DIGITAL DIVIDENDS
Digital revolution has brought many private benefits

A typical day in the life of the internet

- 186 million Instagram photos
- 152 million Skype calls
- 36 million Amazon purchases
- 8.8 billion YouTube videos watched
- 2.3 billion GB of web traffic
- 803 million tweets
- 4.2 billion Google searches
- 207 billion emails sent

But are countries reaping sizable digital dividends?

**DIGITAL DIVIDENDS**

- Growth
- Jobs
- Services

- Business
- People
- Government

**AGENTS**

Are the benefits reaching everyone, everywhere?
Digital technologies are transforming **BUSINESS**

**DIGITAL MARKETPLACE**

Number of small & medium enterprises on Taobao (Alibaba):

5 MILLION & COUNTING

**SOURCE:** http://www.alizila.com/chinas-online-cowboy-rounds-buyers
Digital technologies are transforming PEOPLE’S LIVES

DIGITAL PAYMENTS

Number of mobile money accounts worldwide:

300 MILLION & COUNTING
(end of 2014)

Where mobile money accounts outnumber bank accounts

Digital technologies are transforming **GOVERNMENT**

**DIGITAL IDENTITY**

**INDIAN EXPRESS**

**Trafficking Victims see New life in Aadhaar**

By Daniel Thimmayya  |  Published: 30th March 2015 06:00 AM  |  Last Updated: 30th March 2015 10:57 AM

**Indians with digital identity:**

950 MILLION & COUNTING

**SOURCE:** http://www.newindianexpress.com/cities/chennai/Trafficking-Victims-see-New-life-in-Aadhaar/2015/03/30/article2737396.ece
The main mechanisms to promote development

Expand the information base, lower information costs and create information goods

SOURCE: WDR 2016
Then why the deep pessimism surrounding the global economy?

Not because of digital technologies, but in spite of them

SOURCE: Total Economy Database, Conference Board; and WDR 2016 team; Christoph Lakner and Branko Milanovic 2013; Bishop and Hoeffler 2014.
1. A significant digital divide remains

- **6 BILLION** without BROADBAND
- **4 BILLION** without INTERNET
- **2 BILLION** without MOBILE PHONES
- **0.4 BILLION** without A DIGITAL SIGNAL

Divides persist between and within countries—in access and capability

**SOURCE:** WDR 2016 team based on Research ICT Africa and ITU data
... between and within countries—in access and capability.

**SOURCE:** WDR 2016 team, based on Research ICT Africa surveys (various years) for 10 African countries.
SECTORAL POLICIES

SUPPLY SIDE ISSUES

- Competition policy
- Public-private partnerships
- Effective telecom & internet regulation

Making internet access universal, affordable, open and safe

Mobile cellular subscriptions in the Horn of Africa

Source: ITU.
[ #] number of mobile operators in each country
SECTORAL POLICIES

A Framework for considering policy interventions

INVISIBLE MILE
Hidden elements that are vital to ensuring the integrity of the value chain

Non-visible network components include the spectrum, network databases, cybersecurity, etc., but can also include potential bottlenecks, like international frontiers.

FIRST MILE
Where the internet enters a country

International internet access, including submarine cables, landing stations, satellite dishes, cross-border microwave, etc.

MIDDLE MILE
Where the internet passes through that country

National backbone and intercity network, including fiber backbone, microwave, internet exchange points (IXPs), local hosting of content, etc.

LAST MILE
Where the internet reaches the end user

Local access network, including local loop, central office exchanges, wireless masts
2. Digital technologies often lack analog complements

**with complements**
- INNOVATION
- EFFICIENCY
- INCLUSION

**without complements**
- CONCENTRATION
- INEQUALITY
- CONTROL

What are those complements?
Digital technology can accelerate growth ...

**TRADE**

The internet increases trade between countries, 2001-12

**PRODUCTIVITY**

Vietnamese firms using e-commerce have higher total factor productivity growth, 2007-12

**COMPETITION**

Average monthly trips per traditional taxi in San Francisco after Uber started operation

**SOURCE:** Chapter 1, WDR 2016 (http://www.worldbank.org/en/publication/wdr2016)
...but scale without **COMPETITION**

→ *risks of lower digital adoption and growing divergence*

**SOURCE:** Eurostat, circa 2014, WDR 2016 Team
Digital technology can expand opportunities...

**JOB CREATION**

Number of oDesk contractors

**PRODUCTIVITY & CONSUMER SURPLUS**

Africa: Respondents that agree with each statement on benefits and use of mobile phones, 2011–12

...but automation without **SKILLS**

→ risks of polarized labor markets and greater inequality

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**SOURCE:** WDR 2016 team, based on ILO KILM (ILO, various years); I2D2 (World Bank, various years); National Bureau of Statistics of China (various years)
Digital technology can improve service delivery...

Complaints were resolved quickly in the Nairobi water utility after the introduction of digital customer feedback and e-government systems increase the transparency of government budgets, 2014.

...but information without **ACCOUNTABILITY**

→ *risks of greater state control and elite capture*
Race between technology and complements

Complements: Index of quality of institutions, skills and regulations.

Technology: Digital Adoption Index - businesses, people and governments.

SOURCE: WDR 2016 team. For more details see figure 5.3 in the full Report.
NATIONAL PRIORITIES

ANALOG FOUNDATIONS FOR A DIGITAL ECONOMY

REGULATIONS
that promote competition and entry

SKILLS
to leverage digital opportunities

INSTITUTIONS
that are capable and accountable

EMERGING
Remove barriers to adoption
Foundational skills and basic ICT literacy
Mobile phone-based services and monitoring

TRANSITIONING
Competition regulation and enforcement
Prepare for careers instead of jobs
e-government delivery and citizen engagement

TRANSFORMING
Platform competition
Facilitate lifelong learning
Participatory policy making and digital collaboration

SOURCE: WDR 2016 team.
Digital development strategies need to be broader than ICT strategies

Connectivity + Complements \(\rightarrow\) Digital Dividends

- Regulations that allow firms to connect and compete
- Skills that leverage technology
- Institutions that are accountable and capable

Match policies to the level of digital development

- Emerging: Lay the foundations by promoting digital adoption
- Transitioning: Enable everyone to take advantage of new technologies
- Transforming: Deal with the wicked problems faced in the new economy

The payoff

- Increasing digital dividends: Faster growth, more jobs and better services
Back-up Slides
Digital technologies have spread rapidly

The world, based on internet population (2014)

How the internet affects development

DECREASING MARKET AND NON-MARKET TRANSACTION COSTS

SOURCE: WDR 2016 Team
Many digital transactions involve all three mechanisms and a two-sided market.

**SOURCE:** WDR 2016 team.
But technology will not be enough

“Be an expensive complement (stats knowhow) to something that’s getting cheaper (data).”

—Hal Varian
2. Digital technologies tend to be:

- **Productivity-biased**
- **Skills-biased**
- **Voice-biased**

Limiting the aggregate gains from the digital revolution

**SOURCE:** WDR 2016 team based on Research ICT Africa and ITU data
Technology and automation

Implications for countries trying to industrialize through labor intensive manufacturing sector

Information without **ACCOUNTABILITY**

→ risks of greater state control and elite capture

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<tr>
<th>CHANNELS</th>
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<td>Collective action</td>
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**GOVERNMENT CAPABILITY**

**CITIZEN EMPOWERMENT**

**INCLUSION**

**EFFICIENCY**

**INNOVATION**

*SOURCE: WDR 2016 Team, Pew Research*
...but information without **ACCOUNTABILITY**

→ *risks of fiscal waste and elite capture*

Success rate of large public sector ICT projects

Profile of online and offline voters in a participatory budgeting vote in Rio Grande do Sul, Brazil, 2011–12

**SOURCE:** WDR team, based on Polity IV 2015; UN 2014; Open Net Initiative 2013.
International consensus on cross-border issues

- A governance model for an open and safe internet
- Removing barriers to a global digital market
- Leveraging information for sustainable development
  - Get wired
  - Build platforms
  - Go global
Dealing with the downside risks of the digital economy

**SOURCE:** WDR 2016 team.
Making internet access universal, affordable, open and safe

DEMAND SIDE ISSUES

• Protecting personal privacy
• Cybersecurity
• Censorship and content filtering

“On the Internet, nobody knows you’re a dog.”

1993

“Now Google and its like are surveillance machines that know not only that you’re a dog but whether you have fleas and which brand of meaty chunks you prefer.” (Economist)

2014