

# Digital Competences: Comparing Advanced Countries with Developing Countries

Carol Y.Y. Lin

National Chengchi University

**Artificial intelligence and the next generation of competences :**  
***How Digital – and Artificial Intelligence will impact jobs and competences profiles?***

**The World Conference on Intellectual Capital for Communities**

**UNESCO, 11 & 12 July 2019**

# Data Source

- IMD database
- Spanning 2010 – 2017
  - Cyber security data starts from 2011
  - Broadband subscribers does not have 2017 data
- For 9 countries and 6 indicators

# Comparing Nine Countries

## Nordic

Denmark

Finland

Sweden

## West Europe

France

Germany

U.K.

## Developing

China

India

Indonesia

## Cyber Security –

Cyber security is being adequately addressed by corporations

## Investment in Communication –

Percentage of GDP

## Communication Technology –

Voice and data meet business requirements

## Broadband Subscribers –

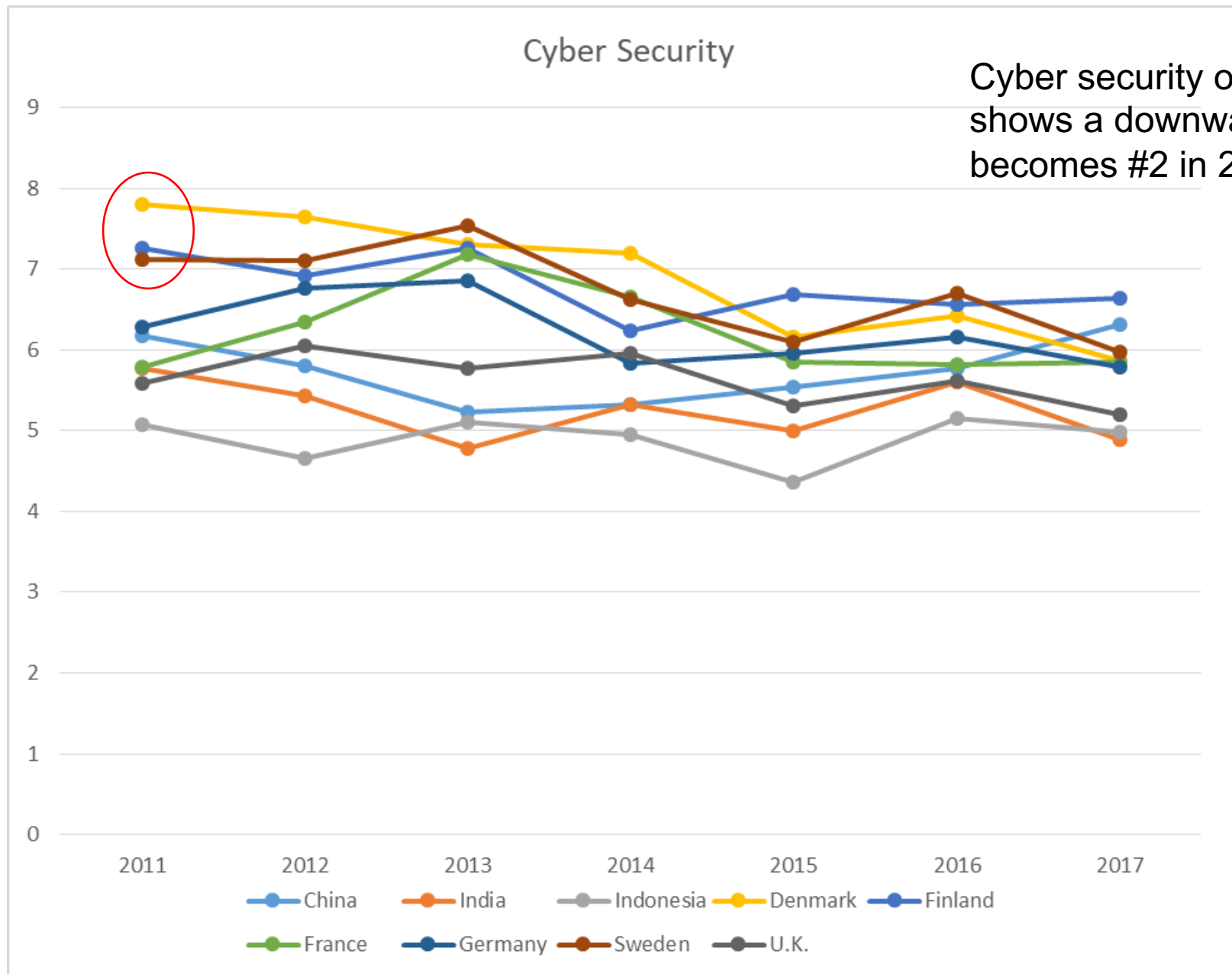
Number of subscribers per 1000 inhabitants

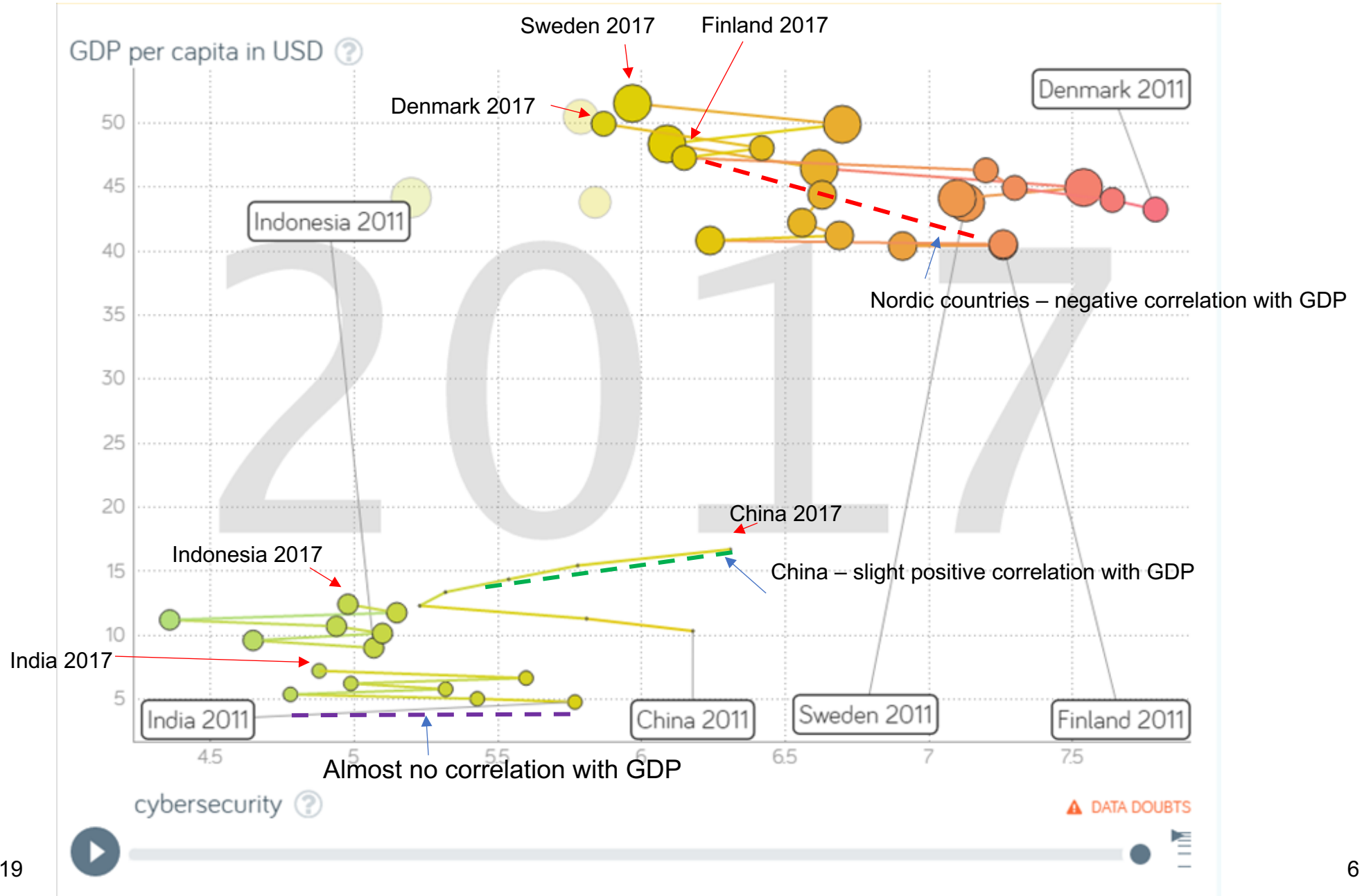
## Digital Technology Skills –

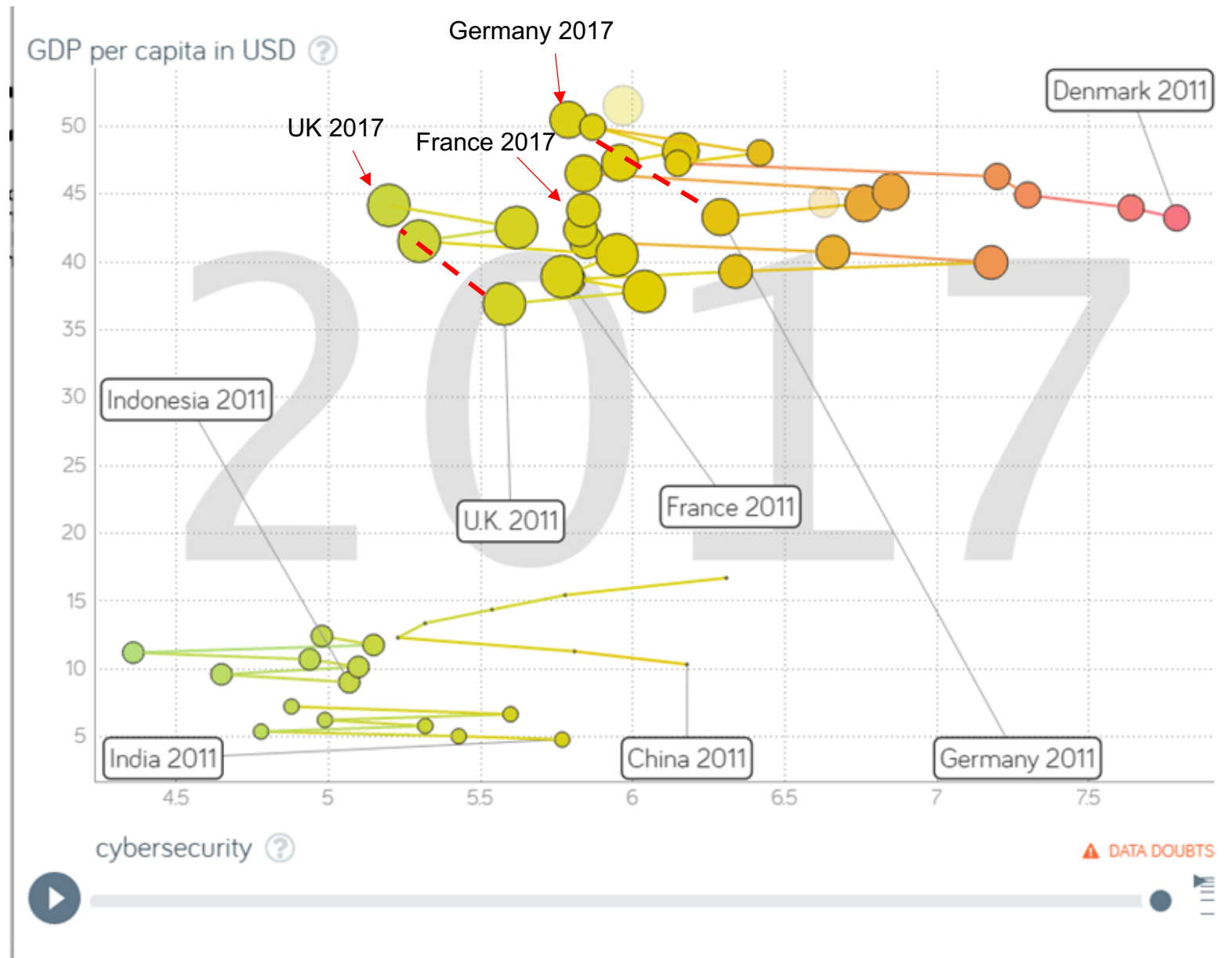
Digital/Technological skills are readily available

## Development and Application of Technology –

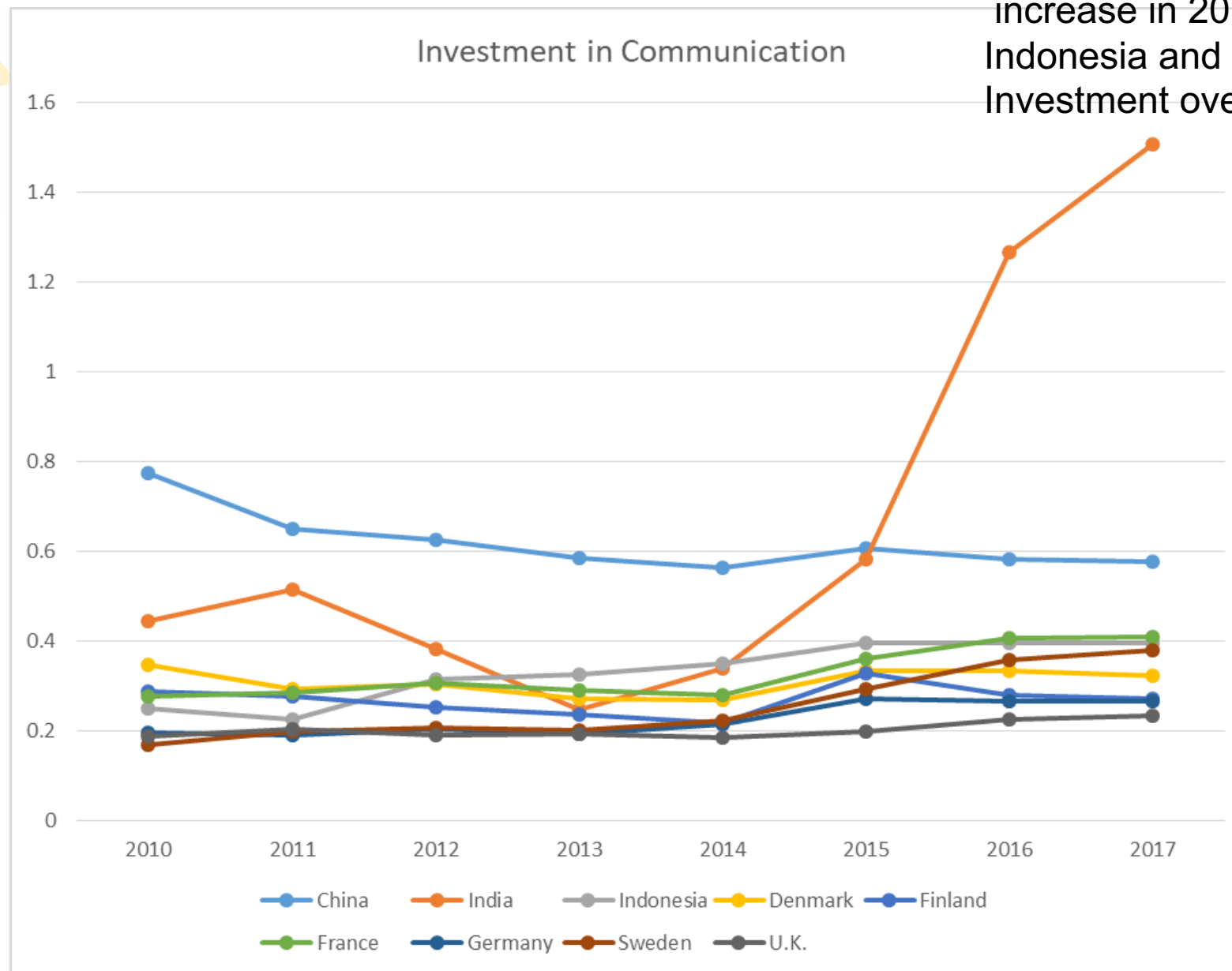
Development and application of technology are supported by the legal environment



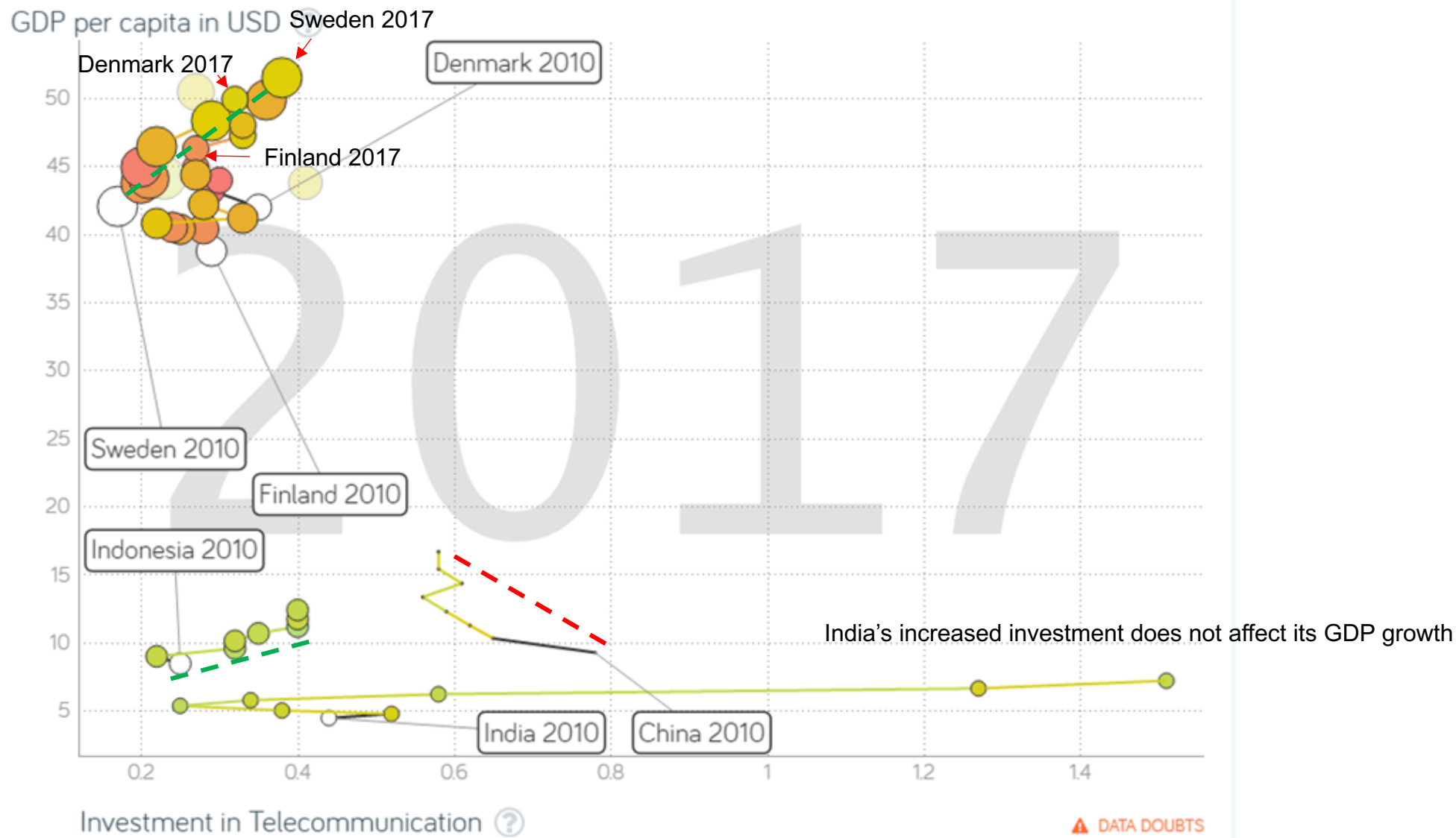


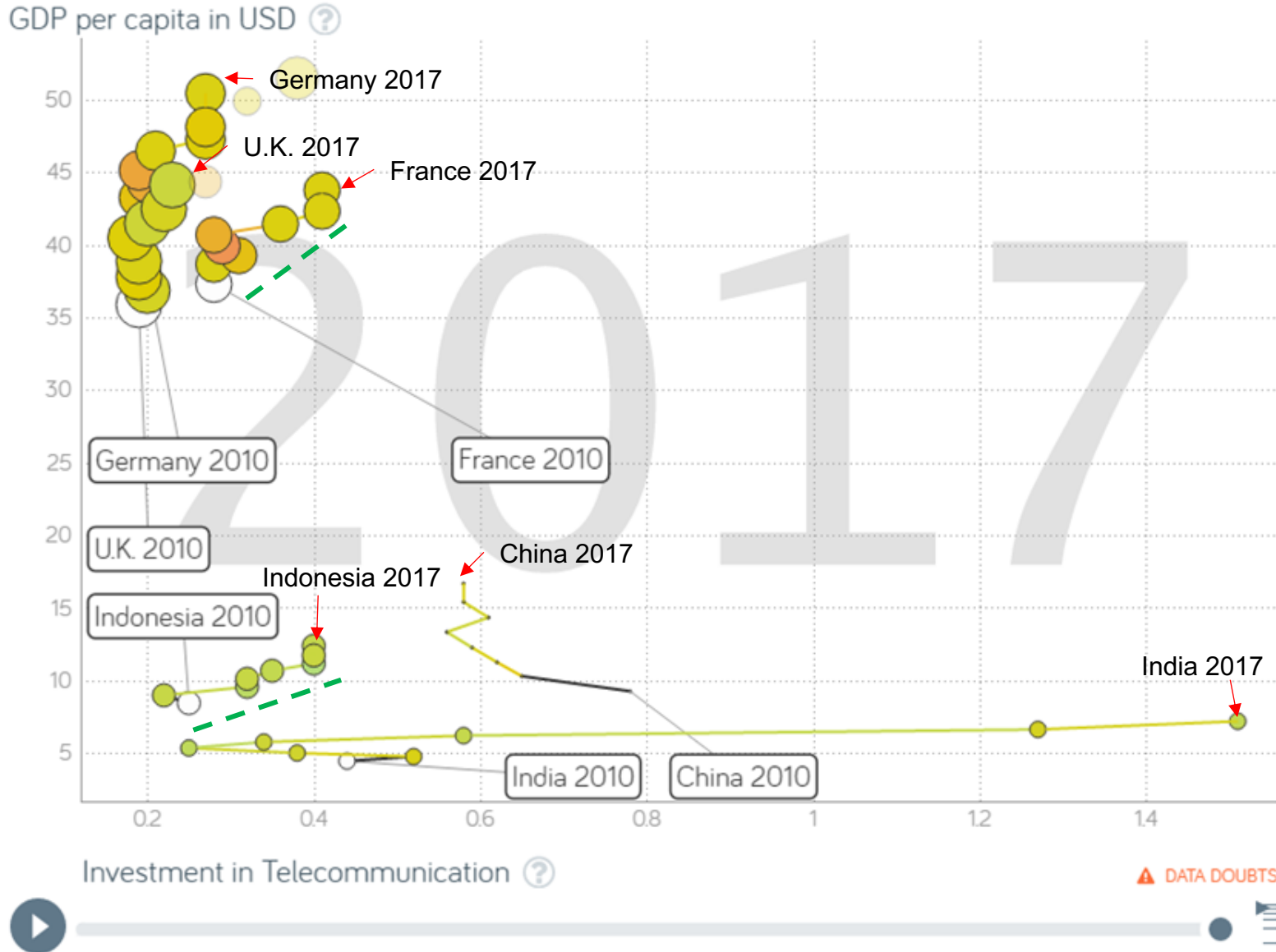


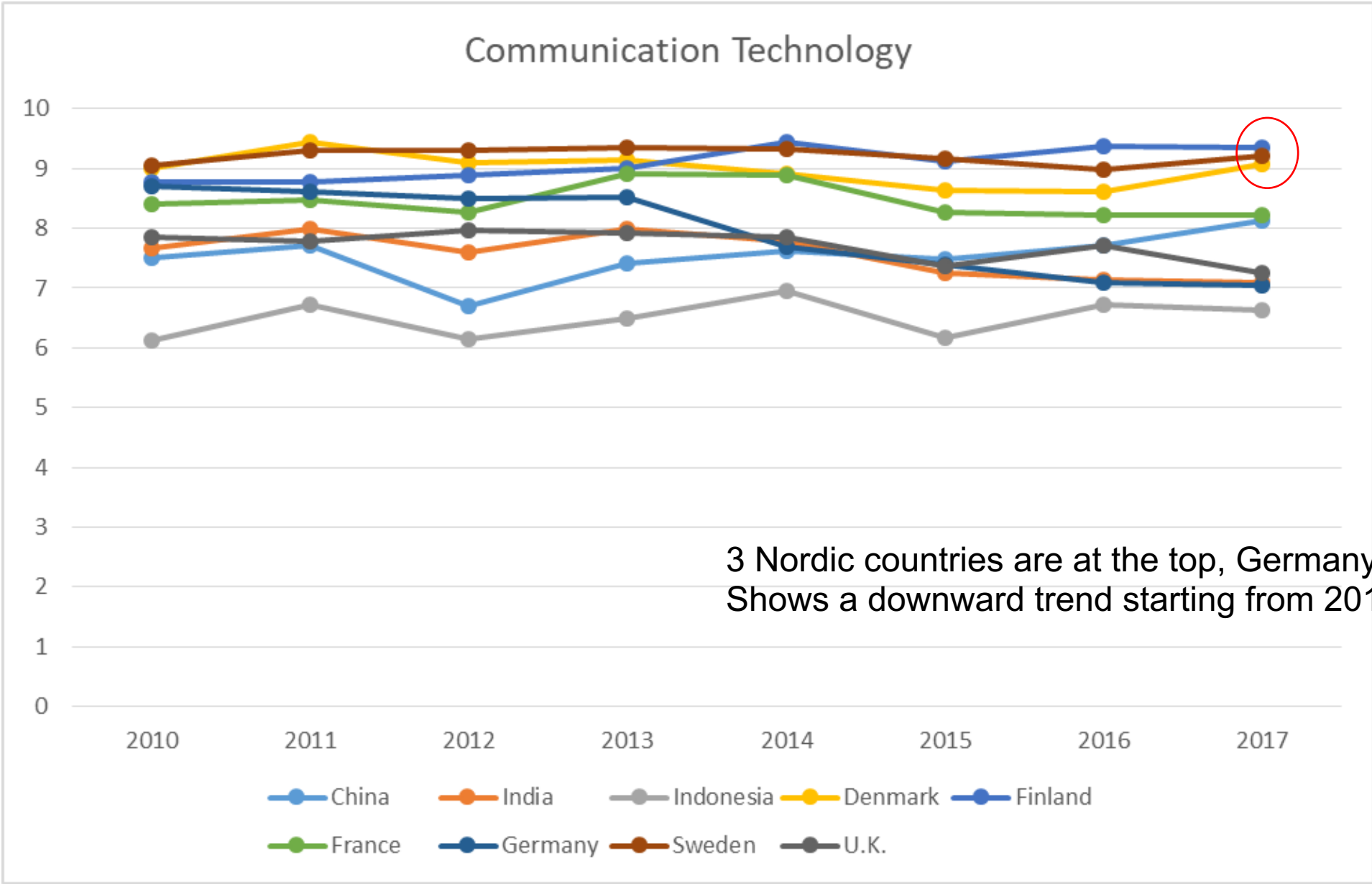


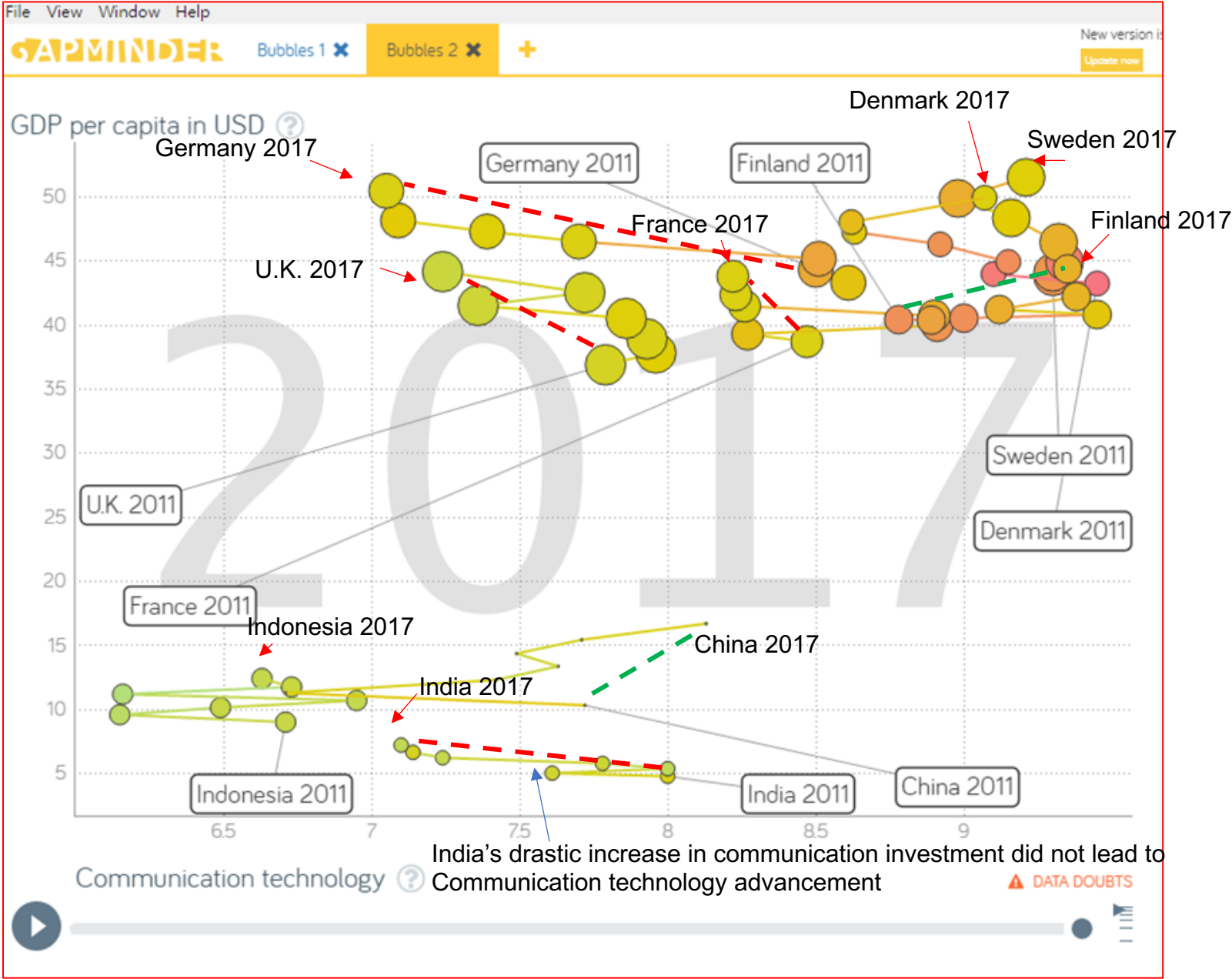


India's investment shows drastic increase in 2016 & 2017. France, Indonesia and Sweden increases their Investment over the year. UK invested the least



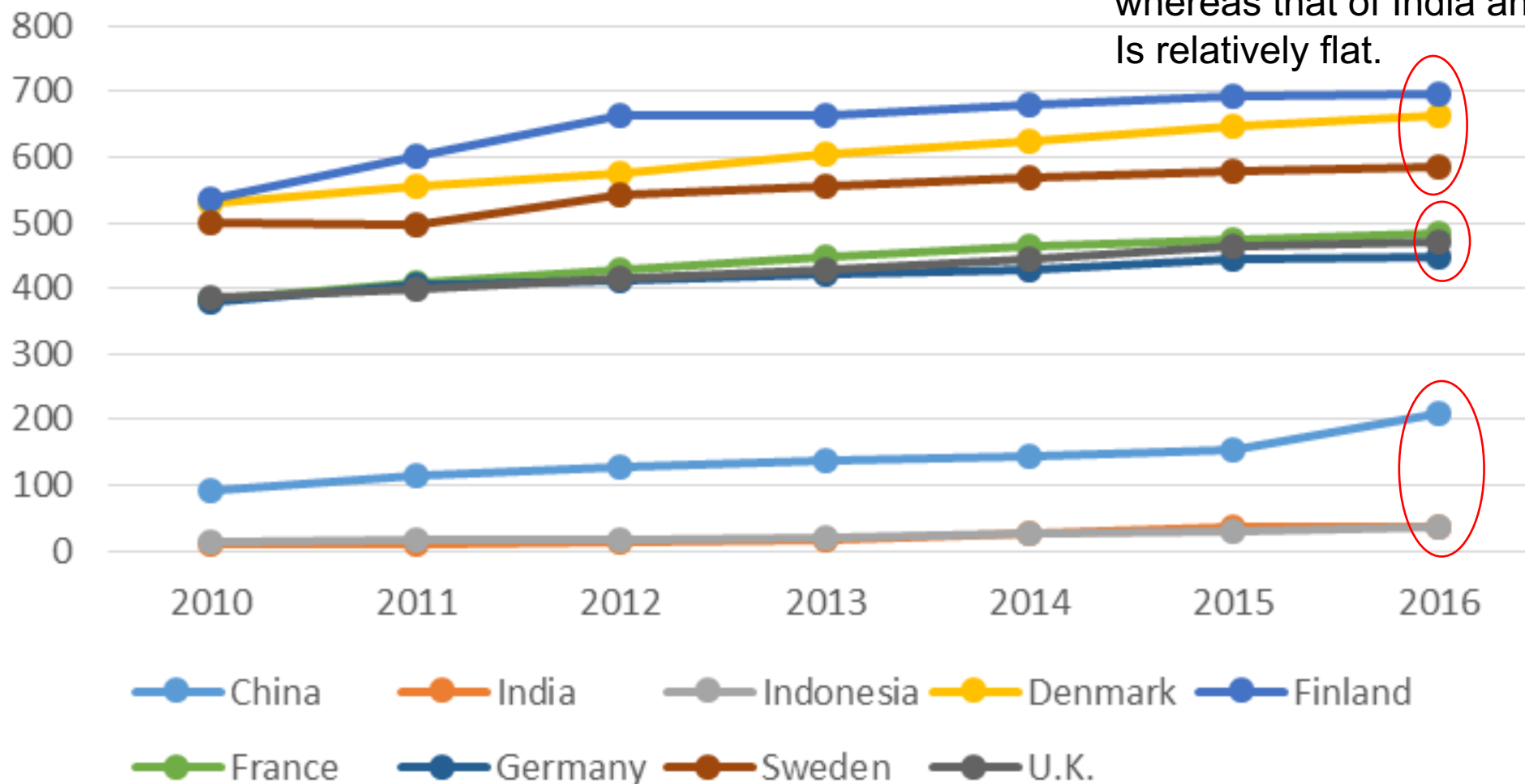


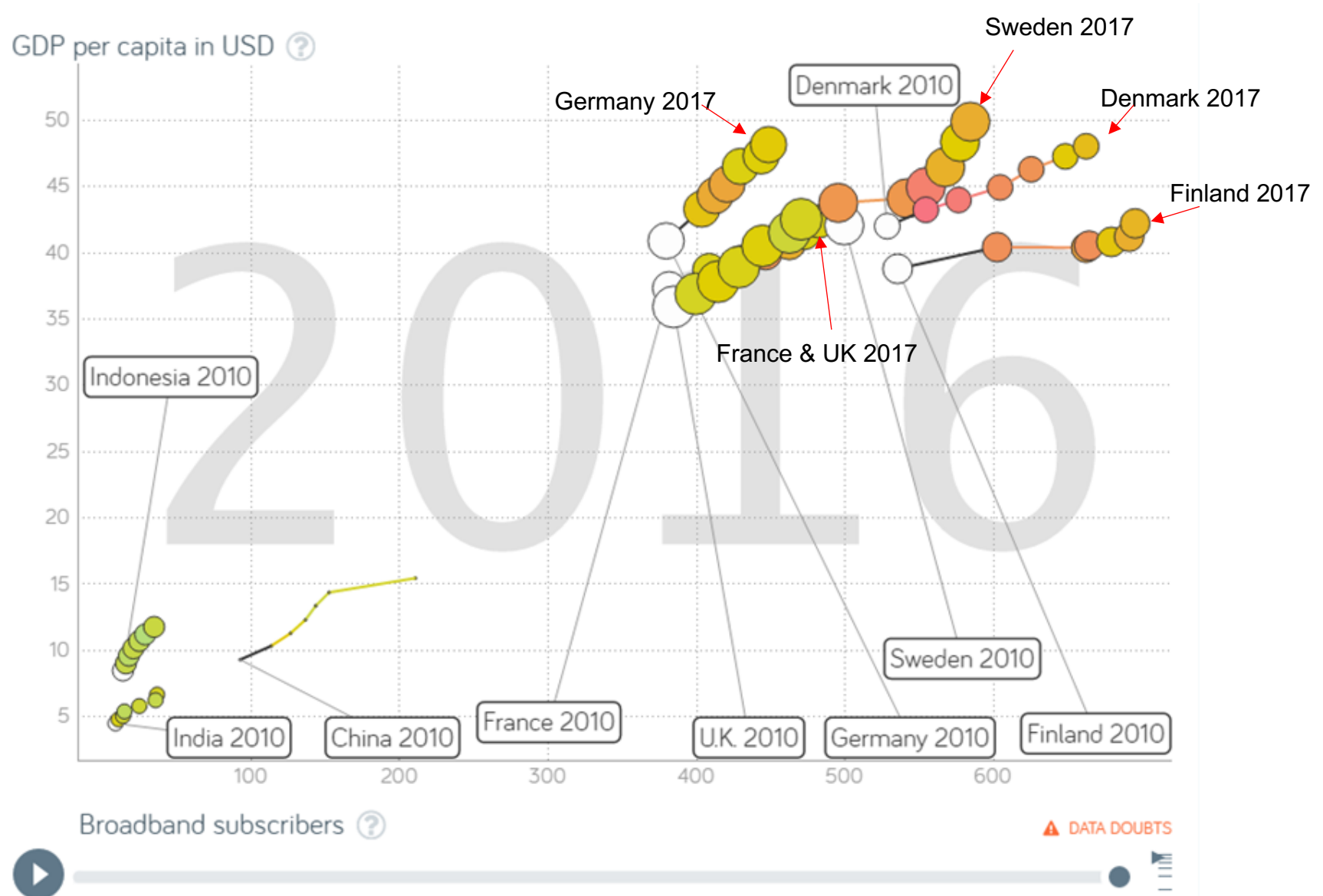




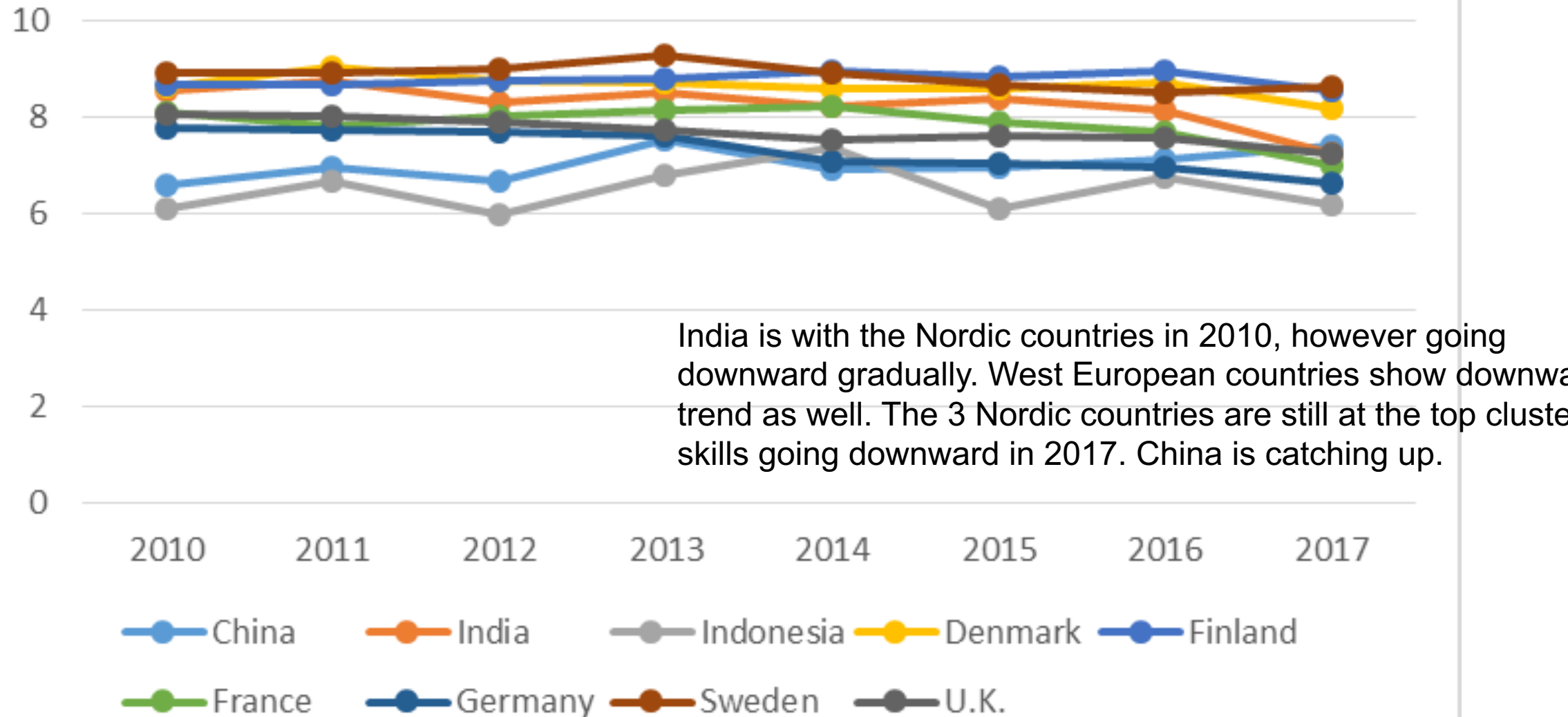
## Broadband subscribers

This graph shows 3 distinctive clusters, all with upward trend. China has more aggressive growth, whereas that of India and Indonesia is relatively flat.

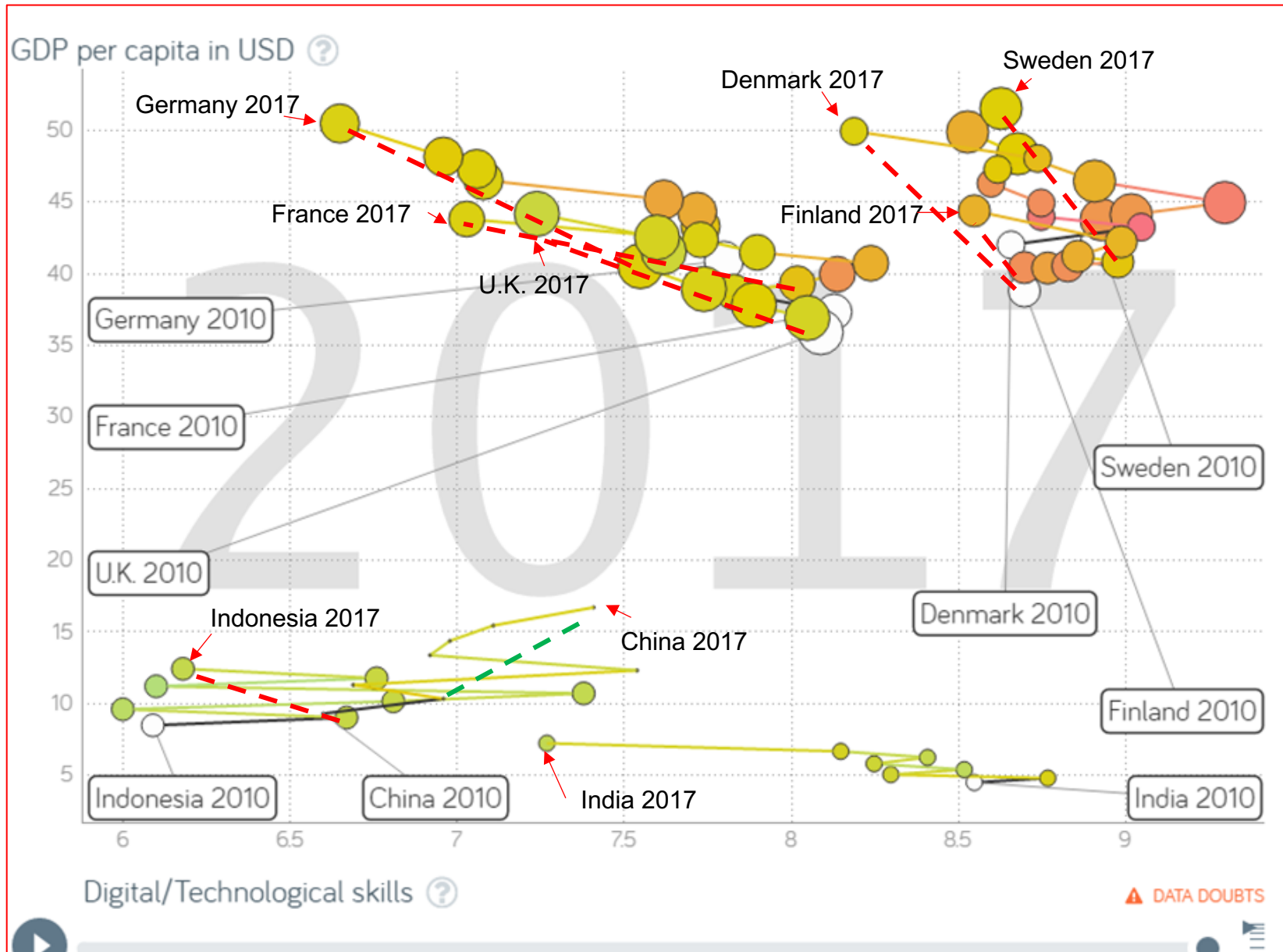




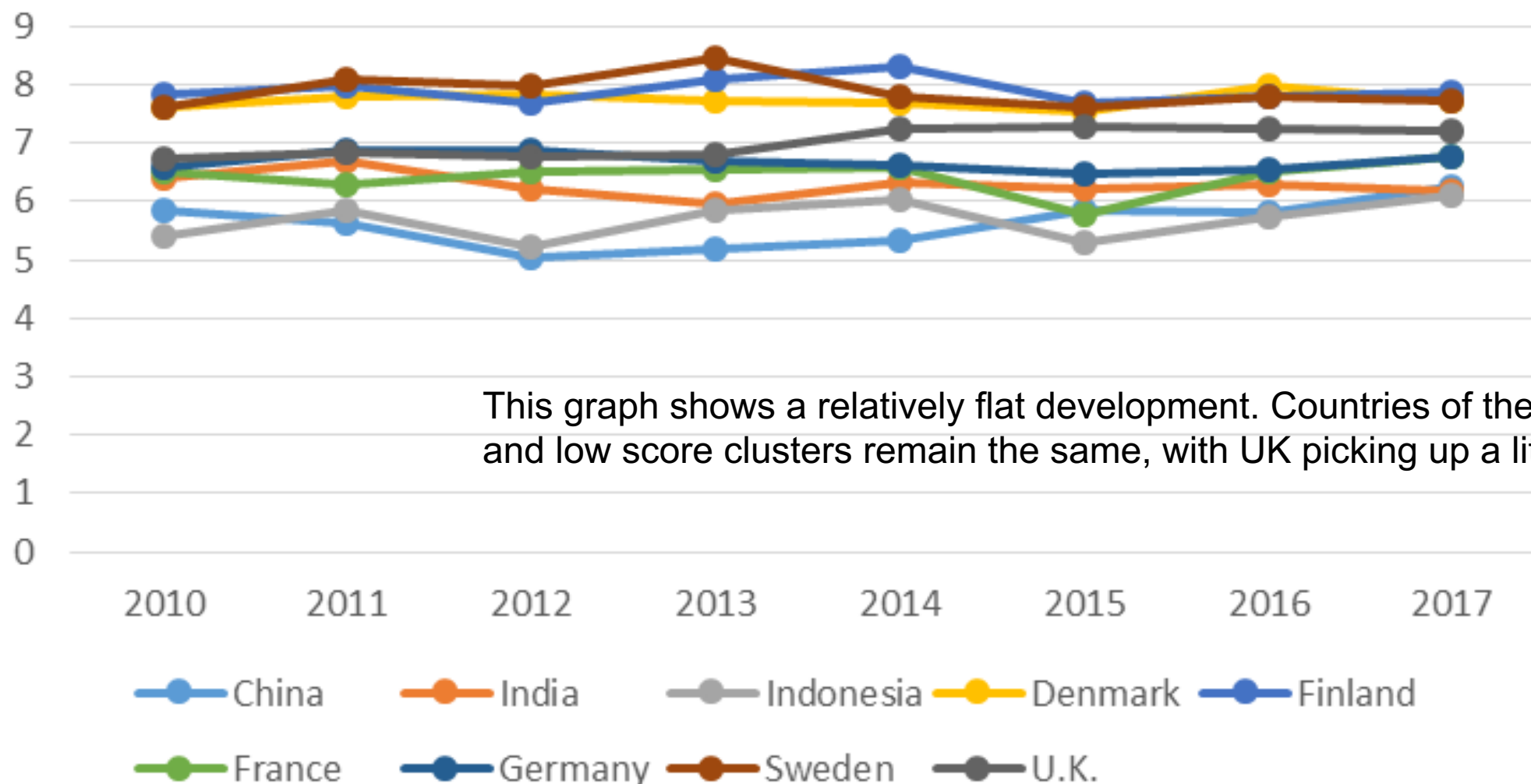
## Digital Technology Skills

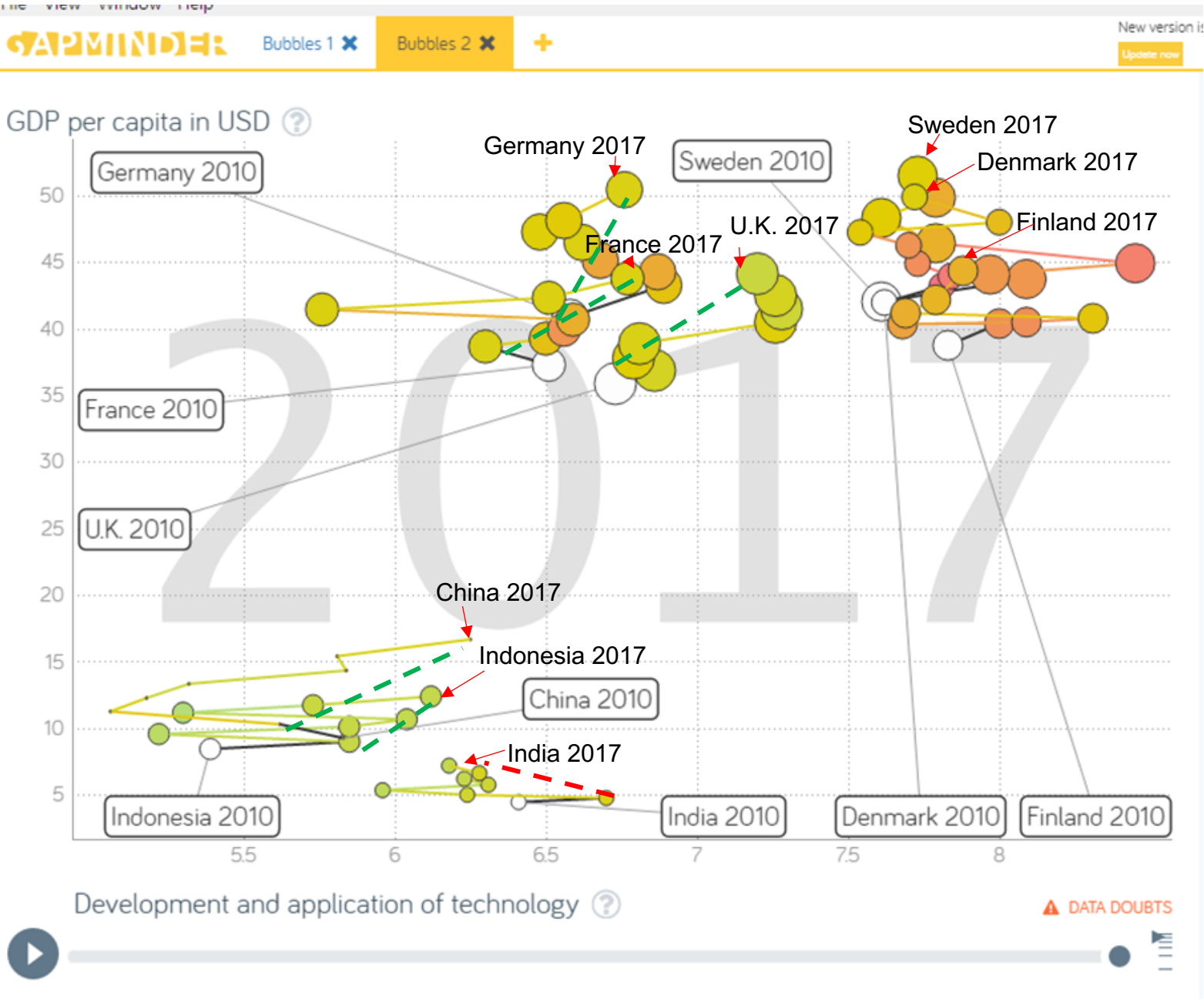






## Development and Application of Technology





- Slide #6 shows that **cybersecurity** of the Nordic countries has a negative correlation with their GDP growth
- Slide #8 and #12 show that India's drastic increase in **communication investment** did not lead to **communication technology** advancement
- Slide #12 shows that France, Germany and U.K. show regress in their **communication technology** over the 7 years (2011-2017)
- Slide #14 shows that **broadband subscribers** of all the nine countries have positive correlation with their GDP growth
- Slide #16 shows that all the countries had decreased **digital technology skills**, except China
- Slide #18 shows that the **development and application of technology** of the Nordic countries do not have much change over the 7 years, those of the 3 West European, China and Indonesia have positive correlation with their GDP growth. Yet, that of India has a negative correlation with its GDP growth.



Intellectual Capital  
for Communities  
In the Knowledge  
Economy

By Carol Y.Y. Lin, Leif Edvinsson, Margaret Consunji



TICRC



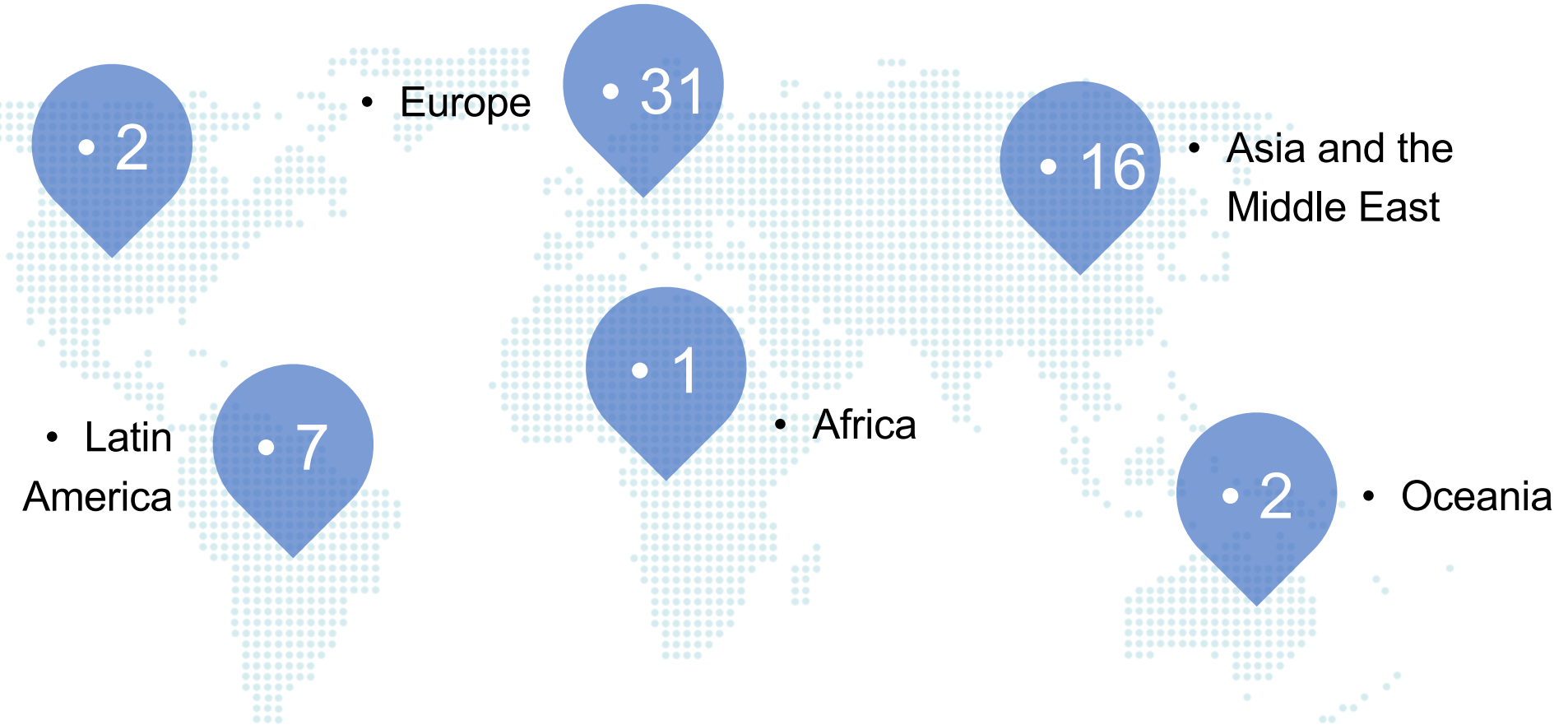
National Intellectual Capital Yearbook

2018



*National  
Intellectual  
Capital Yearbook*





## • 59 COUNTRY PROFILES

- The selection of country profiles covers a wide range of countries across all continents. Each profile goes over the impact of the global recession, recent economic developments, and the current state of innovation and competitiveness

# TOPICS COVERED



- **Brief Introduction**
- Short introduction to the country's economy



- **Impact of the Global financial Crisis (GFC)**
- Effects of the GFC, and how countries responded to it



- **Recent Developments**
- Important events and recent economic developments from 2016-2018



- **R&D and Innovation**
- Discusses the capacity for innovation, as well as barriers to innovation (R&D intensity, education, digital skills, etc.)



- **Competitiveness**
- How the country fares in terms of providing a more conducive environment for business and investment

# Cluster 7: Austria, Belgium, Luxembourg, Netherlands, Switzerland

## Sample graphs

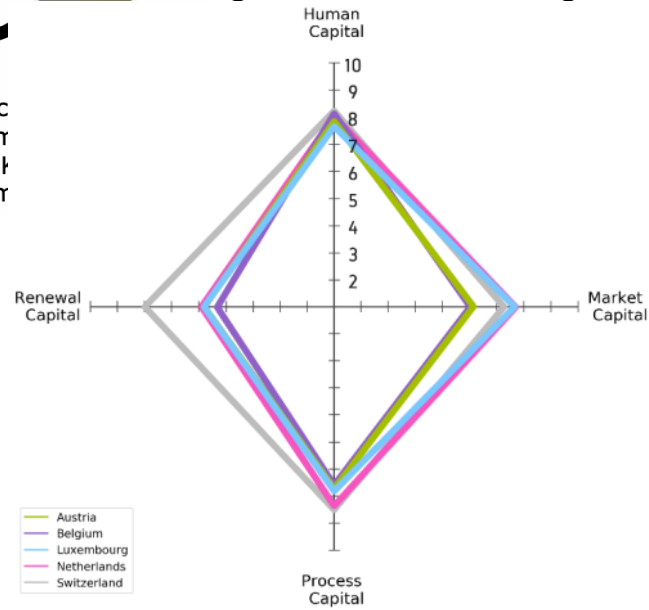


Figure 7.1: Cluster 7 overall NIC scores

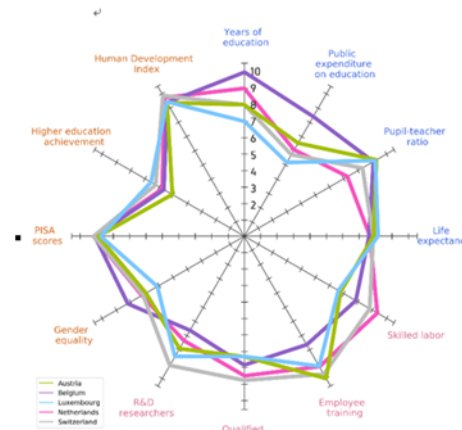


Figure 8.2: Cluster 8 Human Capital indicator scores

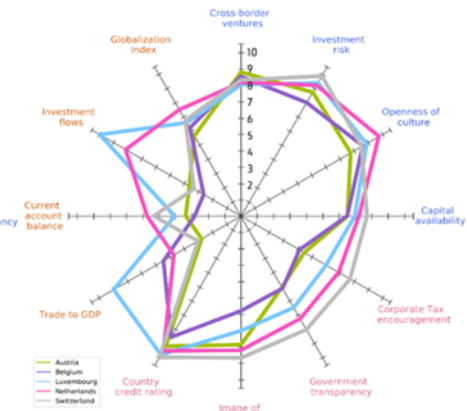


Figure 8.3: Cluster 8 Market Capital indicator scores

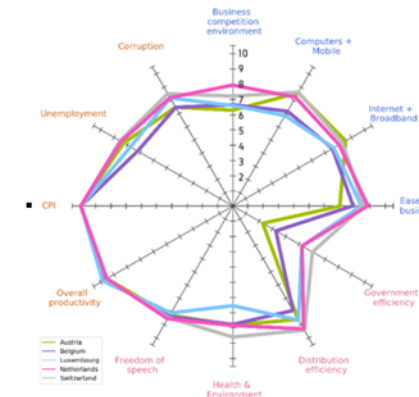


Figure 7.4: Cluster 7 Process Capital scores

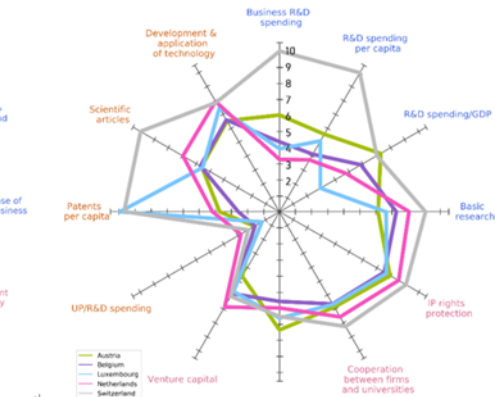
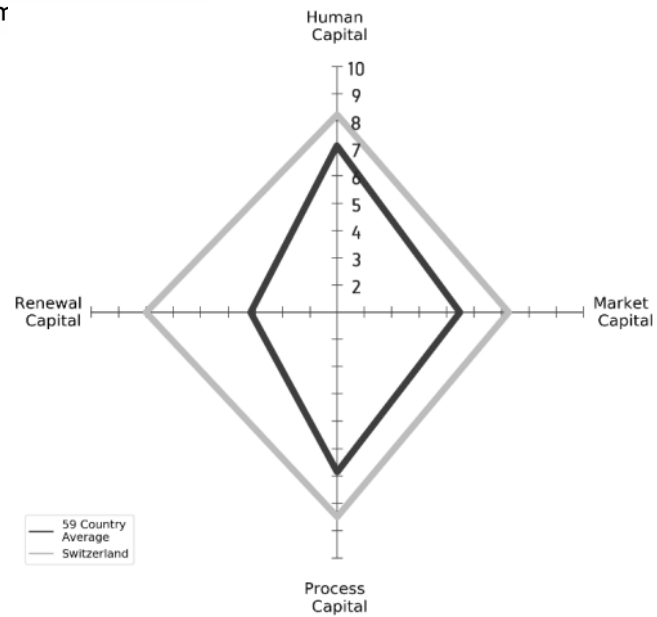
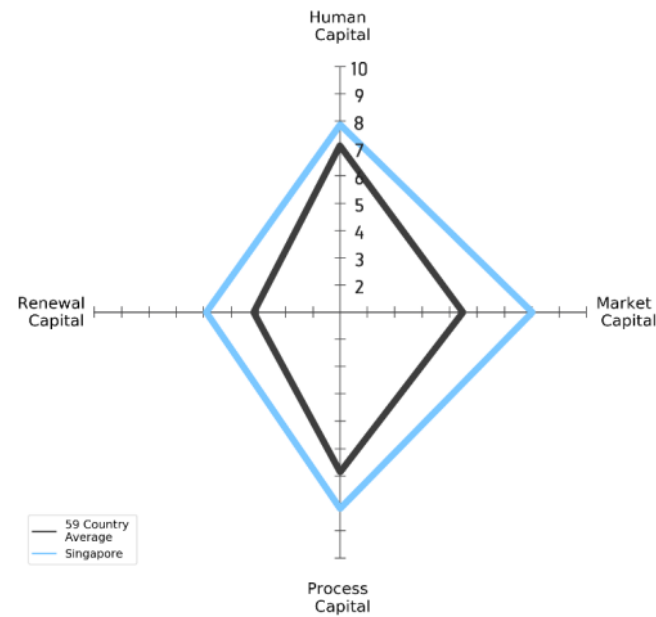


Figure 7.4: Cluster 7 Renewal Capital scores

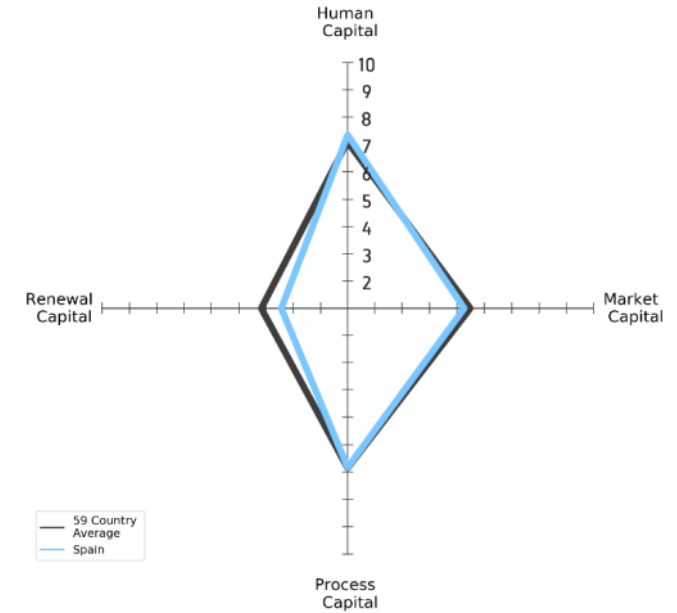




## Singapore



## Spain



Remark: Black line is the 59-country average