AI Plans, Data Governance and Comparative Advantage
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Overview

World is transitioning to a new economy built on data and data-driven goods and services. AI is one of many such services.

30 countries have AI plans.

What is comparative advantage in AI?

How might these plans affect comparative advantage in AI?

Effects on world order? First mover advantage

Caveat

AI is a breakthrough technology but also a general purpose technology. AI achievement should benefit the world at large. AI could solve wicked problems. Global public good.

Yet governments have national security incentives to fund, direct and/or control AI.

But it is not a competition.

Why do countries adopt AI plans?

provide direction and sometimes funding to motivate various groups

signal the appropriate balance between encouraging innovation and regulating it. They also tackle questions about security, privacy, transparency, and ethics.

increase utilization of AI

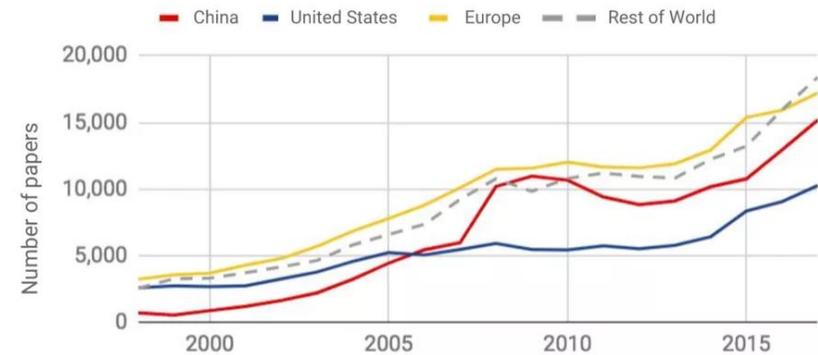Focus on what AI requires: data, capital, expertise, and effective regulation

GO

STOP

Evidence AI plans are effective?

Can we see an increase in market share, patents, publications, sales?

Are we using AI to solve problems? .

Annually published AI papers on Scopus by region (1998-2017)
Source: Elsevier

China · United States · Europe · Rest of World

Note: We speculate that the increase in AI papers in China around 2008 is a result of The National Medium- and Long-Term Program for Science and Technology Development (2006- 2020), and other government programs that provide funding and a range of incentive policies for AI research. Similarly FP7 (2007-2013) and other science and technology research programs in Europe may have contributed to the small uptick in papers around 2008-2010.

A country has comparative advantage in AI if it has:

Capital to fund research and companies

Lots of skilled and flexible human capital

Lots of high-quality and varied data

Public-private cooperation

Governance that facilitates innovation and balances regulation (includes immigration, tax, antitrust, trade, digital rights, etc.)

Effective governance of various types of data (including personal, public and proprietary data)

How might an AI plan affect comparative advantage in AI?

Attractive immigration and research environments could attract leading-edge researchers.

As example, many AI researchers are moving to Canada, given Canadian funding and incentives for machine learning and deep learning research. As of 2019, Canada hosts the largest AI ecosystem in the world. Major companies such as Google, Facebook, and Uber have set up core research labs that collaborate with various universities across Canada. The Canadian government, through the *Canadian Institute For Advanced Research* (CIFAR), funds various efforts to assert Canada's lead in AI. As an important pillar of the $125 million Pan-Canadian Artificial Intelligence Strategy, CIFAR recently named 29 top AI researchers to the AI Chairs program.

# How does data governance affect comparative advantage?

Data governance refers to norms of behavior (i.e., informal or formal rules) for the collection, flow, and analysis of information, often in digital form. These rules are determined over time through collective action by organizations in the public, private, and nonprofit sectors. They address who owns, controls, and can monetize various types of data.

Governments can use data governance to give their firms a competitive advantage.

As AI moves into value chains, data governance becomes relatively more important and technology becomes relatively less important.

Rules governing data will need to be updated and clarified for AI

- Firms will need economies of scale and scope for data.

- Will need shared, interoperable rules to govern data – proprietary, personal and public (data in the public domain or government data).

- Need international efforts to make interoperability a priority.
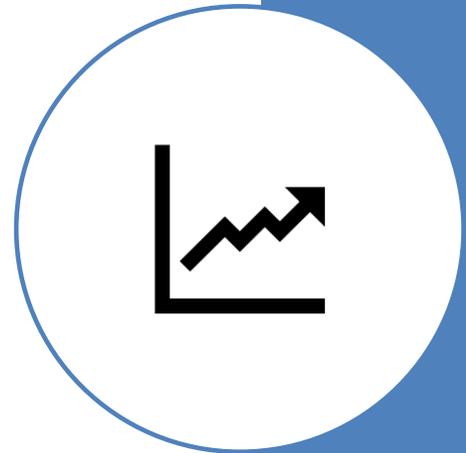
Data governance matters

Smart cities:

-Firms and municipalities collaborate on public services that generate data

-Concern grows over privacy and

-Concerns over who controls and benefits from the public data created

Smart manufacturing:

-Data-driven manufacturing will alter comparative advantage in manufacturing

-Data is essential to smart manufacturing

-Access to data and data governance will be the most important element of comparative advantage

The National Security Strategy

Think Defence
another view of UK defence
w.thinkdefence.co.uk

Data governance also matters for national security (next paper)

Strava heatmap

Google and AI and China

FaceApp

Proprietary data and AI

Facial recognition and protestors

TAKE-AWAY MESSAGES

AI is the future.

Data governance matters and should be reflected in AI plans.

Nations are shaping data governance, often to give their domestic manufacturers a competitive edge.

Global value chains will shift to reflect comparative advantage.