

Digital Trade's Vital Importance to Pacific Economies

The 34th Pacific Economic Community Seminar

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About ITIF

- The world's leading science and technology policy think tank.
- Supports policies driving global, innovation-based economic growth.
- Focuses on a host of issues at the intersection of technology innovation and public policy across several sectors:
 - Innovation and competitiveness
 - IT and data
 - Telecommunications
 - Trade and globalization
 - Manufacturing, life sciences, agricultural biotech, and energy



Today's Presentation

- 1 Digitalization Transforming Global and Pacific Economies
- 2 Digitalization Transforming A Variety of Industries
- 3 Recommendations for Policymakers

Increasingly Digitalized Global Economy

- Digital economy now accounts for 25% of global GDP.
- By 2022, over 50 percent of Latin American GDP will be digitalized.
- “Half of all value created in the global economy over the next decade likely to be created digitally.” - Tekes



Sources: Accenture, “Digital Disruption: The Growth Multiplier”; McKinsey Global Institute, “Digital Globalization: The New Era of Global Flows”
IDC, “IDC FutureScape: Latin America IT Industry 2019 Predictions”

The Digital Economy in Asia-Pacific

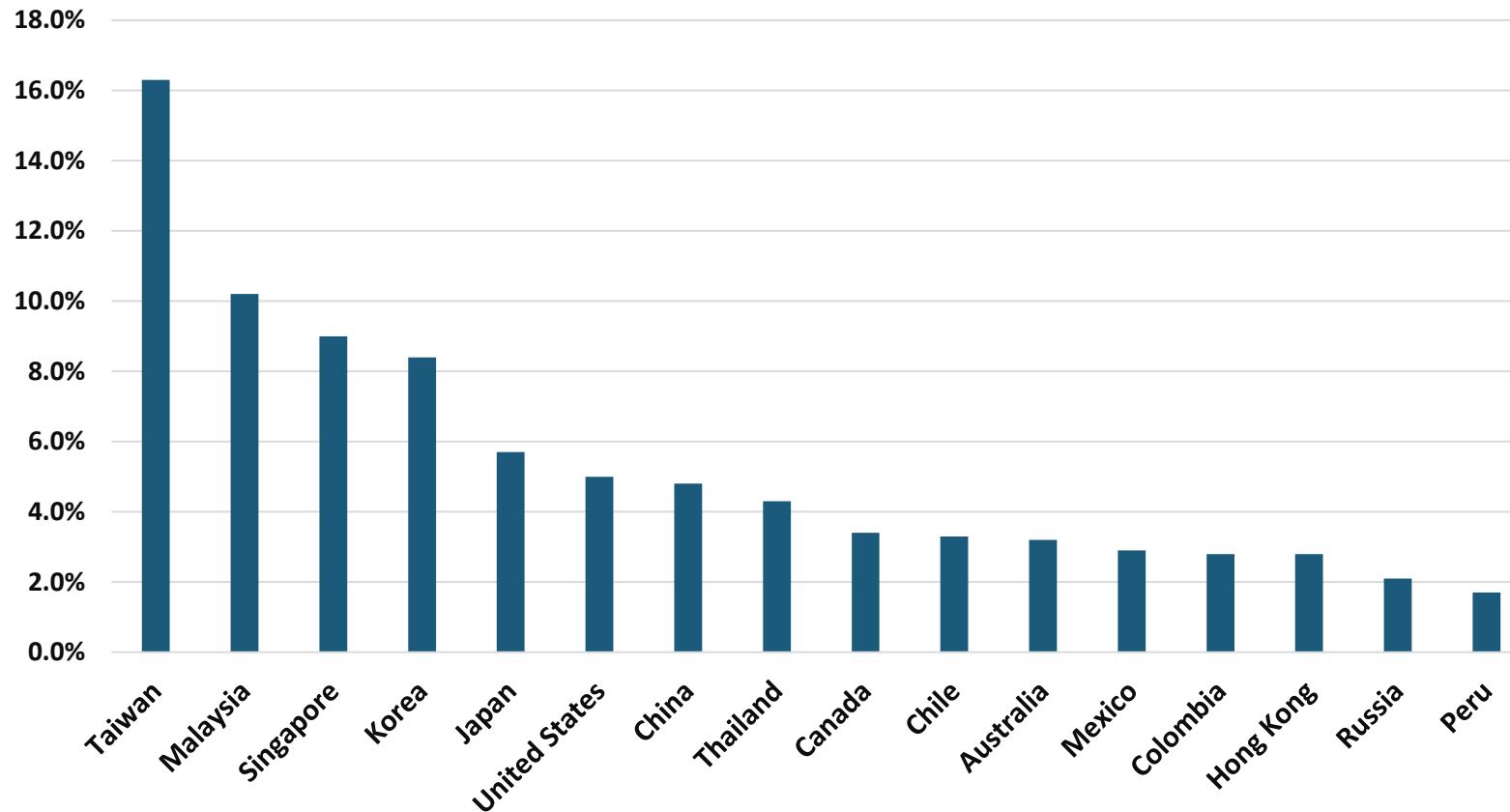
- The digital economy accounted for 30% of Chinese GDP in 2018, 18% of Malaysian GDP, 7% of Indonesian GDP, and 6% ASEAN GDP.
- Among the world's top 10 economies with the largest ICT to GDP ratio, seven are Asian.
- Each 1 percentage point increase in the digitalization of China's economy is associated with 0.3 percentage point of GDP growth.



Source: "Tahsin Saadi Sedik, "Asia's Digital Revolution," *IMF Finance & Development Magazine*, September 2018

ICT Sector's Contribution to APEC GDP

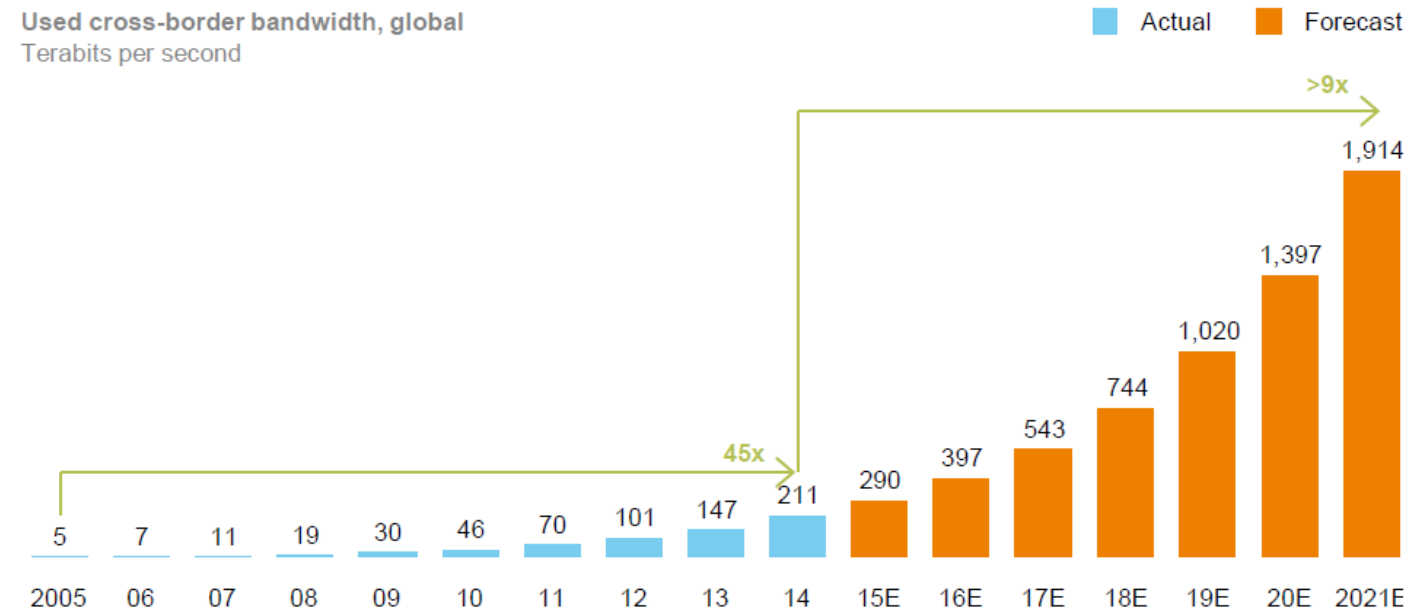
ICT Sector Value Added as a Share of GDP, 2017



Source: UNCTAD, "2019 Digital Economy Report" Note: All APEC economies shown for which data is available.

Increased Cross-Border Data Flows Driving Global GDP Growth

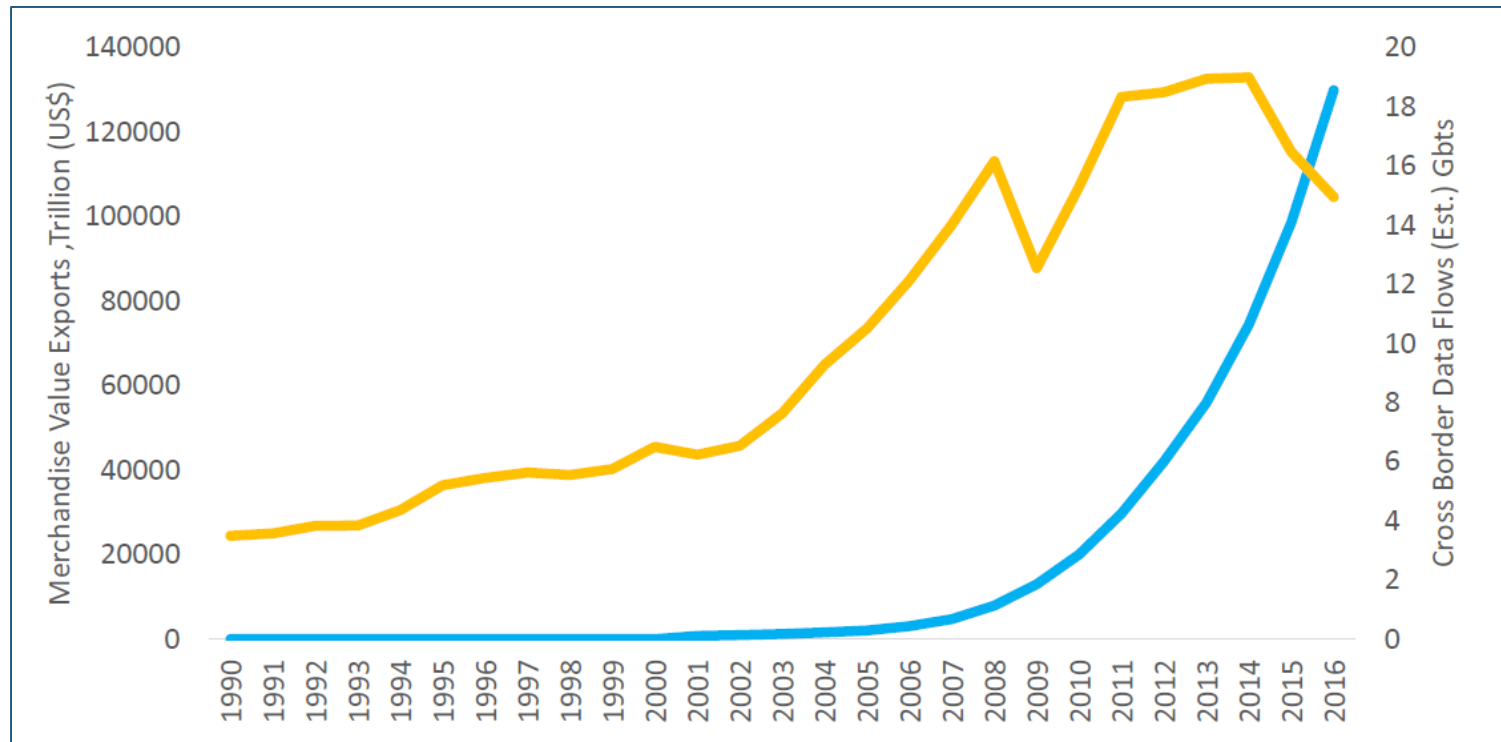
- From 2005-2015, cross-border data flows grew 45x; 9x through 2021.
- Asia accounts for 16% of global data flows; in 2017, Asia's cross-border data flows were 97 times their value a decade earlier.



Source: McKinsey Global Institute, "Digital Globalization: The New Era of Global Flows"

Increased Cross-Border Data Flows Driving Global GDP Growth

- The value of international data flows surpassed the value of international merchandise trade for the first time in 2015.



Sources: Victor Mulas, The World Bank "Value in Global Economy Moves to Digital Business"; McKinsey Global Institute, "Digital Globalization: The New Era of Global Flows"

APEC Region Digital Tech Startups

paytm

Bukalapak

true money
wallet

Mynt
A FRESH LOOK AT MONEY

toss

GO EASY

Alibaba Group
阿里巴巴集团

Rappi

tokopedia

MindBridge

DiDi

Pondera

halodoc
simplifying healthcare

LAZ
Shopee

Grab

gojek

Gosocket
THE COMPANIES NETWORK®

TeleCTG

traveloka.com

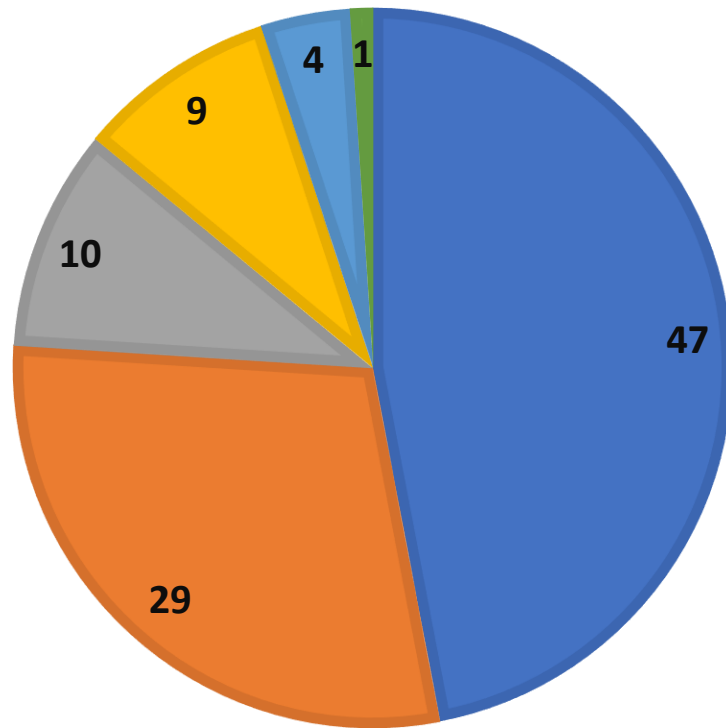
virtru

Rakuten

ricult

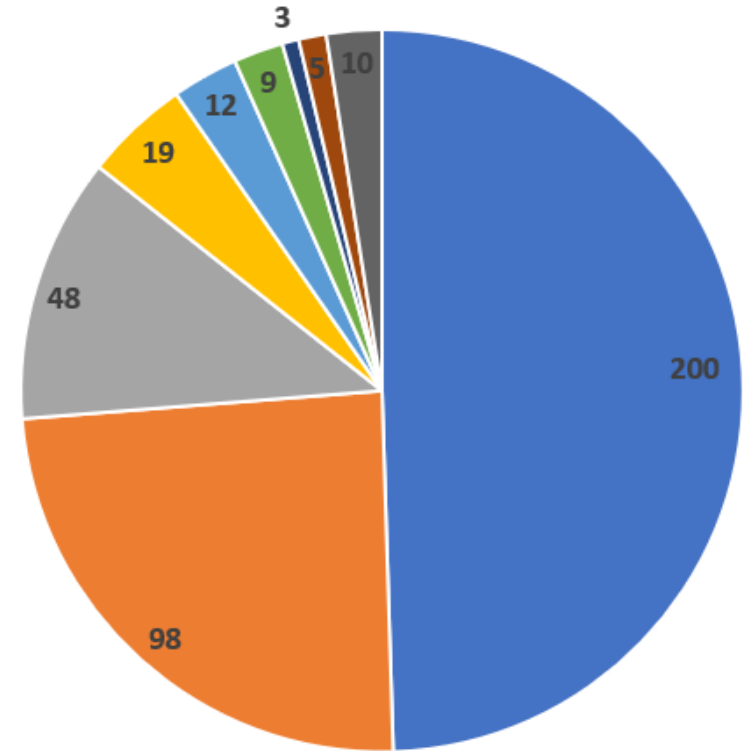
Pacific Startups Driving the Global Digital Economy

HQ of World's 100 Largest Digital Unicorns



■ United States ■ China ■ Asia ■ Europe ■ India ■ Latin America

HQ of World's 430 Unicorns – All Industries

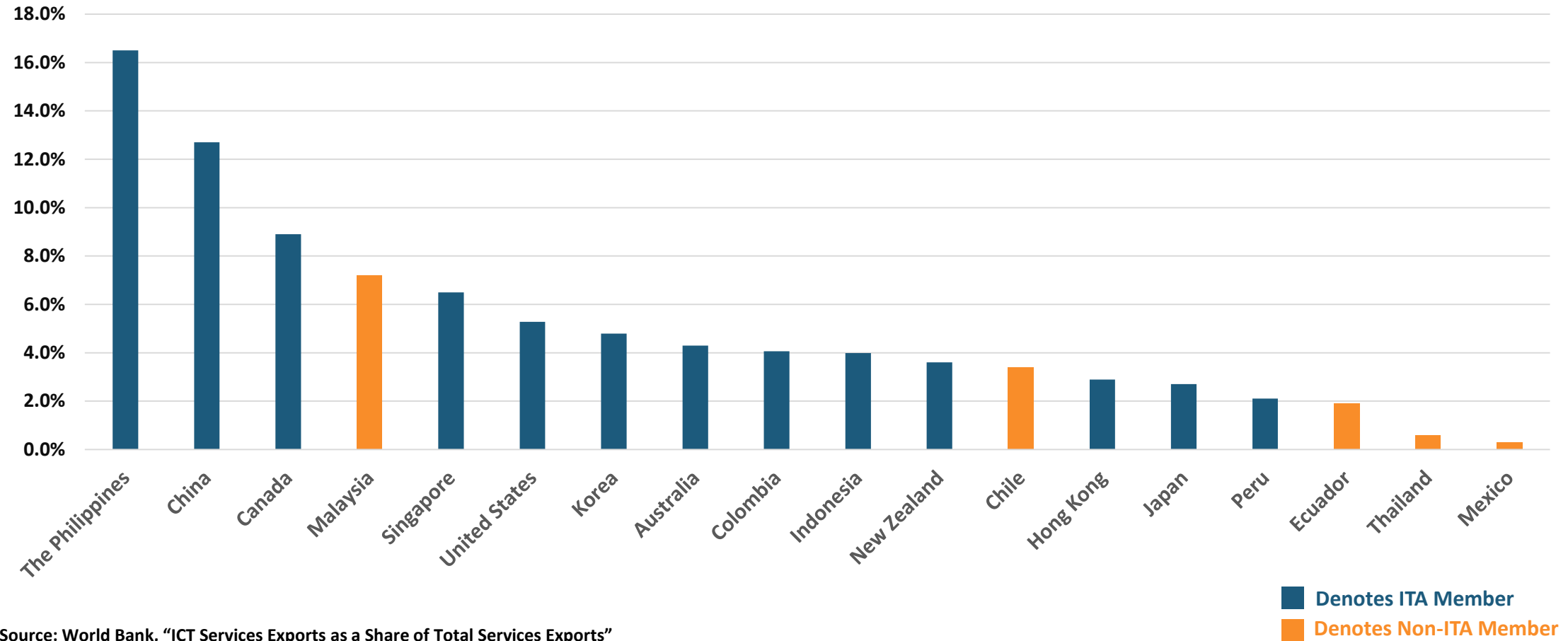


■ United States ■ China ■ Europe ■ India ■ Asia Other
■ Korea ■ Japan ■ Latin America ■ Word Other

Source: CB Insights, "Global Unicorn Club: Startups Valued At Least \$1 Billion"

ICT Services Exports a Key Driver of Pacific Trade

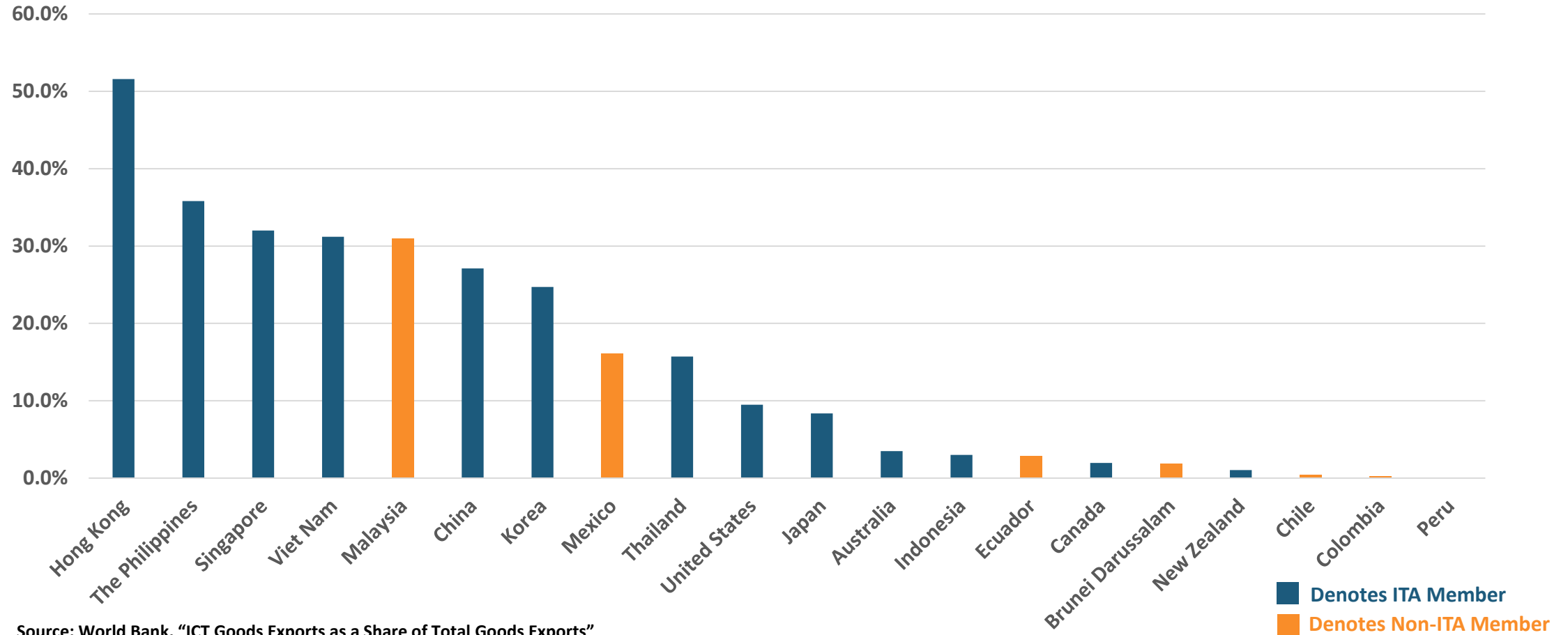
ICT Services Exports as Share of Total Services Exports



Source: World Bank, "ICT Services Exports as a Share of Total Services Exports"

ICT Goods Exports a Key Driver of Pacific Trade

ICT Goods Exports as Share of Total Goods Exports



Source: World Bank, "ICT Goods Exports as a Share of Total Goods Exports"

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Data/Digitalization Transforming Agriculture

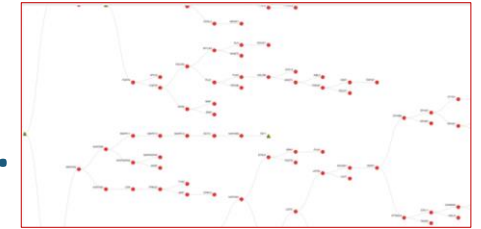
Agricultural production must rise 70% to meet global demand by 2050.

- Precision agriculture uses ICT to optimize crop-planting choices, monitor crops, and guide irrigation/harvesting.
- Microsoft's IoT-enabled ConnectedCow tracks cows' health, monitors milk production, and soothes the calving process.
- Thai-based Ricult's digital platform increases efficiency of agricultural value chains and helps farmers raise sales.

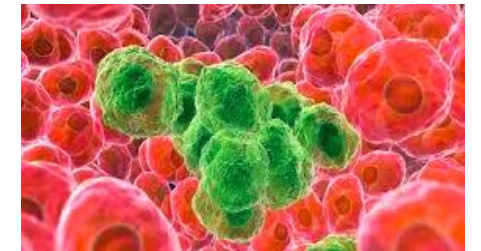


Data/Digitalization Transforming Medicine

- Drug discovery: IBM's Watson helped identify as many biomarkers for ALS in 1 year as researchers had in last 10.



- Disease detection: In NHS study, AI accurately identified melanoma cells 95% of the time; dermatologists 87%.



- Health delivery: Indonesia's Halodoc and TeleCTG provide doctor consultations and electrocardiograms remotely.



TeleCTG

Innovate4Health

<https://medium.com/innovate4health>

Data/Digitalization Transforming Financial Services

- Mexico City-based Pondera Lab uses AI/ML to help firms and government agencies better organize, analyze, and visualize data.



- Ottawa, Canada-based Mindbridge AI uses AI/ML to audit financial transactions and detect fraudulent activity.



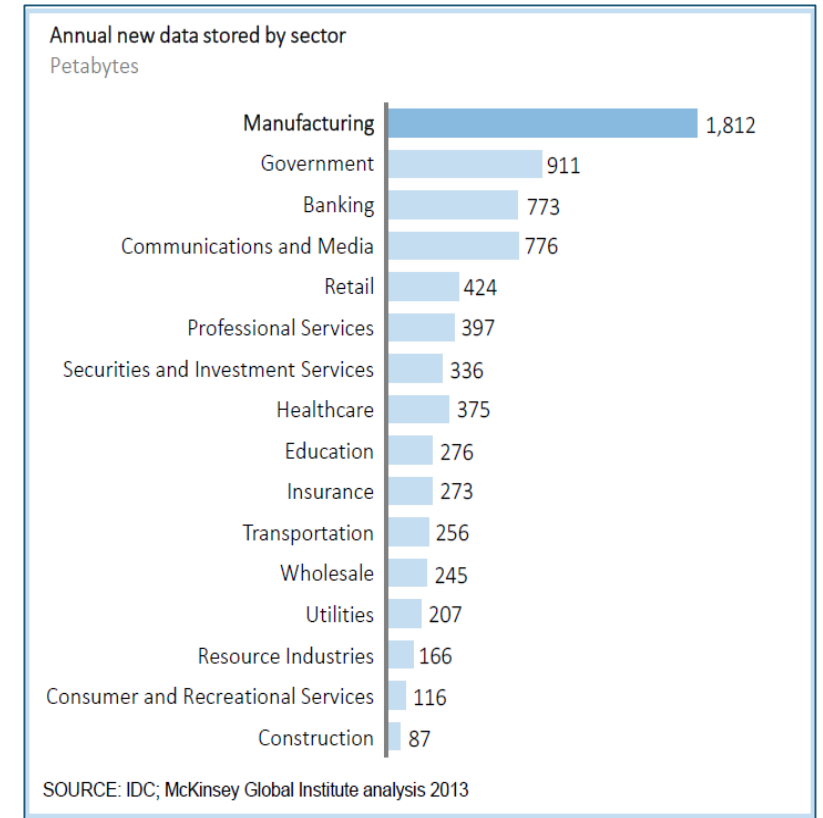
- Santiago, Chile-based GoSocket uses cloud-based services to process million electronic invoices daily for 20,000 firms.



Source: APEC/Nigel Cory, "Fostering an Enabling Policy and Regulatory Environment in APEC for Data-Utilizing Businesses," January 2019

Data/Digitalization Transforming Manufacturing

- Manufacturing is the world's most data-intensive industry.
- Digital services account for 25% mfg. inputs.
- Digital platforms will account for 30% of manufacturing sector revenues by 2020.
- AI applications to contribute one-third of German manufacturing output growth.



Source: McKinsey; ITIF/MAPI, "The Manufacturing Evolution: How AI Will Transform Manufacturing & The Workforce of the Future"

“Digitally Enabled” at Each Step of Manufacturing

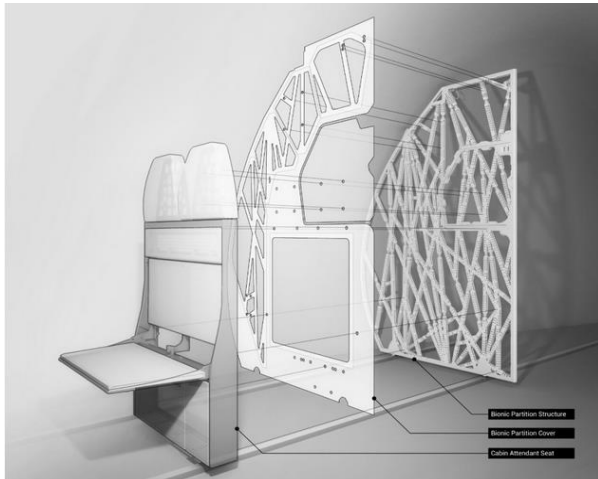
1. Product Design
2. Fabrication and Assembly
3. Factory Operation
4. Supply Chain Integration
5. Product Use and Consumption



Source: ITIF/MAPI, “The Manufacturing Evolution: How AI Will Transform Manufacturing & The Workforce of the Future”

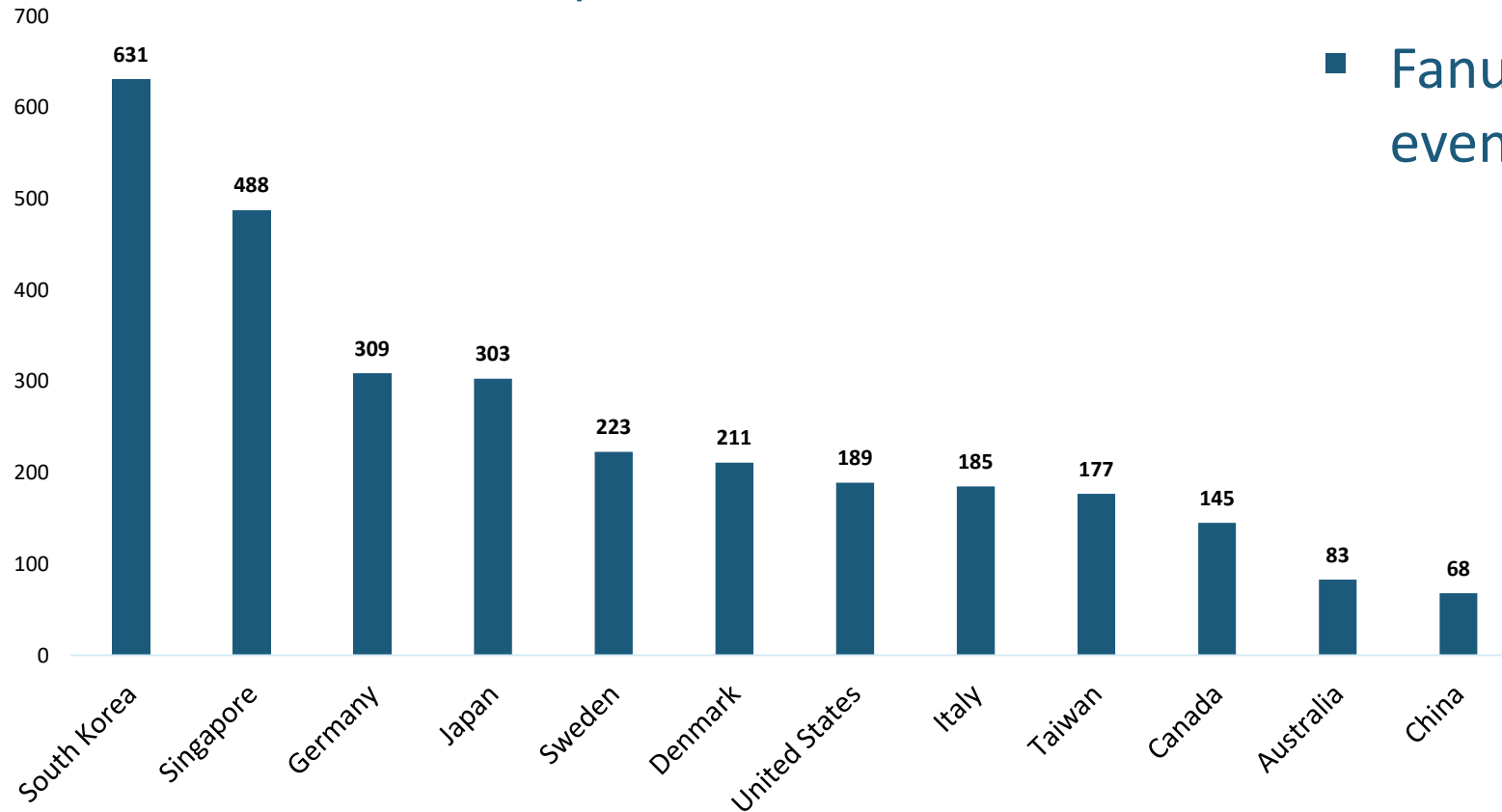
Manufacturing: Generative Design & 3-D Printing

- Software designs products based upon specified input constraints.
- Synthesizing successive layers of material into a three-dimensional solid object composed from a digital file.



Manufacturing: Roboticization

Industrial Robots per 10,000 Workers, 2017



Source: International Federation of Robotics, "Executive Summary World Robotics 2018 Industrial Robots"

- Asia leading roboticization.
- Fanuc robots build, test, and even inspect themselves.



Manufacturing: Digitalization Transforming Supply Chains

- Manufacturing competition increasingly depends upon the ability to leverage data flows to synchronize global supply chains.

Suppliers to the new BMW i8

ONE-WAY CLUTCH - 6 SPEED AUTOMATIC TRANSMISSION
BORGWARNER

COOLING FAN MODULE (TIER 2)
JOHNSON ELECTRIC

ENGINE & GEARBOX BRACKETS
FEMALK

FRONT BRAKE CALIPER
BREMBO

SOUND DEADENERS
FAIST CHEMTEC

PEDAL SENSORS
HELLA

ELECTRO-COAT
PPG INDUSTRIES

LASER LIGHT
OSRAM

FRONT GRILLE
SOLE SPA

STEERING WHEEL
TAKATA

SHOCK ABSORBERS
THYSENKRUPP

TIMING DRIVE SYSTEM
INIS

GRILL SHUTTER ACTUATORS
BROSE

GEAR SHIFT ACTUATOR (TIER 2)
NIDEC MOTORS & ACTUATORS

HEATING/COOLING/TURBOCHARGER LINES
CONTITECH



Automotive News Europe

ELECTRONIC CONTROL UNITS FOR BATTERY MANAGEMENT
PREH

PORTABLE ELECTRIC VEHICLE CHARGER
DELPHI

RGB LED PUDDLE & ENTRY LAMP
GRUPO ANTOLIN CML

DECOUPLING ELEMENT
TRELLEBORG VIBRAACOUSTIC

BODY CASTING STAMPINGS
MAGNA

FPC-ECU BRUSHLESS
OMRON

LOCKSETS
U-SHIN

TWO SPEED E-AXLE
GKN DRIVELINE

COLD & HOT GASKETS
FEDERAL-MOGUL

GULLWING DOOR STRUTS
STABILUS

CV-JOINTS (HALF SHAFTS)
HIRSCHVOGEL

ELECTRIC MOTOR HOUSING
NEMAK

HYBRID STEEL PRESSURE TANK
MAGNA

TRANSMISSION OIL COOLING MODULE
MAHLE

SPECIALITY GASKETS - EXHAUST SYSTEM
ELRINGKLINGER



Digitally Enabled Product Use and Consumption

- Digitalization enables new business models such as product servitization, mass customization, low-cost variability, and evergreen design.
 - E.g., Rolls Royce's "Power by the Hour" model.
 - John Deere tractors with variable engine horsepower.

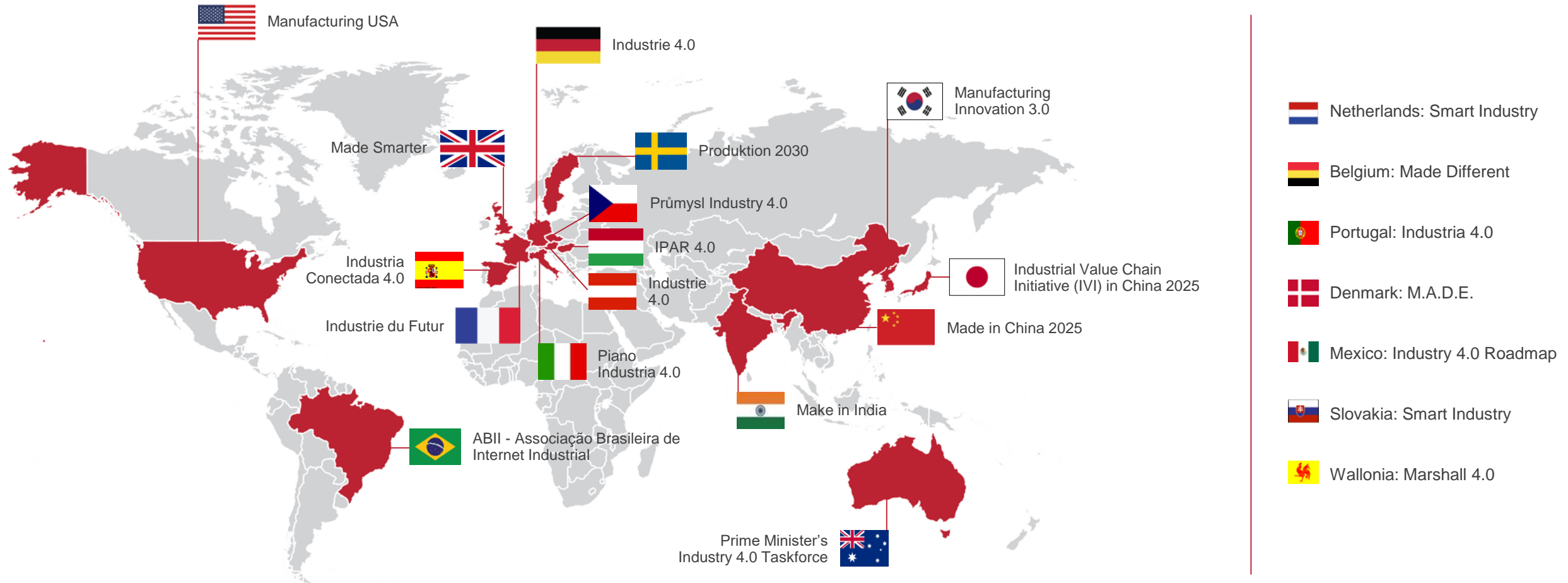


Source: Harvard Business Review, "How Smart, Connected Products Are Transforming Companies"
Harvard Business Review, "How Smart, Connected Products Are Transforming Competition"

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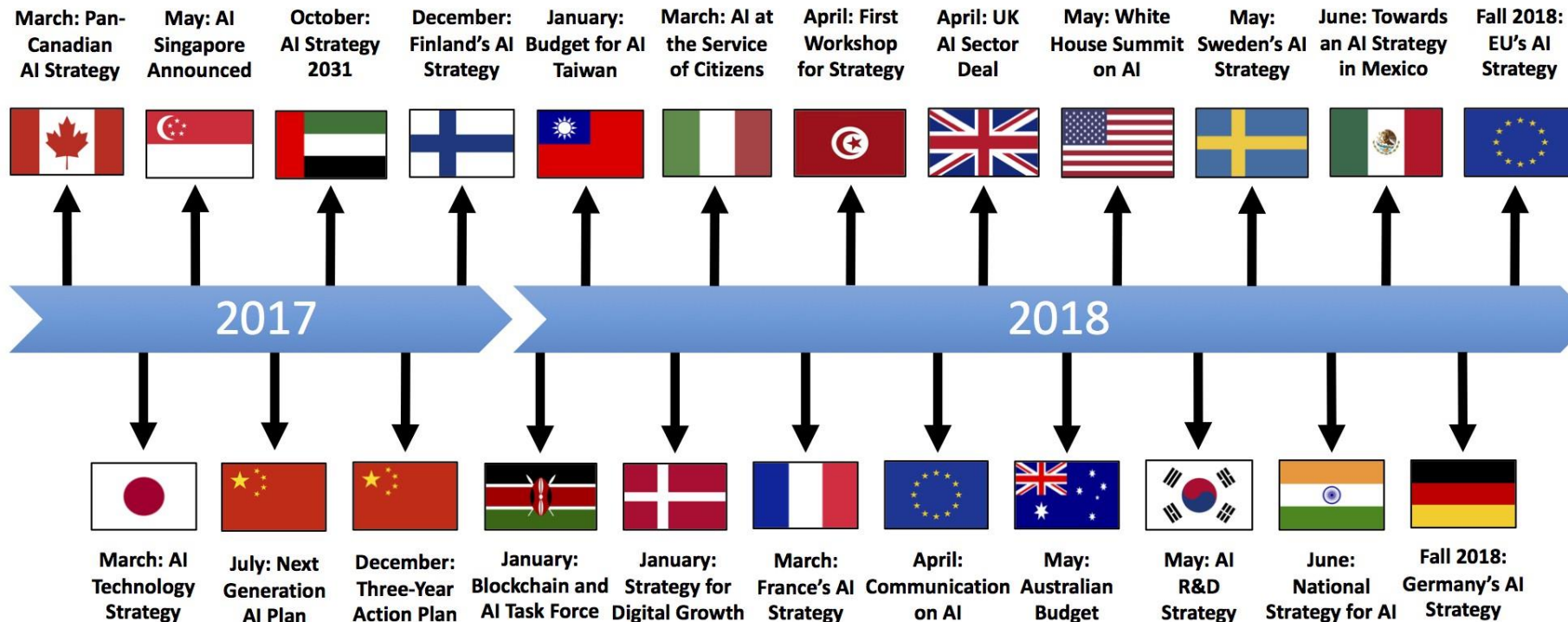
Develop a Manufacturing Digitalization Strategy



Courtesy: Dave Vasko, Rockwell Automation

Develop a National Artificial Intelligence Strategy

Artificial Intelligence Strategies



Why the United States Needs a National Artificial Intelligence Strategy and What It Should Look Like

By Joshua New | December 4, 2018

The United States is the global leader in developing and using artificial intelligence (AI), but it may not be for long. Succeeding in AI requires more than just having leading companies make investments. It requires a healthy ecosystem of AI companies, robust AI inputs—including skills, research, and data—and organizations that are motivated and free to use AI. And that requires the federal government to support the development and adoption of AI. Many other countries, including China, France, and the United Kingdom, are developing significant initiatives to gain global market share in AI. While the U.S. government has taken some steps, it lacks a comprehensive strategy to proactively spur the development and adoption of AI. This report explains why a national AI strategy is necessary to bolster U.S. competitiveness, strengthen national security, and maximize the societal benefits that the country could derive from AI. It then lays out six overarching goals and 40 specific recommendations for Congress and the administration to support AI development and adoption.

INTRODUCTION

Computer scientists have worked since the 1950s to develop artificial intelligence—computer systems that perform tasks characteristic of human intelligence, such as learning and decision-making. But it is only in the last

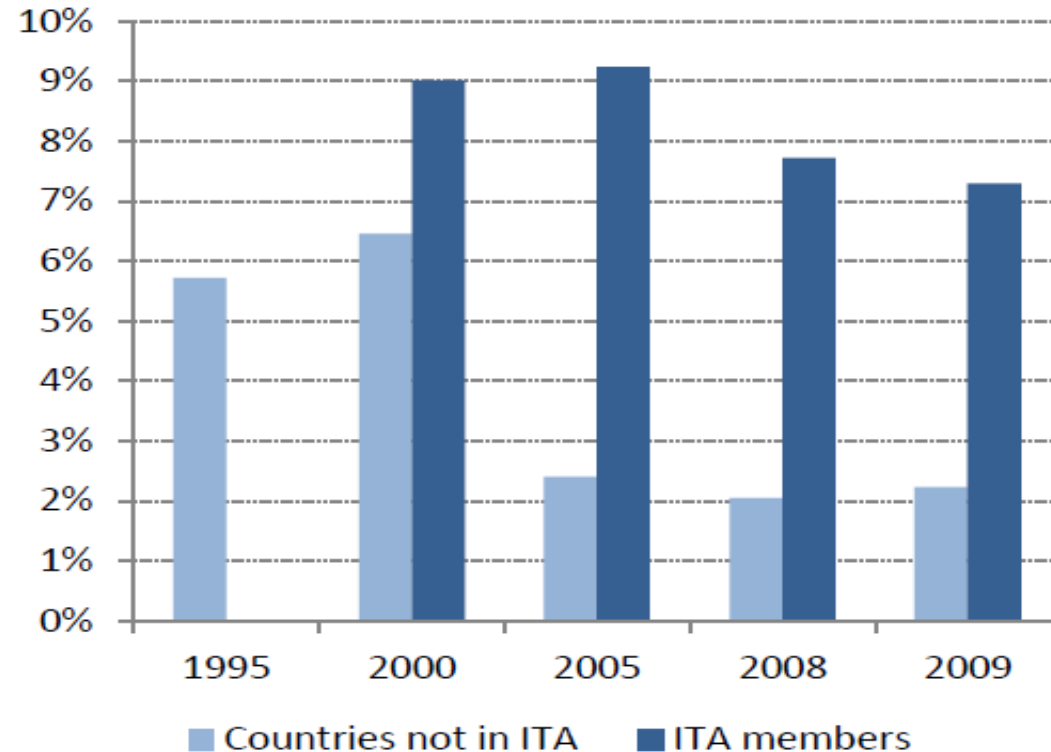
CENTER FOR DATA INNOVATION

1

2018-07-13 | Politics + AI | Tim Dutton

Join the Information Technology Agreement (ITA)

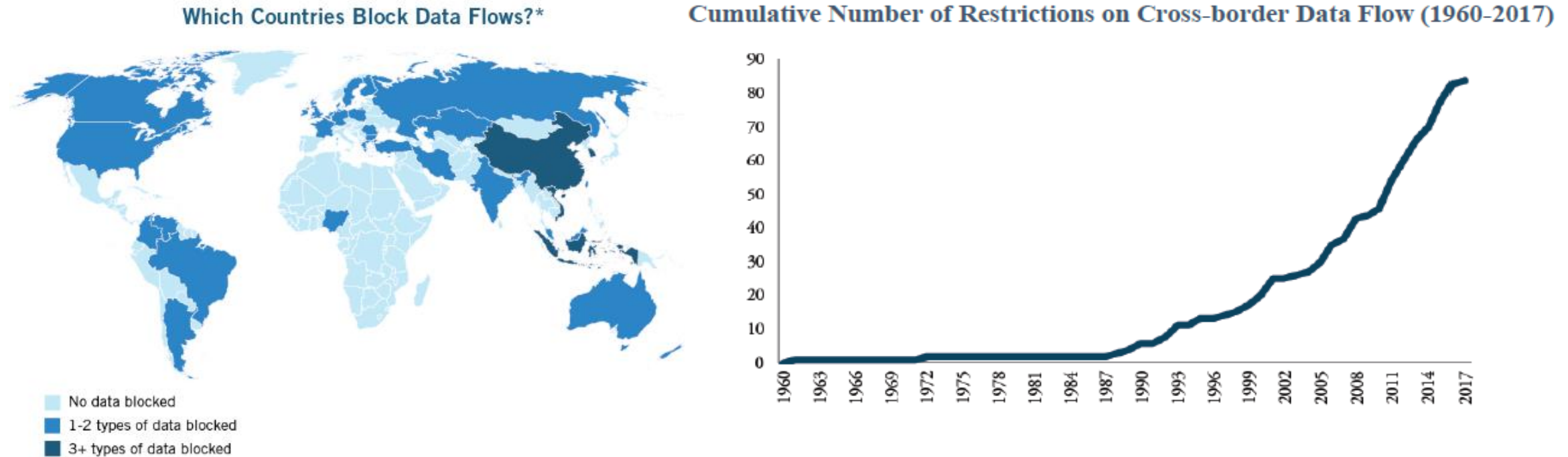
Membership and Participation in ICT GVCs



Source: OECD, *Implications of Global Value Chains for Trade, Investment, Development, and Jobs*, 2013

Eschew Data Localization Requirements

- ✓ Eschew digitalization barriers to trade, including local data storage and local ICT facilities provisioning requirements.



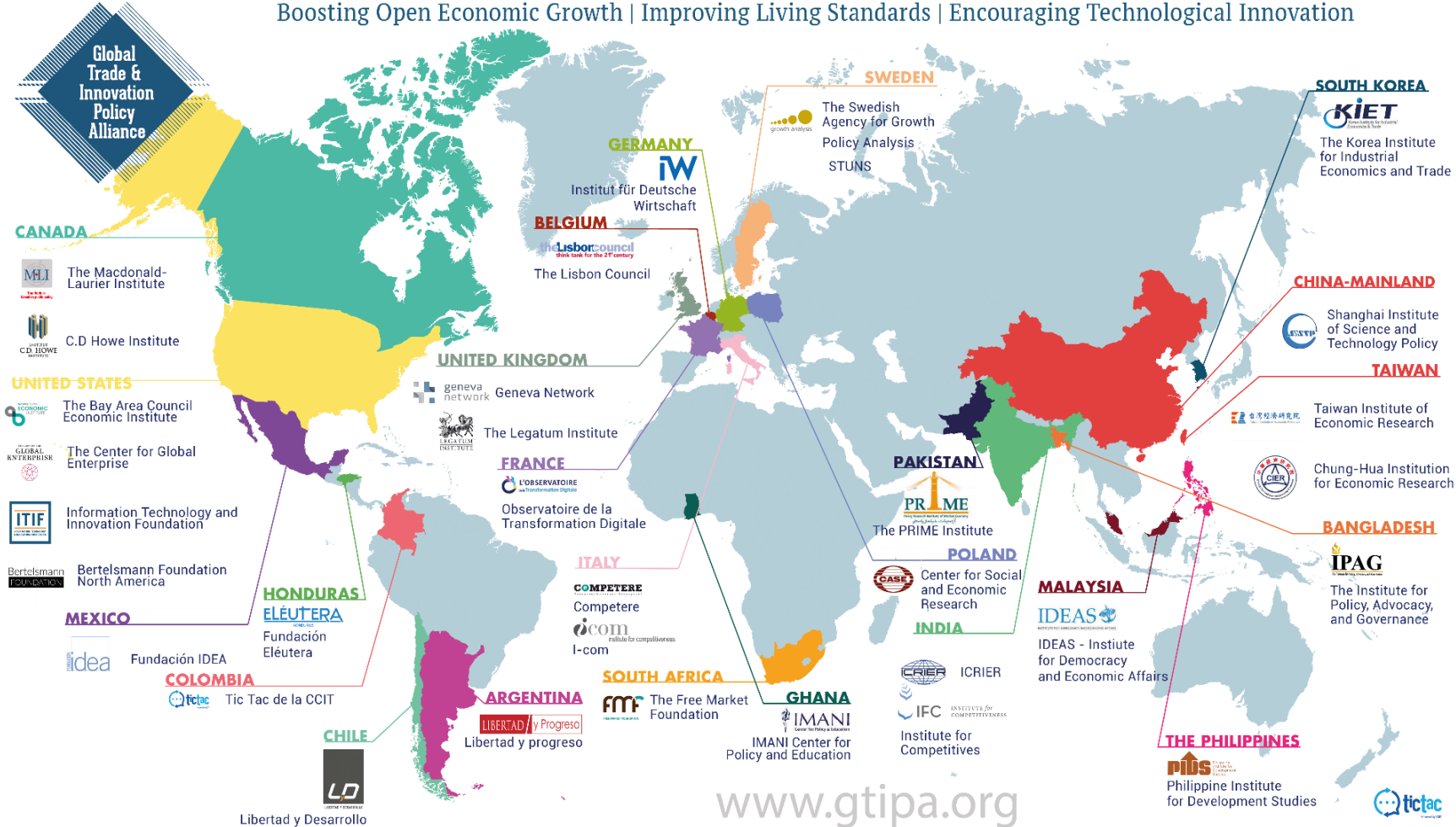
Sources: Nigel Cory, ITIF, "Cross-Border Data Flows: Where Are the Barriers, and What Do They Cost?"; M.F. Ferracane, ECIPE, "Restrictions on Cross-Border Data Flows: A Taxonomy"

Additional Recommendations for Policymakers

- ✓ Maintain the WTO moratorium on e-commerce transactions duties.
- ✓ Adopt APEC CBPR, ensuring that data protections flow with data.
- ✓ Recognize that data provides an essential innovation platform.
 - Adopt open government data policies.
 - Refrain from taxing the use of data.

Join The Global Trade and Innovation Policy Alliance

Boosting Open Economic Growth | Improving Living Standards | Encouraging Technological Innovation



Thank You!

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