DIGITAL DIVIDENDS
Digital technologies have spread rapidly

The world, based on internet population (2014)

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
- 207 billion emails sent
- 4.2 billion Google searches

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)

*Source: John Owens, Alliance for Financial Inclusion, June 2013.*

Where mobile money accounts outnumber bank accounts
Digital technologies are transforming **GOVERNMENT**

**DIGITAL IDENTITY**

*The New Indian Express*

"Trafficicking Victims see New life in Aadhaar"

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

**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

**Within-country digital divide can be significant**

**Africa**

- **Digital Haves**
  - Wealthy young men in cities

- **Digital Have-nots**
  - Poor older women in rural communities

**SOURCE:** WDR 2016 team, based on Research ICT Africa surveys (various years) for 10 African countries.
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
2. Digital technologies hold benefits as well as risks

What are those complements?
Scale without **COMPETITION**

→ *lower digital adoption and growing divergence*

**SOURCE:** Eurostat, circa 2014, WDR 2016 Team
Automation without **SKILLS**

→ polarized labor markets and greater inequality

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**Annual average change in employment share, circa 1995–circa 2012**

- **Purple**: High-skilled occupations (intensive in nonroutine cognitive and interpersonal skills)
- **Red**: Middle-skilled occupations (intensive in routine cognitive and manual skills)
- **Blue**: Low-skilled occupations (intensive in nonroutine manual skills)

**SOURCE:** WDR 2016 team, based on ILO KILM (ILO, various years); I2D2 (World Bank, various years); National Bureau of Statistics of China (various years)
Information without **ACCOUNTABILITY**

→ **greater state control and elite capture**

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<th>CHANNELS</th>
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<td>Collective action</td>
<td>Low</td>
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**SOURCE:** WDR 2016 Team, Pew Research
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.
The WDR 2016 proposes policies at three levels
SECTORAL POLICIES

Making internet access universal, affordable, open and safe

SUPPLY SIDE ISSUES

- Competition policy
- Public-private partnerships
- Effective telecom & internet regulation
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
Analog foundations for a digital economy

NATIONAL PRIORITIES

REGULATIONS
that promote competition and entry

EMERGING
Remove barriers to adoption

SKILLS
to leverage digital opportunities

TRANSMITIONING
Prepare for careers instead of jobs

INSTITUTIONS
that are capable and accountable

TRANSFORMING
Facilitate lifelong learning

Mobile phone-based services and monitoring

e-government delivery and citizen engagement

Platform competition

SOURCE: WDR 2016 team.
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
Connectivity + Complements $\Rightarrow$ Digital Dividends

Digital development strategies need to be broader than ICT strategies

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

Digital technologies add two important dimensions

- They amplify the impact of good (and bad) policies $\Rightarrow$ Failure to reform means falling further behind
- While not a short-cut to development, they can be an accelerator, by raising the quality of complements

The payoff

- Increasing digital dividends: Faster growth, more jobs and better services
Back-up Slides
Digital technology can accelerate growth …

**TRADE**
The internet enables more firms to reach new markets, 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

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

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Automation without **SKILLS** → *risks of polarized labor markets and greater inequality*

Digital technology can improve service delivery…

**CAPACITY**

Complaints were resolved quickly in the Nairobi water utility after the introduction of digital customer feedback.

**TRANSPARENCY**

e-government systems increase the transparency of government budgets, 2014

Information without **ACCOUNTABILITY**

→ *risks of greater state control and elite capture*

**SOURCE:** WDR team, based on Polity IV 2015; UN 2014; Open Net Initiative 2013.
...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.
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
How public-private partnership helped build the internet backbone in Korea

Broadband per 100 inhabitants, 2002 Q4 through 2014 Q2