

# THE INNOVATION LANDSCAPE IN THE ARAB COUNTRIES

Economic And Social Commission For Western Asia



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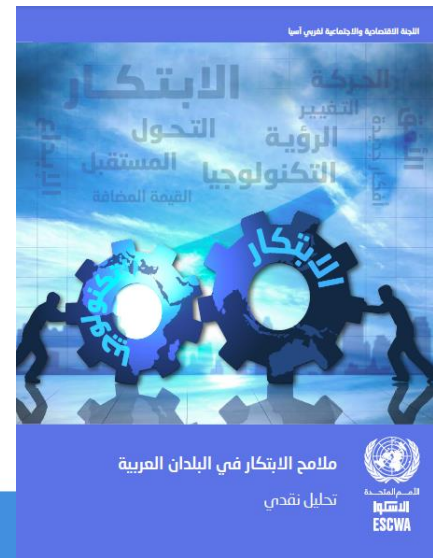
Capacity Building Workshop on Innovation  
Policies for SDGs in the Arab Countries

Amman, 15-19 April 2018

# The Innovation Landscape of the Arab countries

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- **Part 1:** Description of Innovation Landscape of the Arab region
- **Part 2:** Practical Interaction with Participants: Innovation landscape in selected Arab countries
- **Part 3:** Recommendations for enhancing innovation in the Arab region



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# Innovation Landscape in the Arab Countries

# Part 1: The Innovation landscape

- There are many schema and models to describe Innovation landscape : **UNCTAD Model**, OECD Model for National Innovation System and **ESCWA Framework for Innovation Policies**.
- Based on these models and **considering the status of innovation in the Arab countries and the development priorities in this region**, ESCWA have developed the Innovation Policy framework for inclusive sustainable development.
- To **determine the innovation landscape**, it is necessary to understand the issues that fuel its various interpretations:
  - The complexity of innovation issues
  - The role of government
  - The impact on socio-economic development

# The Innovation landscape

- The **Innovation Landscape** of a country
  - A **vision** for an Innovation Policy What for? By which means?  
By whom ?
  - The National Innovation System:
    - A **Core Engine**: Education, Research, productive system
    - A **Framework**: Institutions & regulatory environment
    - An **Infrastructure**: ICT, energy, transportation, ...
    - An **economic environment**: markets, financial sectors, FDIs, incentives
    - A **socio-economic environment** : workers and knowledge, culture, incentives
  - A **measurement** / policy monitoring

# The Innovation landscape

- How to describe the Innovation landscape of various countries ?

Qualitative ?

Quantitative ? ?

## Qualitative :

Published Policies and action plan (STI, ICT, Innovation) :  
Egypt, Jordan, Lebanon, Morocco, Saudi Arabia, United Arab Emirates

- Each country has set of goals and targets
- Each country has its own model for innovation
- Relatively weak follow-up of the implementation
- Each country develop its own indicators and monitoring for its own vision

# The Innovation landscape

- How to describe the Innovation landscape of various countries ?

Qualitative ?

Quantitative ?

## Qualitative :

- ESCWA evaluates the National Innovation System in seven Arab countries in the framework of its project “Establishment to Technology Transfer Offices in the Arab countries”: Lebanon, Tunisia, Egypt, Morocco, Sudan, Mauritania, Oman (made by UNCTAD)
- <https://www.unescwa.org/sub-site/sti-mapping-landscape-arab-countries>

# The Innovation landscape

- How to describe the Innovation landscape of various countries ?

Qualitative ?

Quantitative ?

- **Quantitative (Measurement):**

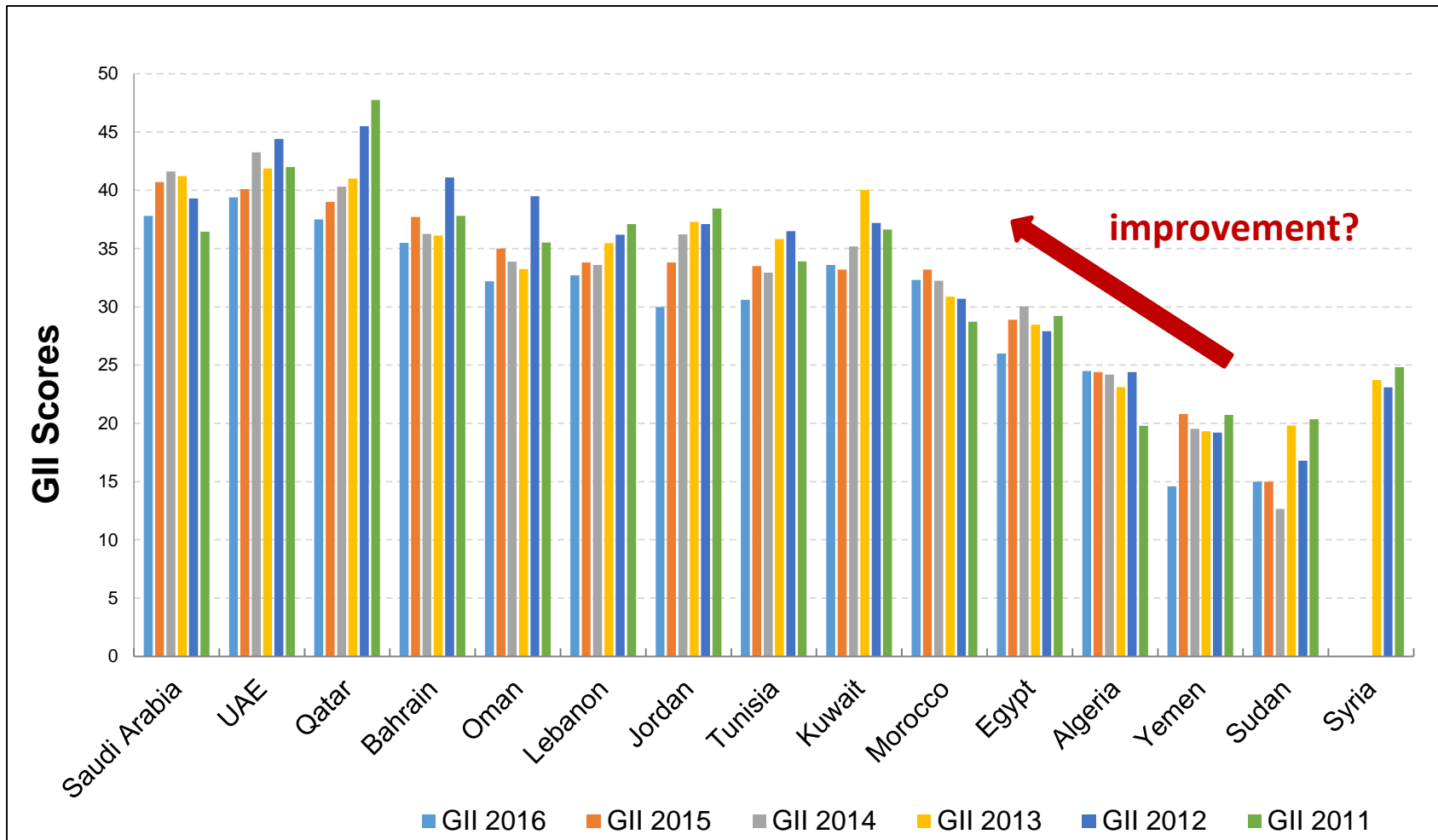
- The globally developed indicators are only tools for comparison
- The Global Innovation Index is the mostly recognized and comprehensive index. **It has 7 Pillars:**
  1. Institutions
  2. Human capital & Research
  3. Infrastructure
  4. Market Sophistication
  5. Business Sophistication
  6. Knowledge and Tech. output
  7. Creative outputs



# Linkage between Innovation Landscape and GII

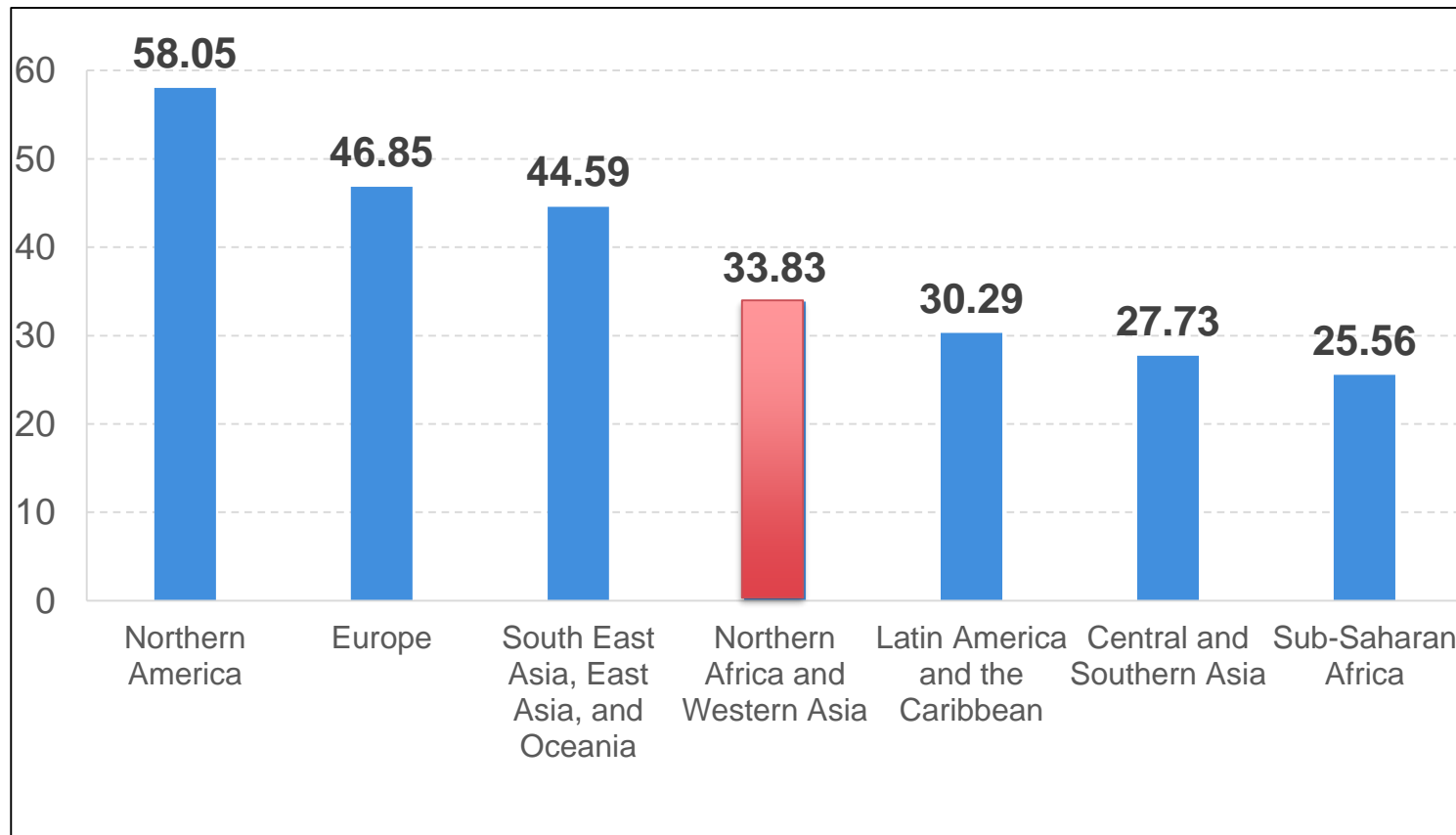
Innovation landscape GII Pillar	Vision	Core engine	Framework	Infrastructure	Economic environment	Socio-economic
1. Institutions						
2. Human capital and research						
3. Infrastructure						
4. Market sophistication						
5. Business sophistication						
6. Know. and tech. outputs						
7. Creative outputs						

# The GII in the Arab countries 2011-2016



# Regional innovation ranking (GII), 2016

<https://www.globalinnovationindex.org/analysis-indicator>



Source: Global Innovation Index 2016. Available:  
[http://www.wipo.int/edocs/pubdocs/en/wipo\\_pub\\_gii\\_2016.pdf](http://www.wipo.int/edocs/pubdocs/en/wipo_pub_gii_2016.pdf)

# Arab Countries Ranks in Global Innovation Index, 2016

Country	2016		2015	
	Value	Rank	Value	Rank
United Arab Emirates	39.4	41	40.1	47
Saudi Arabia	37.8	49	40.7	43
Qatar	37.5	50	39	50
Bahrain	35.5	57	37.7	59
Kuwait	33.6	67	33.2	77
Lebanon	32.7	70	33.8	74
Morocco	32.3	72	33.2	78
Oman	32.2	73	35	69
Tunisia	30.6	77	33.5	76
Jordan	30	82	33.8	75
Egypt	26	107	28.9	100
Yemen	14.6	128	20.8	137
Sudan	..	..	15	141
	31.85		32.67	

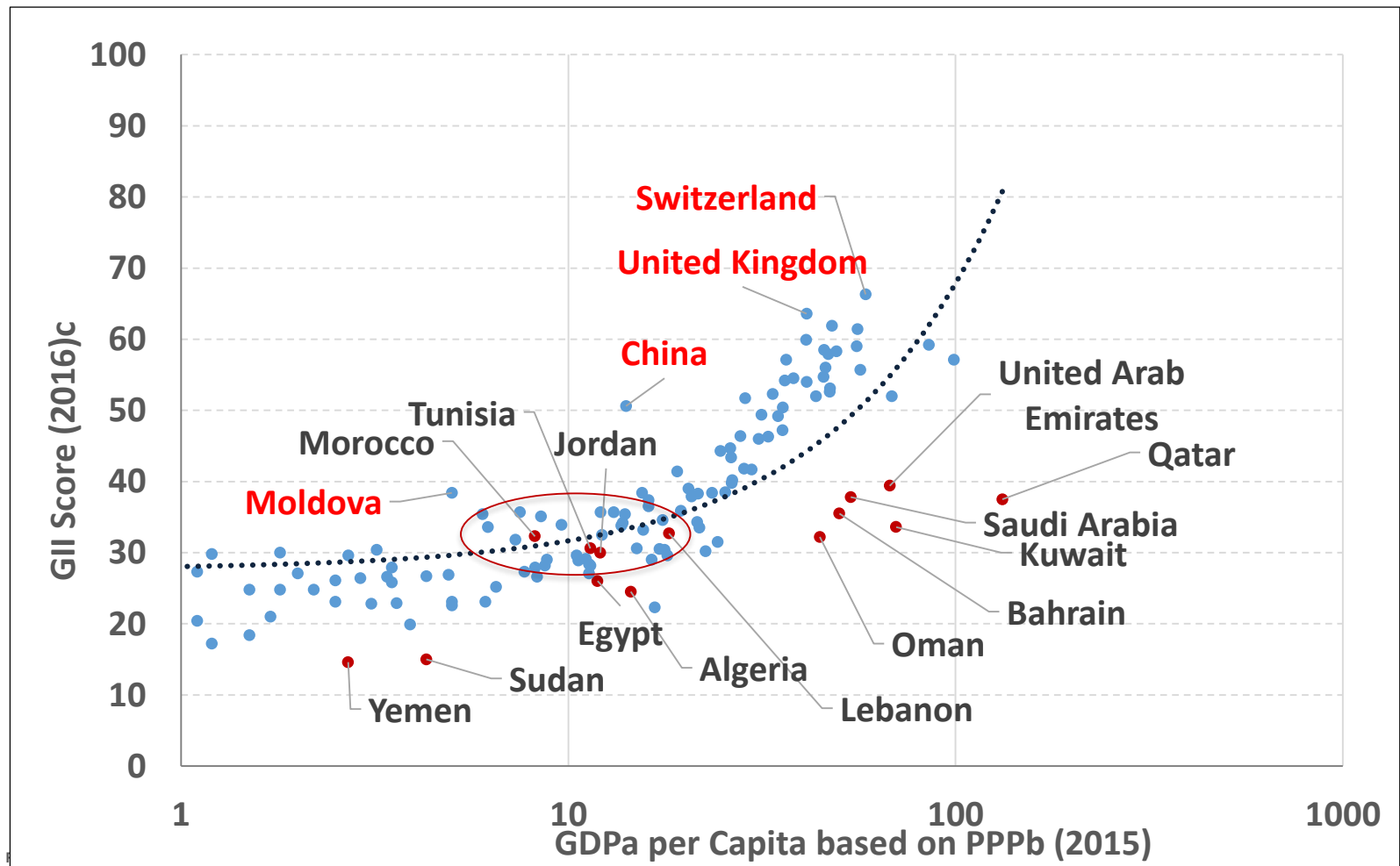
# The Innovation landscape in the Arab countries

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- However the comparison is not fair for Arab countries as of the huge differences in GDP !!!
- ESCWA look at the innovation landscape considering the GDP of countries.

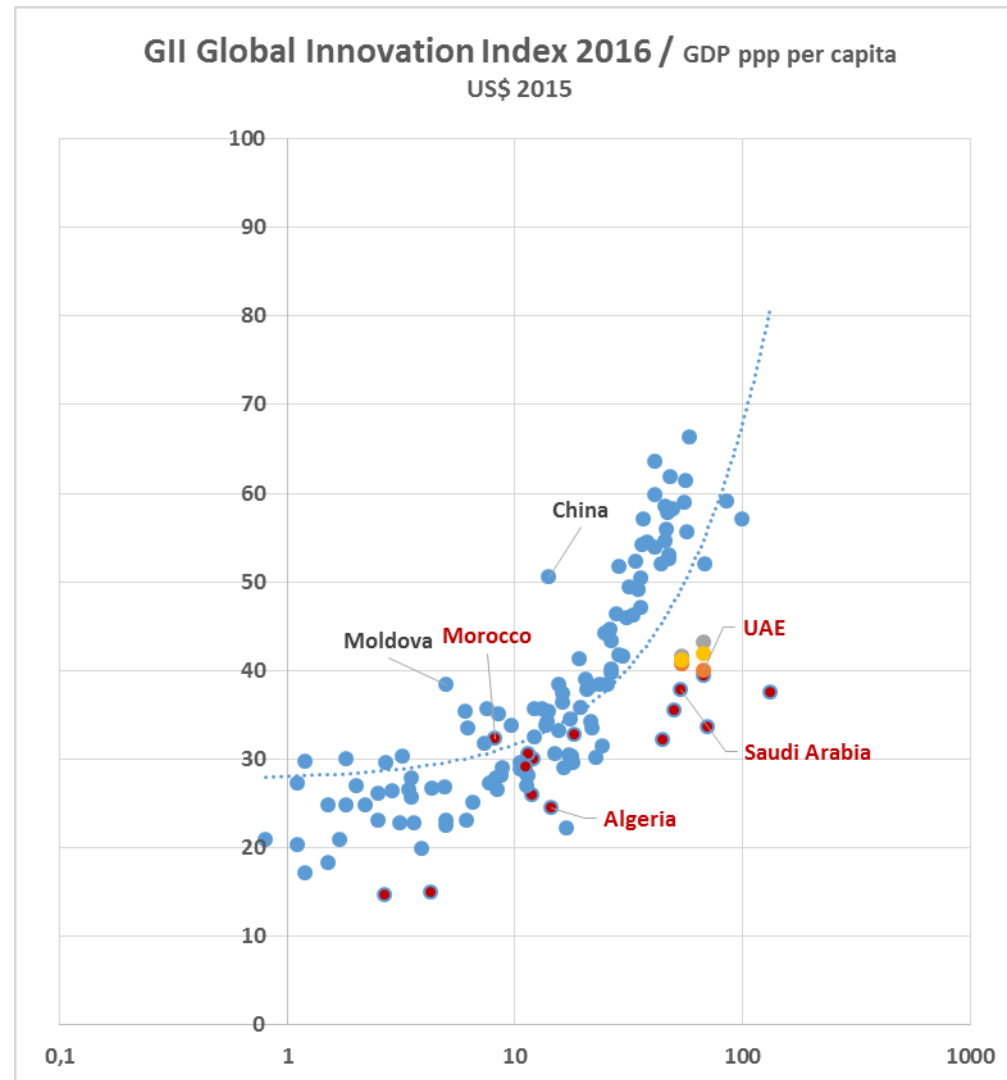


# Global innovation Index / GDP ppp per capita



# The global innovation index (GII)

- **Global behaviour**
  - Accelerate with GDP/capita
  - China, Moldova champions
- **Arab countries**
  - Yemen and Sudan underperforming
  - GCC countries underperforming
  - Morocco is the best
  - Jordan, Tunisia and Lebanon are almost fine.



# Innovation Pillar 1: Institutions

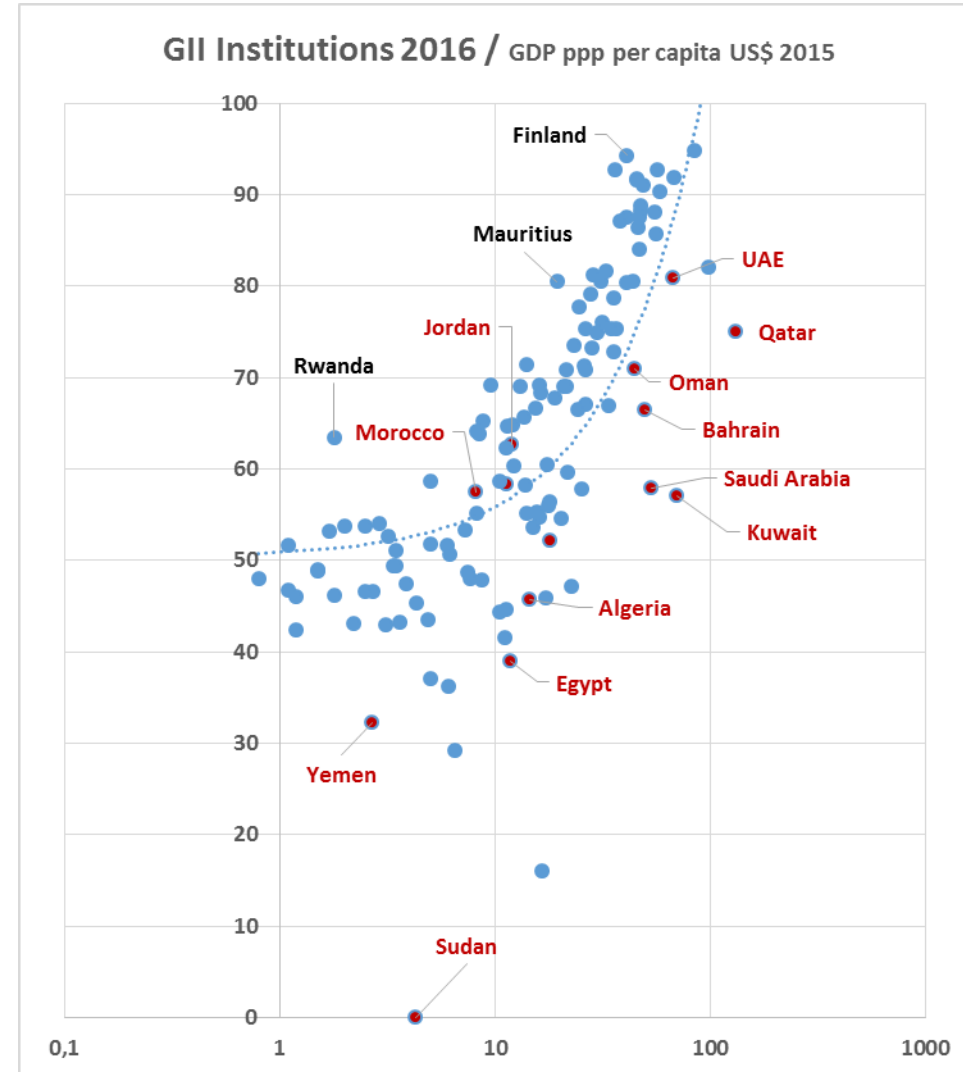
1. Political environment
2. Regulatory environment
3. Business environment

- **Global behaviour**

- Tend to around 50 for low income
- Almost linear with GDP/capita
- Finland, Mauritius champions

- **Arab countries**

- Yemen, Egypt, Algeria underperforming
- Kuwait, SA, Qatar underperforming
- Other countries on average

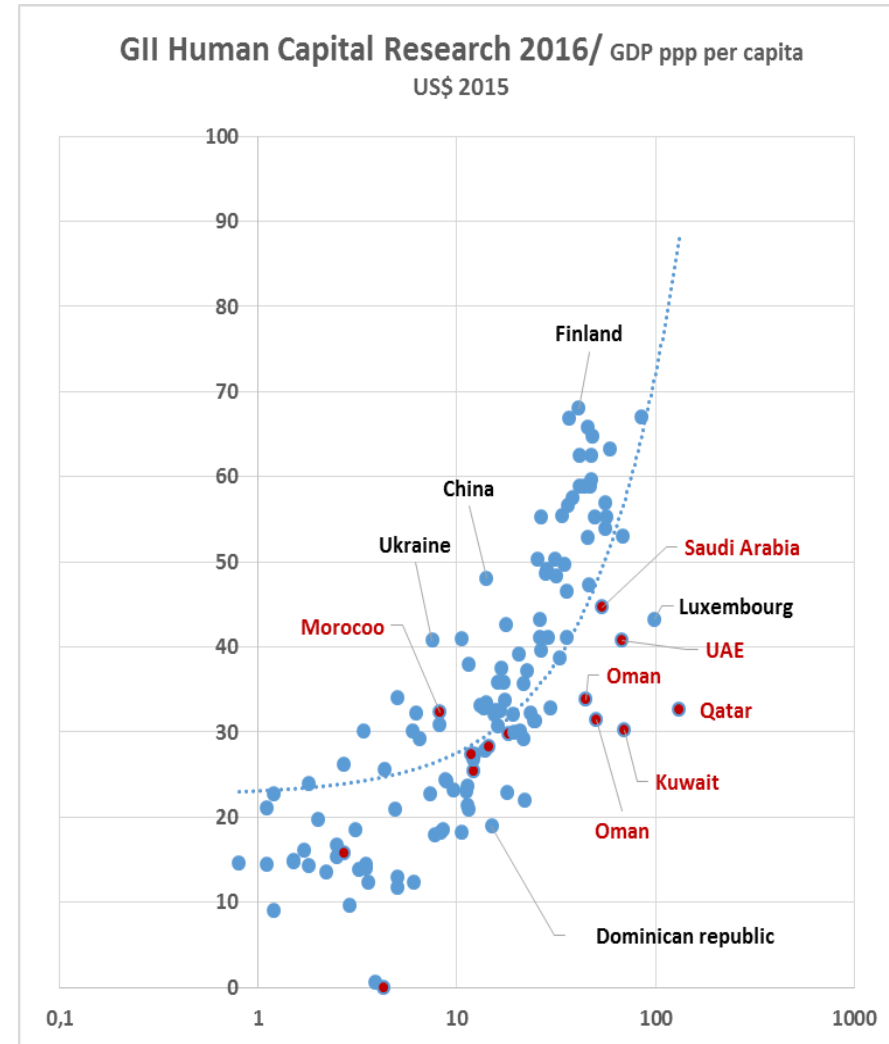




# Innovation Pillar 2: Human Capital & Research

1. Education
2. Tertiary education
3. R&D

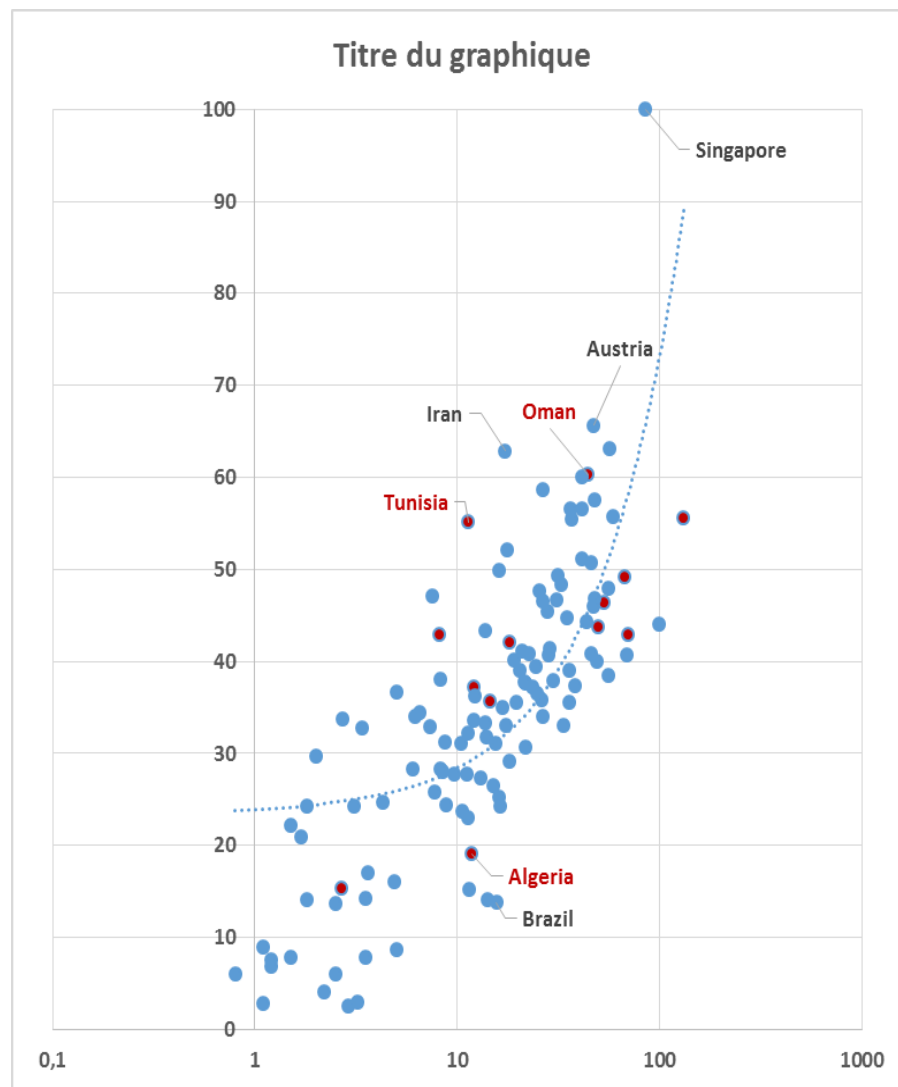
- **Global behaviour**
  - Tend to around 15 for low income
  - Finland, China, Ukraine champions
- **Arab countries**
  - Most Gulf underperforming
  - Other countries on average
  - Morocco has good performance



# Innovation Pillar 2: Human Capital & Research

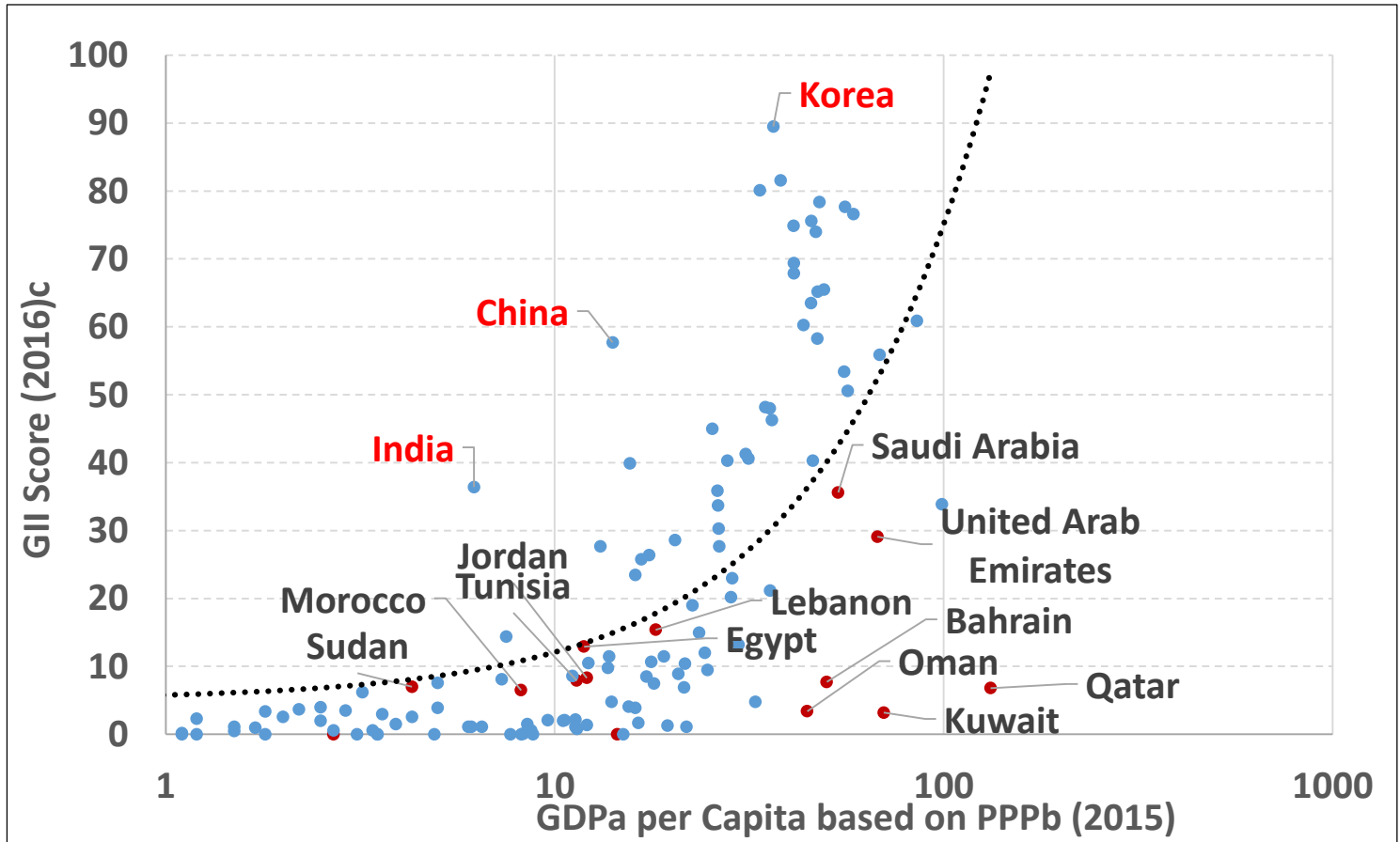
## Tertiary Education

- **Global behaviour**
  - Tend to around 10 for low income
  - Accelerate with GDP/capita
  - Large variations
  - Singapore, Austria, Iran champions
- **Arab countries**
  - Tunisia, Oman champions
  - Algeria underperforming
- **Does that mean that the first pillar of the Core Engine is acceptable?**





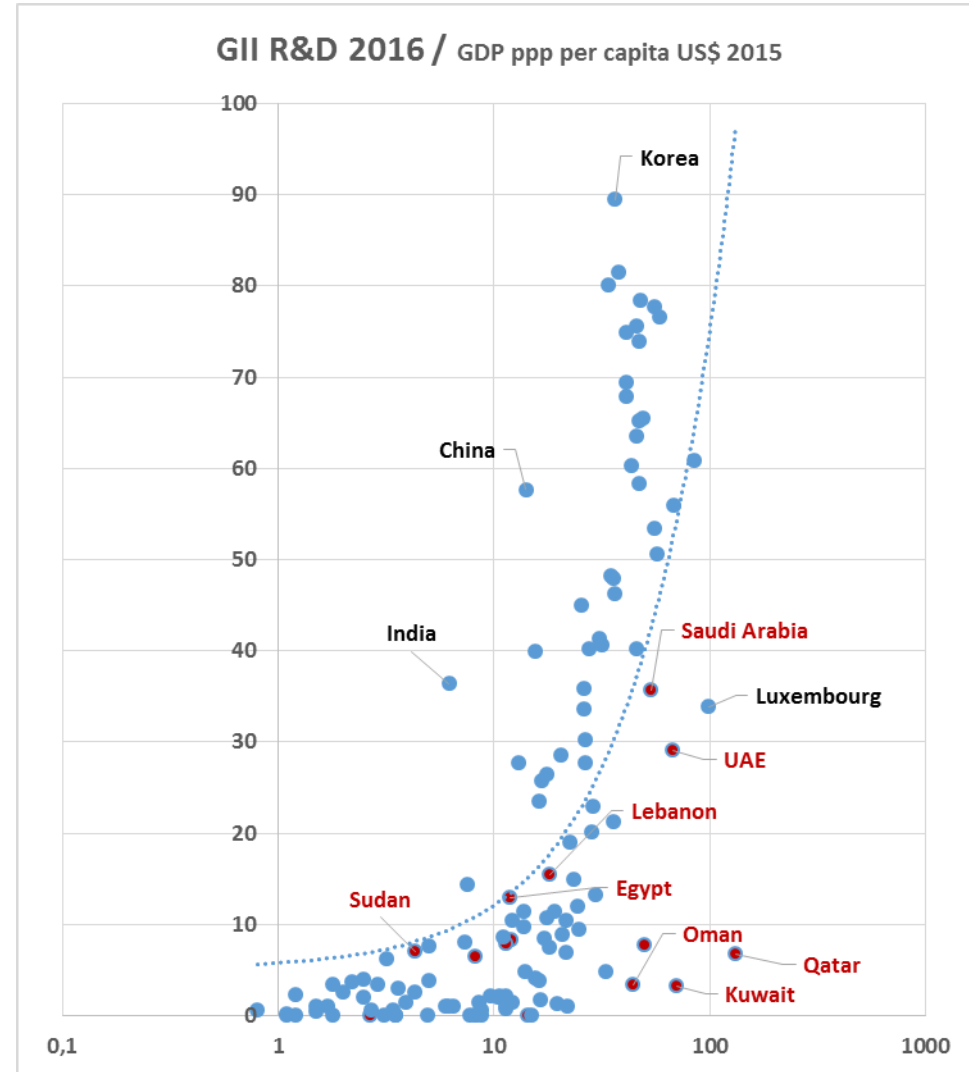
# Research and Development (GII) / GDP



# Innovation Pillar 2: Human Capital & Research

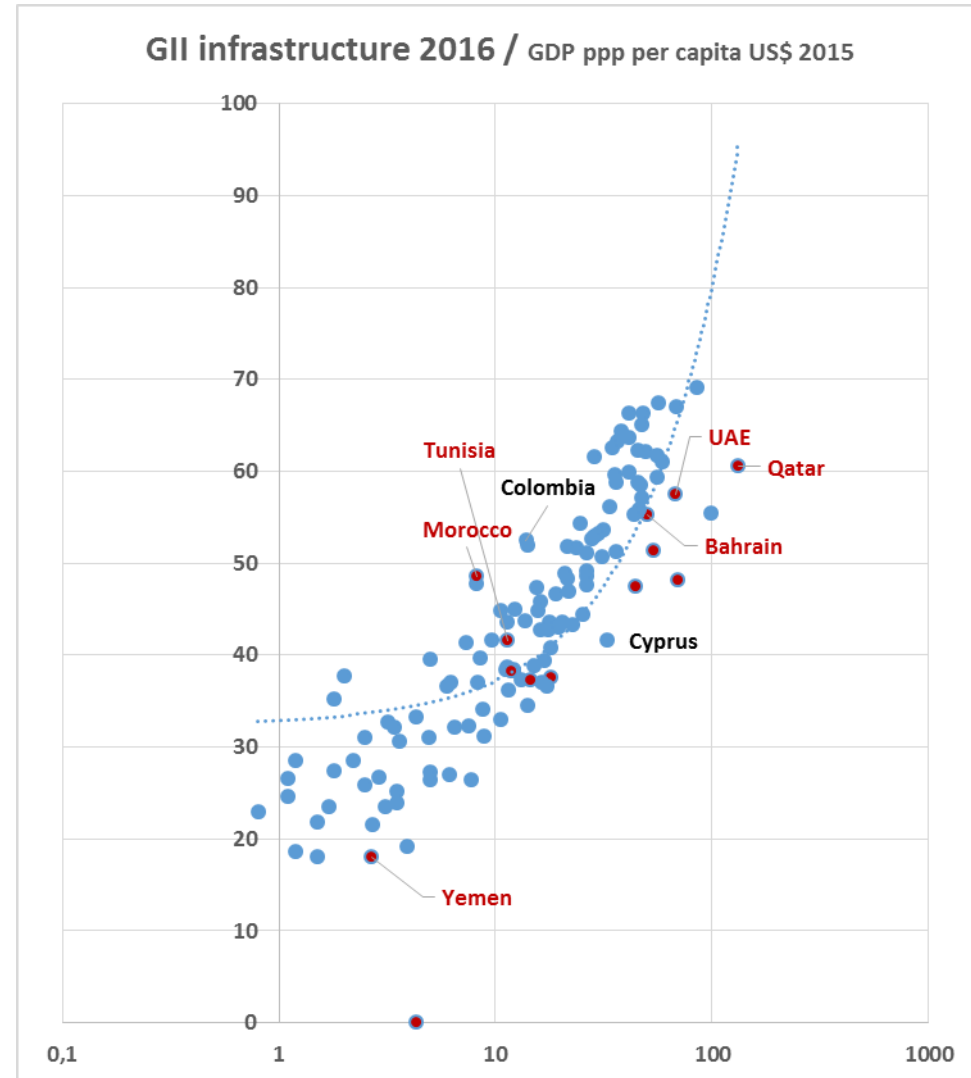
## R&D

- **Global behaviour**
  - Tend to around 0 for low income
  - Accelerate strongly with GDP/capita
  - Korea, China, India champions
- **Arab countries**
  - Gulf countries underperforming
  - Egypt, Lebanon, Sudan high on average
- **There is an issue concerning the second pillar of the Core engine !**



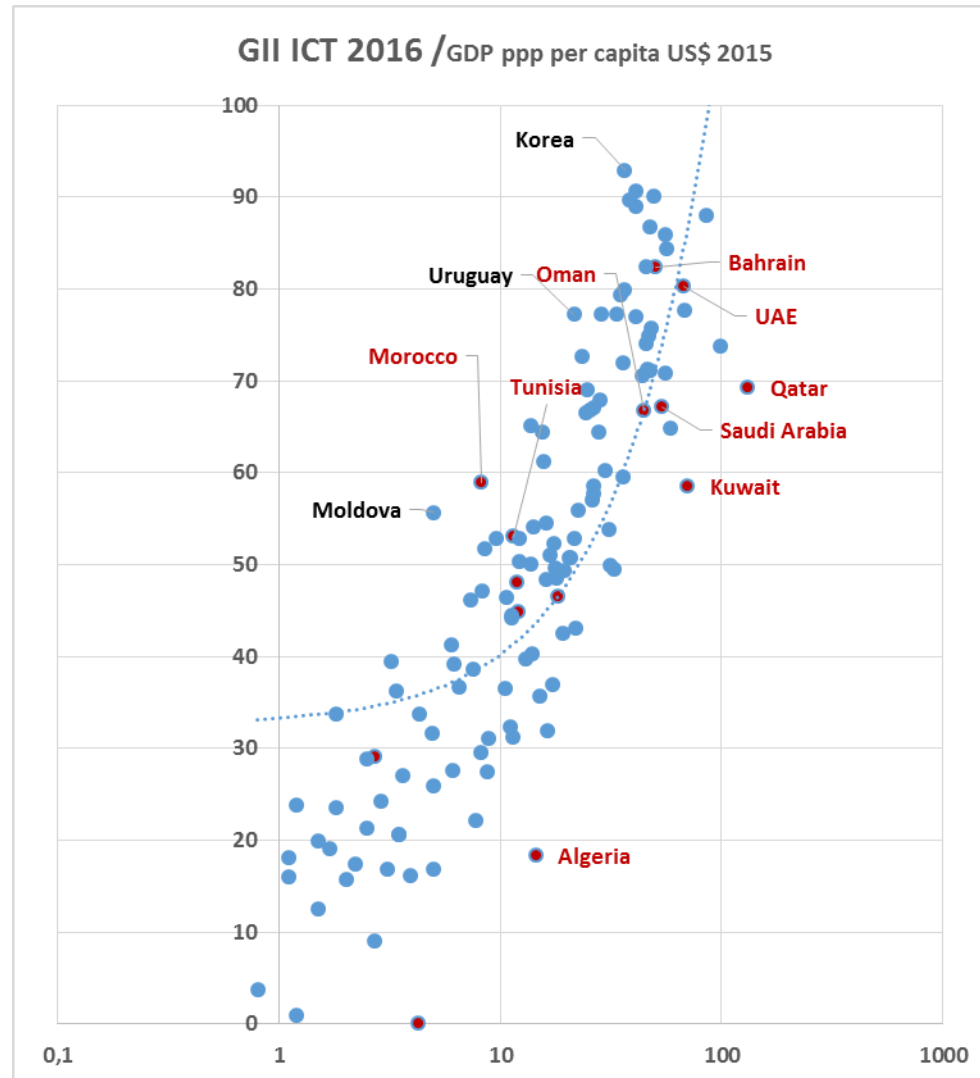
# Innovation Pillar 3: Infrastructure

- **Global behaviour**
  - Linear with GDP/capita
  - Low deviation with GDP growing
- **Arab countries**
  - Morocco champion
  - Most Gulf underperforming
  - Yemen underperforming
  - Other countries on average
- **Does that mean that infrastructures are acceptable?**



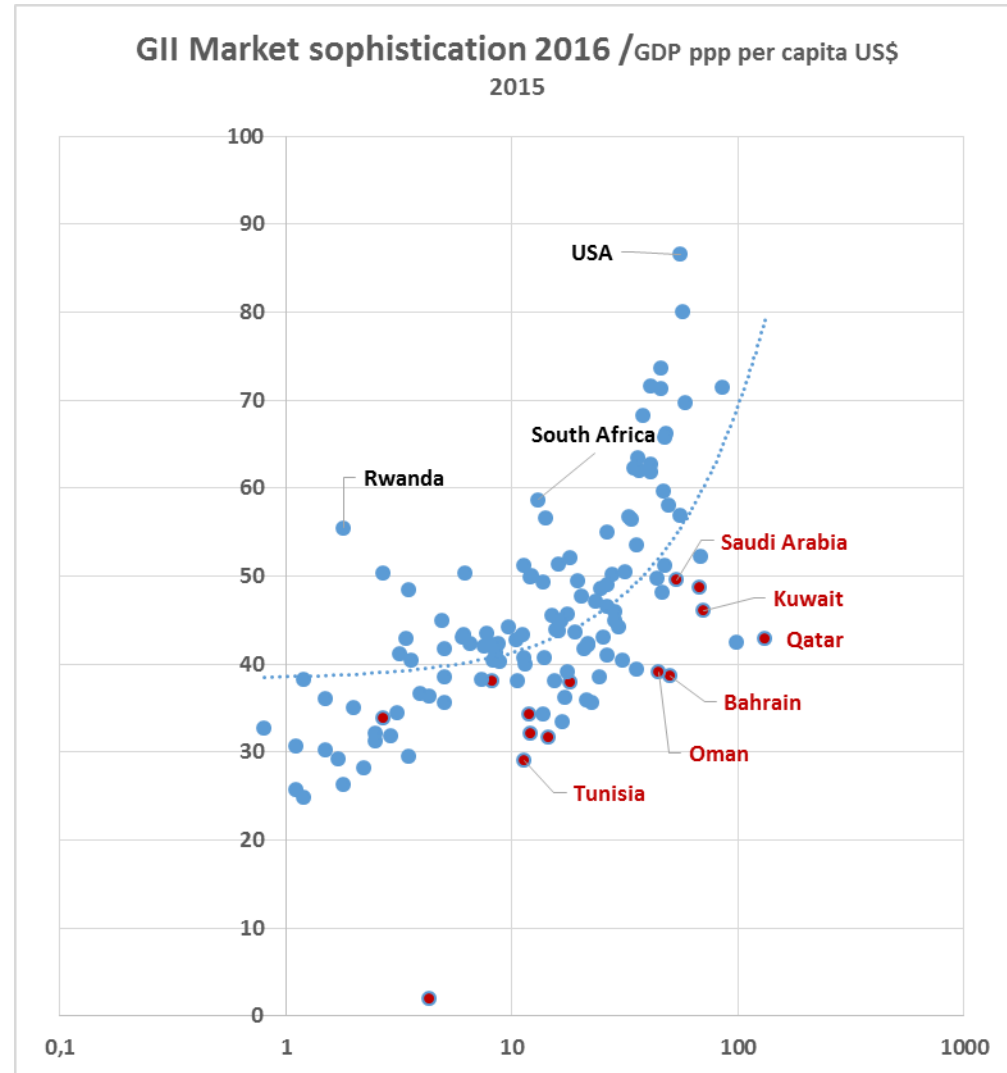
# Innovation Pillar 3: Infrastructure - ICTS

- **Global behaviour**
  - Tend to around 20 for low income
  - Linear with GDP/capita
  - Large deviations
- **Arab countries**
  - Morocco, Bahrain champions
  - Other countries on average
- Does that mean that ICTS infrastructure are acceptable in most Arab countries?



# Innovation Pillar 4: Market Sophistication

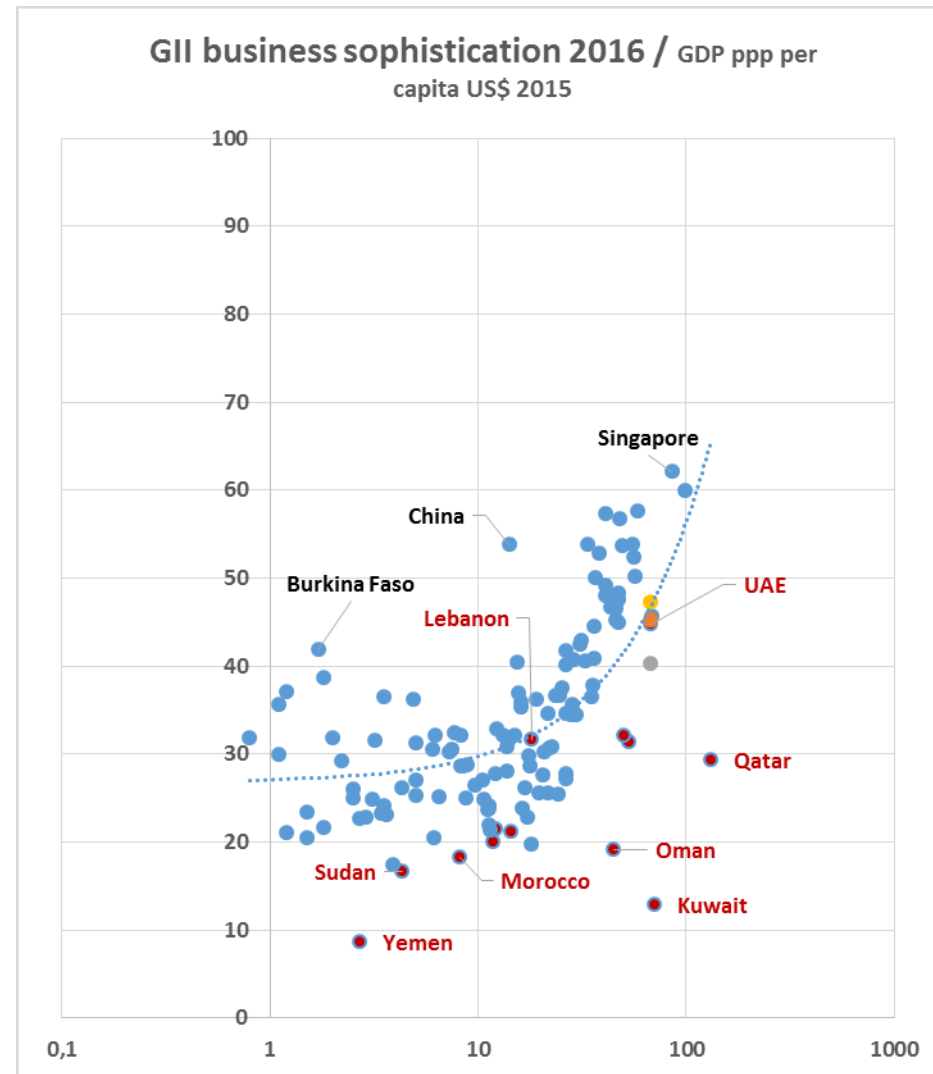
- 1. Credit, 2. Investment, 3. Trade, competition, market scale)
- **Global behaviour**
  - Tend to around 30 for low income
  - Accelerate with GDP/capita
  - Large deviations
- **Arab countries**
  - Tunisia, Oman, Bahrain, Kuwait, Qatar underperforming
  - Other countries on average
- **Weak economic environment?**



# Innovation Pilar 5: Business Sophistication

1. Knowledge workers
2. Innovation linkages
3. Knowledge absorption

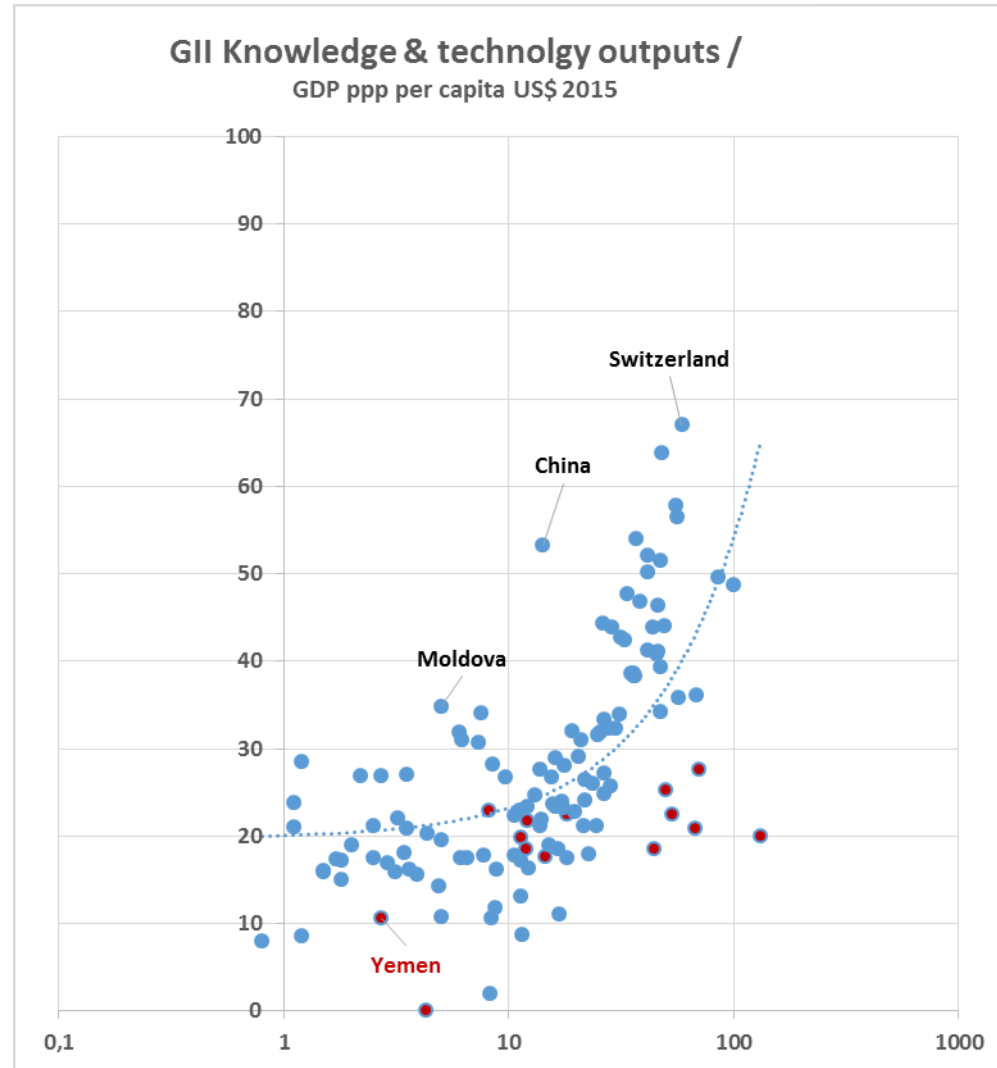
- **Global behaviour**
  - Tend to around 30 for low income
  - Accelerate with GDP/capita
- **Arab countries**
  - Underperformance, except Lebanon and UAE
- **The 3<sup>rd</sup> Core engine (industry, and Eco-system), supply side ?**



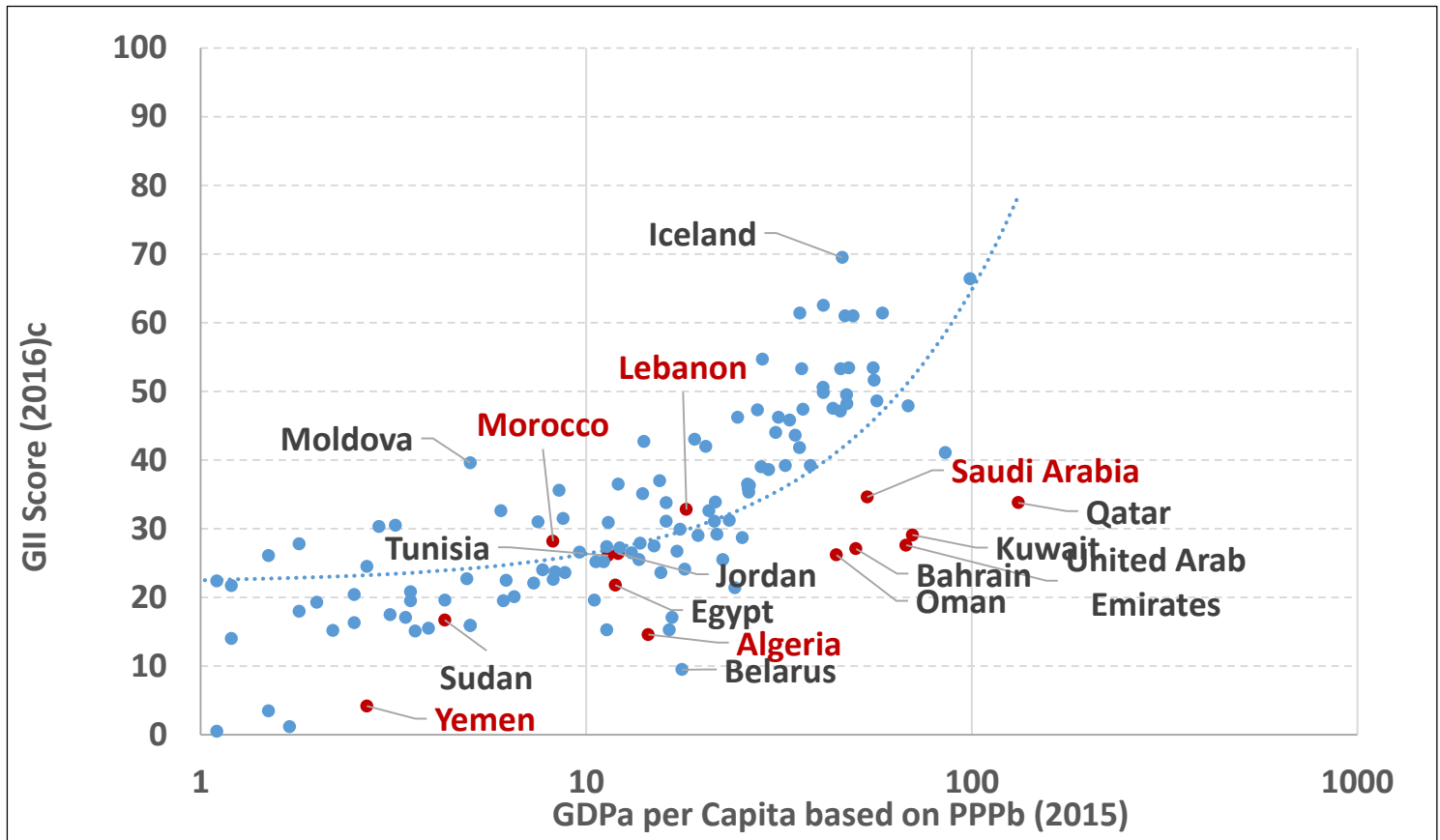


# Innovation Pillar 6: Knowledge & Technology output

- 3 topics
  1. Knowledge creation
  2. Knowledge impact
  3. Knowledge diffusion
- Global behaviour
  - Tend to around 20 for low income
  - Accelerate with GDP/capita
- Arab countries
  - GCC and Yemen underperforming
- The 3<sup>rd</sup> Core engine (industry, and Eco-system), supply side ?

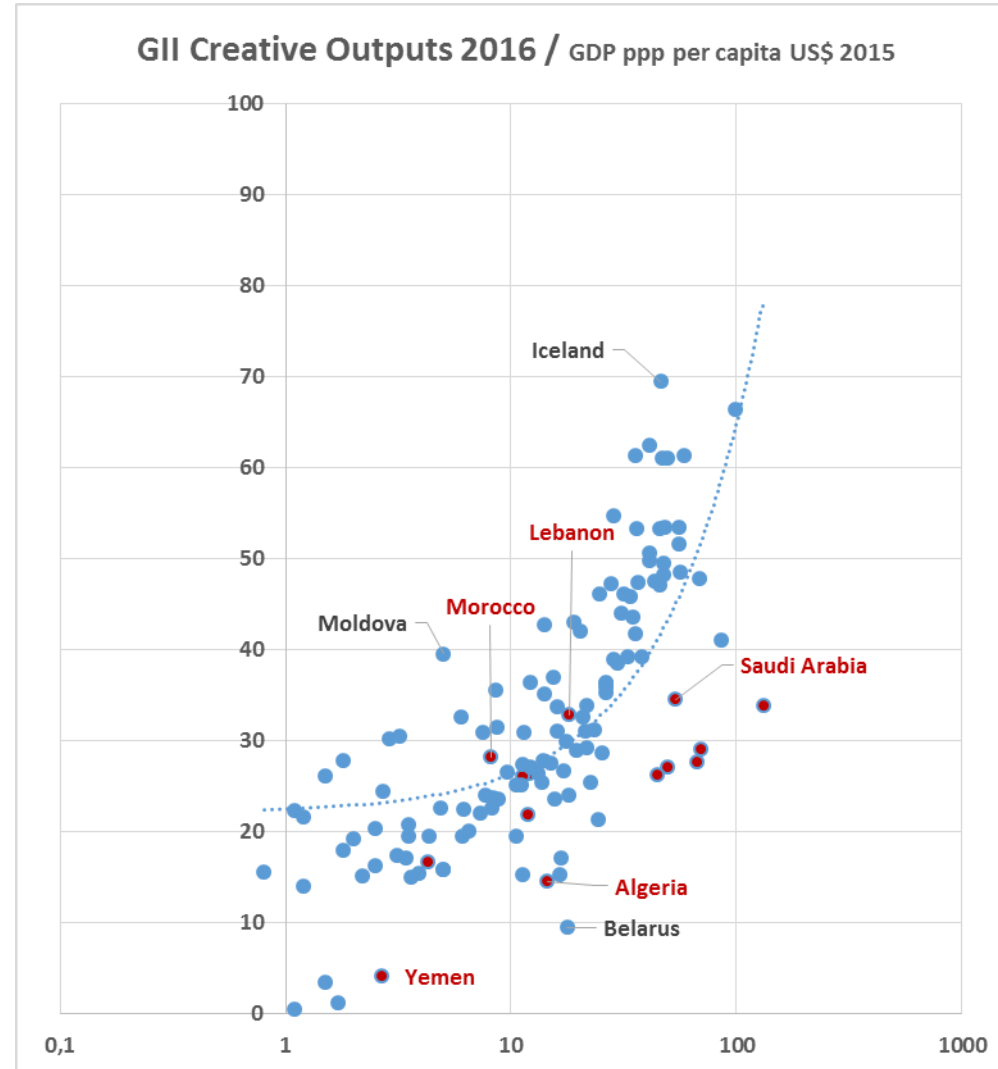


# Creative Output (GII) / GDP



# Innovation Pillar 7: Creative outputs

- **3 topics**
  1. Intangible assets
  2. Creative goods and services
  3. Online creativity
  
- **Global behaviour**
  - Tend to around 15 for low income
  - Accelerate with GDP/capita
  
- **Arab countries**
  - Yemen, Algeria underperforming
  - GCC underperforming
  - Other countries on average





## Part 2: Group Work

30 mn

- In each group, one or two participants, will inform the group members about selected aspects of the innovation landscape in her/his country (15 – 20 min)
- One person from each group will speak about the selected aspects of the innovation in his/her country to the whole groups ( 5 mn per group, total 30 mn)

# Case Studies : Jordan

- The Jordanian Higher Council for Science and Technology issued the National Innovation Strategy 2013-2017 in 2013.
- It is an action plan that tackles the interactions between universities, research and production sectors.
- It recognizes that *“there are several bodies concerned with innovation and each of them has its own orientations and activities within its programmes and plans.*
- The Strategy sets out the following priority sectors:
  - Medical services and pharmaceutical industries;
  - Information technology and telecommunications;
  - Education and career guidance services;
  - Architecture and engineering services;
  - Banking and financial services;
  - Clean technologies.

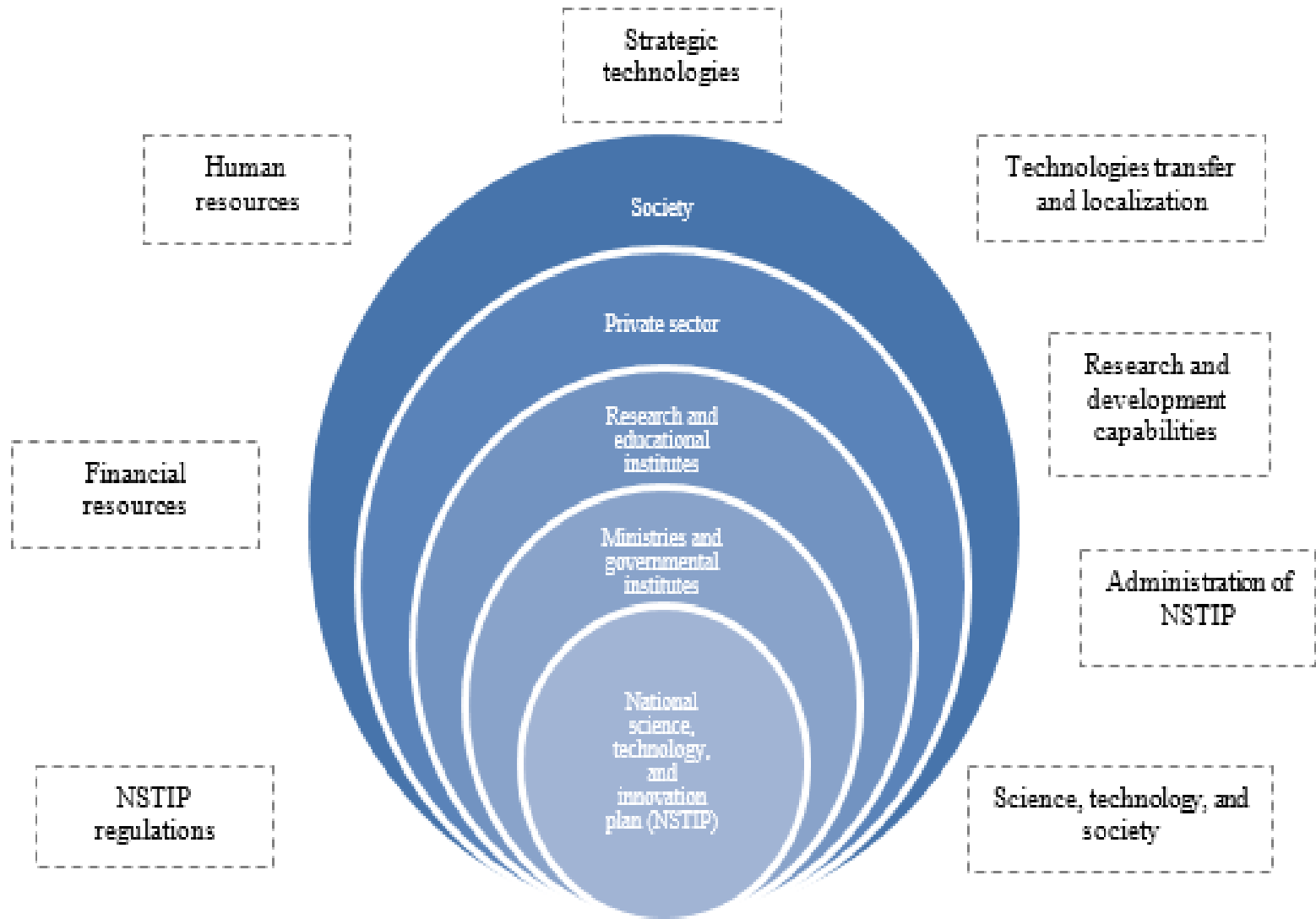
# Case Studies : Lebanon

- In 2006, the Lebanese “*Conseil National de la Recherche Scientifique*” developed, with the assistance of UNESCO and ESCWA, a plan for a STI policy.
- In 2012, the Ministry of Education and Higher Education launched a national strategic plan on educational technology in Lebanon to address human resources issues.
- The Central Bank in Lebanon has launched interesting initiative for promoting Innovation and entrepreneurship in Lebanon (circular 331).
- The Lebanese national innovation system is a market free system, with little intervention from the Government, except for the significant financial and promotional involvement of the Lebanese Central Bank

# Case Studies : KSA

- The National Policy for Science, Technology and Innovation was adopted by the Council of Ministers in 2002 to transform the country into a knowledge-based economy.
- It sets out 15 programmes for the localization and development of strategic technologies essential to the future development of Saudi Arabia.
- The Policy finances research and innovation activities, mainly in universities and large companies.
- It calculated the total GERD for 2008 at 0.4 per cent of GDP, around half of which was from the private sector – much below the target of 2 per cent forecast for 2024.

# National Policy for Science, Technology and Innovation in KSA





# Case Studies : UAE



- In 2014, the Emirati Government launched the UAE Vision 2021, with 12 targets for a competitive KE:
  - To increase the non-oil real GDP growth to 5 per cent;
  - To raise gross national income (GNI) per capita to be among the top 10 countries globally;
  - To increase net inflow of foreign direct investment as a percentage of GDP to 5 per cent;
  - To rank among the top 10 countries worldwide in the Global Competitiveness Index;
  - To rank the county first in the Ease of Doing Business Index;
  - To double the number of Emirati nationals in the workforce;
  - To increase ten-fold the Emiratization rate in the private sector;
  - To increase to 70 per cent the contribution of small and medium enterprises to non-oil GDP;
  - To rank the country among the top 10 in the Global Entrepreneurship and Development Index;
  - To rank the country among the top 20 in the Global Innovation Index;
  - To double the share of “knowledge workers” in the labour force;
  - To triple the value of GERD as a percentage of GDP.
-

## Part 3: Key Issues for the Innovation Landscape in the Arab countries

- The analysis show that **there is a move towards imbedding innovation development** beyond ICT infrastructure and knowledge-based economies in the Arab countries.
- **Significant differences** exist in the way Arab countries define innovation strategies and landscapes, and in their formulation of visions and policies to implement those strategies.
- Most countries have made **no, little or partial improvements** in their GII rankings between 2011 and 2016.
- Some key issues should therefore be addressed to advance innovation strategies and landscapes.

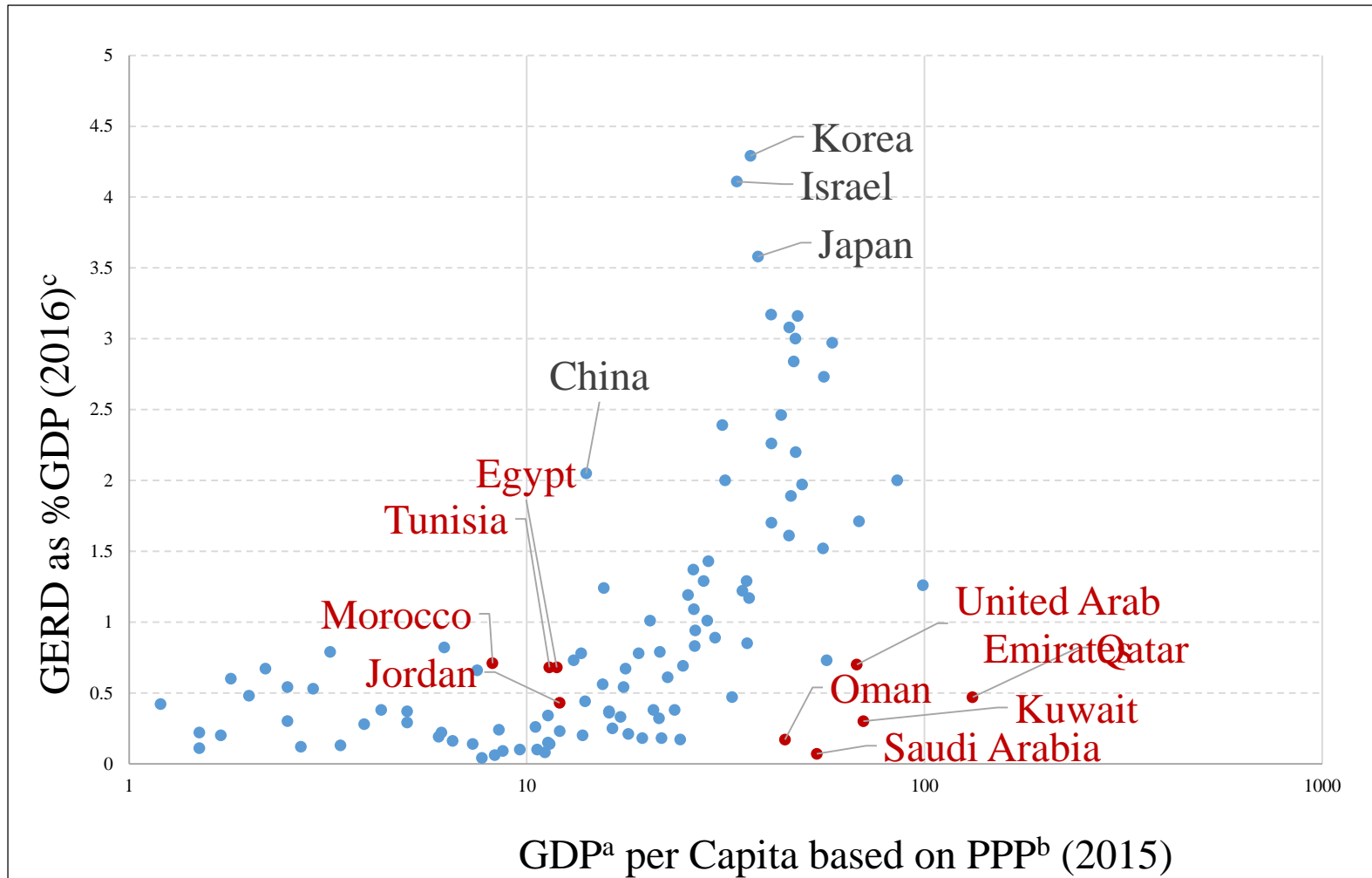
# Part 3: Key Issues for the Innovation Landscape in the Arab countries



## National Vision and the Core Engine

- **Visions often lack focus** on ways to fuel the core engine of an innovation landscape, i.e. partnerships
- **All Arab countries' GERD is below 1 per cent**, and most are below 0.5 per cent. Morocco has the highest level at 0.71 per cent.
- Ex: The Egyptian constitution sets out a target of 1 per cent compared with its current level of 0.68 (around 92% financed by government)
- Ex: The United Arab Emirates is aiming for 1.5 per cent compared with its present level of 0.7 per cent (74% financed by business)
- **Innovation policy should direct the investment for GERD**

# Part 3: Key Issues for the Innovation Landscape in the Arab countries



# Part 3: Key Issues for the Innovation Landscape in the Arab countries

## TARGETING AND REFORMING

- **Developing a vision** for a country's innovation strategy and landscape necessitates **developing effective sub-indexes and measures**, while monitoring progress in implementation.
- The main target indexes must result from a **detailed analysis of the structure of a national innovation system** and of the necessary reforms at all levels.

# Part 3: Key Issues for the Innovation Landscape in the Arab countries

## INNOVATION AND ECONOMIC DEVELOPMENT

- Innovation should address how the whole **economy adapts to globalization.**
- An innovation strategy is needed to **foster innovation within enterprises** – international companies, local large firms, or small and medium enterprises.
- The innovation policy should :
  - Incite large multi-national firms to **localize research** and development activities in the country,
  - Encourage **local firms** to establish research and development partnerships with local research centres,
  - **Foster innovation across the whole spectrum of SMEs formal and informal.**

# Part 3: Key Issues for the Innovation Landscape in the Arab countries

## INNOVATION AND SOCIAL DEVELOPMENT

- Innovation vision is developed to **ensure the welfare of a country's population.**
- Innovation policies should focus on **education, healthcare, the environment, water scarcity, clean energies, and urban development.**
- Special attention must be given to two main characteristics of Arab societies: the **“youth tsunami”** and **“non-citizens”**.
- Innovation strategies should focus on **creating decent, formal and innovative job opportunities for young people**, so as to avoid the **“brain-drain”** of the educated people.

# THANK YOU!

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# ESCWA Framework for Innovation

