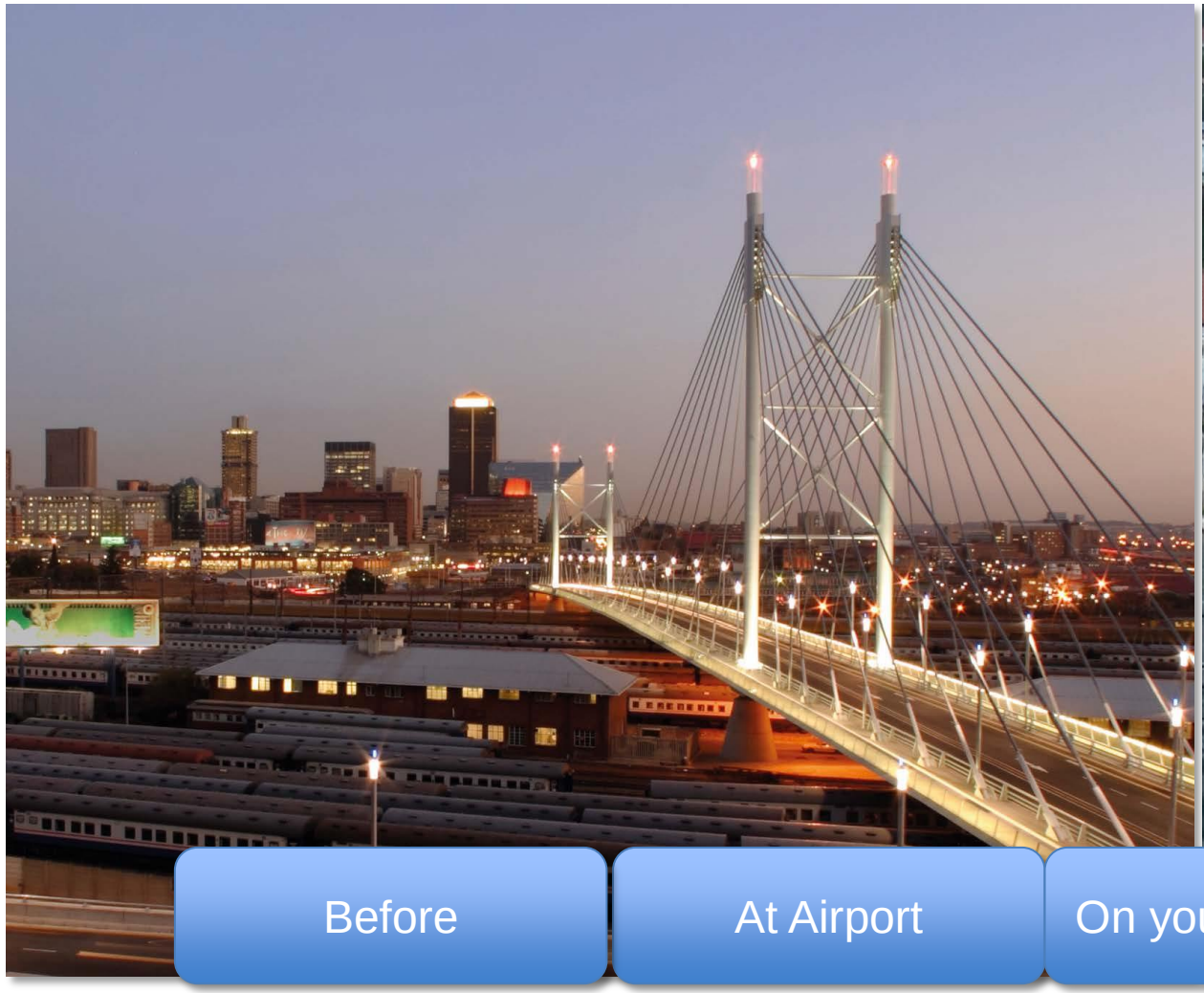
Competiveness in the Digital Economy

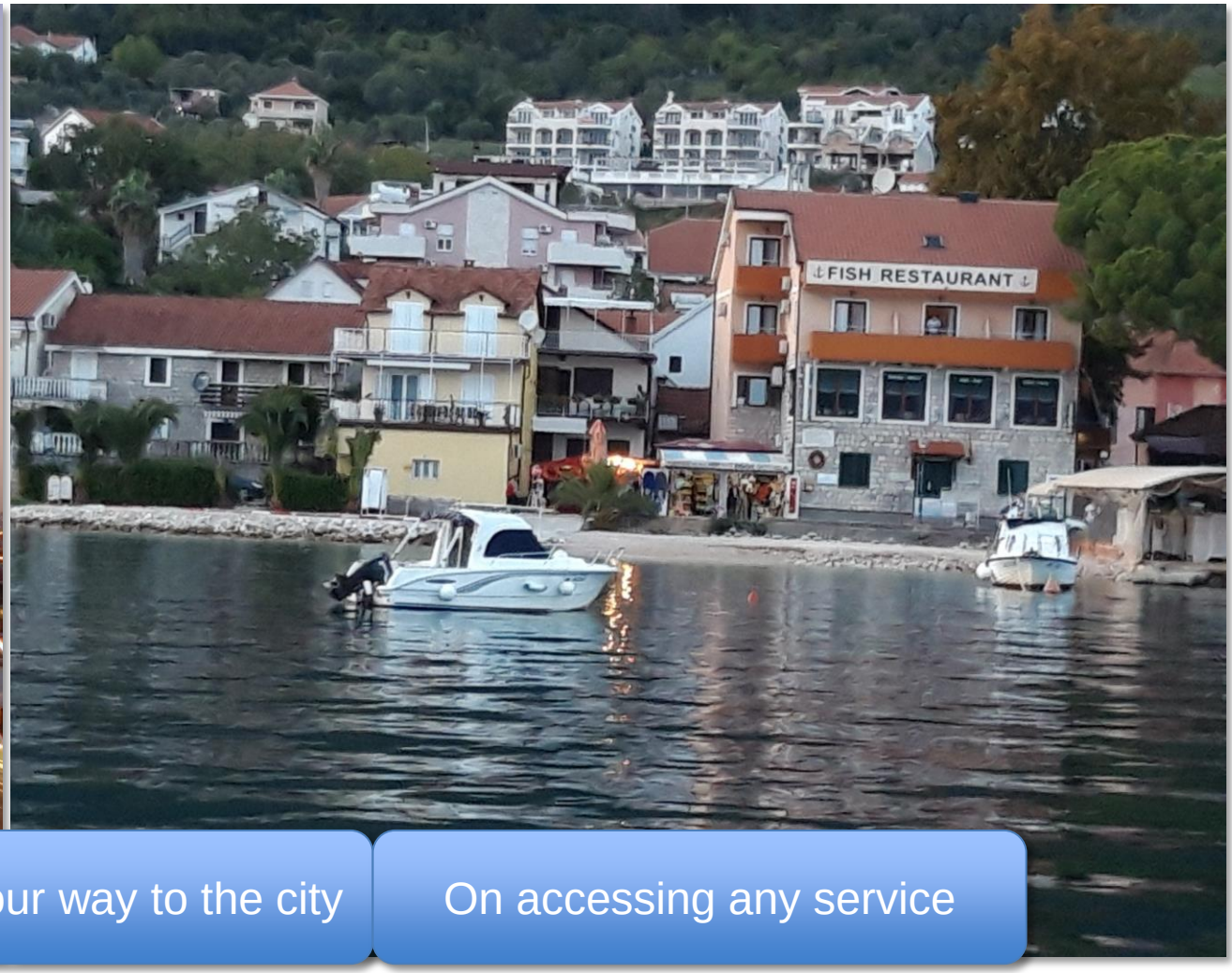
Accelerating Sustainable Digital Transformation of Nations through nurturing ICT centric Innovation Ecosystems

8 October 2018

Moe Ba- ITU

What Is the Nation's Vision For Technology?





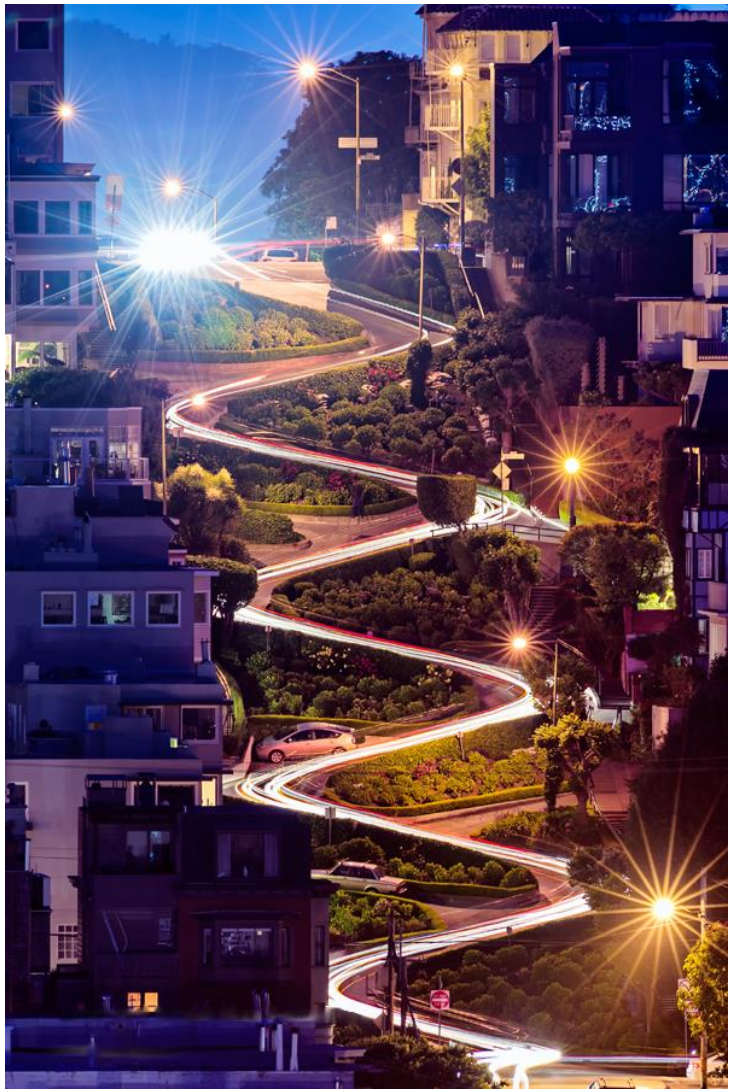
Before

At Airport

On your way to the city

On accessing any service

A highly Competitive Community or Nation?



Impact Of Globally Connected ICT Ecosystems

Can current innovation undermine future incentives to

For example: Scale without Mass

WhatsApp: 300 M users, 50B 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

Credits: Andrew Wyckoff and Dirk Pilat Directorate for Science, Technology and Innovation, presentation at European Political Strategy Centre, 5 May 2017, Brussels

Innovation@ITU-D

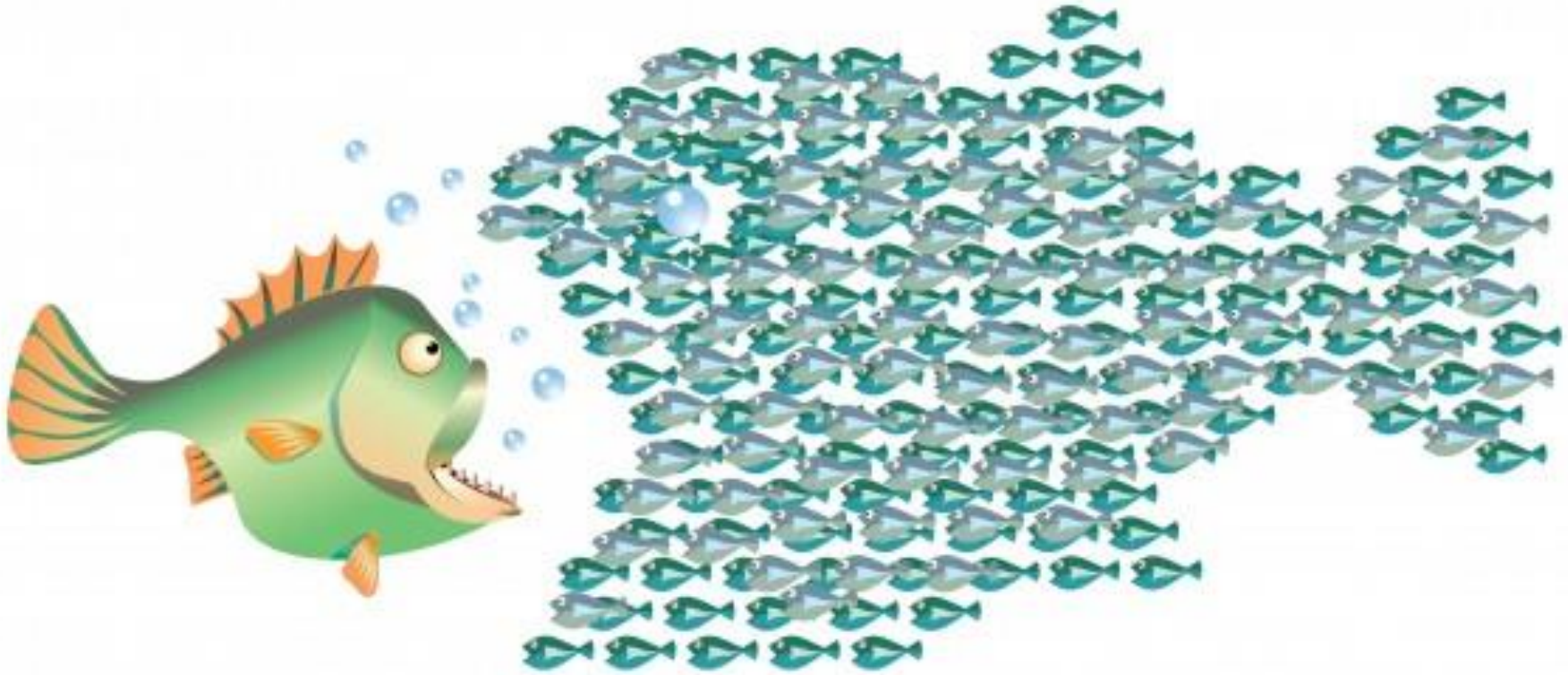
ICT vs Manufacturing

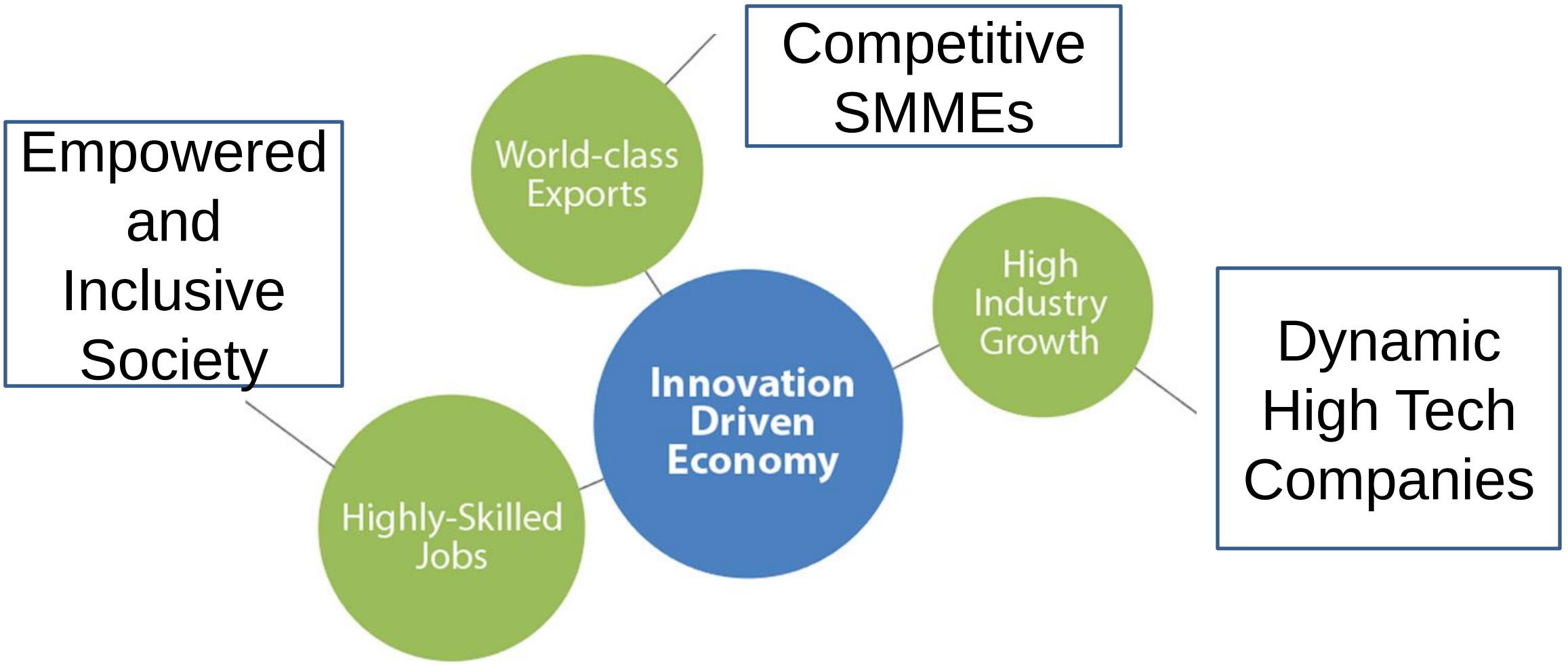
- **Alphabet:**
  Operating revenues: 90,272,000 Th. USD
  Employees: 72,053
  Ratio: 1253 Th. USD per employee
- **Facebook:**
  Operating revenues: 27,638,000 Th. USD
  Employees: 17,048
  Ratio: 1621 Th. USD per employee
- **Volkswagen:**
  Operating revenues: 237,564,000 Th. USD
  Employees: 626,715
  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 2016

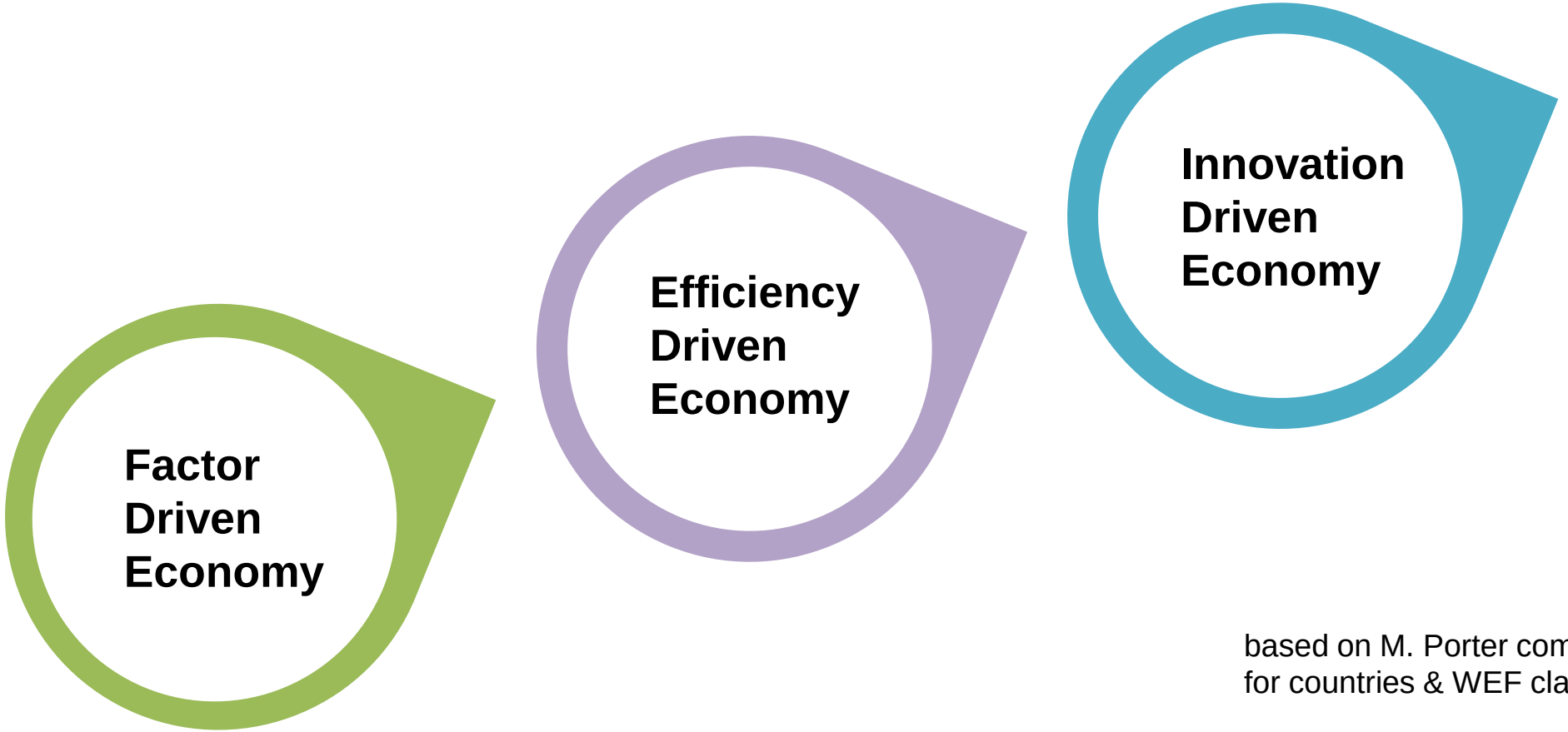
Champions of productivity or simply Scale without Mass?

Imperative For Innovation




Empowered and Inclusive Society
Competitive SMMEs
World-class Exports
High Industry Growth
Innovation Driven Economy
Highly-Skilled Jobs
Dynamic High Tech Companies

There Is Always A Risk To Be Left Behind

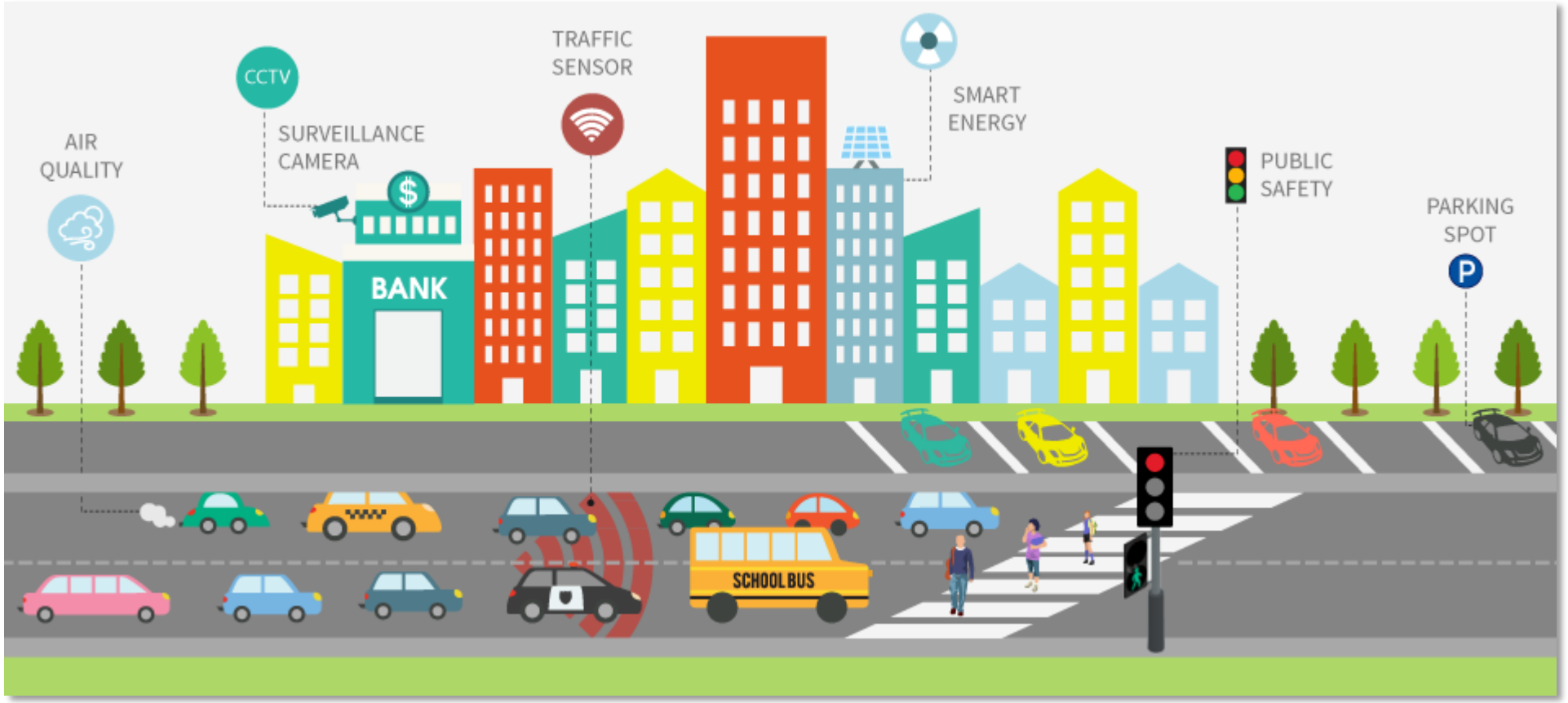


based on M. Porter competitive strategy for countries & WEF classification

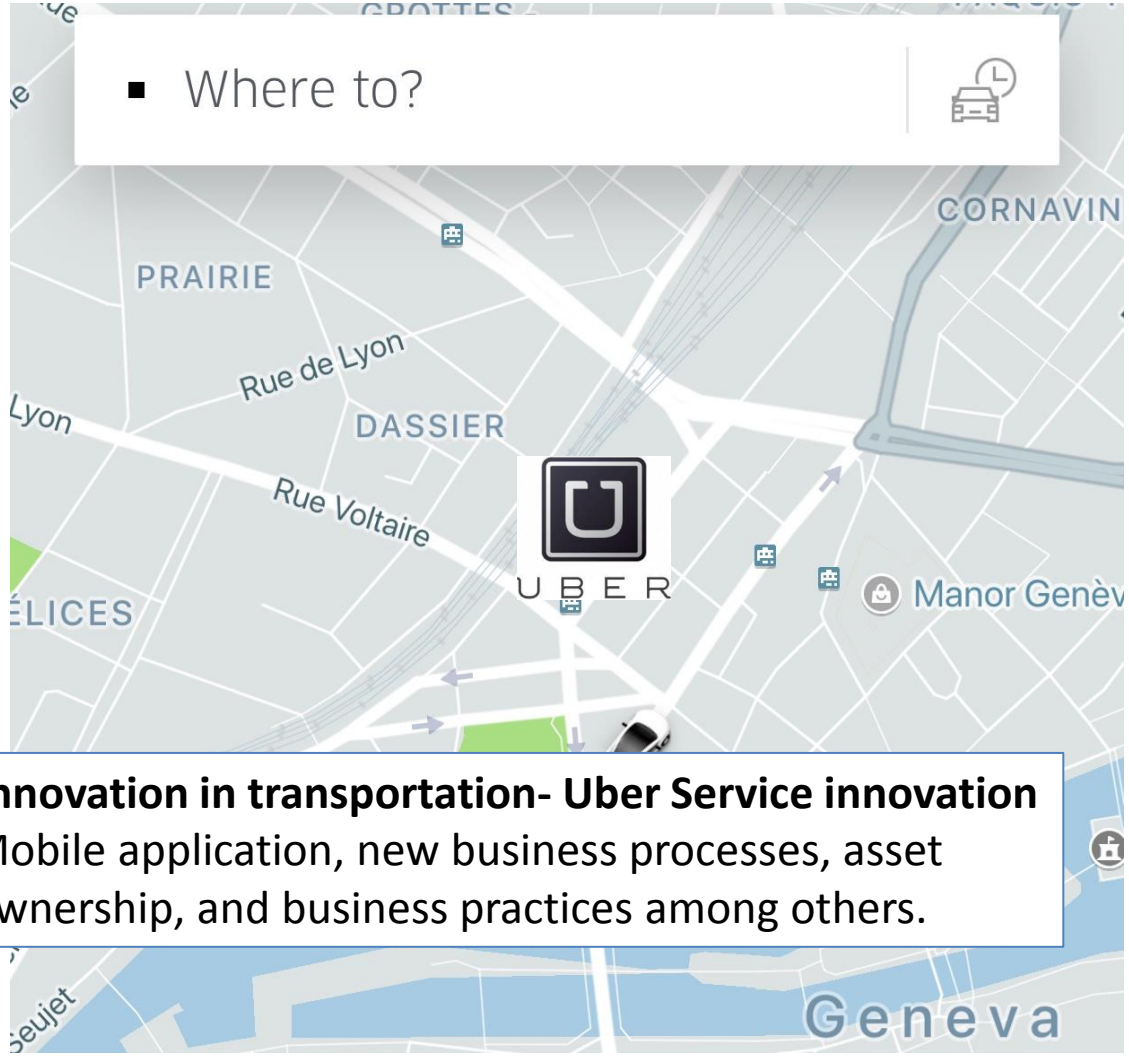
Source: ITU

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

Technology Is Not The Root Cause Of Change



The Reality Is Coming Fast



Innovation in transportation- Uber Service innovation
Mobile application, new business processes, asset ownership, and business practices among others.

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).

A Common Language Always Help

"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?

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."

Public Sector

"Here, people would rather buy foreign than create their own solutions."

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."

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."

Entrepreneurial Support Network

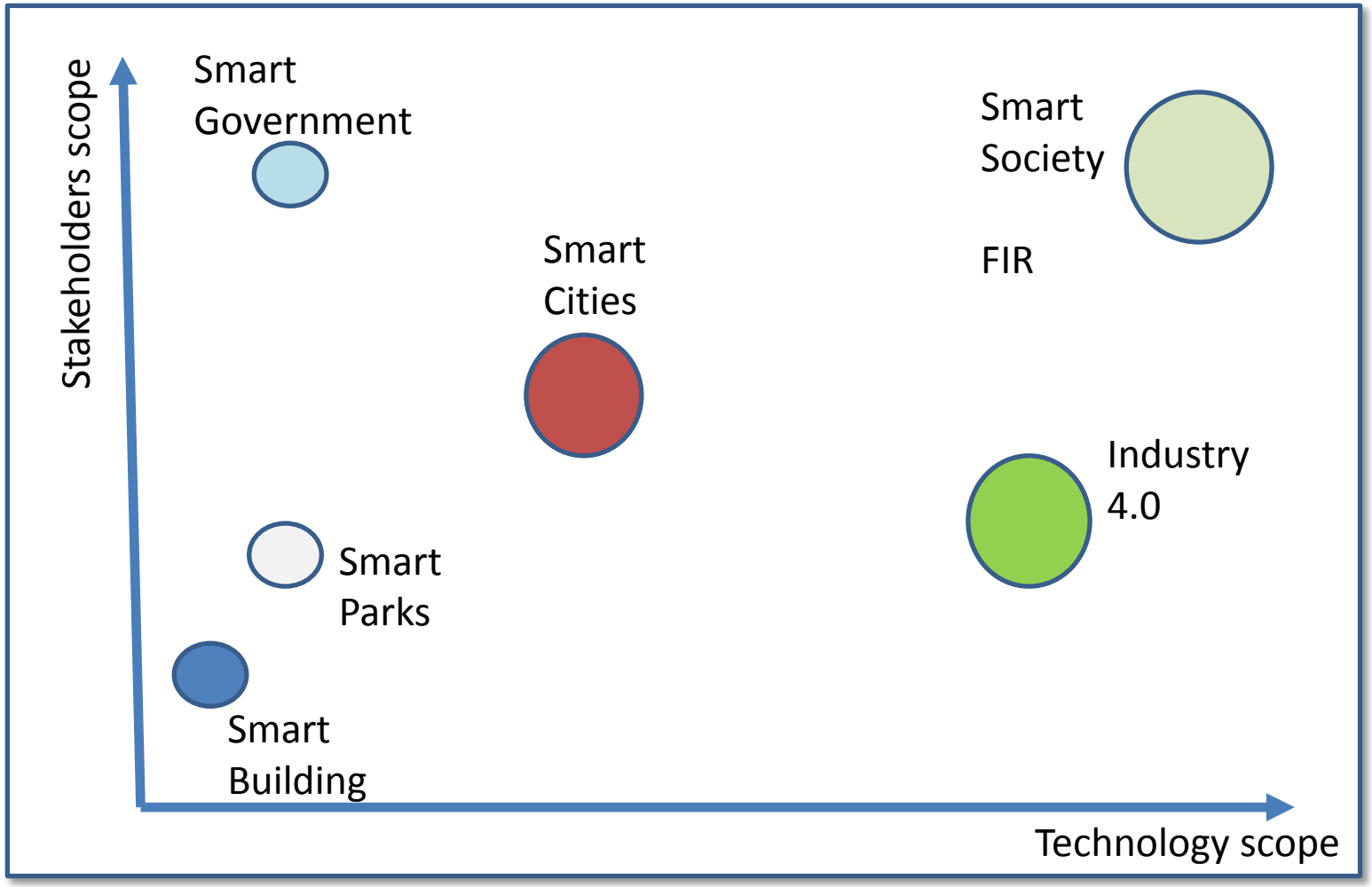
"The local companies don't invest in R&D. They also don't train people. So starting engineers can be liabilities!"

"If we compare ourselves to our neighbours, there are leading in fostering networking. Their governments are more supportive than ours."

Source: ITU country review

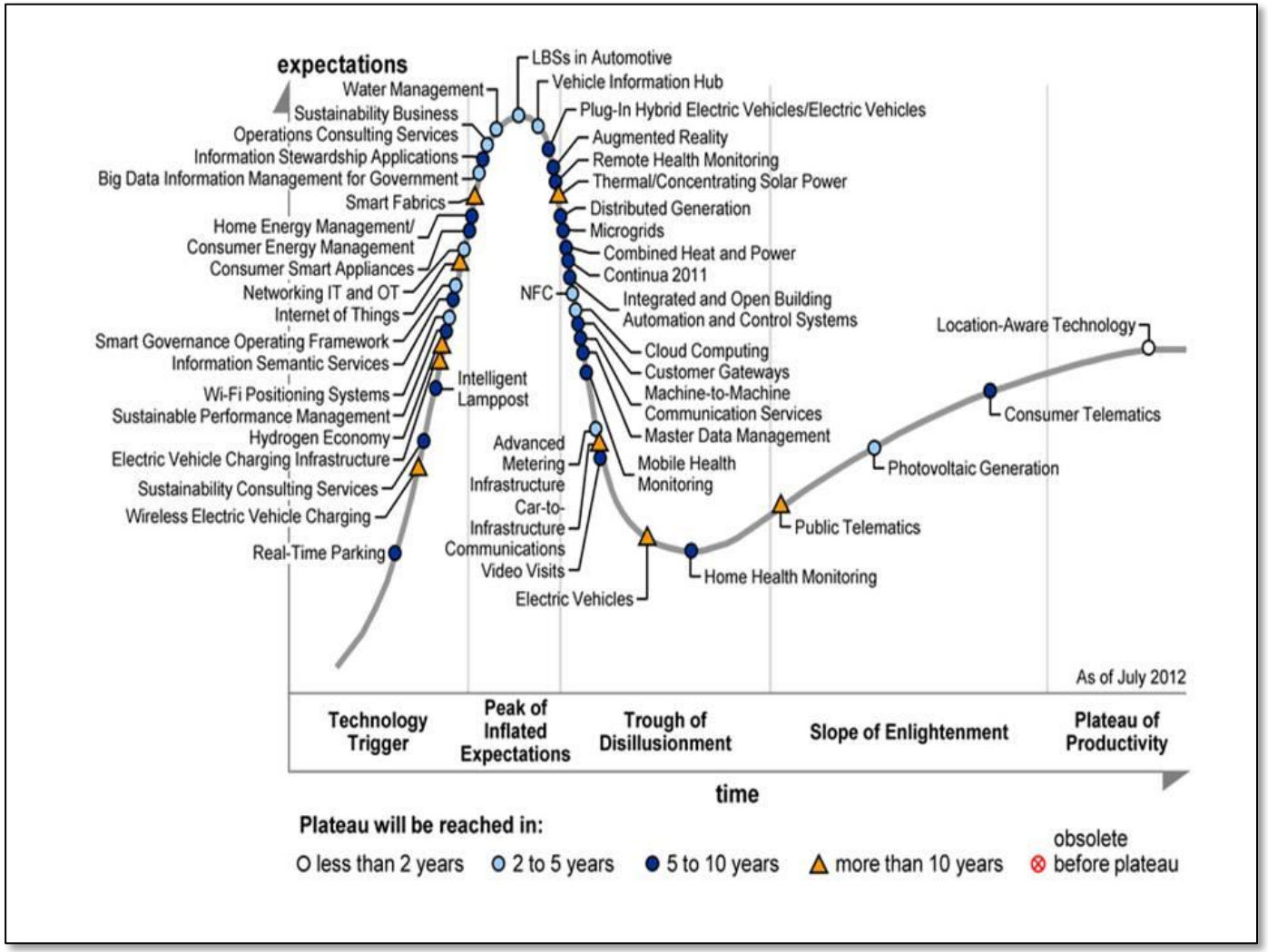
The Mission Is More Important Than The Vision

Mission: Sustainable Digital Transformation of Society



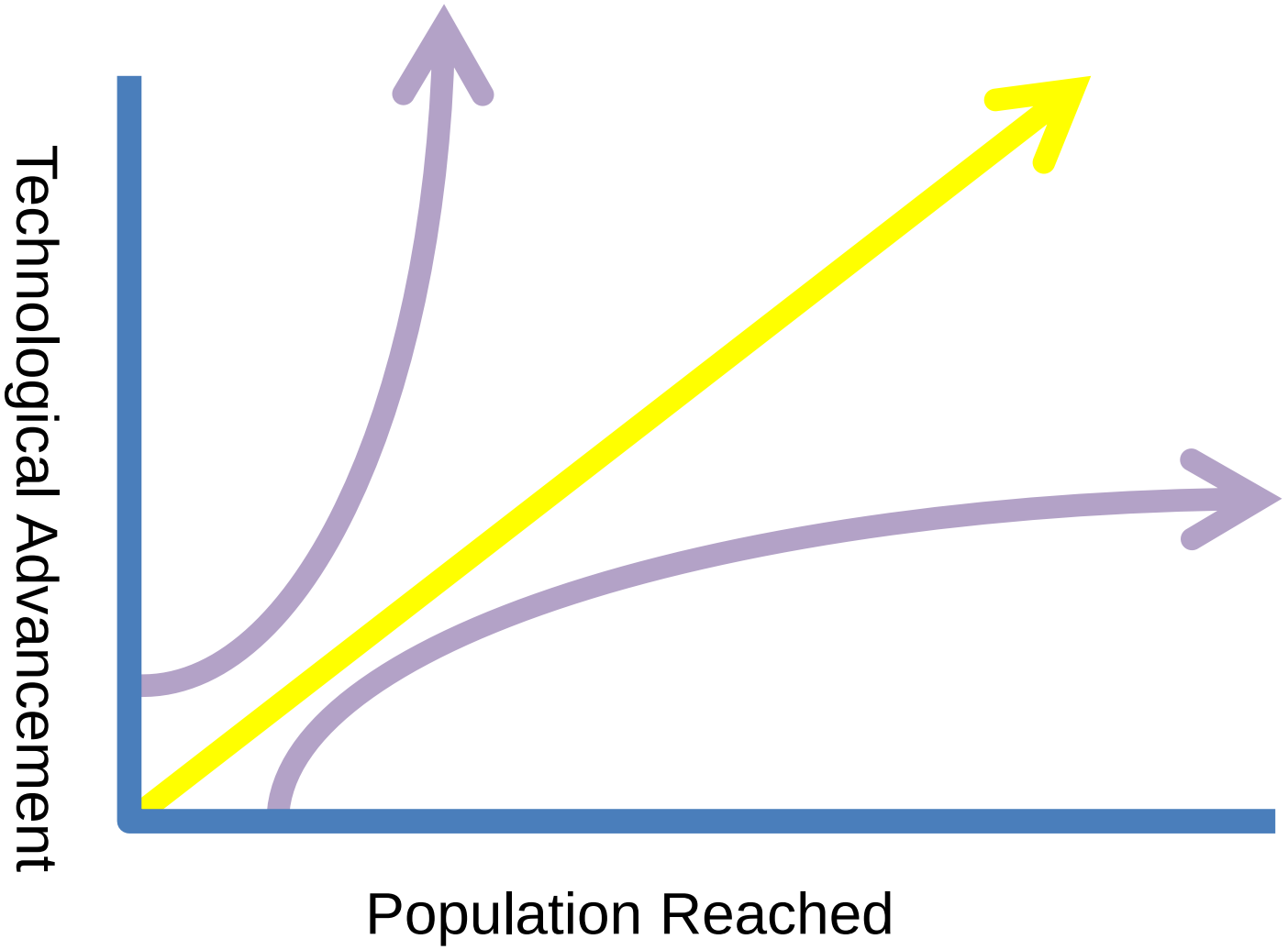
Technology Is Always Changing

To navigate it, an ecosystem of stakeholders need to absorb it and solve the problem of the country



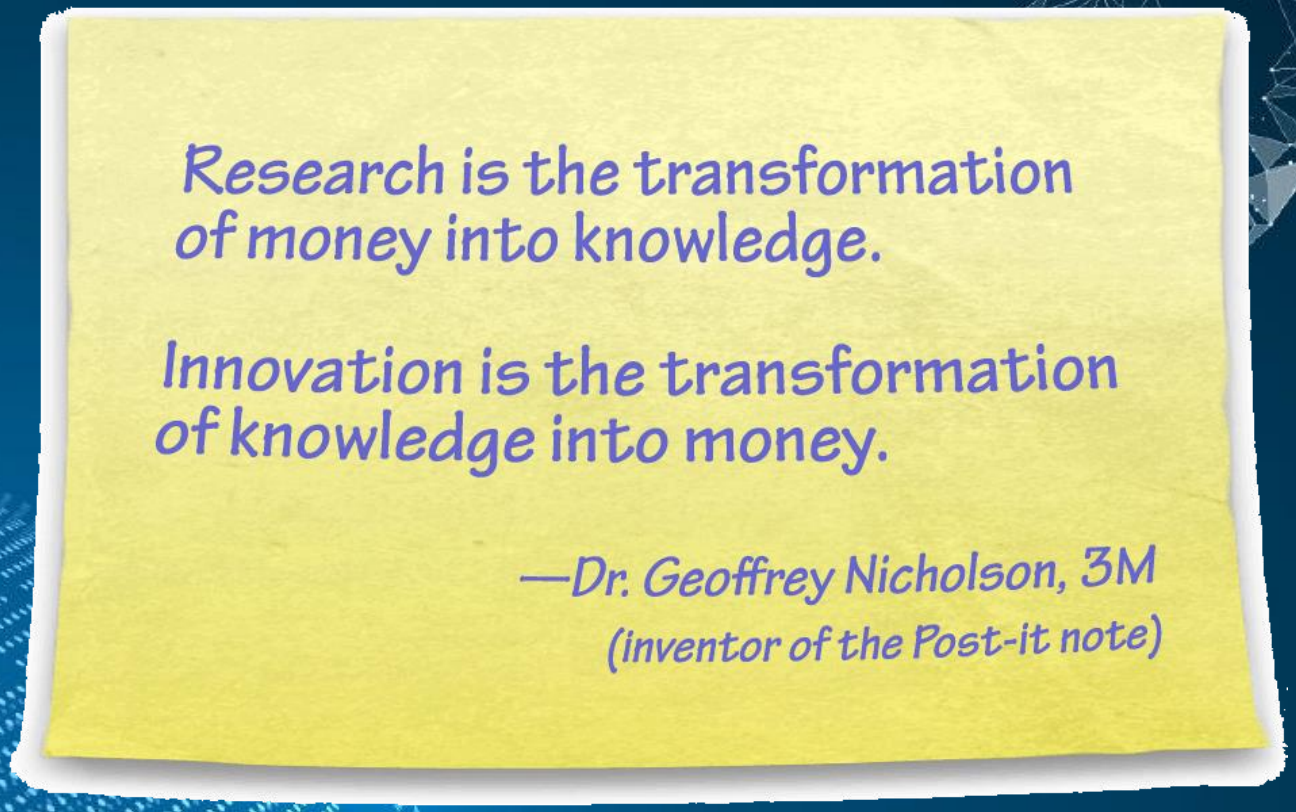
Source Gartner Hype Cycle

Technology Absorption Capacity Is Key

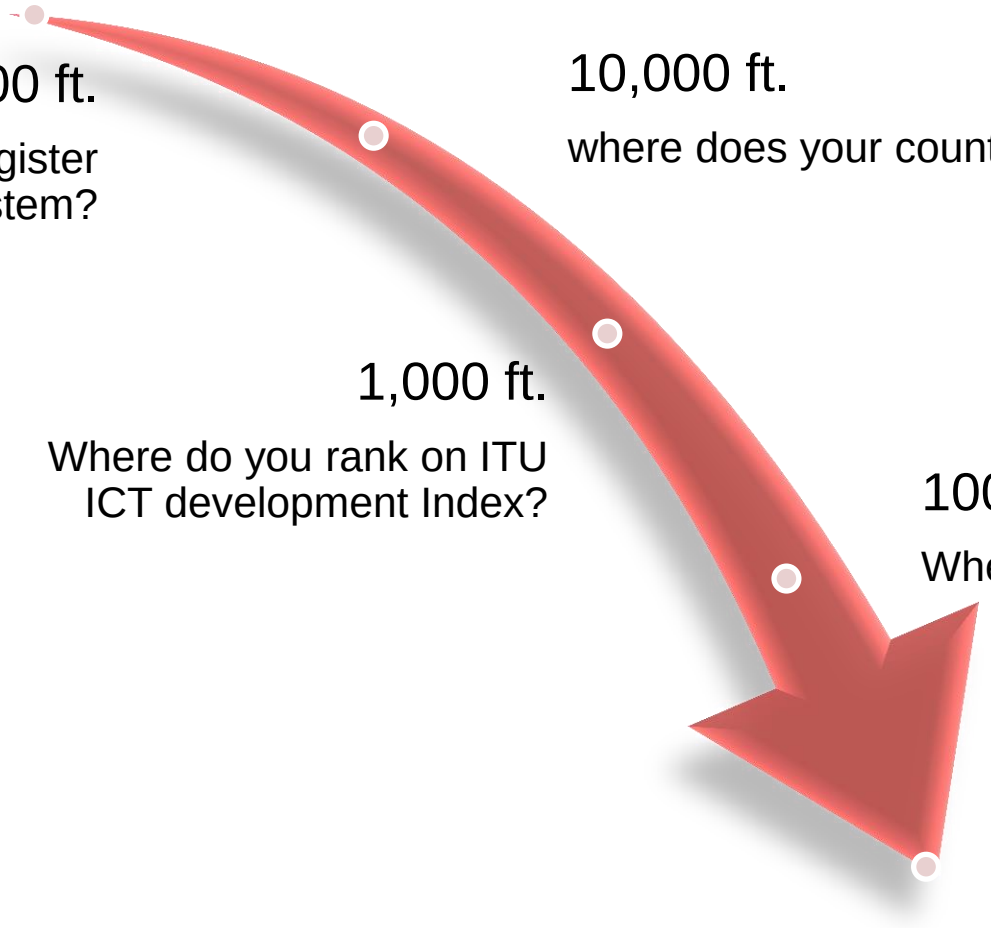


Source: ITU

How do we measure capabilities to absorb technology?



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

Global Innovation Index- Ranking & Enablers

MONTENEGRO

GII 2018 rank **52**

Output rank	Input rank	Income	Region	Efficiency ratio	Population (mn)	GDP, PPP$	GDP per capita, PPP$	GII 2017 rank
55	51	Upper-middle	EUR	56	.6	10.9	17,735.7	48

	Score/Value	Rank	
Institutions	68.2	46	◆
Human capital & research	33.4	[55]	
Infrastructure	47.8	57	
Market sophistication	42.8	87	

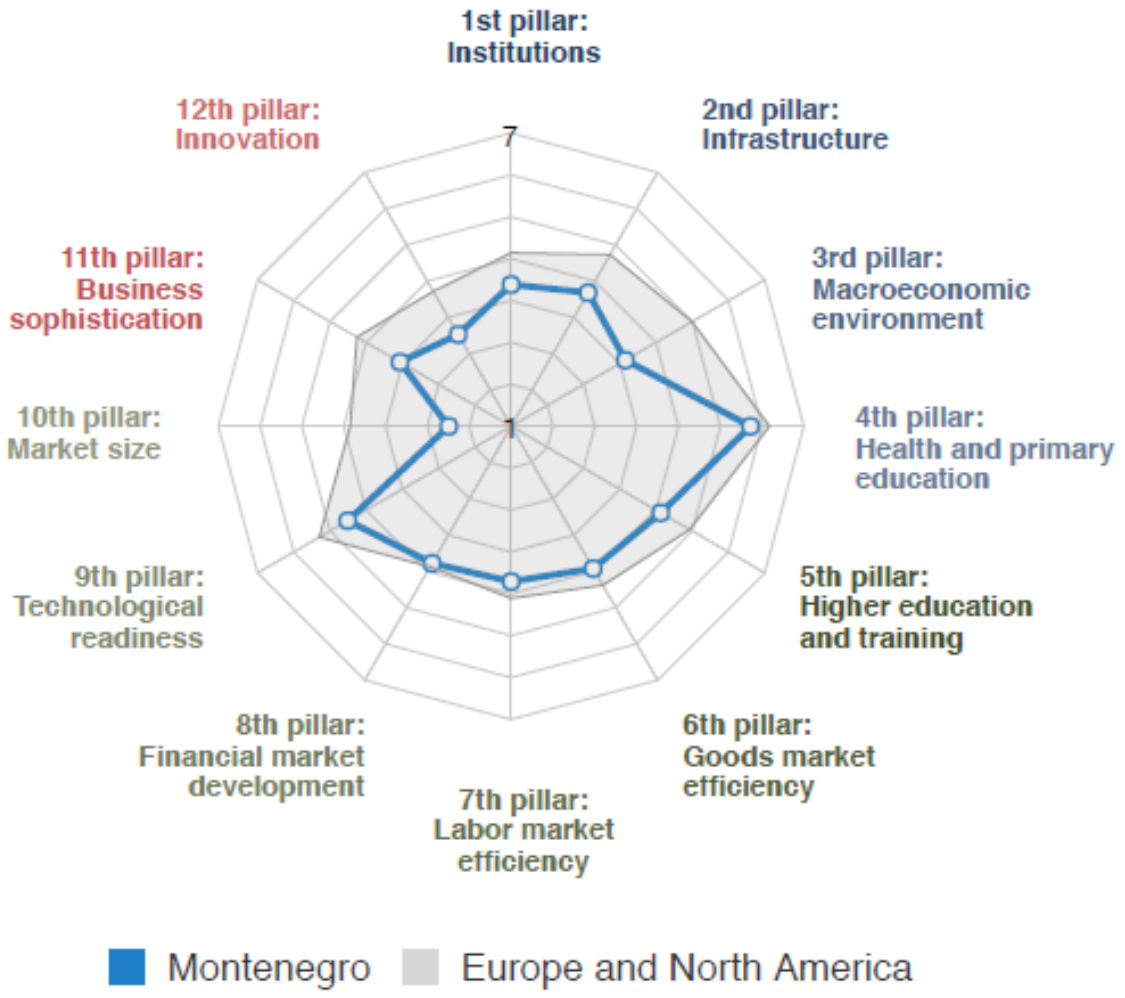
	Score/Value	Rank	
Business sophistication	31.6	58	
Knowledge & technology outputs	16.3	96	
Creative outputs	40.2	32	◆

Montenegro Innovation Efficiency Ratio: 63%

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

Source: Adapted from WIPO GII 2018

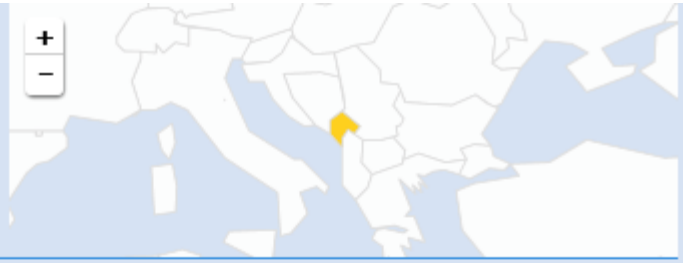
Montenegro– Global Competitiveness Index



Source: WEF Global Competitiveness Index 2018
Rank: 77/137

Montenegro–Global ICT Development Index

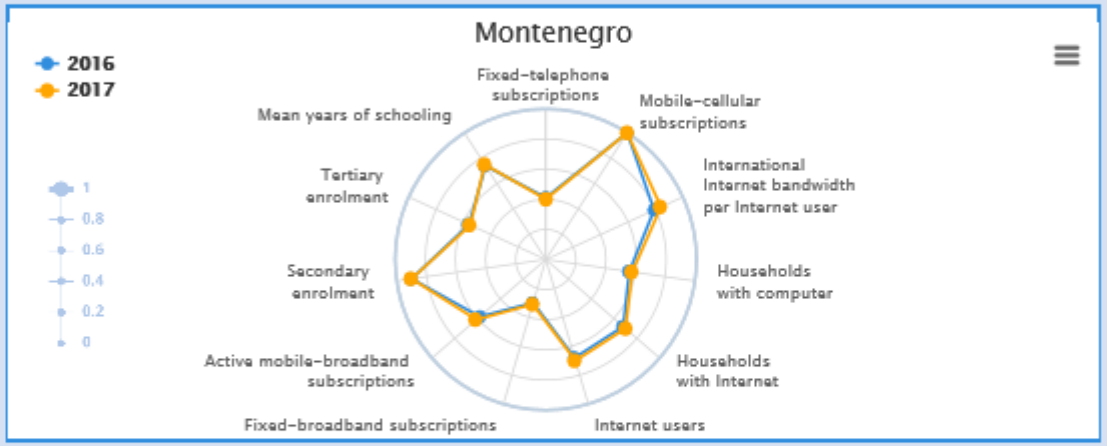
Population: **621,416**
Population density: **2.43**
GNI per capita: **6,970**
Region: **Europe, Developed**



IDI 2017 Rank	IDI 2016 Rank
61	56

IDI 2017 Value	IDI 2016 Value
6.44	6.30

Regional IDI 2016 Rank: 36



Source: ITU IDI

IDI ACCESS SUB-INDEX

7.03

Fixed-telephone 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

IDI SKILLS SUB-INDEX

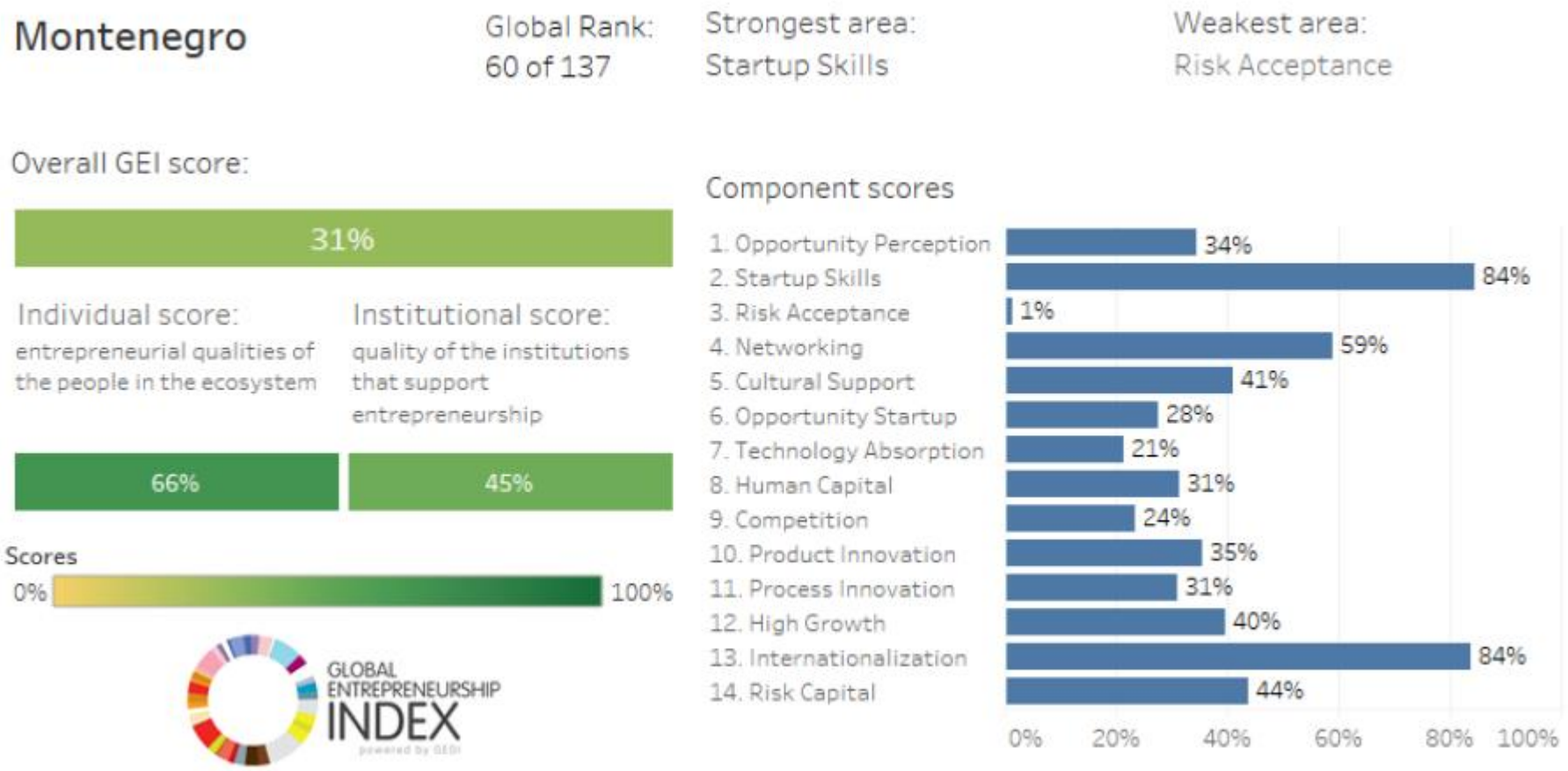
7.37

Mean years of schooling
11.30

Secondary gross enrolment ratio
90.34

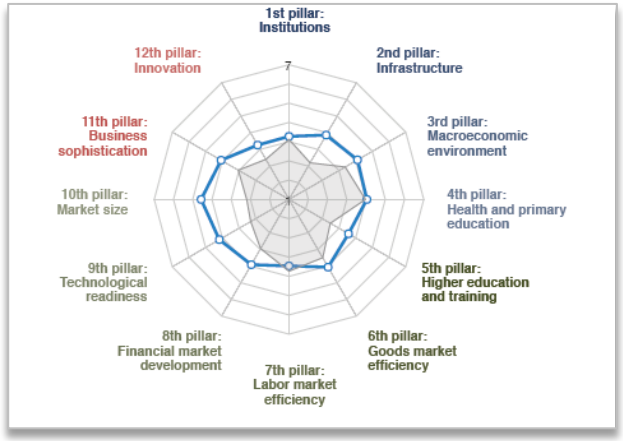
Tertiary gross enrolment ratio
55.34

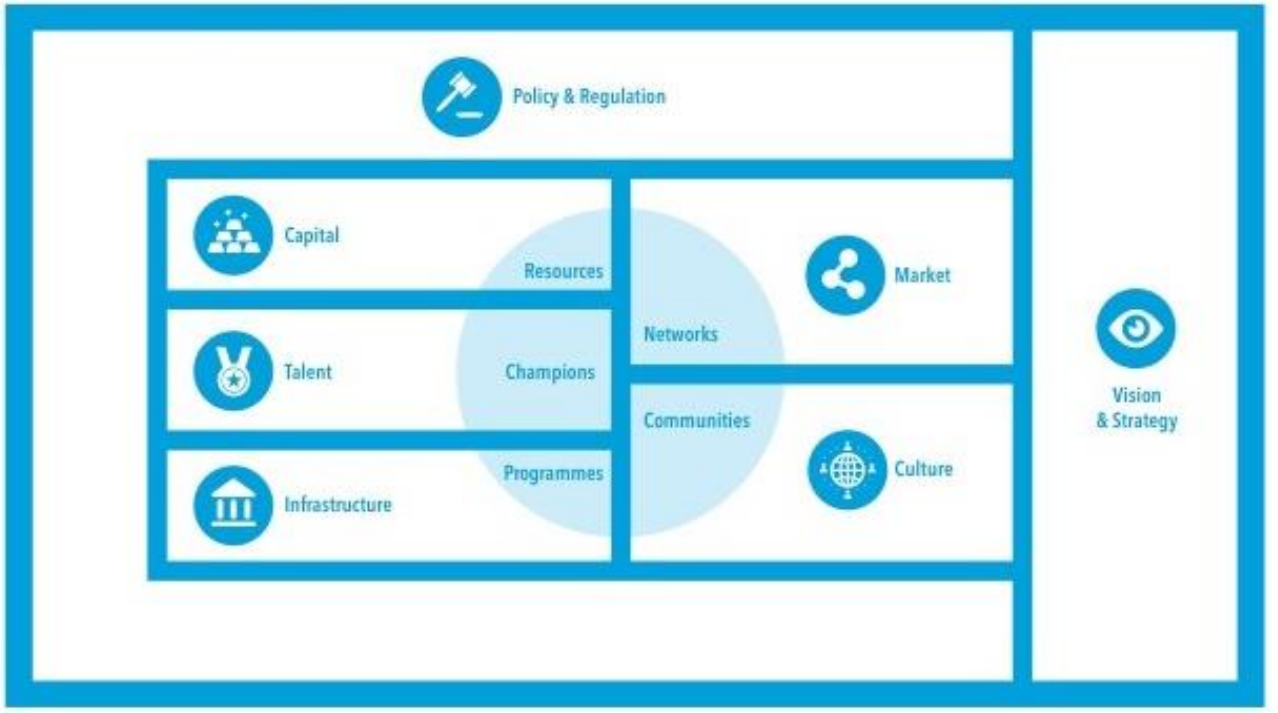
Montenegro–Global Entrepreneurship Development Index



Source: GENI Global Entrepreneurship Development Index 2017-2018
Rank: 60/137

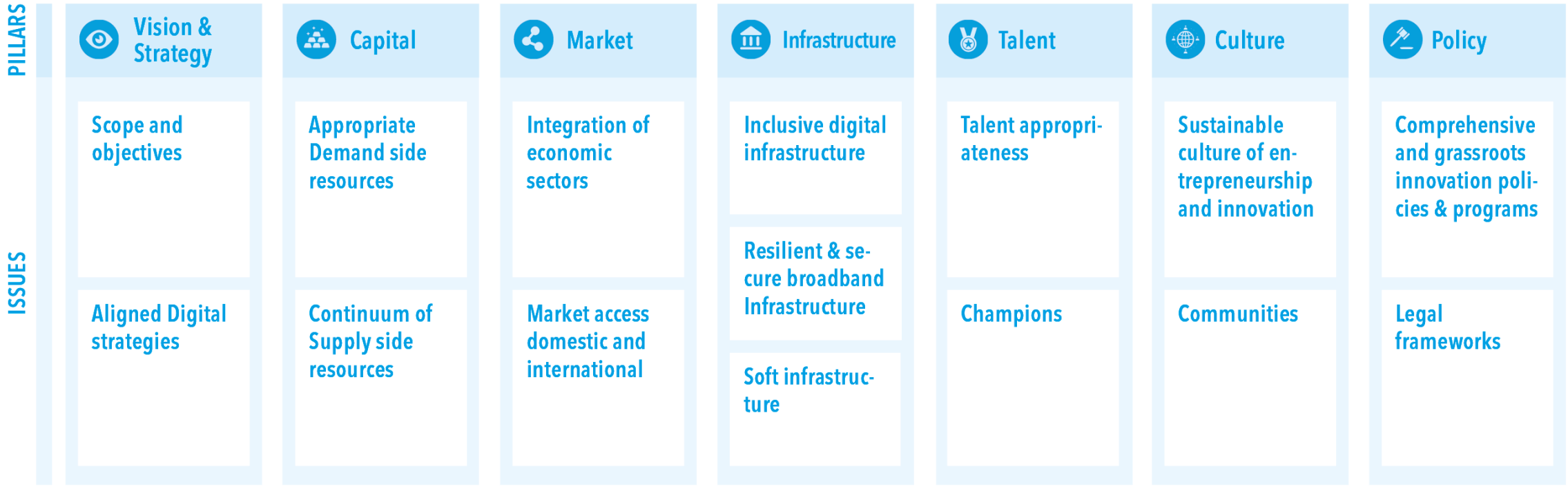
Assessing An Environment For Digital Transformation Readiness





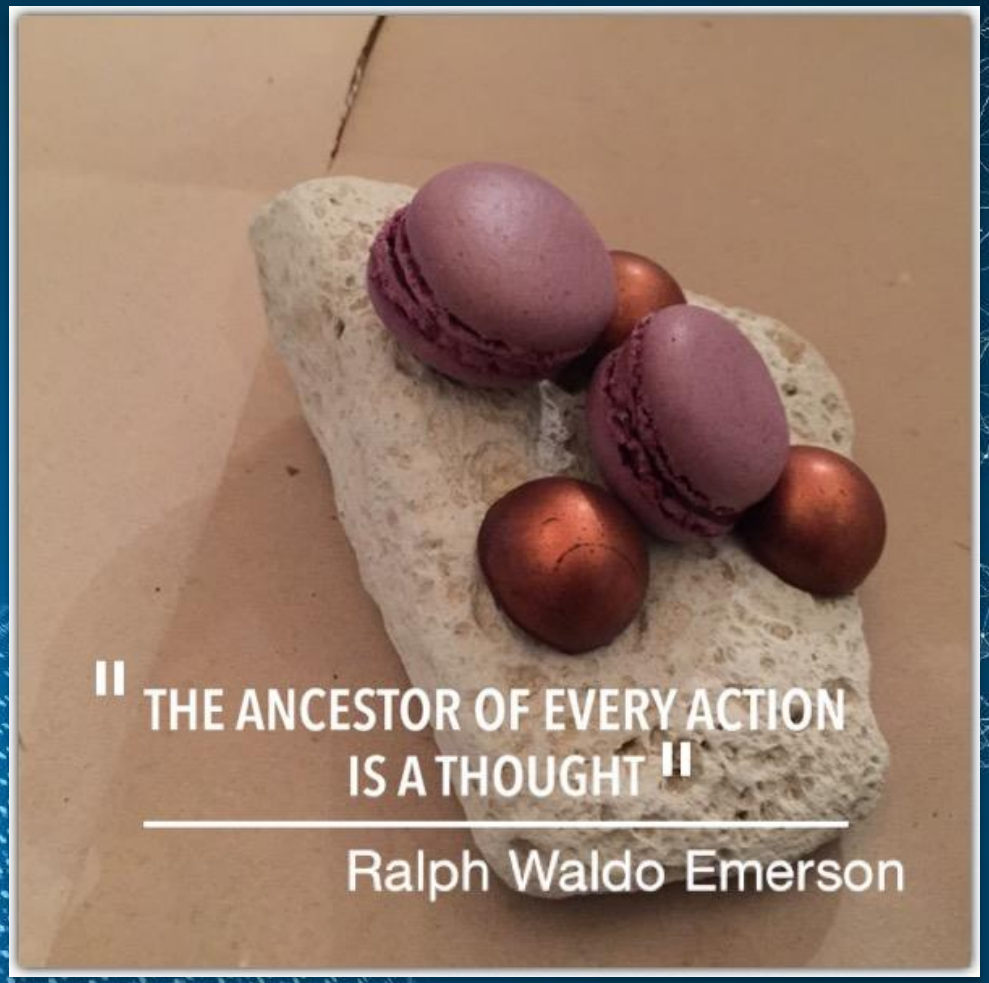
Leading or lagging indicators ?

Enablers For Digital Transformation

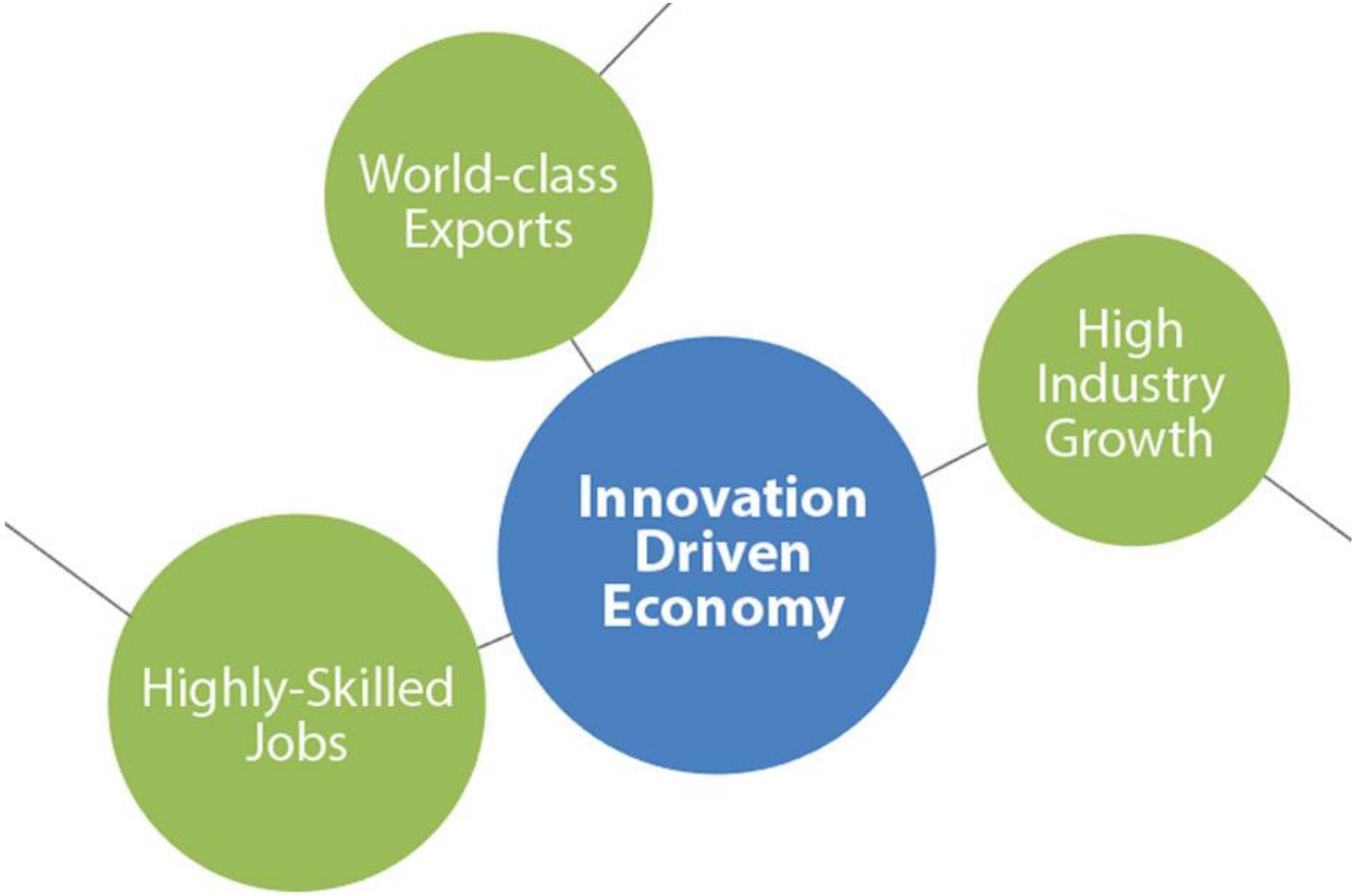


All stakeholders in the ecosystem need to understand their potential for making a difference, as well as their very real capabilities – as they engage in digital transformation.

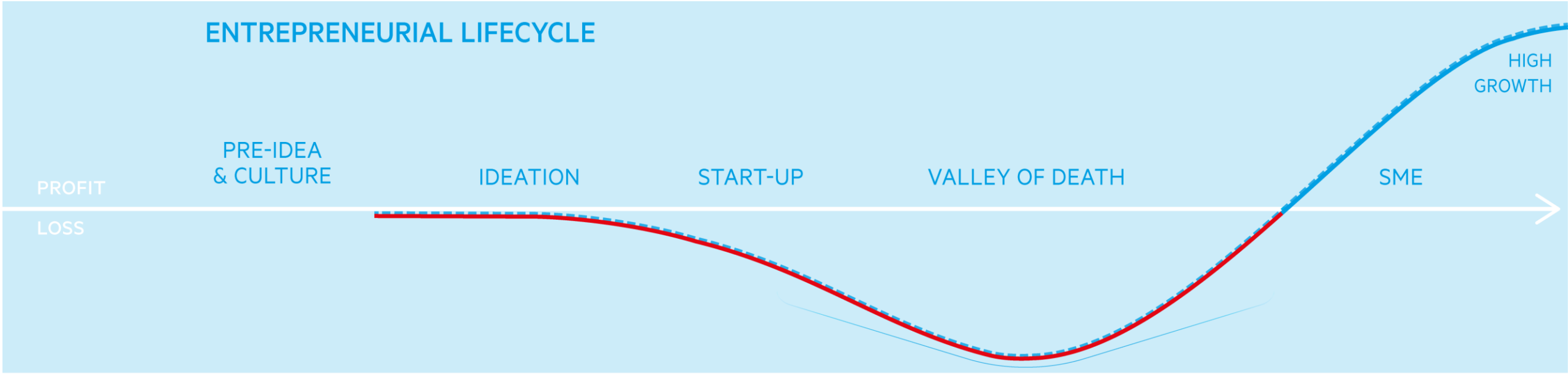
What are the stakeholders doing?



An 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

Entrepreneurship Phase	Pre-Idea	Ideation	Startup	The "Valley of Death"	SME
Entrepreneurs	Entrepreneurial Interest	Engage with problems	Develop Business Models	Build Collaboration	Expand
Finance	Research Funding	Seed Funding	Angel Investment	Venture Capital	Business Finance & Loans
Entrepreneurial Support	Entrepreneurial Events	Hackathons & Competitions	Co-working & Support	Incubators & Accelerators	Business Association
Private Sector	Success Stories	Research Programs	Lab programs	B2B & Support Services	Skill Training Programs
Academia	Entrepreneur Community	Basic Research	Spin Offs	Soft skill trainings	Human capital
Public Sector	Vision & Strategy	IP & R&D Support	Tax Support	Public Procurement	Trade Policy

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

Entrepreneurship Phase	Pre-Idea	Ideation	Startup	The "Valley of Death"	SME
Entrepreneurs	Entrepreneurial Interest	Engage with problems	Develop Business Models	Build Collaboration	Expand
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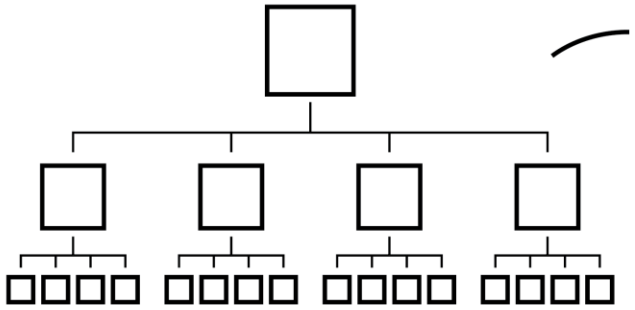
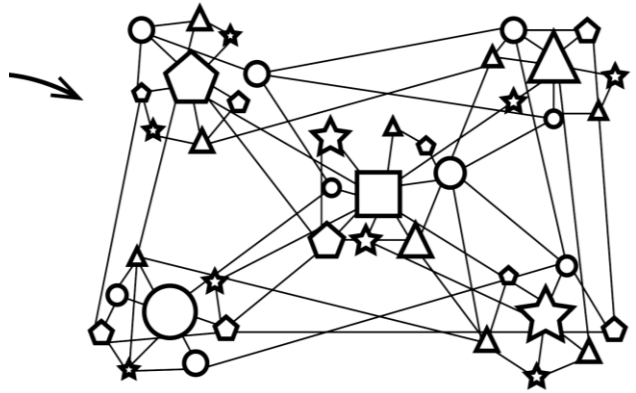
Academia	Entrepreneur Community	Basic Research	Spin Offs	Soft skill trainings	Human capital
Public Sector	Vision & Strategy	IP & R&D Support	Tax Support	Public Procurement	Trade Policy

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

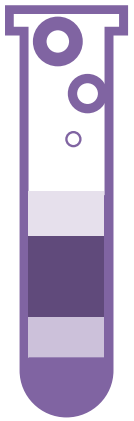
Organizational relationship that is both highly efficient and adaptive to the fast-paced ICT environment

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

Innovation is a system's issue

New Policy Paradigm Needed

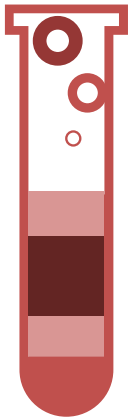
Emergent Policy



- Policy Agility
- Experimentation Sandbox
- Leadership and roadmap

+

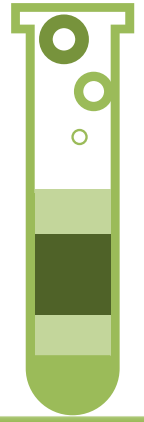
Working with Good Practices



- 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

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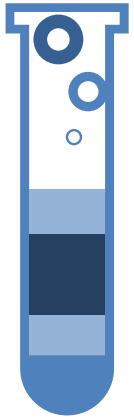
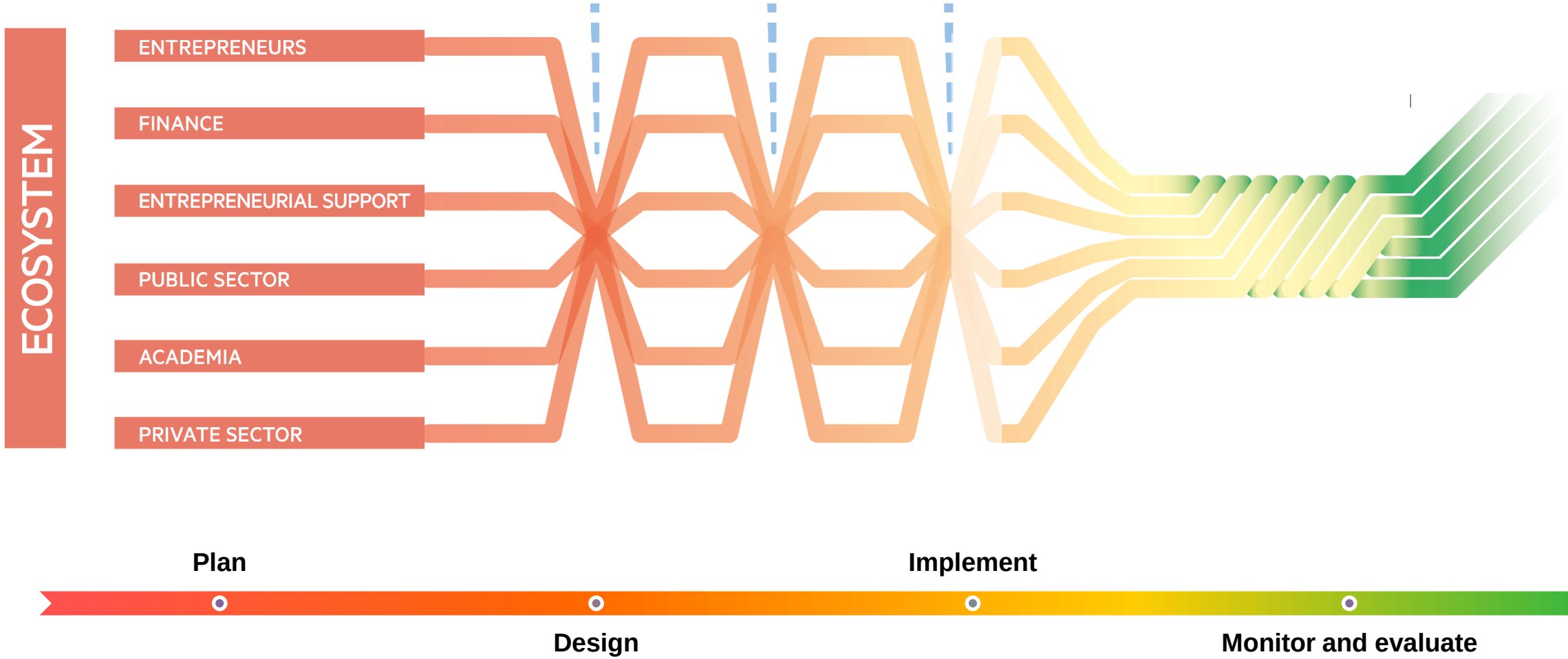
Digital Transformation Capacity



- ICT Centric Innovation Policy

The Next Frontier Is All About Nurturing Ecosystems

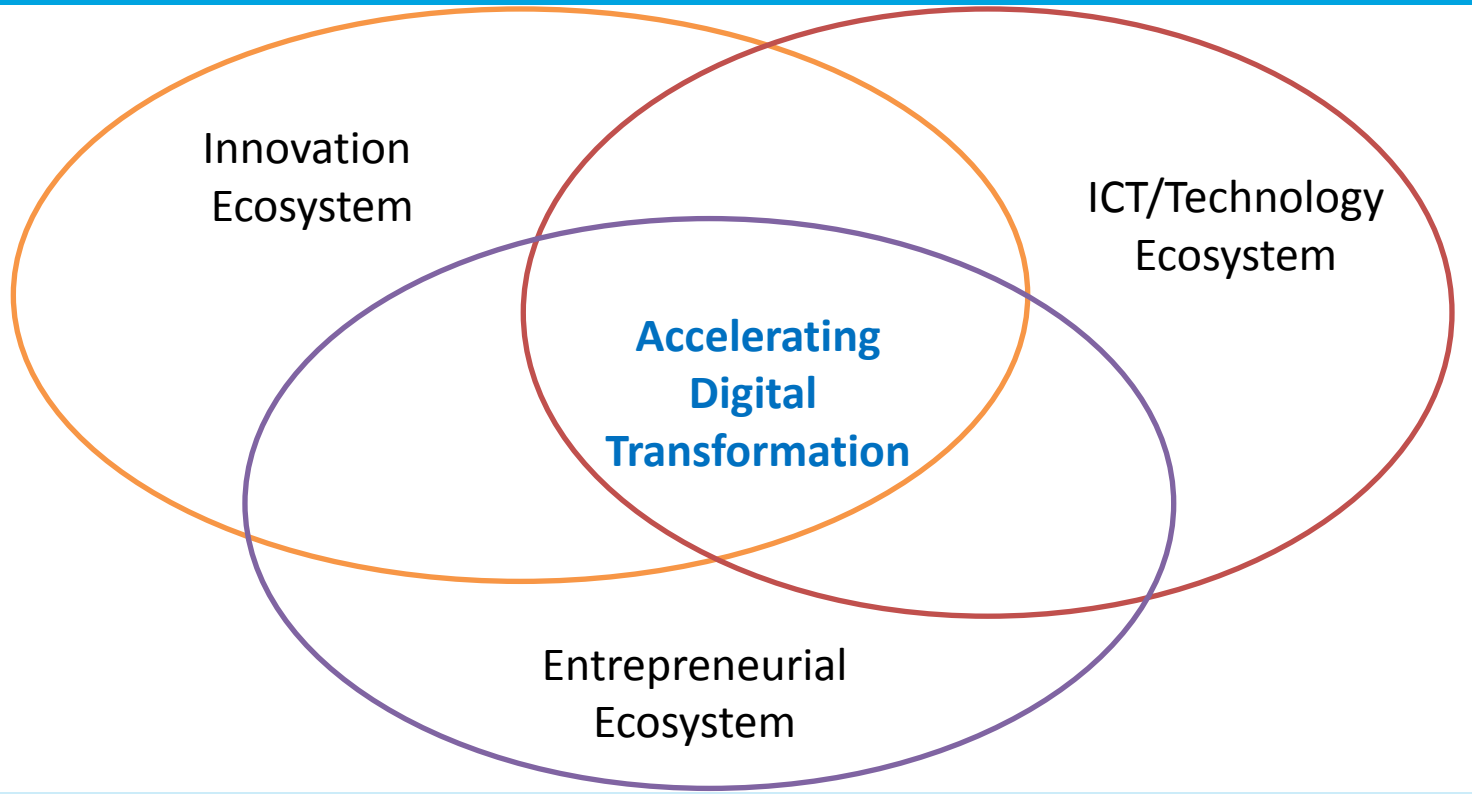


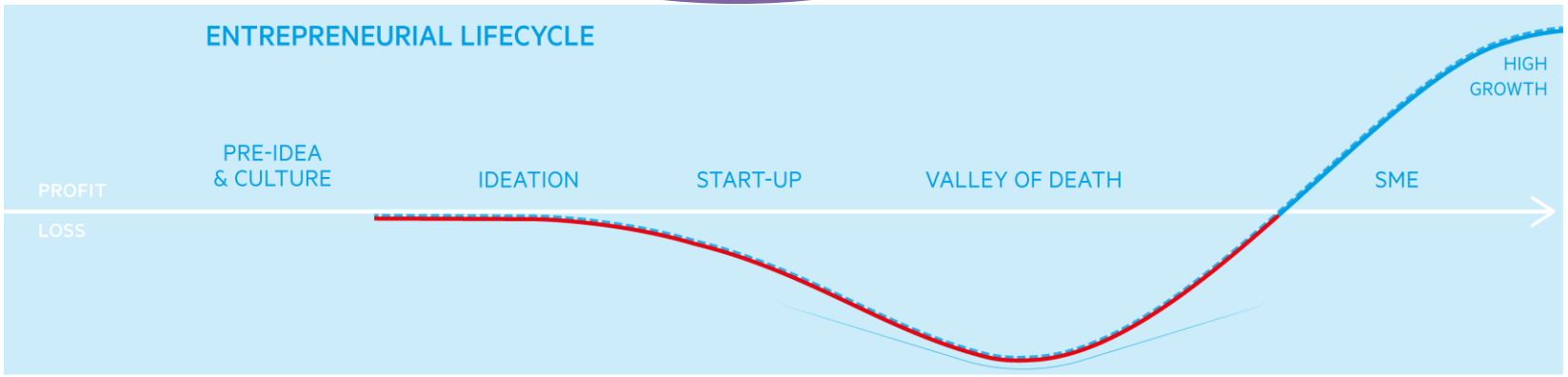
Accelerating Digital Transformation

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

Supportive public sector proactively managing development

- Enablers for the development of the digital economy, digital society and digital workforce
- A strong bridging body and guiding force

Foster start-up and technological entrepreneurship

- Strong infrastructure to support innovation
- Supportive programs and resources

Foster digital transformation and ICT-centric innovation in SMEs and enterprises

- Key collaboration from established players
- Clusters and specific focus on digital transformation of sectors

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 divide:
A toolkit for strengthening ICT centric ecosystems

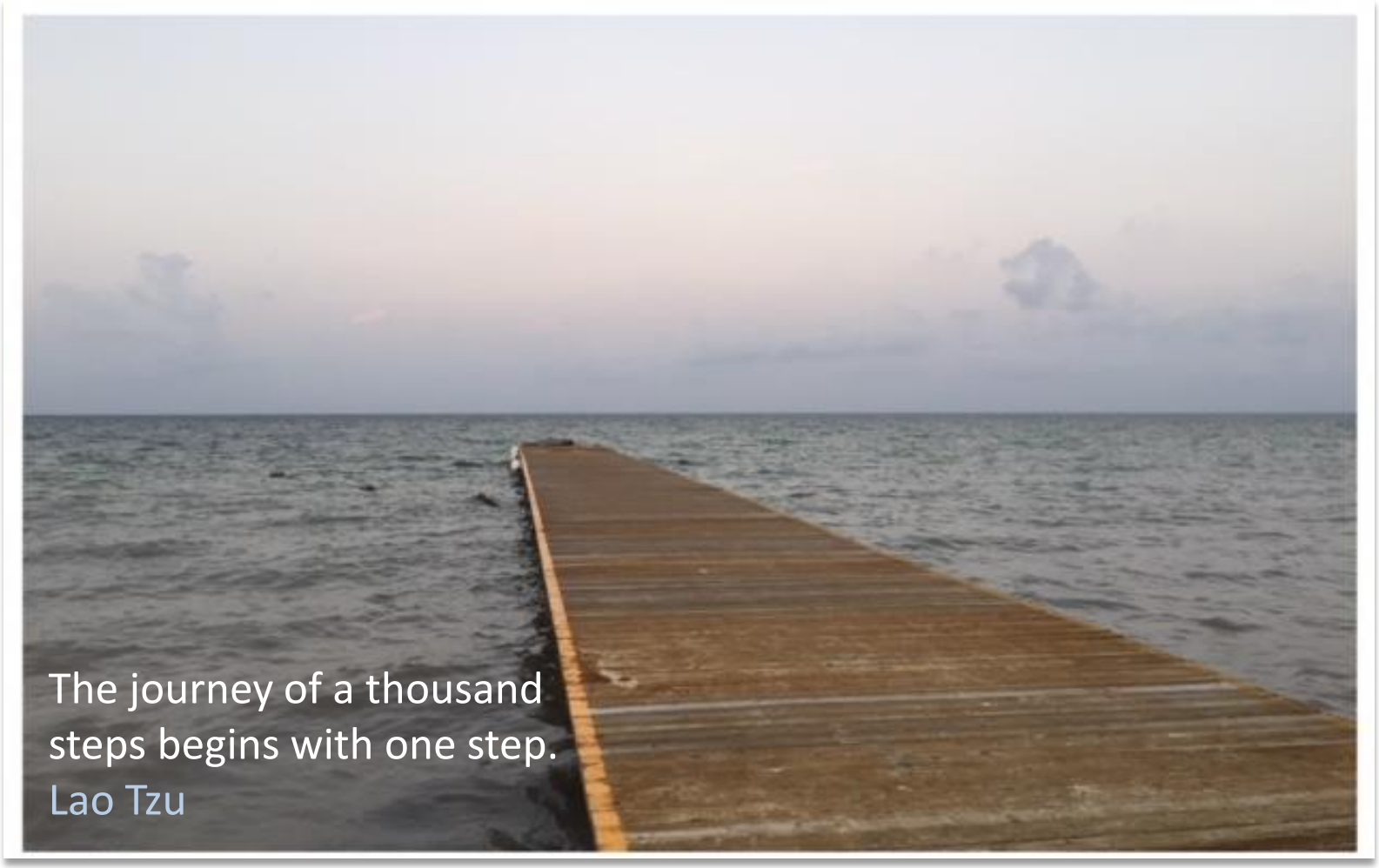
REGIONAL REPORT | EUROPE
Accelerating Digital Transformation:
Good practices for developing, driving and accelerating ICT centric innovation ecosystems in Europe

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



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