Broader context:

- Economics of the internet: Can standard economics explain the internet economy?
- Lessons from economic history: Are the current transformations and disruptions due to technological change unprecedented?
- Development impact of social media: How does the internet change aspirations and social interactions, and does such “noneconomic” use of the internet have development benefits?
- A peek beyond the frontiers: What is the future of digital information technologies?

Sectoral implications:

- Agriculture: Have people in rural areas benefited from improved information and communication tools?
- Education: Can the internet improve teaching and learning outcomes?
- Energy: Is poor electricity supply holding back internet penetration in poor countries?
- Financial markets: Has the internet increased efficiency at the micro-level but led to greater fragility at the macro-level?
- Gender: Is the internet empowering women by giving them more opportunities and greater voice?
- Health: Are internet-enabled tools expanding and improving healthcare delivery?
- Labor markets: How do digital technologies affect labor markets and the shares of income going to labor versus capital?

- Poverty measurement: Can big data improve measurement and monitoring?
- Risk management: How can better communication reduce damage from disasters?
- Urban management: Can smart city approaches improve the functioning of growing cities?

Enablers:

- Digital finance: What are the benefits of digital payment systems and why have they not spread in more countries?
- Digital identification systems: Can unique IDs expand services to more people and make service delivery more efficient?
- Big data: Can big data significantly improve private and public service delivery?

Timetable and the team

Timetable

35. Following the Bankwide review of the Concept Note in October 2014, the WBG Board discussed the Concept Note on December 9, 2014. Going forward, the internal review of the Report's yellow cover is planned for April 2015, and the Board discussion of the Report's gray cover for July 2015. The 2016 WDR on Internet for Development will be launched at the Annual Meetings in Lima, Peru, in October 2015.

The team

36. This Report is being prepared by a team led by Deepak Mishra and Uwe Deichmann, with a core team comprising Kenneth Chomitz, Zahid Hasnain, Tim Kelly, Märt Kivine, Indhira Santos, Marc Schiffbauer, Shawn Tan, and Desiree van Welsum. Research analysts Bradley Larson, Boo Kang Seol, and Sebastian Taborda complete the team. Several Bank and IFC staff preparing background papers and advising the team include Omar Arias, Sheheryar Banuri, Stefanie Brodmann, Xavier Cirera, Paulo Correa, Cem Dener, Mark Dutz, Maya Eden, Ana Fernandes, Elena Gasol Ramos, Tina George, Soren Gigler, Aparajita Goyal, Leonardo Iacovone, Saori Imaizumi, Todd Johnson, Johannes Koettl, Arvo Kuddo, Aaditya Mattoo, Samia Melhem, Tiago Peixoto, Josefina Posadas, Siddhartha Raja, Hania Sahnoun (Consultant), David Satola, Jungsu Song, Philippa Sigl-Glockner, Michael Trucano, Alexandria Valerio, Joao Pedro Wagner de Azevedo, Melanie Walker, Joanna Watkins, and Nobuo Yoshida. The production and logistics team for the Report are Brónagh Murphy, Mihaela Stangu, and Jason Victor. Joseph Welsh and Elena Chi-Lin Lee coordinate resource mobilization.

37. The Report is sponsored by the Development Economics Vice-Presidency. Overall guidance for the preparation of the Report is provided by Kaushik Basu, Senior Vice-President and Chief Economist, and Indermit Gill, DEC Director for Development Policy.

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