# Data-Driven Innovation and Competition

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# President Moon about Data Economy (Aug. 2018)

- Well-processed data can help raise productivity and create services and jobs
  - Data combined with AI will create new industries
  - **Urgent need to keep up with the global trend** of data-driven innovation
- **Regulatory reform**: To become **a country that utilizes data best and most safely**
  - Increase the extent of data openness and sharing
  - Secure the principles of personal information protection
  - Treat personal data, pseudonymized data, anonymous data differently
- **Government support** for data industry
  - Public-sector clouds will be open to private entities
  - Spend 1 billion dollars to support technology development and grow data specialists and specialized firms

# Questions about Data-Driven Innovation

- **Does it really matter?**
  - Fuel of the 21st century?
  - Can/Should we follow and compete with Google, Watson, Alibaba…?
  - How does it apply to manufacturing and/or service industry?
  - What happens if we ignore it?
- **How will it affect market and competition?**
  - Automation and problem solving
  - Concentration and antitrust issues
  - Conflict with market price mechanism?
- Answering these, there may be **3 different positions**
  - ① optimistic (and anxious) ② concerned ③ think it is hyped up

# Data-Driven Economy
## compared with Knowledge-Based Economy (Ciuriak, 2018)

- R&D, human capital, creative destruction, knowledge spillovers(externalities) ➔ important in KBE

- **How different for data-driven economy?**

① **Information Asymmetry**

  - Between human and machine, across firms, across countries
  - Market failure(?)
  - This kind of asymmetry may not go away in the long run

# Data-Driven Economy
## compared with Knowledge-Based Economy (Ciuriak, 2018)

### ② Industrialization of Learning

- Accelerates the pace of change ➔ uncertainty of capital investments ↑
- Discounts the value of human capital

### ③ Market Concentration

- Economies of scale becomes very steep
- Winner-take-most feature ➔ acquisition of rivals

### ④ New Forms of Trade and Exchange Value

### ⑤ Systemic Risk

- Personal data privacy, political manipulation, cybersecurity

# Data Really Matters in Competition?
## (Lambrecht and Tucker, 2015)

- Big data is ***not*** **inimitable**
  - non-rivalrous
  - near-zero marginal cost of production and distribution
  - ➔ Commercially available big data allows new entrants to gain insights
  - ➔ Where a market for data exists, big data is not inimitable
- Big data is ***not*** **rare**
  - Large shifts in supply infrastructure (e.g., cloud-based resources) made the tools for gathering big data commonplace
  - Consumers leave traces of their needs and preferences everywhere on the web

# Data Really Matters in Competition?
## (Lambrecht and Tucker, 2015)

- Big data is ***not* very valuable by itself**
  - Problems with compatibility and integration
  - Unstructured nature
  - Difficulty of establishing causal relationships

  ➔ 'Test and learn' environment can make big data valuable, and such experimentation does not necessarily require big data.

- Big data is ***not* non-substitutable**
  - A superior value proposition to consumers can be more important
  - Big data has not protected larger firms in the SNS industry (that is prone to switching costs and network effects)
  - Venture capital continues to fund startups to compete in spaces where other firms have big data

# Bourreau et al.(2017)'s Recommendation

- Data are **one input**, which is important but not unique
  - Skilled and creative labor, capital and distribution channels are also important
- Big data value chains exhibit direct/indirect **network effects**
  - Competition authorities need to understand possible feedback loops
- Each big data application/algorithm should be analyzed on a **case-by-case basis**
  - Detailed recommendation at a general level is not appropriate
- **Value** of data and algorithms?
  - Extent of economies of scale/scope, time depreciation value of data
- **Availability** of data and algorithms?
  - Possibility and costs for collecting/buying data

# Summary and Thoughts

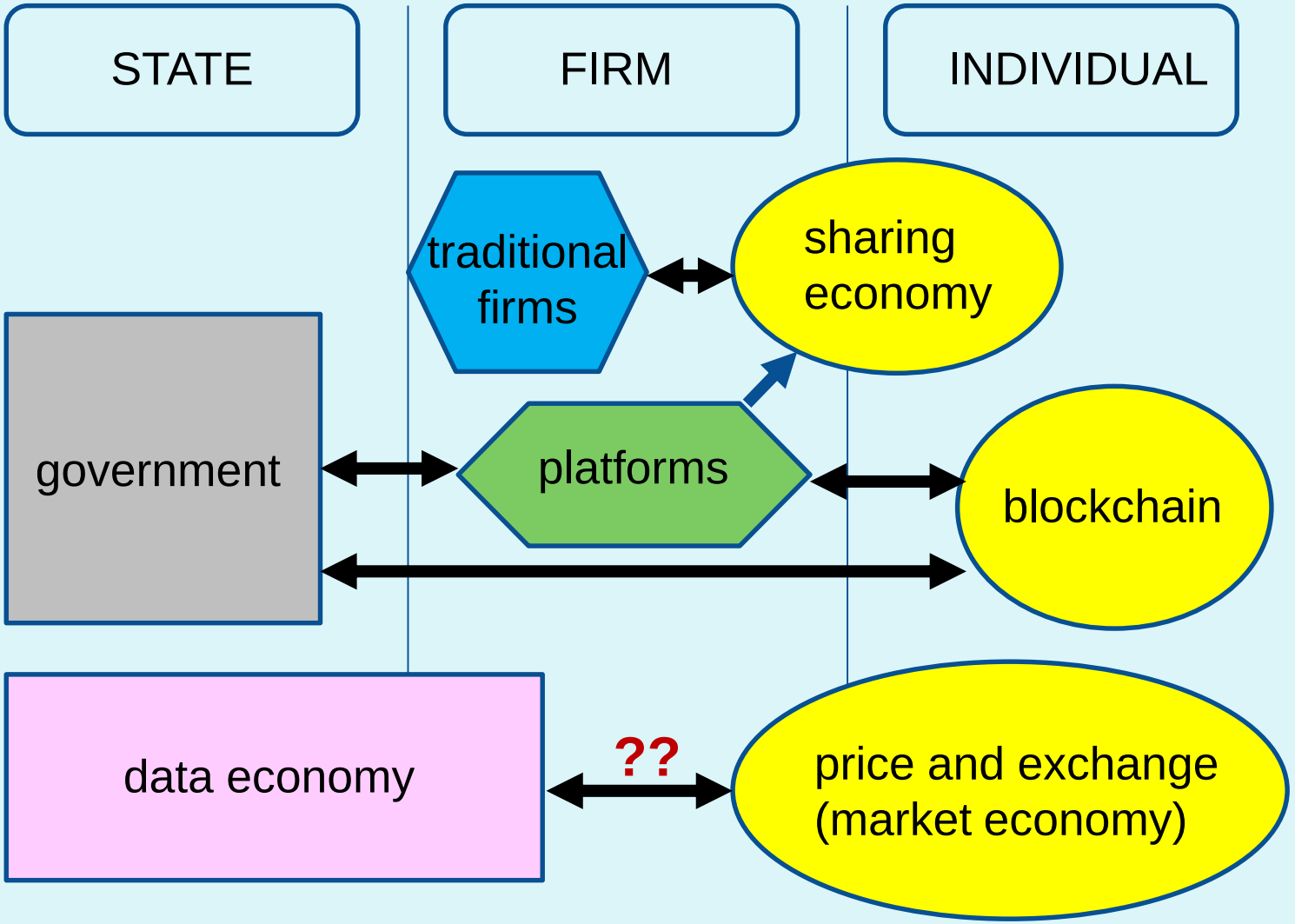
## Concentration of data and market

- There is some hype about the power of data utilization
- The growth of data market can help
- We need to keep examining how data affect competition

## Data as an input

- Replacing the existing inputs such as labor *vs.* Complementary effects
- As volume of available data and processing capacity increases, other inputs such as **human questions/imagination** become more valuable
- It could happen that Korea develops the best technological/legal environment for data economy but nobody knows **how to use it**
- The success of (for example) K-pop industry, rather than that of manufacturing industry, should be the benchmark
- **Policy objective should be to have a better life** rather than to survive global competition

# Tensions caused by Technology



# References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