Competitiveness in the Digital Economy

Accelerating Sustainable Digital Transformation of Nations through nurturing ICT centric Innovation Ecosystems

8 October 2018

Moe Ba- ITU
What Is the Nation’s Vision For Technology?
A highly Competitive Community or Nation?
Impact Of Globally Connected ICT Ecosystems

Can current innovation undermine future incentives to

**WhatsApp**: 300 M users, 50 B message/day, 55 employees

**Netflix**: USD8.8B revenue, 3500 employees

**Dropbox**: 500M users, 1.2B files stored/day, 1200 employees

Challenges policies that target firms by measure of mass (e.g. employees) as well as competition policy, may contribute to productivity divergence across firms

**ICT vs Manufacturing**

- **Alphabet**:
  - Operating revenues: 90,272,000 Th. USD
  - Employees: 72,083
  - Ratio: 1253 Th. USD per employee

- **Facebook**:
  - Operating revenues: 27,636,000 Th. USD
  - Employees: 17,048
  - Ratio: 1621 Th. USD per employee

- **Volkswagen**:
  - Operating revenues: 237,564,000 Th. USD
  - Employees: 626,715
  - Ratio: 379 Th. USD per employee

- **Johnson & Johnson**:
  - Operating revenues: 71,890,000 Th. USD
  - Employees: 126,400
  - Ratio: 568 Th. USD per employee

Source: ORBIS, Bureau Van Dijk. Data refers to 2015.
Imperative For Innovation
Competitive SMMEs

Empowered and Inclusive Society

World-class Exports

Highly-Skilled Jobs

Innovation Driven Economy

High Industry Growth

Dynamic High Tech Companies
There Is Always A Risk To Be Left Behind

- Factor Driven Economy
- Efficiency Driven Economy
- Innovation Driven Economy

based on M. Porter competitive strategy for countries & WEF classification

Source: ITU
Is technology an enabler or the root cause of change in a Nation?

“Entrepreneurship without Innovation is trading, and Innovation without entrepreneurship is creativity”
Digital transformation in transportation

Innovation applied to solve a transportation problem, through the use of ICT technologies, led to changes in on demand transportation bringing significant value for customers and asset owners (car owners).
“An innovation is the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organizational method in business practices, workplace organization or external relations.”

Source: OCED, Oslo manual

“Digital transformation is what happens when innovation is applied to solve problems through the use of ICT/telecommunication technology.

The benefits to a country and its people are immense: significantly increased productivity, economic growth and greater employment opportunities.”

Source ITU

“An ecosystem is a system or network of interconnecting and interacting organizations and stakeholders, from multiple sectors, who come together and address the problems people are facing within their communities.”

Source ITU
Do Stakeholders Have A Common Language And The Same Mission?

Academia
“We need to stop teaching what children can find on Google.”
“It might be a good idea if university professors can work with the private sector for three years to exchange knowledge.”

Entrepreneurs
“We are not taught to be the owner of something at the education level. This is the reason most of us end up work for others.”

Public Sector
“Here, people would rather buy foreign than create their own solutions.”

Entrepreneurial Support Network
“The local companies don’t invest in R&D. They also don’t train people. So starting engineers can be liabilities!”

Finance
“There are a lot of government funds available for entrepreneurs but no right mechanism to filter through the start-ups to fund the deserving ones.”

Private Sector
“Our culture is receptive to change and is catching up on the latest trends. However, if we don’t begin to invest enough in ICT research or produce a good pool of Next Gen with ICT knowledge, we will lag in competition.”

Source: ITU country review
The Mission Is More Important Than The Vision

Mission: Sustainable Digital Transformation of Society
To navigate it, an ecosystem of stakeholders need to absorb it and solve the problem of the country.
Technology Absorption Capacity Is Key

Source: ITU
How do we measure capabilities to absorb technology?

Research is the transformation of money into knowledge.

Innovation is the transformation of knowledge into money.

—Dr. Geoffrey Nicholson, 3M
(inventor of the Post-it note)
Measuring Digital Innovation Capabilities

36,000 ft.
Does your country register a hot tech ecosystem?

10,000 ft.
where does your country rank on WIPO GII?

1,000 ft.
Where do you rank on ITU ICT development Index?

100 ft.
Where do you rank on the GEDI?

10 ft.
What are you doing about it?
Global Startup Ecosystem Ranking

2017 Global Startup Ecosystem Ranking
Data from Startup Genome
Montenegro Innovation Efficiency Ratio: 63%

Top 10:
Switzerland, Sweden, Netherland, USA, UK, Denmark, Singapore, Finland, Germany, Ireland

Source: Adapted from WIPO GII 2018
Montenegro– Global Competitiveness Index

Source: WEF Global Competitiveness Index
2018
Rank: 77/137
Montenegro—Global ICT Development Index

Population: 621,416
Population density: 2.43
GNI per capita: 6,970
Region: Europe, Developed

### IDI 2017 Rank
61

### IDI 2017 Value
6.44

### Regional IDI 2016 Rank
36

### IDI ACCESS SUB-INDEX
7.03
- Fixed telephony subscriptions per 100 inhabitants: 23.82
- Mobile-cellular telephone subscriptions per 100 inhabitants: 167.48

### IDI USE SUB-INDEX
5.38
- Percentage of individuals using the Internet: 69.88
- Fixed (wired)-broadband subscriptions per 100 inhabitants: 18.48
- Active mobile-broadband subscriptions per 100 inhabitants: 23.82

### IDI SKILLS SUB-INDEX
7.37
- Mean years of schooling: 11.30
- Secondary gross enrolment ratio: 90.34
- Tertiary gross enrolment ratio: 55.34

Source: ITU IDI
Montenegro—Global Entrepreneurship Development Index

Montenegro

Global Rank: 60 of 137

Strongest area: Startup Skills

Weakest area: Risk Acceptance

Overall GEI score: 31%

Individual score: entrepreneurial qualities of the people in the ecosystem 66%

Institutional score: quality of the institutions that support entrepreneurship 45%

Component scores:
1. Opportunity Perception 34%
2. Startup Skills 84%
3. Risk Acceptance 1%
4. Networking 59%
5. Cultural Support 28%
6. Opportunity Startup 41%
7. Technology Absorption 21%
8. Human Capital 31%
9. Competition 24%
10. Product Innovation 35%
11. Process Innovation 31%
12. High Growth 40%
13. Internationalization 84%
14. Risk Capital 44%

Source: GENI Global Entrepreneurship Development Index
2017-2018
Rank: 60/137
Assessing An Environment For Digital Transformation Readiness

Leading or lagging indicators?
Enablers For Digital Transformation

<table>
<thead>
<tr>
<th>PILLARS</th>
<th>ISSUES</th>
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<tbody>
<tr>
<td>Vision &amp; Strategy</td>
<td>Scope and objectives</td>
</tr>
<tr>
<td>Capital</td>
<td>Appropriate Demand side resources</td>
</tr>
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<td>Market</td>
<td>Integration of economic sectors</td>
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<tr>
<td>Infrastructure</td>
<td>Inclusive digital infrastructure</td>
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<td>Talent</td>
<td>Talent appropriateness</td>
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<tr>
<td>Culture</td>
<td>Sustainable culture of entrepreneurship and innovation</td>
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<td>Policy</td>
<td>Comprehensive and grassroots innovation policies &amp; programs</td>
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<td>Aligned Digital strategies</td>
<td>Continuum of Supply side resources</td>
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<td>Market access domestic and international</td>
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<td>Resilient &amp; secure broadband Infrastructure</td>
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<td>Champions</td>
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All stakeholders in the ecosystem need to understand their potential for making a difference, as well as their very real capabilities – as they engage in digital transformation.
What are the stakeholders doing?

"THE ANCESTOR OF EVERY ACTION IS A THOUGHT"

Ralph Waldo Emerson
An Innovation Driven Economy

- World-class Exports
- High Industry Growth
- Highly-Skilled Jobs
- Innovation Driven Economy
An Innovation Journey To Make a Nation Competitive
**Case 1: Middle income country – Sub Sahara Africa**

“Young people have some talents, they have energy. But it will burn out soon if that energy is not guided or supported to help build good companies”

Source: ITU country review-Ecosystem Maturity Map

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### Case 2: Middle income country – Europe

“People run in different directions, there is no common strategy to my knowledge”

**Source:** ITU country review - Ecosystem Maturity Map

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Be Mindful Of The Paradigm Shifts

**COMMAND**
Organizational relationship that is highly efficient but is not adaptive enough for the fast-paced ICT environment

**TEAM OF TEAMS**
Organizational relationship that is both highly efficient and adaptive to the fast-paced ICT environment

Source: ITU, based on concept of Team of Teams.

Innovation is a system’s issue
New Policy Paradigm Needed

**Emergent Policy**
- Policy Agility
- Experimentation Sandbox
- Leadership and roadmap

**Working with Good Practices**
- Know how, not tech transfer
- System’s Approach
- Inclusive and Open innovation

**All stakeholders are important**
- Engaging all key owners
- Common Language
- Skin-in-the-game

**Digital Transformation Capacity**
- ICT Centric Innovation Policy
The Next Frontier Is All About Nurturing Ecosystems
Accelerating Digital Transformation

Amplify good working practices

Develop missing element to mature ecosystems

Create synergies with resources from innovation research, entrepreneurship, and commercialization
**Key Building Blocks For Accelerating Digital Transformation**

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<th>ICT Integration into Key Sectors</th>
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<td><strong>Supportive public sector proactively managing development</strong></td>
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<td>• Enablers for the development of the digital economy, digital society and digital workforce</td>
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<td>• A strong bridging body and guiding force</td>
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<td><strong>Foster start-up and technological entrepreneurship</strong></td>
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<td>• Strong infrastructure to support innovation</td>
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<td><strong>Foster digital transformation and ICT-centric innovation in SMEs and enterprises</strong></td>
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<td>• Key collaboration from established players</td>
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<td>• Clusters and specific focus on digital transformation of sectors</td>
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**ITU: Mission and Goals**

- **United Nations Specialized Agency** for Telecommunications/Information and Communication Technologies (ICTs)

- ITU aims at **international cooperation** among all its Member States for the improvement and rational use of telecommunications of all kinds.

- ITU fosters international cooperation and solidarity in the delivery of **technical assistance** and to upgrade the **telecommunication/ICT infrastructure and services**.

- **ITU Goals**
  - **Goal 1:** Growth – Enable and foster access to and increased use of telecommunications/ICT
  - **Goal 2:** Inclusiveness – Bridge the digital divide and provide broadband for all
  - **Goal 3:** Sustainability – Manage challenges resulting from the telecommunication/ICT development
  - **Goal 4:** Innovation and partnership – Lead, improve and adapt to the changing telecommunication/ICT environment
ITU: Membership and Structure

193 MEMBER STATES

700+ SECTOR MEMBERS

133 ACADEMIA MEMBERS

3 SECTORS

- Standardization
- Radiocommunication
- Development

Each sector has specific mandate, but all work cohesively towards connecting the world.
Some Ways We address The Issues

Innovation Frameworks
- Scalable approach through toolkits/frameworks that map key barriers in the ecosystem and assist stakeholders through their innovation journey

Innovation Capacity building
- Innovation ecosystem development skills through series of training and certification of national experts

Customized assessments
- Foster digital innovation and entrepreneurship through national experts or ITU

National, regional or global flagship projects
- Based on customized assessment outcome, bankable projects identified & developed to nurture innovation capabilities that accelerate digital transformation

Knowledge Sharing
- Good practices sharing and innovation community development through regional innovation forums, global innovation, workshops, reports, etc.
Recent Work on Bridging the Digital Innovation Gap

POLICY TOOLKIT – IN SIX LANGUAGES
Bridging the digital innovation divider
A toolkit for strengthening ICT centric ecosystems

REGIONAL REPORT | EUROPE
Accelerating Digital Transformation:
Good practices for developing, driving and accelerating ICT centric innovation ecosystems in Europe

COUNTRY REVIEW
ICT centric Innovation Ecosystem Country Review
MOLDOVA

DIGITAL INNOVATION PROFILE
BOSNIA AND HERZEGOVINA
ICT centric innovation ecosystem Snapshot

DIGITAL INNOVATION PROFILE
SERBIA
ICT centric innovation ecosystem Snapshot

DIGITAL INNOVATION PROFILE – UPCOMING
TFYR MACEDONIA
ICT centric innovation ecosystem Snapshot
The journey of a thousand steps begins with one step.

Lao Tzu

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