



Ethiopia' s ICT enabled innovation & technology ecosystem

Yilkal Abate, ICTET
November 2019





Outline

- **ICTET working groups changes**
- Stakeholders: Innovation and Technology Landscape
- Previous outcomes (via engagement)
- Sector contribution and Investment
- Macro trends and other data
- Practices, Opportunities, & Challenges
- Suggestion on ways forward



Establishment. Registered at CSO

2011.

Launch with Google

EXPOSE

2013.

Re-Established at Ministry of Trade
Launched MinE
Annual Diaspora Dialogue Forums



2014.

Internet at 10 High Schools



2015.

Quarterly PPP Forums
Ethio ICT Village Promotion

2012.



G-Day Ethiopia
Innovation Africa Digital Summit

ENGAGE

2016.

Hardware Roadmap, Software,
Service Studies
ICTET Ventures

2017.



Inaugural ICT EXPO
40 Million USD in Exports from sector

2019-

Sector specific working groups
150 Million USD in Exports

2018.

80 + companies are members
with 3000+ addresses in the
mailing list

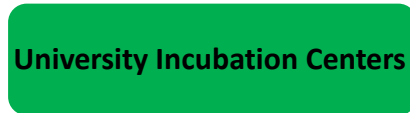
ENABLE



Outline

- ICTET working groups changes
- **Stakeholders: Innovation and Technology Landscape**
- Previous outcomes (via engagement)
- Sector Contribution and Investment
- Macro trends and other data
- Practices, Opportunities, & Challenges
- Suggestion on ways forward

Landscape (Hubs, Industry Associations, Public Sector, Angel Investors/VCs/PEs, Universities, Private Sector Companies, Individuals/Professionals, Incubators/Accelerators, Platform/Infra, Regulator)



Desired Outcome: A working Startup Alliance

Some positive outcomes

Some achievements

- Africa related Tech Events
- HS Code Study
- Exports
- Local Procurement and EIR
- Value Addition Study
- eWaste
- Hardware Roadmap
- Some Investments
- Local hosting
- Diaspora Dialogue
- Sector Employment
- VISP Launch
- Local language support
- Prioritization of sector
- Some tech adoption policies
- e-commerce/fintech draft law
- Database of companies
- Ethio Tel regular private sector meeting

Startup related

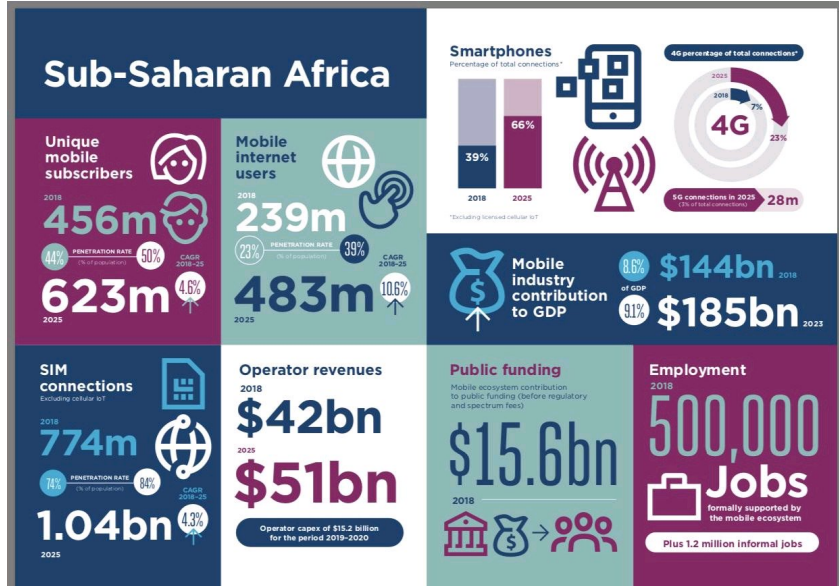
- CoC
- Pre-installs
- AI- intro and enablement/ Digital Assistant
- App competitions



Outline

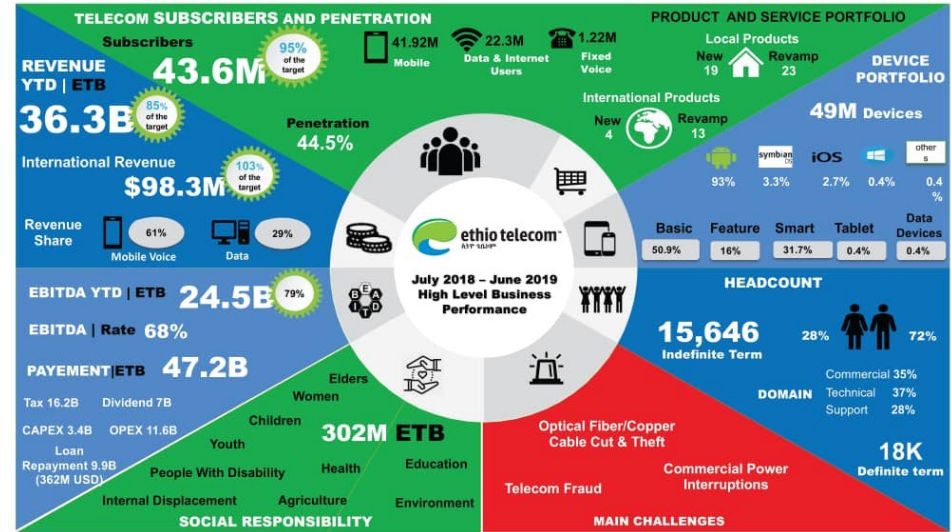
- ICTET working groups changes
- Stakeholders: Innovation and Technology Landscape
- Previous outcomes (via engagement)
- **Sector Contribution and Investment**
- Macro trends and other data
- Practices, Opportunities, & Challenges
- Suggestion on ways forward

Example: Tech Sector Contribution



The Mobile Industry is contributing 8.6% (\$144 Billion) to Africa's GDP and is expected to grow to 9.1% (\$185 Billion) by 2023.

Source: GSMA

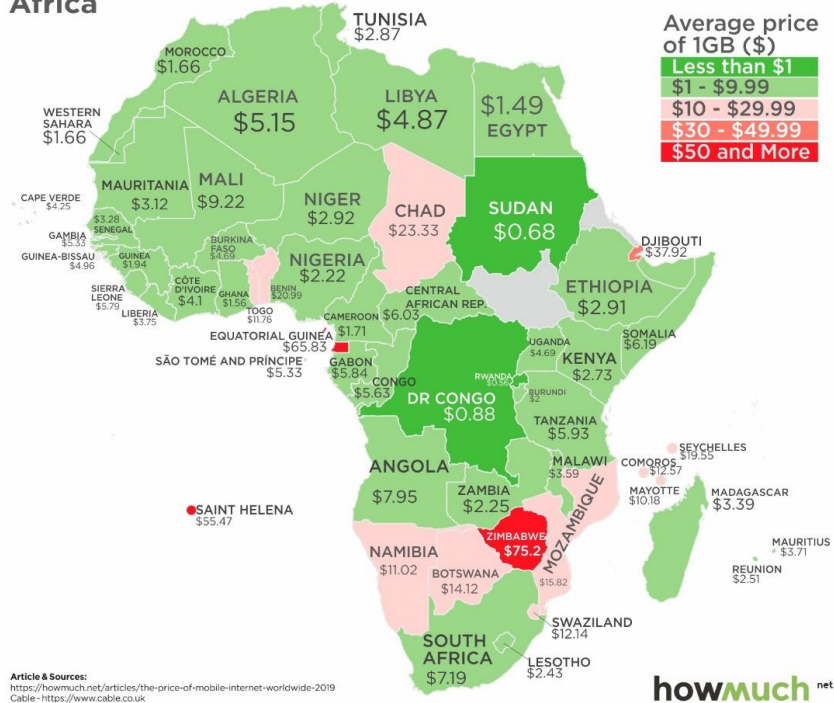


Ethio Tel Revenue 36.3B Birr ~ 1.25 B USD is approx.
1.55 % GDP
Source: Ethio Telecom

Not Negligible!

Landscape- Investment

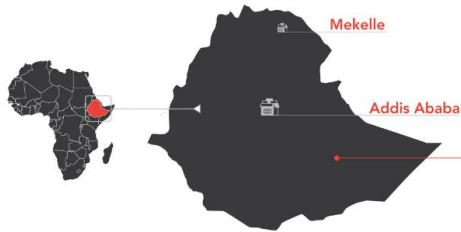
The Price of Mobile Internet 2019 Africa



Article & Sources:
<https://howmuch.net/articles/the-price-of-mobile-internet-worldwide-2019>
 Cable - <https://www.cable.co.uk>

Tech Ecosystem Outlook

Ethiopia > Q1 2019



- MAIN SUPPORT HUBS**
- blue moon
 - iceaddis
 - growthafrica
 - Startup Factory!
 - blueSpace
 - dot
 - ANTLER
- INVESTORS**
- NOVASTA VENTURES
 - cerberus
- #EcosystemMaps

- 4K, ... HIGH TECH
- ... JOBS & GIG
- ... FINTECH & BLOCKCHAIN
- ... HEALTH TECH
- ... SOFTWARE & DEVELOPMENT
- ... CLEAN TECH & UTILITIES
- ... LOGISTICS
- ... E-COMMERCE
- ... AGRI TECH
- ... ED TECH
- ... MEDIA & LEISURE

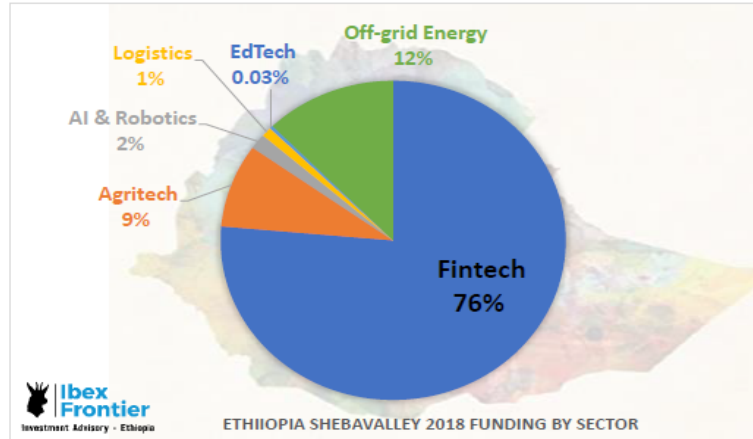
In collaboration with our local knowledge partners: briterbridges.com

Disclosed Tech Investment Breakdown

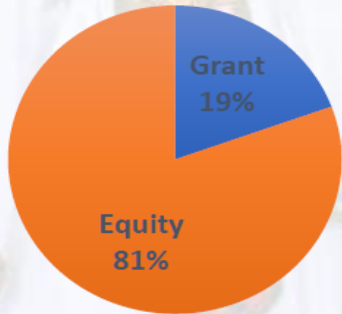
IBEX DIGEST – SHEBAVALLEY: 2018 TECH & STARTUP FUNDING for ETHIOPIA



Sector	Disclosed Fund Raised
Fintech	\$ 9,935,000.00
Agri-tech	\$ 1,100,000.00
AI & Robotics	\$ 200,000.00
Logistics	\$ 126,480.00
Ed-Tech	\$ 41,000.00
Off-grid Energy	\$ 1,600,000.00
Total	\$ 13,002,480.00



IBEX DIGEST – ETHIOPIA 2018 DEAL STRUCTURE - BY FUNDING TYPE



Deal Structure	Disclosed Amount
Grant	\$ 2,526,480.00
Equity	\$ 10,476,000.00
Total	\$ 13,002,480.00

Additional recently announced investments (2019)

- Orbit Health (Savanah Fund)
- BeBlocky (Baobab Network)

Savings to Investment

(100K diaspora on average saving 10K USD) = 1B USD Saved

1B USD is ~ 28B ETB today

If 1B USD saved at 2-3% interest (Time Deposit),
It is like accessing a concessional loan for govt.

Jan | Feb | Mar | | Dec

Savers get access to birr loan backed by USD
saving of 1.9B ETB @ 5% interest

1.9B ETB

Invest (ETB)

Buy House (ETB)

Pay school/ Medical etc.



This 1.9 B ETB can be used to invest on startups
for those who want to invest passively

They can even keep the money borrowed in saving accounts
And earn 7% interest and banks can lend it at 8+%

1B USD can be used by gov.
for infra, invstmt, medicine etc.

Assume they invest and lose all 1.9B ETB, they
will need to pay back 1.9B X 1.05 ~ 2B ETB

At current trend of 5-10% birr depreciation/ year
1B USD will be worth ~ 30B ETB end of year

Worst case, After paying 2B ETB loan, still savers have 28B ETB same as beginning of year (No birr loss)

At year end @2% interest savers
gain 1B * 0.02 = 20M USD



1.

1B USD Savings can be like accessing concessional loans for gov.

- The USD can be invested on infrastructure, made available for manufacturers/exporters, businesses
- With various kind of incentives savers can be encouraged to invest in birr locally from their savings



2.

Risk averse savers can at the very least maintain their starting ETB amount

- They can gain up to 20M USD (Aggregate) in the example used here
- Potentially much more if they succeed in their investment from the 1.9 B ETB or if they even save that loan in a savings account at commercial banks, they stand to gain some more percentage points.



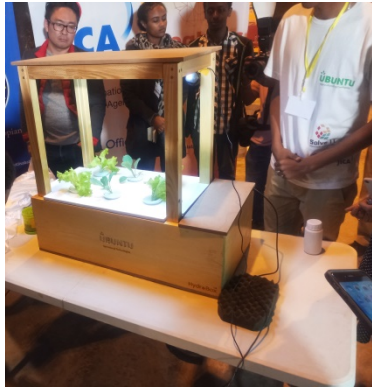
3.

Economy/ Businesses/ Startups get financing and investment

- A pipeline of investment ready startups can be presented to these savers for consideration via appropriate channels
- Worthy Risk taking culture can be encouraged

The MODEL IS A WIN-WIN-WIN and with Modification can be expanded to other kind of investors/businesses beside diaspora

Due Mention



We need Maker Spaces!

Due mention from Solve IT competition

Health Tech

- **Yegna- To Reduce Maternal & Fetal Mortality**
- **App for Visually Impaired**
- **Enat Alem- Postpartum hemorrhage**
- **Hope- Solving the queue/ time problem at Univ Cafes**
- **iTalk- Glove that talks making deaf people part of the community**
- **Vox- Low cost hearing aid device**
- **PMS- Vital signs monitoring**
- **Haqila Leuko Test- Intelligent system to test Leukemia**
- **Tor- Malaria Detector machine**

Agro Tech

- **Hydro Culture- your own kitchen farm**
- **Linepath- Sower Machine**
- **Soil Moisture Content**
- **Solem- Soil Fertility Checking Tool**
- **Siacom- 6 in 1 Combine Agro Machine**

Emerging Tech

- **3D Printer**
- **G-Simulator- Game Station**
- **Social Media Account Verification and Fake content Reporting/Insight**
- **Language learning tool**
- **Smart Home**
- **X-Fire- Fire Detector device- Low cost**

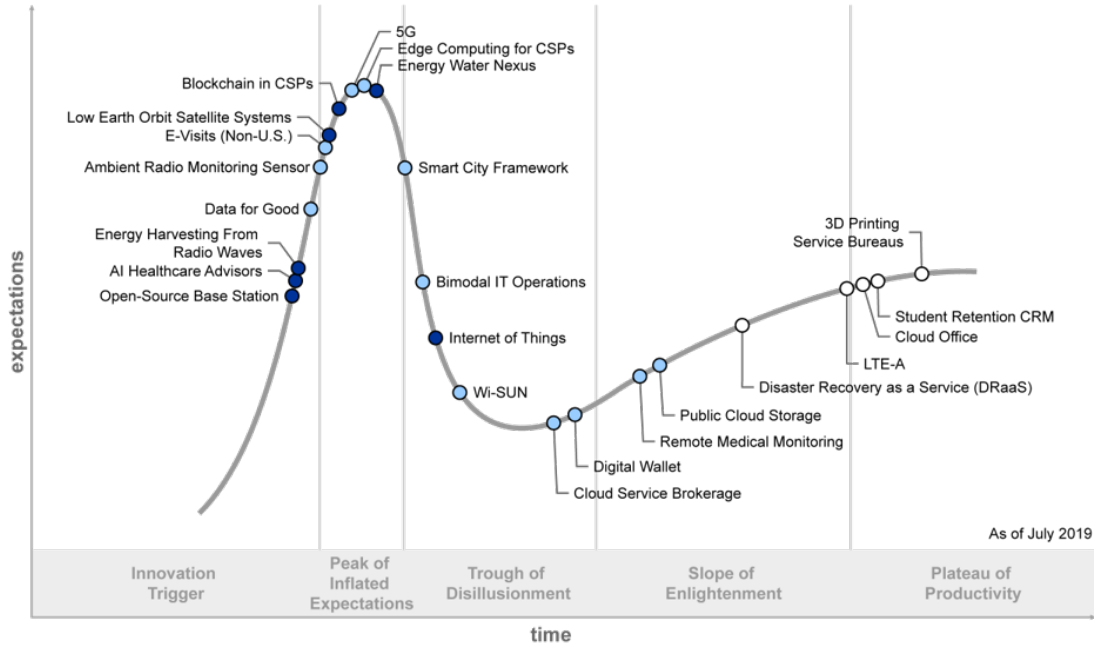


Outline

- ICTET working groups changes
- Stakeholders: Innovation and Technology Landscape
- Previous outcomes (via engagement)
- Sector Contribution and Investment
- **Macro trends and other data**
- Practices, Opportunities, & Challenges
- Suggestion on ways forward

Macro trends + other data

Hype Cycle for ICT in Africa, 2019



Plateau will be reached:

○ less than 2 years ● 2 to 5 years ● 5 to 10 years ▲ more than 10 years ⊗ obsolete before plateau

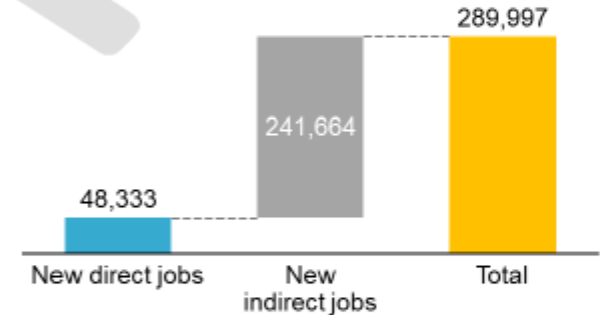
Source: Gartner
ID: 369968

ICTET Jobs Data:

- More than 10,000 jobs created by member companies (roughly split half between hardware and software + service areas). Shift → Service

JCC Plans (2020-2025):

New direct and indirect jobs 2025



Macro trends + other data

Table 2.4a: Composition of GDP by 3 main economic sectors, 10-year Trend

	2007-08	2013-14	2014-15	2015-16	2016-17	2017-18
Agriculture	45.9%	40.2%	38.7%	36.7%	36.3%	34.9%
Industry	12.1%	13.8%	15.0%	16.7%	25.6%	27.0%
Services	40.6%	46.6%	47.0%	47.3%	39.3%	39.2%

Source: NBE

Investment FY 17-18

Gov. Investment : 340 bn Birr

Domestic Private Sector: 378 bn Birr

Macro trends + other data

Table 8A: Composition of fx inflows—USD mns

	2014-15	2015-16	2016-17	2017-18	2018-19
Gross fx inflows:	\$ 20,437	\$ 20,463	\$ 19,946	\$ 21,734	\$ 22,386
Exports of goods	\$ 3,019	\$ 2,868	\$ 2,907	\$ 2,840	\$ 2,667
Exports of services	\$ 3,028	\$ 3,196	\$ 3,331	\$ 4,220	\$ 4,949
Interest earnings	\$ 13	\$ (1)	\$ 30	\$ 41	\$ 79
Remittances	\$ 3,797	\$ 4,420	\$ 4,428	\$ 5,121	\$ 5,693
Other private transfers	\$ 1,085	\$ 2,008	\$ 1,058	\$ 953	\$ 682
Official transfers (grants)	\$ 1,508	\$ 1,391	\$ 1,428	\$ 1,226	\$ 2,087
Loan disbursements to Government	\$ 2,219	\$ 1,736	\$ 1,537	\$ 1,816	\$ 1,537
Loan disbursements to Rest of Public sector	\$ 3,706	\$ 1,763	\$ 1,393	\$ 1,689	\$ 1,267
Foreign direct investment	\$ 2,202	\$ 3,269	\$ 4,171	\$ 3,723	\$ 3,015
Private sector capital flows	\$ 384	\$ 561	\$ 633	\$ 105	\$ 410

Source: NBE and Cepheus Research compilation

Table 8B: Composition of fx inflows—In percent of total inflows

	2014-15	2015-16	2016-17	2017-18	2018-19
Percent of total inflows:	100.0%	100.0%	100.0%	100.0%	100.0%
Exports of goods	14.8%	14.0%	14.6%	13.1%	11.9%
Exports of services	14.8%	15.6%	16.7%	19.4%	22.1%
Interest earnings	0.1%	0.0%	0.2%	0.2%	0.4%
Remittances	18.6%	21.6%	22.2%	23.6%	25.4%
Other private transfers	5.3%	9.8%	5.3%	4.4%	3.0%
Official transfers (grants)	7.4%	6.8%	7.2%	5.6%	9.3%
Loan disbursements to Government	10.9%	8.5%	7.7%	8.4%	6.9%
Loan disbursements to Rest of Public sector	18.1%	8.6%	7.0%	7.8%	5.7%
Foreign direct investment	10.8%	16.0%	20.9%	17.1%	13.5%
Private sector capital flows	1.9%	2.7%	3.2%	0.5%	1.8%

Source: NBE and Cepheus Research compilation

Table 17B: Imports by End-Use: A Ten Year View--Percent of Total Imports

In percent of Imports	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Total imports	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Raw Materials	2.6%	2.2%	1.8%	1.3%	0.9%	1.0%	0.9%	0.8%	0.9%	1.0%
Semi-finished Goods	14.8%	14.9%	17.7%	16.6%	12.8%	15.7%	17.3%	16.6%	16.6%	18.4%
Fuel	15.9%	20.1%	19.2%	19.0%	14.0%	12.4%	8.0%	11.3%	15.2%	17.2%
Capital Goods	34.9%	33.4%	26.8%	33.4%	29.1%	41.8%	40.8%	38.2%	34.5%	33.3%
Consumer Goods	30.4%	27.8%	31.9%	28.0%	20.7%	27.4%	31.5%	31.0%	30.9%	28.3%

Source: NBE and Cepheus Research compilation



Outline

- ICTET working groups changes
- Stakeholders: Innovation and Technology Landscape
- Previous outcomes (via engagement)
- Sector contribution and Investment
- Macro trends and other data
- **Practices, Opportunities, & Challenges**
- Suggestion on ways forward

Practices

Interaction

- More effective convening needed
- More Focus/ Be Less Easily Distracted
- Create more connection b/n Academia, Private Sector, Government, Social
- Operate more based on complementarity. Less on substitution-al basis

Resources & Operational

- Thinly Spread
- Be more open
- Not fully funded
- Operating with skills gap

Missing

- Not widely/well understood/ internalized components: Commercializing, Prototyping, Agile development, Project Management, Biz Models and Market Analysis
- Lack of documentation and accessibility of efforts (video, audio, decks etc.)
- PR
- Failing quickly (Fail and learn). In tech sector Badge of Honor OR Badge of Shame?
- Entrepreneurial tilt/ Changing problems into opportunities
- Data

Opportunities and Challenges

Labor and Market

- 1) Large working population/ will continue to grow for a while
- 2) AfCFTA
- 3) Median age around 18/ Tech friendly
- 4) Big and growing Market

Opportunities

- 1) Contract Manufacturing
- 2) Export Market Development (Follow Ethiopian Airlines?)
- 3) Regulatory Alignment
- 4) eTransactions Law
- 5) Ethiopia National Dataset
- 6) Software Licensing mechanisms
- 7) Organizing Tradeshows
- 8) JV Incentives
- 9) Matching Fund
- 10) Startup Legislation
- 11) BPO

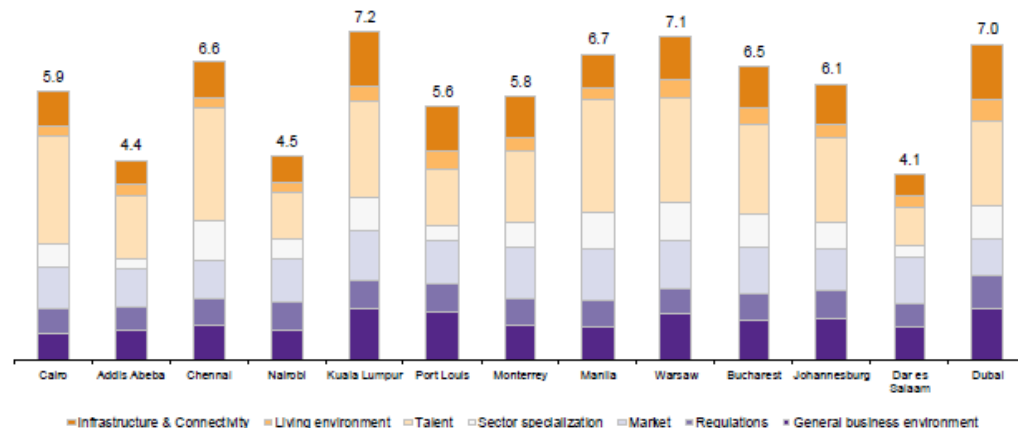
Challenges/ Other Inputs

- 1) Cluster/Community (Community + Infrastructure)
- 2) VOIP
- 3) Payment Gateway
- 4) CLIP Framework/ IT PARK
- 5) Project Finance
- 6) Assist in acquiring certifications
- 7) Experimentation spaces
- 8) Cost and availability of Infra
- 9) Law Banking Penetration & Cash is King
- 10) Digital Tax Receipts

BPO

Location category	weight	
General business environment	15	
Regulations	10	
Market	15	
Sector specialization	10	
Talent	30	
Living environment	5	
Infrastructure & Connectivity	15	
	100	
Location factors	weight	overall weight
General business environment		
Economic & financial stability	15%	2.3%
Political stability	15%	2.3%
Transparency of legal system	15%	2.3%
Absence of corruption	15%	2.3%
Administrative burden	15%	2.3%
Access to finance	10%	1.5%
Natural disaster risk	15%	2.3%
Regulations		
Working time regulations	20%	2.0%
Hiring flexibility	20%	2.0%
Firing flexibility	20%	2.0%
Intellectual property protection	20%	2.0%
Business permitting	20%	2.0%
Market		
Local market opportunity	20%	3.0%
Access to regional markets	30%	4.5%
Access to global markets	50%	7.5%
Sector specialization		
Presence and size of sector cluster	70%	7.0%
Local supplier base	30%	3.0%
Talent		
Presence of experienced industry-specific employees	45%	13.5%
Presence of non-experienced employees (medium to high skill)	30%	9.0%
Social climate and labour-employer relations	10%	3.0%
Competition for skills (medium to high skill)	15%	4.5%
Living environment		
Quality of life	100%	5.0%
Infrastructure & Connectivity		
Air access	15%	2.3%
Road & rail access	25%	3.8%
Reliability of power supply	15%	2.3%
Availability of office space	20%	3.0%
Quality and reliability of telecommunications	25%	3.8%

Overall weighted qualitative comparison (0-10 with 10=best) for outsourced application development



Heatmap for outsourced application development

Heat map for outsourced application development

BPO

Location factors	Cairo	Addis Ababa	Chennai	Nairobi	Kuala Lumpur	Port Louis	Monterrey	Manila	Warsaw	Bucharest	Johannesburg	Dar es Salaam	Dubai
General business environment													
Economic & financial stability	3.0	6.1	6.3	4.5	7.0	5.8	4.7	5.9	5.7	4.9	4.8	5.8	6.7
Political stability	3.5	3.4	6.4	3.9	8.3	8.8	5.9	4.6	7.0	8.5	7.5	5.8	7.5
Transparency of legal system	3.3	3.6	6.0	4.4	9.4	8.9	4.8	4.3	8.0	6.8	7.8	4.4	7.5
Absence of corruption	3.6	3.3	3.8	2.5	5.0	5.3	3.5	3.5	6.2	4.6	4.4	3.0	7.0
Administrative burden	2.3	3.3	4.3	4.0	8.0	7.6	5.4	5.6	7.2	4.7	5.7	2.9	8.1
Access to finance	3.9	3.6	5.4	5.5	7.1	5.5	4.1	5.6	4.4	4.4	6.4	4.2	6.7
Natural disaster risk	8.5	6.8	4.4	6.7	7.0	7.1	6.7	3.9	7.9	6.2	6.7	7.6	8.6
Regulations													
Working time regulations	6.9	7.3	5.0	6.5	6.2	5.2	6.7	7.0	3.6	3.6	4.8	4.7	5.9
Hiring flexibility	8.0	6.0	8.0	8.0	8.0	6.0	6.0	8.0	8.0	5.0	6.0	6.0	8.0
Firing flexibility	1.2	4.0	6.0	7.4	3.1	6.9	6.4	4.3	3.8	7.9	7.1	7.1	7.6
Intellectual property protection	4.6	4.7	6.0	5.3	7.7	6.3	5.4	5.6	5.7	5.6	7.7	4.6	7.9
Business permitting	6.0	3.5	4.0	3.9	7.4	6.5	5.5	4.2	6.4	7.2	5.1	4.3	8.4
Market													
Local market opportunity	5.8	5.9	5.4	5.1	8.4	4.5	7.8	9.0	5.2	4.9	4.7	5.2	4.8
Access to regional markets	7.0	3.9	5.7	7.4	7.8	8.1	8.2	7.9	9.5	9.4	7.0	7.3	5.8
Access to global markets	5.4	7.0	5.5	6.0	5.9	6.6	6.8	6.7	6.6	6.6	6.3	7.6	5.1
Sector specialization													
Presence and size of sector cluster	5.1	1.9	9.0	3.5	7.4	2.9	5.8	6.2	8.6	7.8	6.2	2.0	6.7
Local supplier base	5.3	3.1	8.2	6.7	8.1	4.1	5.0	7.5	8.6	5.6	4.8	3.1	8.8
Talent													
Presence of experienced industry-specific employees	8.5	2.5	9.5	2.1	7.2	4.0	4.8	9.0	8.3	7.4	5.9	1.6	7.8
Presence of non-experienced employees (medium to high skill)	7.2	6.3	8.8	3.0	8.0	2.4	5.4	9.0	8.0	6.2	6.6	2.1	3.9
Social climate and labour-employer relations	5.9	5.7	6.0	5.7	7.9	6.9	6.6	7.3	5.9	5.9	3.6	5.7	7.9
Competition for skills (medium to high skill)	9.0	6.9	4.9	7.0	3.8	6.1	5.7	4.6	6.0	5.6	8.0	6.2	5.2
Living environment													
Quality of life	4.2	5.0	4.4	4.0	6.5	8.8	5.8	5.5	8.4	7.5	6.2	4.9	9.0
Infrastructure & Connectivity													
Air access	5.3	4.6	5.7	4.6	9.0	4.1	4.5	7.0	4.5	3.6	6.8	2.6	9.8
Road & rail access	5.1	4.1	5.3	4.1	7.9	6.8	5.7	4.5	5.9	5.1	6.4	3.5	8.5
Reliability of power supply	4.6	3.6	3.4	4.2	7.6	7.0	5.0	5.3	6.8	5.5	4.4	2.5	7.2
Availability of office space	7.0	3.0	8.0	4.0	8.0	7.0	7.0	2.0	5.0	7.0	7.0	4.0	8.0
Quality and reliability of telecommunications	4.5	2.6	3.9	3.8	7.4	7.0	6.9	6.7	8.5	7.8	5.4	3.3	8.0



Outline

- ICTET working groups changes
- Stakeholders: Innovation and Technology Landscape
- Previous outcomes (via engagement)
- Sector contribution and Investment
- Macro trends and other data
- Practices, Opportunities, & Challenges
- **Suggestion on ways forward**



Roles

- Creating a Climate for Innovation
- Linking Incentives to Performance

“Some policies and incentives influence all businesses equally. Others affect startups and incumbents quite differently.

A country that understands its economic profile, and designs the strategy to suit that profile, raises the odds of success.”



“ Innovation that addresses customer priorities has become a more important driver of economic growth for all countries, emerging and mature. ”

“ Capitalizing on innovation on a sustained basis is quite difficult, because success breeds imitation by companies and by countries. ”

A partners framework- Components

Public- Private

- Gate Procedure to resolve issues- Avoid repeat work!
- Focus on principles
- Most institutions are not born digital in Ethiopia- Be deliberate to have sustainable impact
- Long term country agenda still needed
- Apply tech in a job creating manner

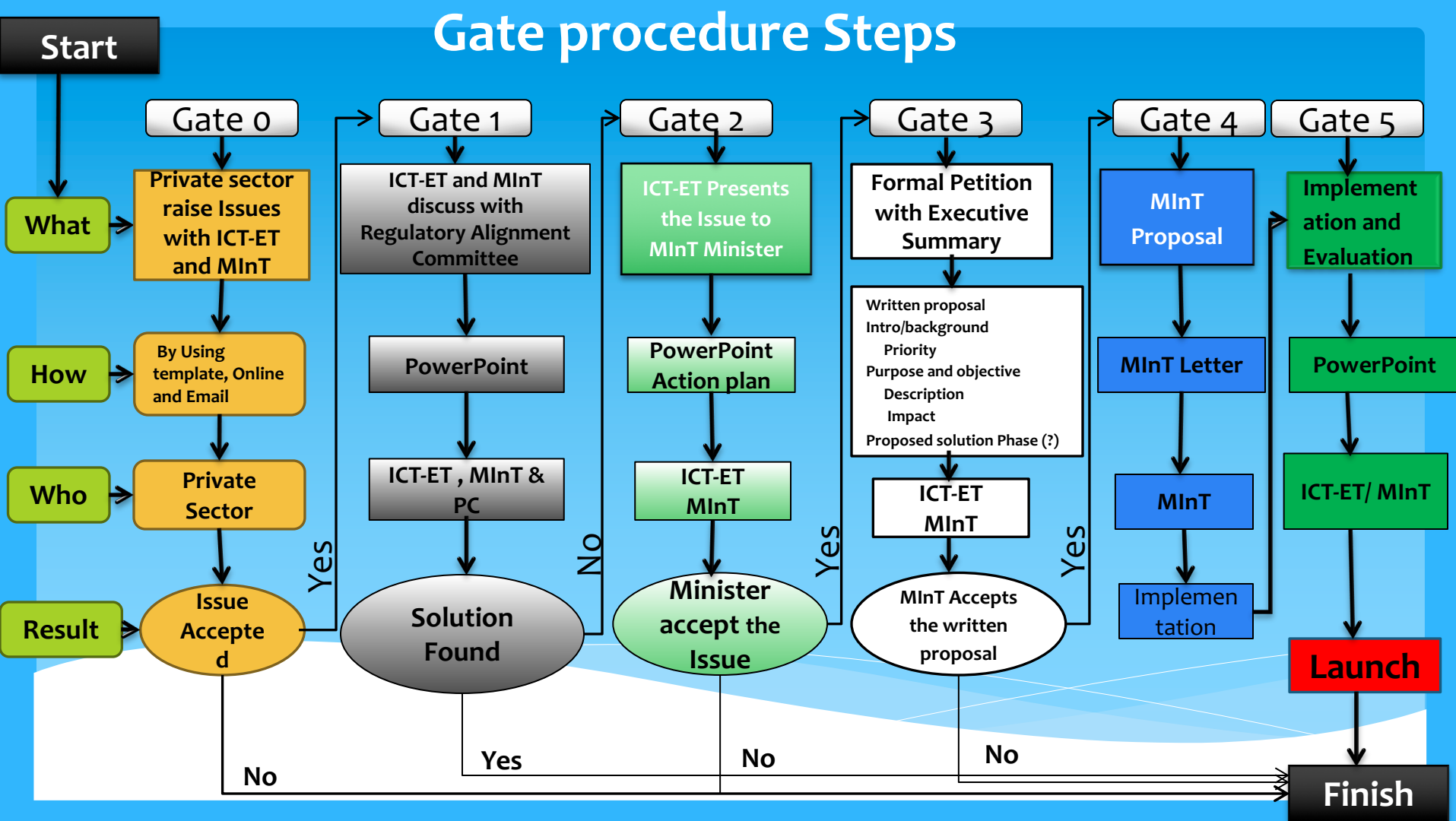
Skilled "Translators"

- Navigate language, cultures, priorities, ambitions across tech/policy making; Between Tech Firms, Academia & State

Convene

- Learn from each other. Nobody knows everything.
 - Meet at Regularly Scheduled intervals. Good habits are important. Upcoming Events
 - Focus on Startups is Good. However, existing companies need attention too.
 - Bet on the youth.
-

Gate procedure Steps



Gate process follow-up chart for Hardware (Needs Update)

<u>Project</u>	<u>Gate 0</u>	<u>Gate 1</u>	<u>Gate 2</u>	<u>Gate 3</u>	<u>Gate 4</u>	<u>Gate 5</u>
Local Procurement (Ethio Telecom)						X
Local Procurement (PPDS)			X			
USD Prioritization						X
NBE Performa Invoice Modification	X					
Taxation – Value Addition				X		
Taxation – HS Code				X		
Taxation – IO Coefficient				X		
Taxation – Accessories Valuation/ Categorization				X		
EIR					X	
ICT Village Lease						X

Gate process follow-up chart for Software (Needs Update)

<u>Project</u>	<u>Gate 0</u>	<u>Gate 1</u>	<u>Gate 2</u>	<u>Gate 3</u>	<u>Gate 4</u>	<u>Gate 5</u>
Incentives			X			
Consumer Adoption						
Licensing	X					
Partnership and Joint Ventures	X					
Grading	X					
Software as an Industry			X			
Software Procurement			X			
Digital tax		X				
Online Database				X		

Nurturing tech ecosystem for Ethiopia's development

Thank You!

Private Sector
Engagement

A close-up photograph of a hand placing a brick into a wall. The brick being placed is light brown and has the text 'Private Sector Engagement' printed on it. The wall is composed of several rows of similar bricks, with a noticeable gap in the top row where the brick is being placed. The background is blurred, showing a person's face and a red object.

Outsourced Application Development

General description of operations

Outsourced application development center

Assumption in terms of project requirements

LABOUR	
Total headcount	250
Position	Number
Site Manager	1
Project Managers	10
IT Architects	10
Business Analysts	20
Senior Software Developers	44
Senior Testers	25
Software Development Engineers	80
Testers	60

OFFICE SPACE	
Total sqm required	5,000 m ²

COST PLUS MARGIN	10 %
-------------------------	------

Graph 65 – Outsourced application development roadmap

