

# **Session 3. Economic theory cont. Policies for digital economy**

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Digital Transformation of the World Economy

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# Plan

- Announcement (*volunteers for international work are needed*)
- Reflection from last session
- Economic theories that seek to explain how change happens
  - neoclassical and institutional economics
- Policies for economic growth in digital era

# Reflection

- Conceptualizing helps defining the digital economy
  - Broad scope - digitalised economy: all economic activity based on digital technologies
  - Narrow scope – digital economy: intensive and extensive applications of ICTs
  - Core - digital sector: the IT (or ICT) sector
- GDP-based measurements of digital economy is problematic

# **Economic theories**

# Economic growth: Solow vs. Schumpeter

## The Solow Economic Growth Model

- Labor (L), capital (K) and knowledge (A)
- Constant growth rates of knowledge and
- “Steady-state growth path” can be reached when output, capital and labor are growing at the same rate

Constant & same rates of growth

## Schumpeter's Theory of Economic Development

- **Entrepreneurship** (in combination with new knowledge) is **the main driving force of economic growth ,not traditional neo-classical factors**
- **Creative destruction** that replaces old economy with new economy **is necessary for economic growth**

Innovation, induced by free enterprise, causes creative destruction that is needed for economic growth

# Reinterpretation of basic concepts of Schumpeter's theory of change for DE

	Schumpeter Theory	Digital economy
Innovation	Introduction of new goods	Introduction of new digital products and digital services
Technology	New methods of production	Digitization of the production processes of knowledge-based goods*
Customer orientation	Opening of new markets	Creation of electronic markets and digital distribution channels**
Coordination	Conquest of new supply sources	Implementation of B2B-EC to manage supply networks***
Entrepreneurship	Profit-orientation. Reorganization of the firm. Risk-taking strategies.	Profit-orientation – monetization. Development of new models to manage digital businesses. Startups.

\***Knowledge-based goods:** books, technology, patent, design, data-base

\*\***Electronic markets and digital distribution channels:** electronic purchasing systems, social networks' recommendation communities

\*\*\*B2B-EC: business-to-business electronic commerce, end user - business (vs B2C; end user - consumer)

# Neoclassical economics tradition

- Classical
  - focuses on **production** of goods and services to analyze the economic phenomena
  - late 19<sup>th</sup> – early 20<sup>th</sup> century school of economic thought (Smith, Ricardo, Marx)
- Neoclassical
  - focuses on **characteristics and the behavior of individuals** to analyze the economic phenomena
  - individuals are assumed to be self-interested and to have well-identified goals that they pursue in the most efficient way possible

# Neoclassical vs institutional schools of economic thought

## Key assumptions

	Neoclassical economics	Institutional economics
Markets and power relations	Scarcity -> competition -> efficient outcome	Scarcity -> competition + institutions -> efficient outcome
Role of institutions	Don't matter	Institutions are important – they set rules of the game

**Government-led vs private sector led?**



## **Economic policies**

Will the traditional industry-specific approach to policy setting succeed to enable economic growth in the digital age?

# New challenges

- Digital economy - intensive and extensive applications of ICTs
  - *but more broadly:* Digitalised economy - use of ICTs in **all economic fields**
- Network effect
  - everybody come online - increased numbers of participants improve the value of a good or service
  - *network effect vs the law of diminishing returns*
    - the **more** participants in a network, the **more value** of the network to each participant **increases** (e.g.: phone, Internet)
    - the **increase** in amount of input yields **less value** (e.g.: consumption of food, preparation for exams)

# New challenges for new policies

- Economies of scale
  - a *fall in unit costs* because fixed costs of infrastructure rollout are *spread across a greater level of output* (due to **interconnectivity** of networks)
  - interconnectivity: traffic can travel across and between networks
  - economies of scale arise from the network effects
- Economies of scope
  - fixed costs spread across a wider *range* of output of *different products and services* (due to **interoperability**)
  - interoperability: traffic can run effectively across different types of networks (from telecoms to banking to educational to health networks etc.)
  - economies of scope fuel innovation (opportunities across sectors - FinTech (finance+technology); Agritech (agriculture+technology))

**Will the traditional industry-specific approach to policy setting succeed to enable economic growth?**



# Surprising and counterintuitive changes and developments

- Technological developments
  - some recent technological developments seemed like sci-fi not long ago (self-driving cars, computers diagnosing disease)
- Business model developments
  - companies with no physical assets becoming billion-dollar companies (Uber, Facebook, Alibaba, Airbnb)
- Organizational design developments
  - Industrial giant General Electric (GE) with budget of US\$5.2 billion for R&D opted in 2015 to work with a group of strangers across the internet to help conceptualize and design new consumer products. *Why was the company looking externally when it had so much in-house expertise?*

# **Approaches to policies enabling digital transformation**

- Government-led vs private sector led
  - the EU and the US
- Top-down vs bottom-up
  - Singapore and Hong Kong
- Innovation vs regulation
  - China and Japan

# Government-led vs private sector led

	EU	US
Who leads much of the digital policy agenda?	European Commission	Private sector
How?	<ul style="list-style-type: none"> <li>- EC advocating in regulating emerging digital technologies</li> <li>- National governments set and developed frameworks for regulating the digital economy</li> </ul>	<ul style="list-style-type: none"> <li>- Interests of technology companies advocated by traditional mechanisms: American chambers of commerce, business associations; US Commercial Service</li> <li>- Government seeking to create an enabling environment for private sector initiatives</li> </ul>
Examples	 <p>EU GDPR vs. European Data Protection Directive 95/46/EC</p> <p><a href="https://advisera.com/bugtipacademy">https://advisera.com/bugtipacademy</a></p>	 <p>Logos of Uber, Lyft, Airbnb, and TaskRabbit.</p>

# Top-down vs bottom-up

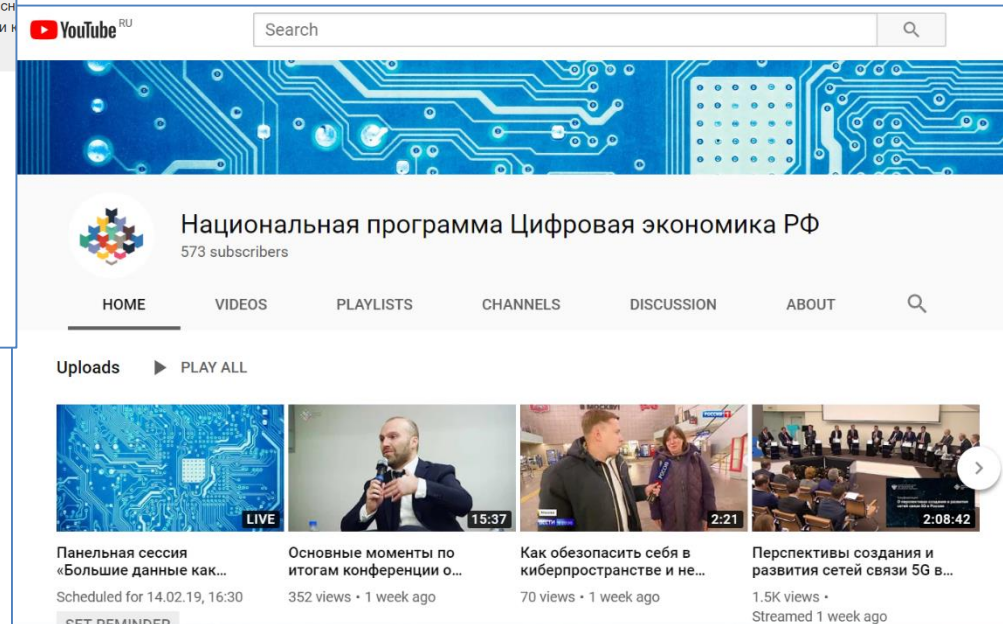
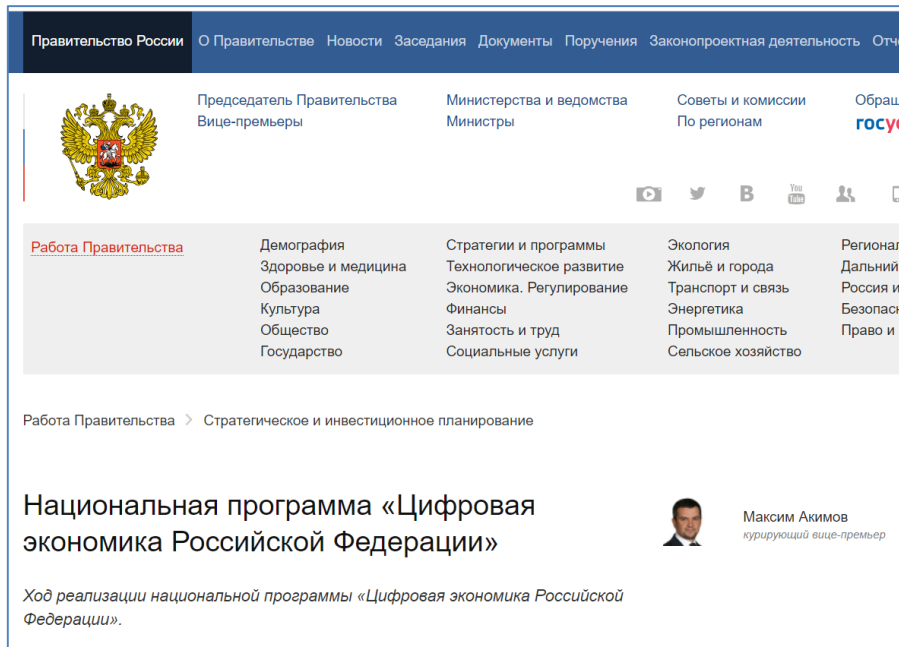
Country	Initiative	Who led?
Singapore	First country to allow driverless cars on its streets	<ul style="list-style-type: none"><li>- Ministry of Transport implemented autonomous vehicle initiative in a top-down fashion</li><li>- Set important benchmark and validation for the government by being the first 'out onto the streets'</li></ul>
Hong Kong	<p>Hong Kong Internet Exchange (HKIX), the first Internet Exchange Point in Asia (1995)</p> <p>Projected revenue of data centers by 2020 is \$1.39 billion</p>	<ul style="list-style-type: none"><li>- Bottom-up manner with a variety of initiatives</li><li>- Government encourages the industry by providing access to land for over 50 operational data centers</li></ul>

# Innovation vs regulation

Country	Initiative	Government approach/ International perspective
China	<ul style="list-style-type: none"> <li>- Public and private sector actors rapidly grow digital payment ecosystems</li> <li>- 20-fold increase in value of transactions via Alibaba's Alipay and Tencent's WeChat, 2012-&gt;2016</li> <li>- <i>"the single most important innovations that has happened first in China, and at the moment it's <b>only in China</b>"</i></li> </ul>	<ul style="list-style-type: none"> <li>- Wait-and-see approach to regulation</li> <li>- For international business perspective, this threatens a high degree of regulatory uncertainty</li> <li>- For the Chinese it's a <i>well-understood environment</i></li> </ul>
Japan	<ul style="list-style-type: none"> <li>- Failure of digital payments to take off:               <ul style="list-style-type: none"> <li>- cash use still dominates</li> <li>- security concerns about digital payments have held adoption back – only 19% of payments are cashless (including credit cards)</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>- Top-down approach</li> <li>- Risk-averse and regulation-centric approach to managing technological change</li> <li>- Strong government involvement</li> </ul>



# Approaches to setting policies for developing digital economy



- Government-led or private sector led?
- Top-down or bottom-up?
- Innovation vs regulation



*... sentimental, beautiful moment worthy of being captured ... (ad campaign)*

## Case 3. Kodak

# Write and turn in 1, 2 or 3 take-home points

- 1.
- 2.
- 3.



# Sources used in this presentation

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