



Where we're going, we'll probably still need roads

UWO Local Government Alumni Conference

November 6, 2015

Mowat Centre

ONTARIO'S VOICE ON PUBLIC POLICY

About the Mowat Centre

- Launched in 2010 and part of the School of Public Policy & Governance, University of Toronto.
- Focus on national public policy issues from Ontario's perspective. Other areas: government transformation, energy and not-for-profit policy

Mowat Centre research is:

- Independent and non-partisan.
- Focused on the federal policy frameworks and strategies that will most strongly affect Ontario's prosperity and quality of life in the next century.
- Comparative, evidence-based, and grounded in an understanding of how Canadian governments work.

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LAST TIME DEPARTED



A black and white photograph of a railway track. The tracks run from the bottom center towards the top, flanked by gravel and wooden sleepers. In the foreground on the left, there is a signal post with the number '612' on it. The background shows a person standing on the tracks in the distance. A large black rectangular box is overlaid on the center of the image, containing white text.

“We tend to overestimate the effect of a technology in the short run and underestimate the effect in the long run”

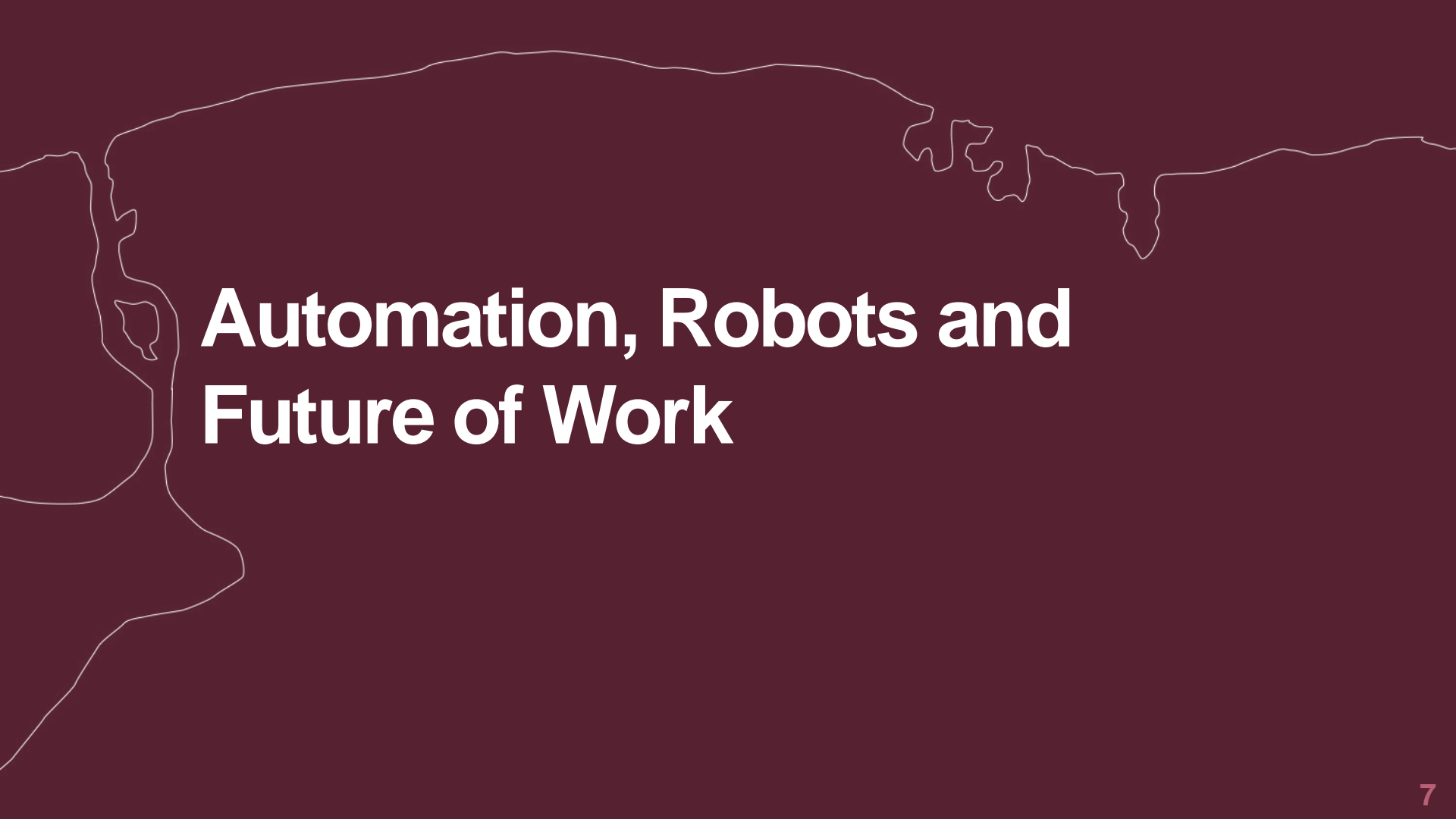
– Roy Amara

What we will talk about

- ◆ 5 big things you might not be thinking about, but probably should.
- ◆ The role of government in disruptive technology
- ◆ How governments need to evolve: structures, skills and strategies.



**5 disruptive technology
trends that you should be
paying attention to**



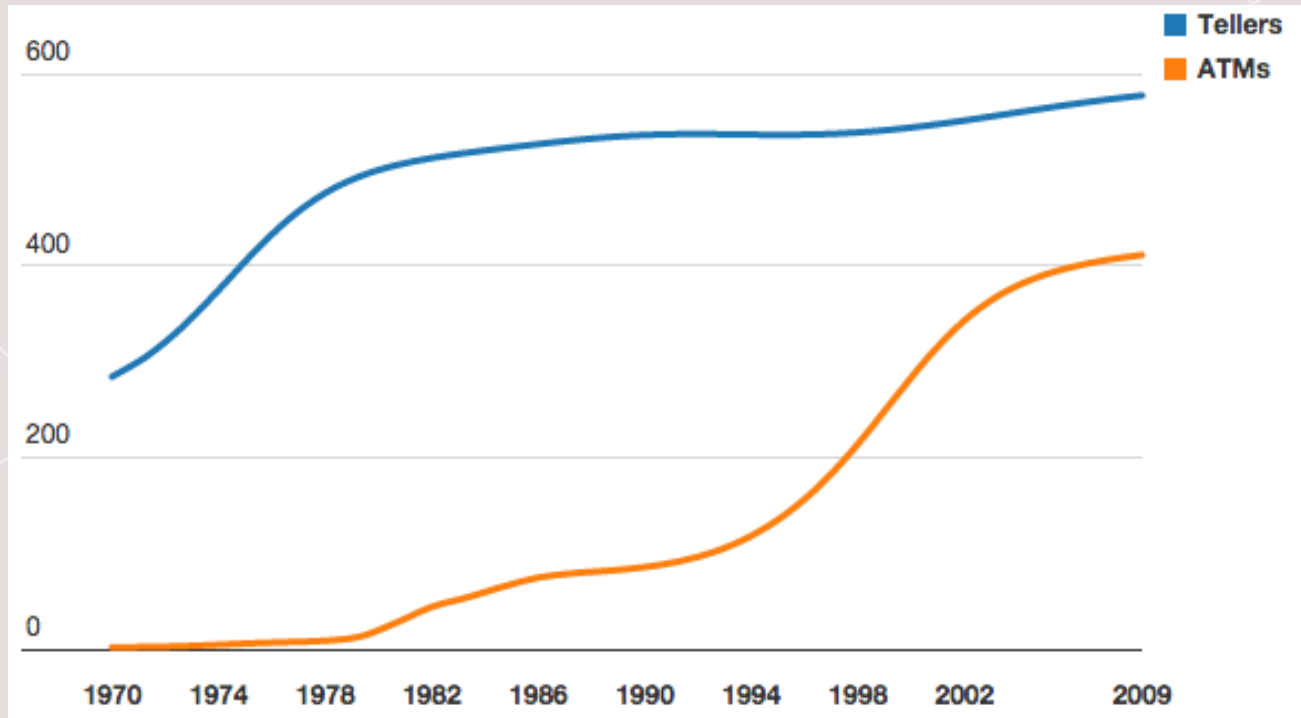
Automation, Robots and Future of Work

We are seeing new frontiers in automation



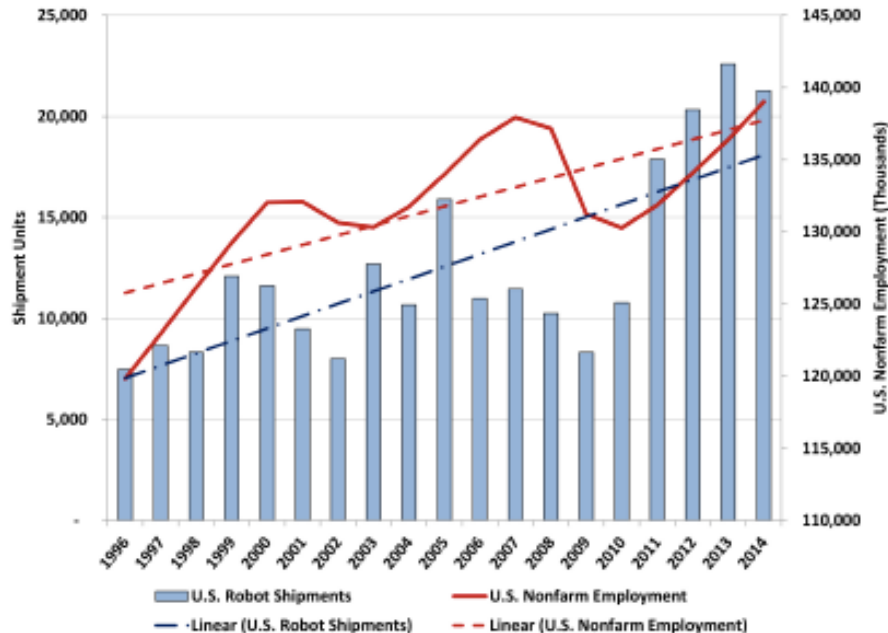
Pictured: robot hotel, Japan

Despite automation, there are still plenty of bank tellers



Robots haven't ended employment yet

Figure 1: Industrial Robot Shipments vs. Nonfarm Employment (1996-2014)



Source: Association for Advancing Automation, via Washington Post



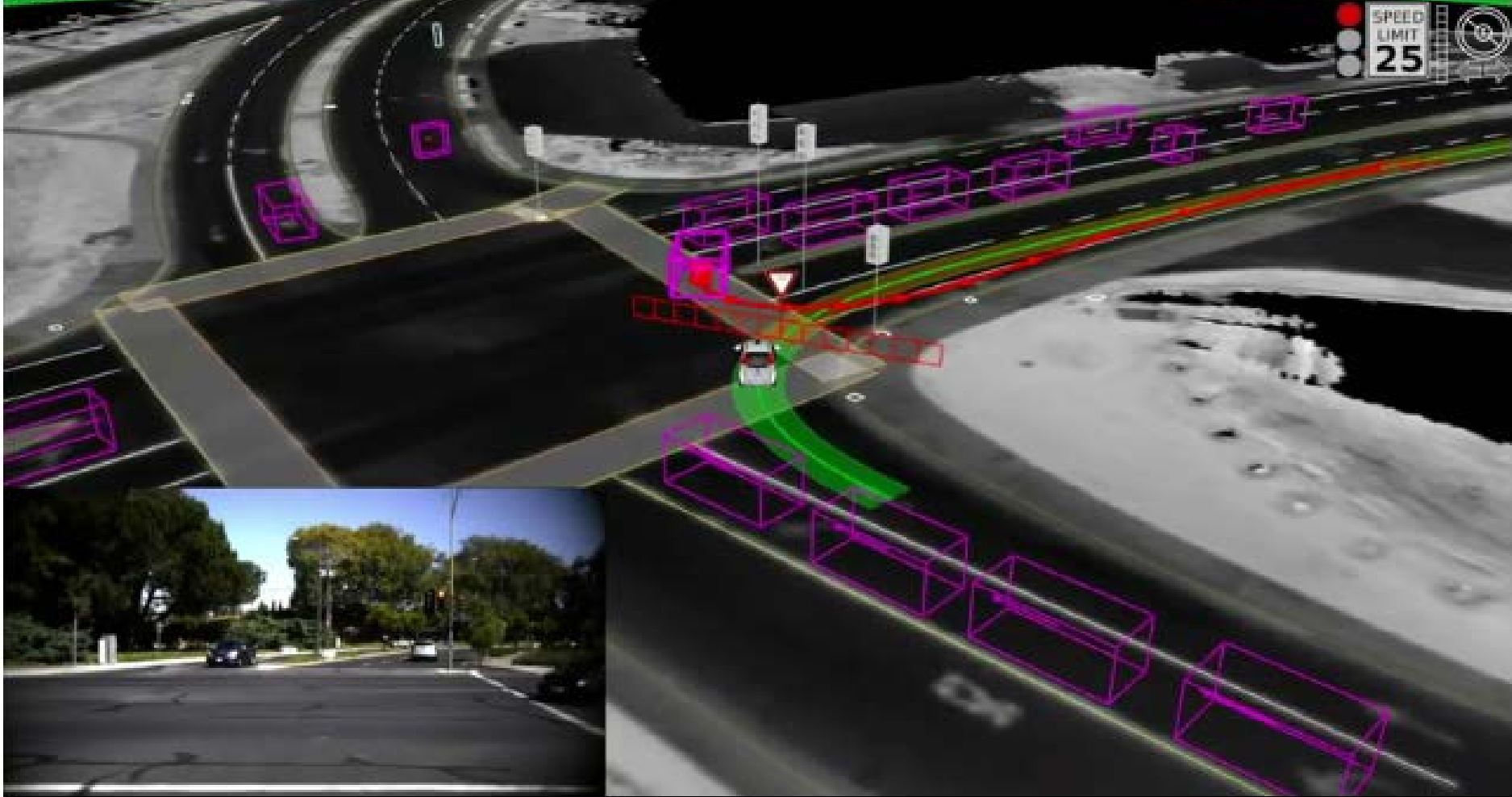
Why does this matter?

- Income security/basic income
- Education and training
- Delinking benefits from employment
- Inequality



Automated Vehicles







Why does this matter?

- Safety and liability
- Accessibility and mobility
- Environment and urban planning
- Economic Impact
- Infrastructure and standards

Drones





Game of Drones

- Known for war and policing, but already being used for significant commercial applications, journalism, humanitarian aid.
- Opportunity for delivery use could be significant
- Questions of regulation already underway.



amazon
PrimeAir

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PrimeAir

AEROSIGHT

AEROSIGHT

CAM 02

Dominos



DOMICOPTER_TESTDELIVERY_#00032



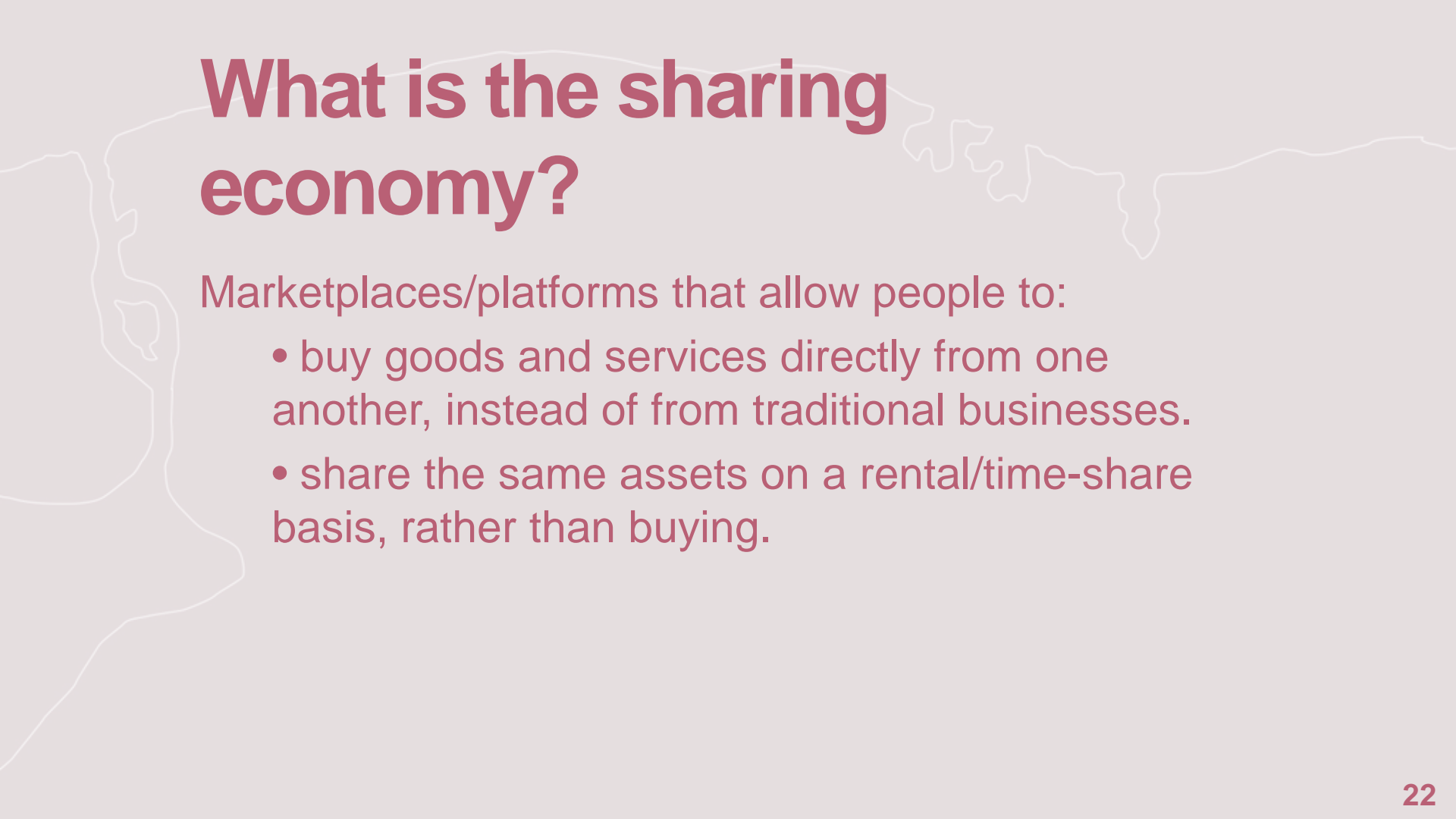
Why does this matter?

- Airspace and use of standards
- Privacy and security
- Property rights
- Infrastructure



The sharing economy

What is the sharing economy?



Marketplaces/platforms that allow people to:

- buy goods and services directly from one another, instead of from traditional businesses.
- share the same assets on a rental/time-share basis, rather than buying.



Scale of growth

Moving incredibly quickly.

- Airbnb, established 2008, valued at approx \$25B. Official provider for Rio games.
- Uber, established 2009, valued at over \$50B – more than General Motors.
- Etsy held an IPO in April, current market cap around \$1.5B.



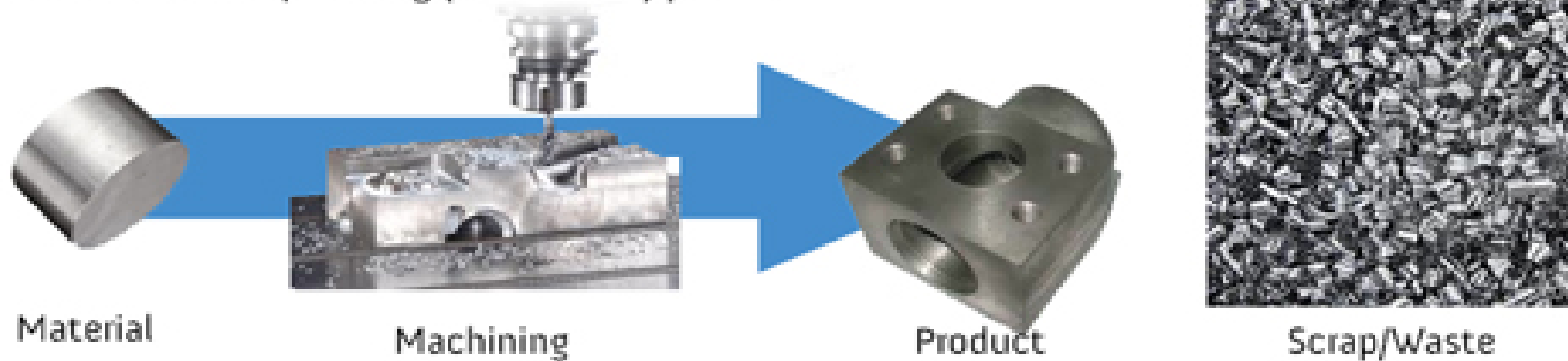
Why does this matter?

- Labour markets and employment relationships
- Economic opportunity
- Competition
- Taxation and regulation

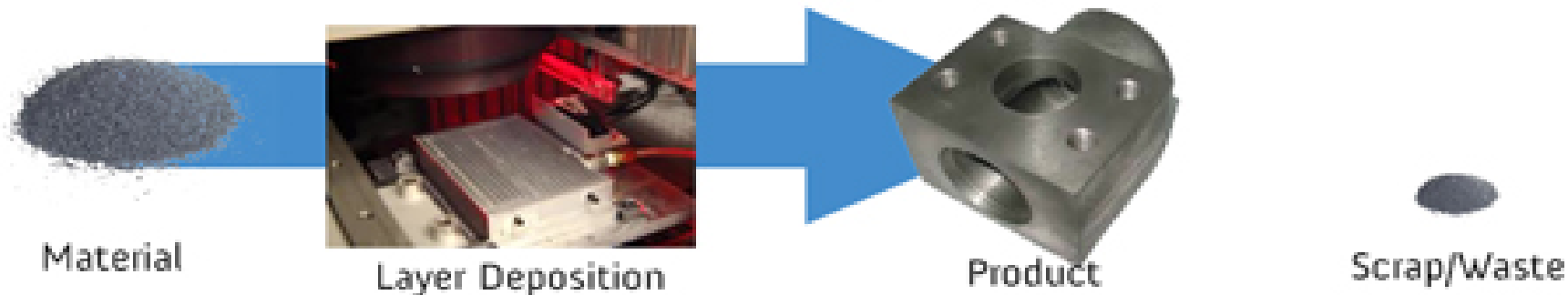
A white outline map of the United States is positioned in the upper left quadrant of the slide. The map shows the continental United States, including Alaska and Hawaii. The text "3D Printing" is overlaid on the map, centered over the eastern United States.

3D Printing

● Conventional Manufacturing (subtractive) process



● Additive Manufacturing Process





MakerBot Replicator
DESKTOP 3D PRINTER



Beyond bobbleheads

- Potential to reorient global supply chains
- Impressive results in relief efforts and health settings
- Testing 3D-printed meat, prosthetics
- Larger-scale 3-D printing for other applications – e.g. prefab housing



Why does this matter?

- Where is a product made? Taxation, trade, workplace
- Health and safety
- Intellectual property



The role of government in disruptive technology

Promoting innovation

- What are the levers that governments have to promote innovation?
 - Education and training
 - Funding and disseminating public research
 - Support for commercialization
 - Proactive regulatory environment

Balancing interests

- Keeping the broader public interests in mind – beyond the requests of innovators and the concerns of incumbents.

Two philosophies

- Precautionary principle: in the face of uncertainty, governments should take action if there is significant risk.
- Permissionless innovation: governments should avoid pre-emptively regulating – see how market responds.

How governments need to evolve



Challenge for governments

- Limits of command and control models – new models breaking the regulatory mould.
- Political and cultural context for governments is a hurdle.
- Technology moves quickly, democracy moves slowly.

Structures, skills and strategies

- Structures: more integrated, networked government
- Skills: ability to work with data, better performance measurement, technology literacy
- Strategies: regular review and adjustment of policies, use of waivers/exemptions, performance-based regulation

Policy professional of the future?

- What skills will be needed?
- What will career paths look like?
- How will governments ensure the talent they need?
How much will come from inside government vs. outside?

Thank you

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