

BROOKINGS

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Regulating a Digital Economy

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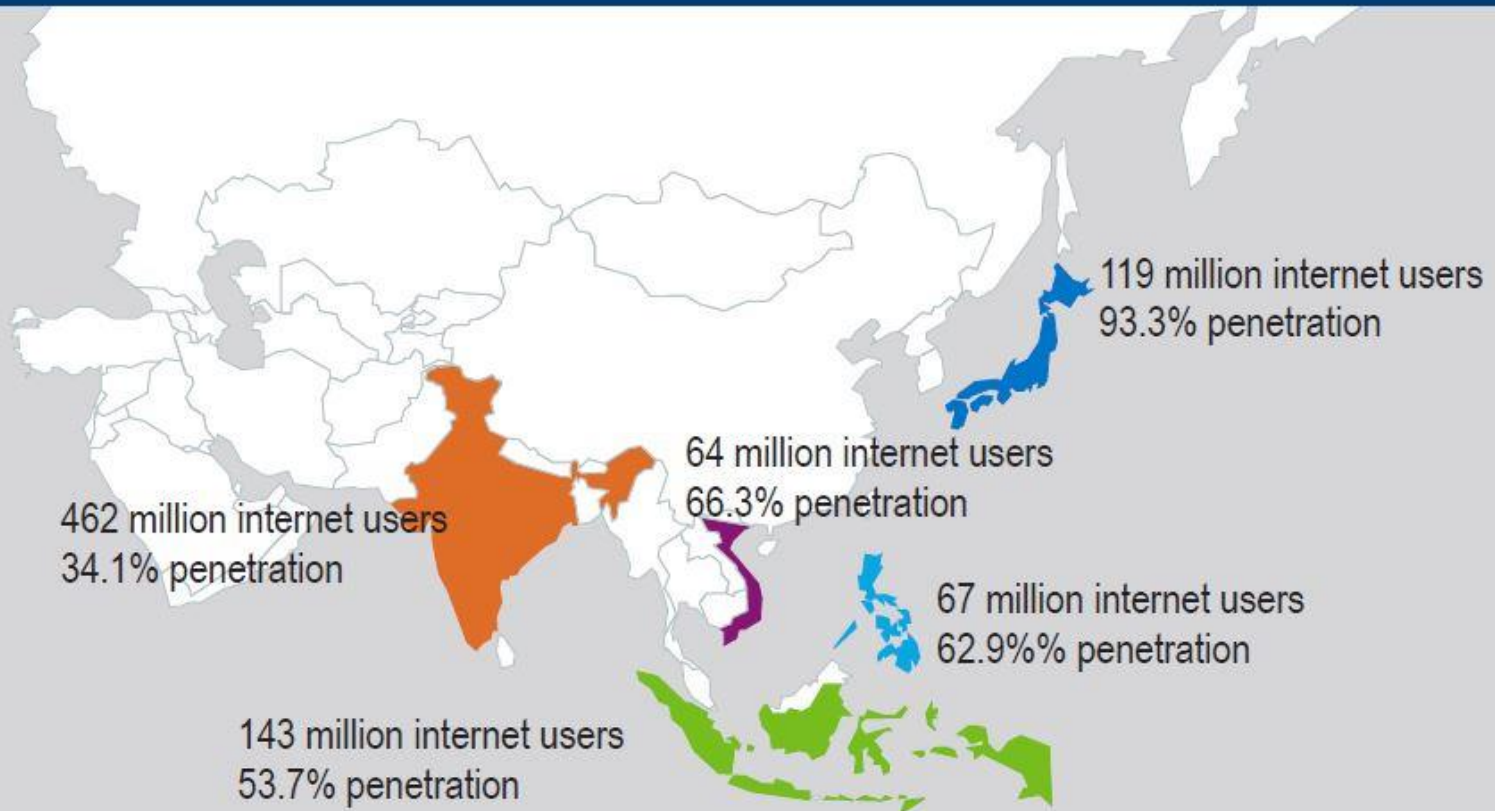
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Global Digital Trends

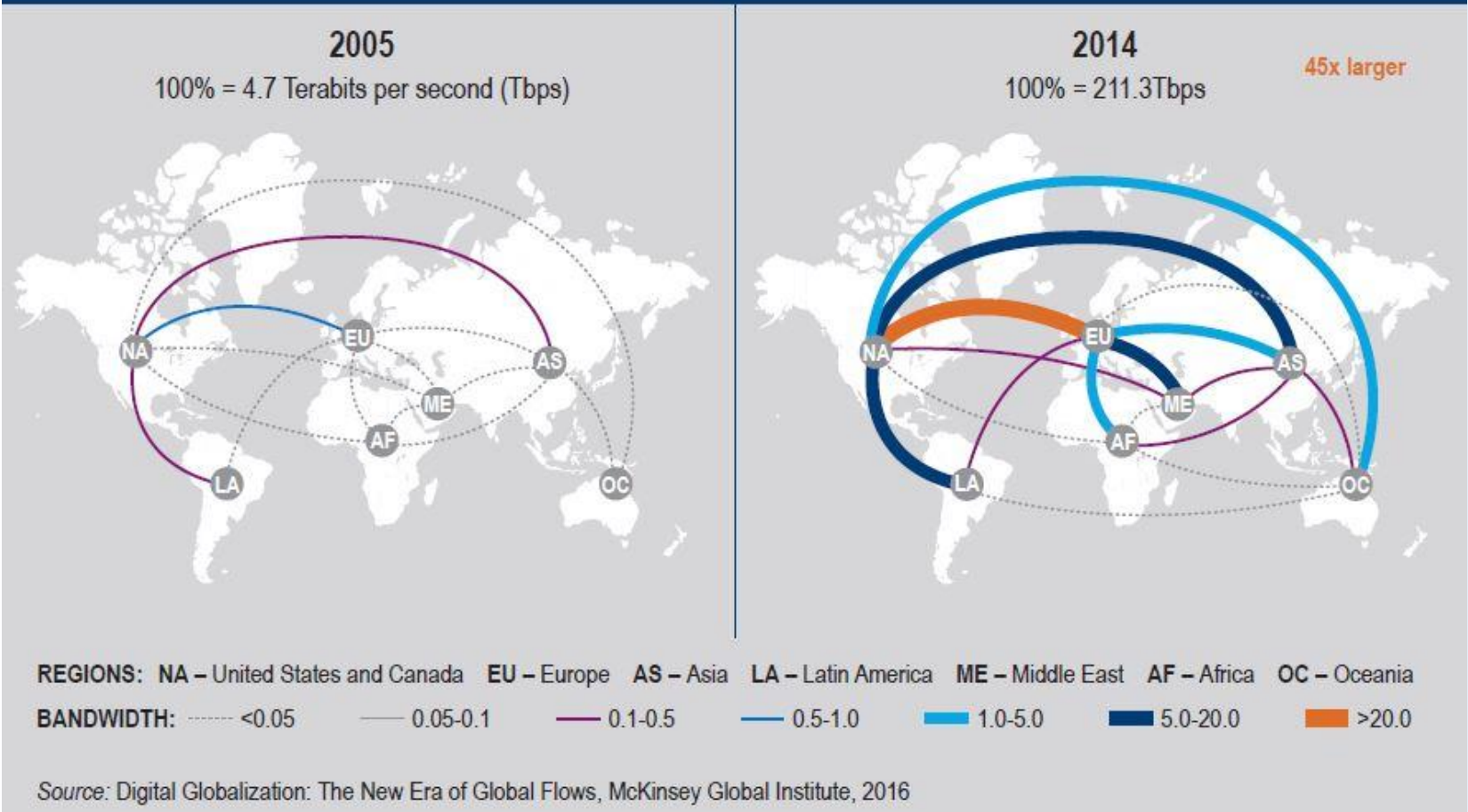
- 3.7 billion people have access to the internet – but over 50% of the world does not have internet access
- Internet access is mobile
- Entire economies are becoming digital
- Transformation in international trade

Figure 4. Internet Users and Penetration for Five Asian Economies



Source: Connectivity, Innovation and Growth: Fostering an Open Internet in Asia, TRPC, 2017

Figure 1. Growth of global cross-border data flows 2005 vs. 2014



Digital Economy and Trade Opportunities

- Global data flows raised GDP by 3.5%, or ~\$2.8 trillion in 2014 and up to \$11 trillion by 2025 (McKinsey)
- A 10 percent increase in internet penetration in the exporting country leads to a 1.9% increase in export (World Bank)
- US internet and data use increased GDP by 3.4-4.8% (USITC)
- Ecommerce sales was over \$25 trillion in 2015 (UNCTAD)
 - » 90% B2B, 10% B2C
 - » Cross-border B2C was \$189bn in 2015

India's Digital Economic Opportunities

- Digital economy to contribute \$550bn-\$1tr in GDP by 2025, and add 1.5-2 million jobs by 2018
 - » Digitization already a \$1.2tn opportunity
- Productivity gains are economy-wide
- Small business export opportunity
 - » SMEs employ >101mn people and represent 40% of export revenue
- Digital Services
- Smart Manufacturing

Table 2. Employment in Information and Communications Services (selected economies, 2015 or latest year available)

	Information and communication services					
	Total employment in information and communications services (thousands)	Share in total employment (percent)	Telecom (thousands)	Computer software and services (thousands)	Telecom and computer services (thousands)	Share in total employment
European Union	6,614	3	1,119	3,505	4,624	2.0
United States	4,701	3.3	807	2,497	3,304	2.3
Australia	628	1.8	91	196	287	0.8
China					3,366	1.8
India	3,201	0.8	298	1,740	2,038	
Japan	2,090	3.3	200			
Brazil	1,237	1.3	187	588	775	0.8
South Korea	772	3				
Indonesia	541	0.5	328			
Russia			534			
Nigeria	470	1				
World (estimate)	100,000	1.5				

Note: Available statistics for China cover number of employed persons in urban units, information transmission, computer services, and software. Data for India are for 2012 and those for Nigeria are for 2010. Data for telecoms in Brazil and China are for 2014. The estimates are based on ILO data, as well as on national data for 116 countries that together account for 29 percent of global employment.

Source: Digitalization, Trade, and Development, UNCTAD, 2017

Table 3. Top 10 Economies by Value Added of ICT Services (2015)

Economy	Value added (\$ bn)	Share in top 10 (percent)	Share in GDP (percent)
1 United States	1,106	42	6.2
2 European Union	697	26	4.3
3 China	284	11	2.6
4 Japan	223	8	5.4
5 India	92	3	4.5
6 Canada	65	2	4.2
7 Brazil	54	2	3
8 South Korea	48	2	3.5
9 Australia	32	1	2.4
10 Indonesia	30	1	3.5
Total for top 10	2,657	100	4.5

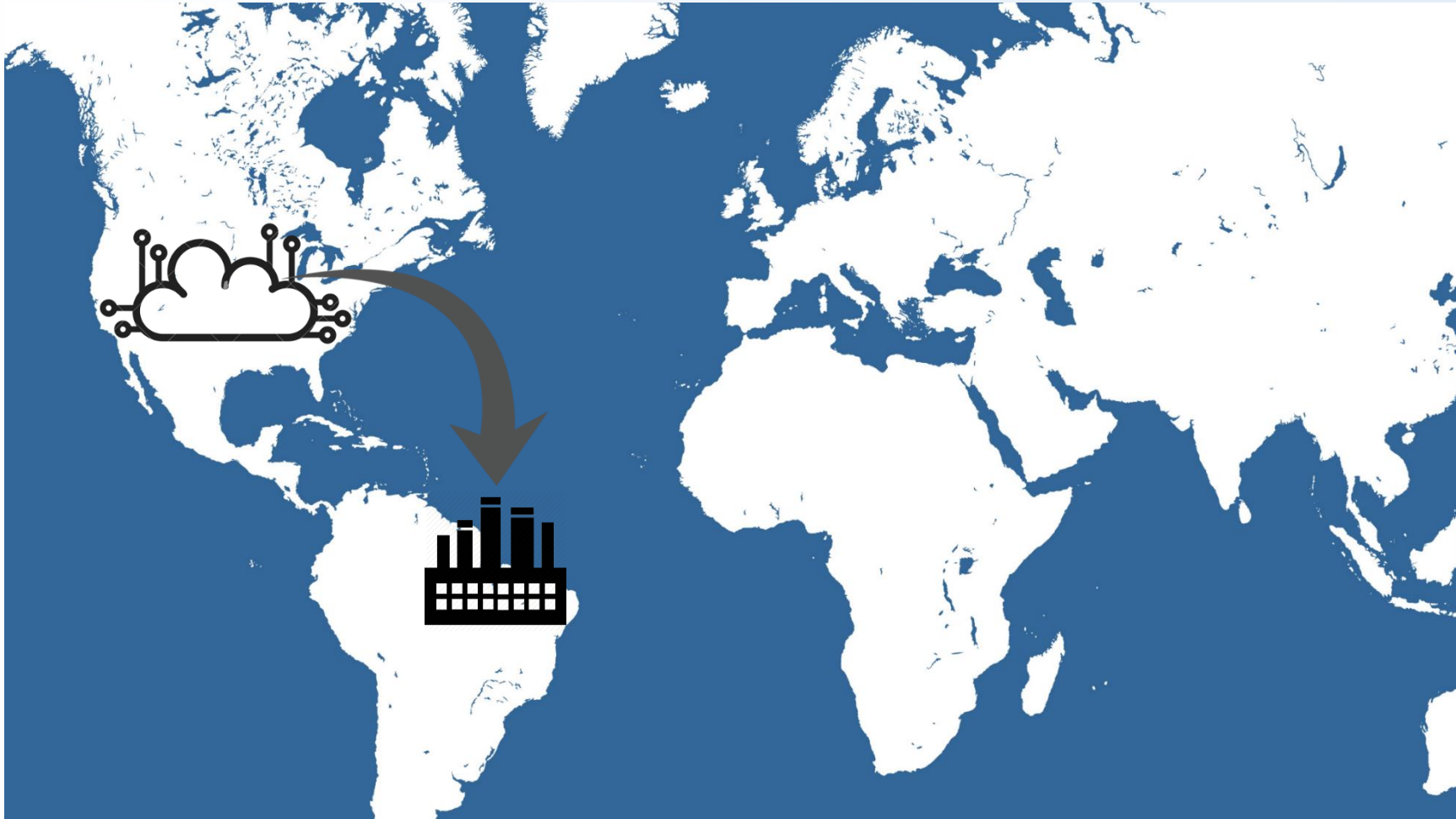
Note: Data refer to ISIC Rev. 4 section J, Information and Communication. Data are in current prices and converted to U.S. dollars using annual average exchange rates from mostly national services.

Source: Digitalization, Trade, and Development, UNCTAD, 2017

How Business Uses Data

- Cloud computing
- Internet of Things
- Big Data

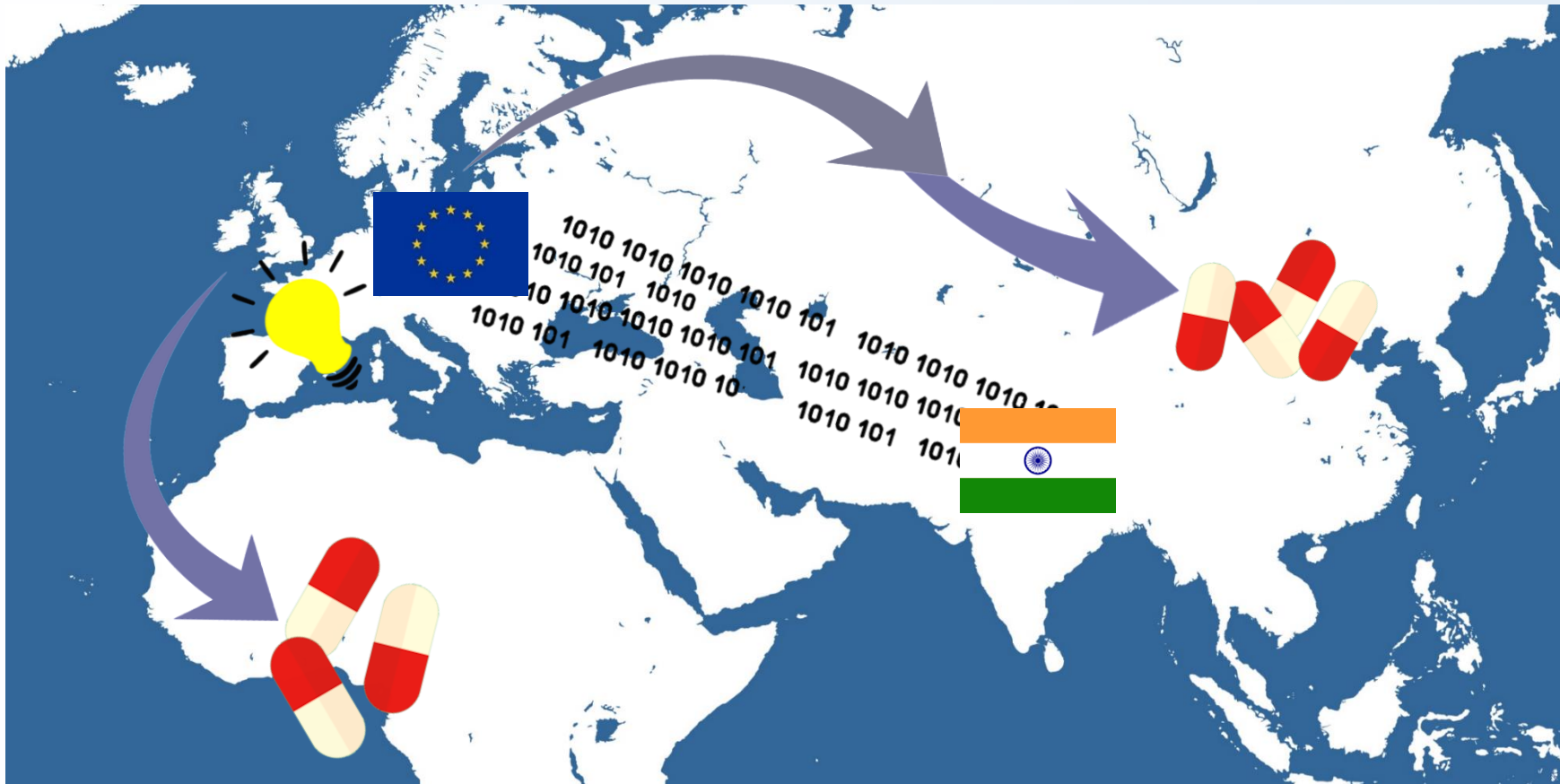
Cloud Computing



Internet of Things



Big Data



Elements of Digital Trade

- Platforms
- Digital Services
- Increased services value-add in manufacturing
- Global Value Chains

Digital Platforms

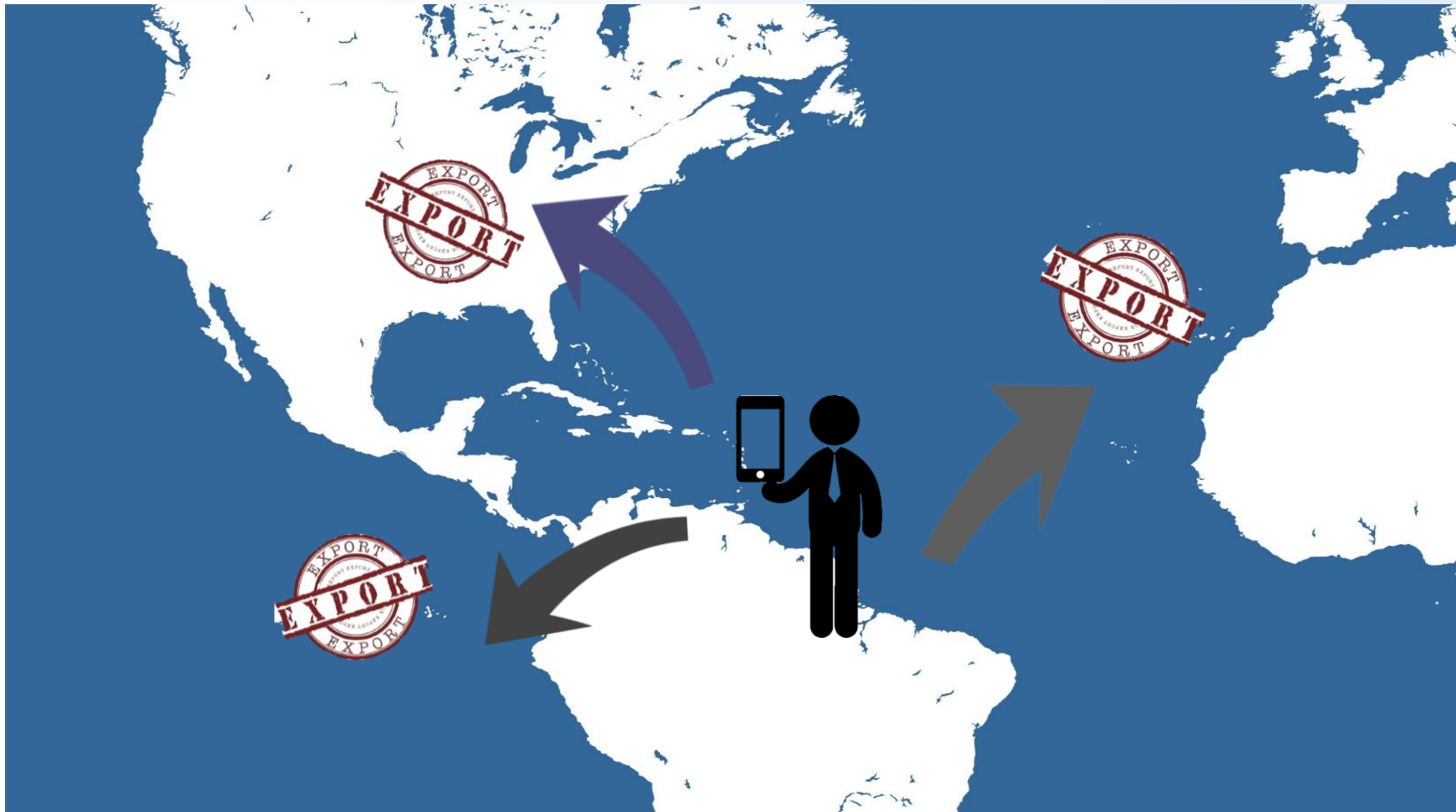
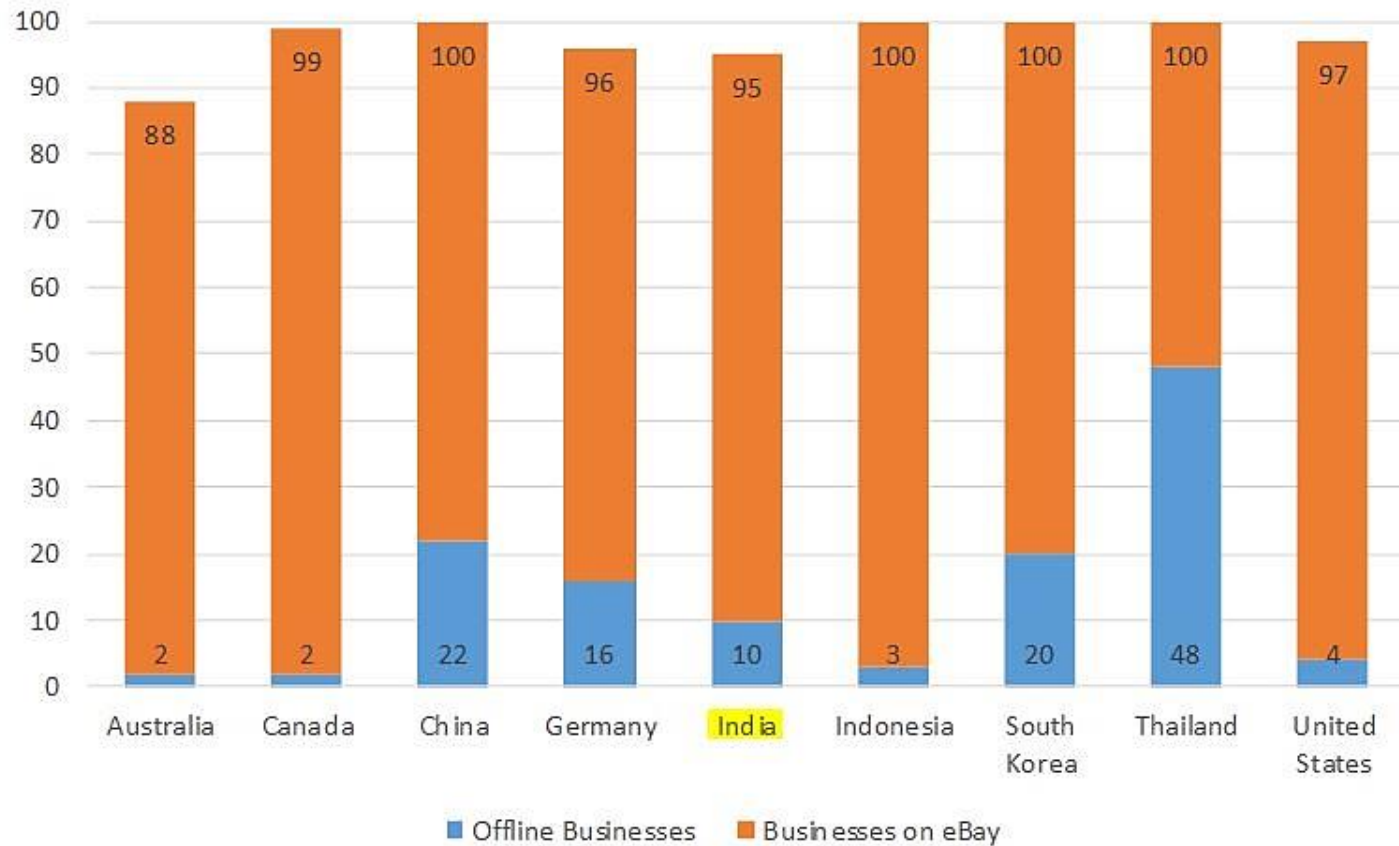
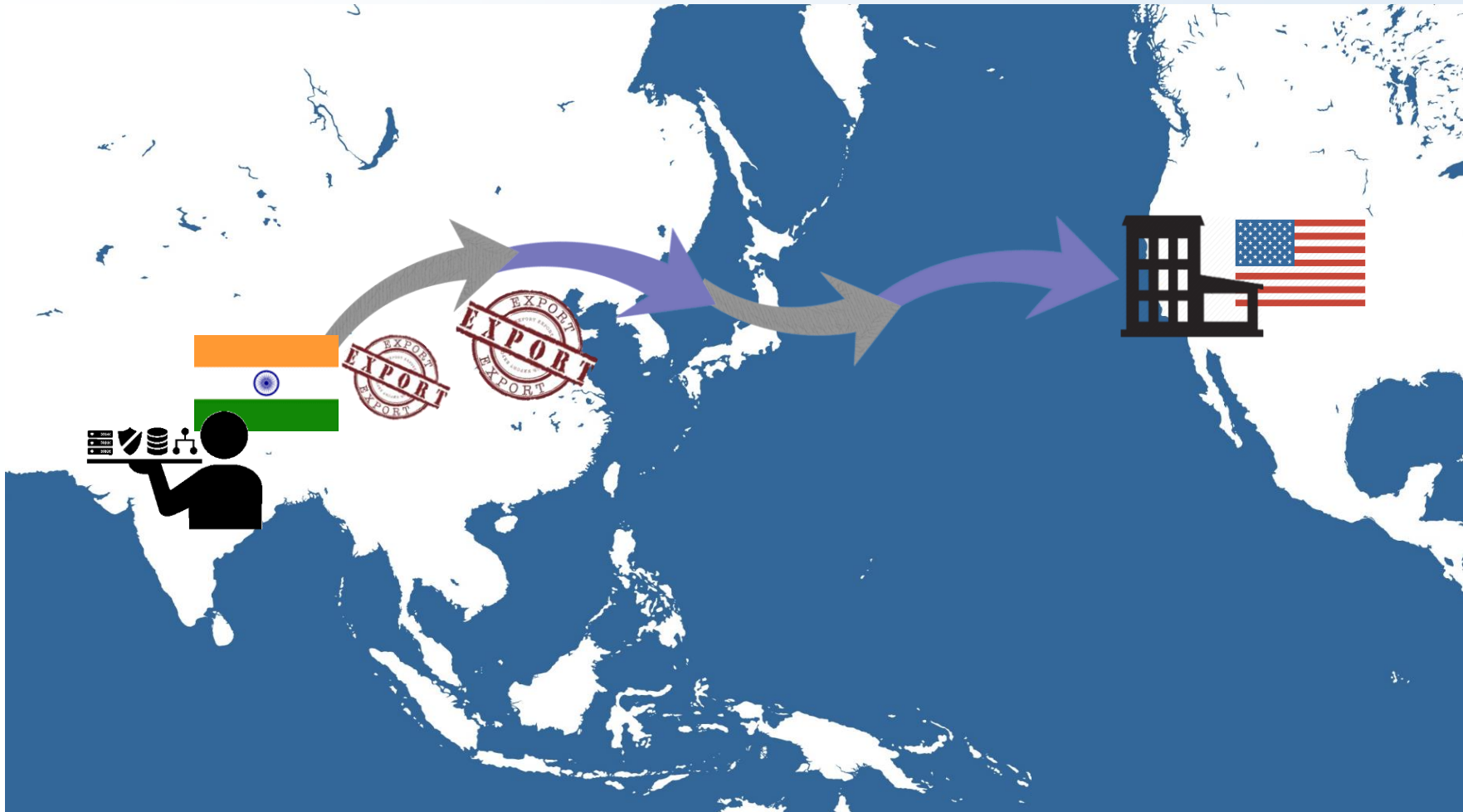


Figure 2. Share of eBay-Enabled Small Businesses that Export



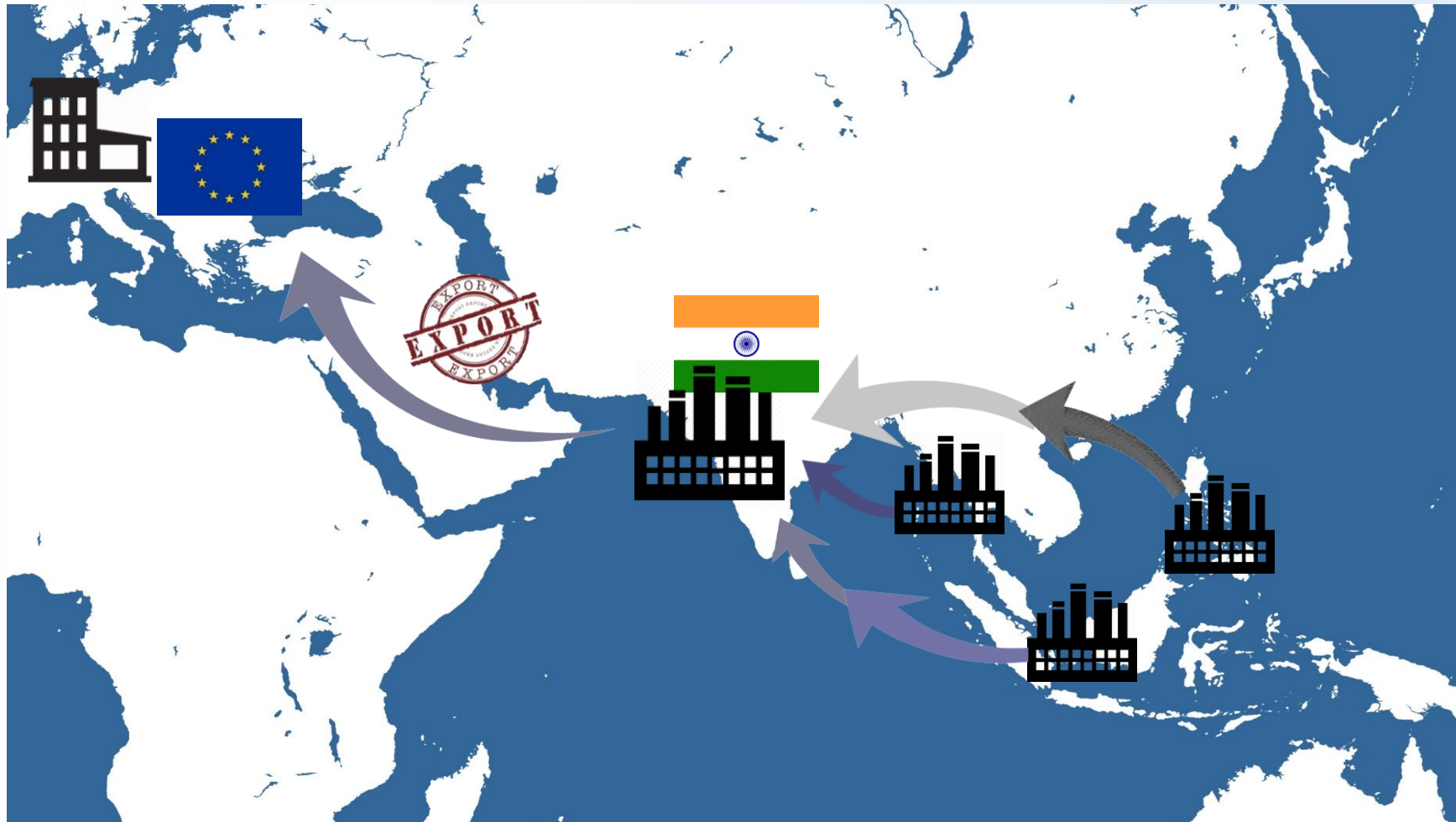
Trade in Services



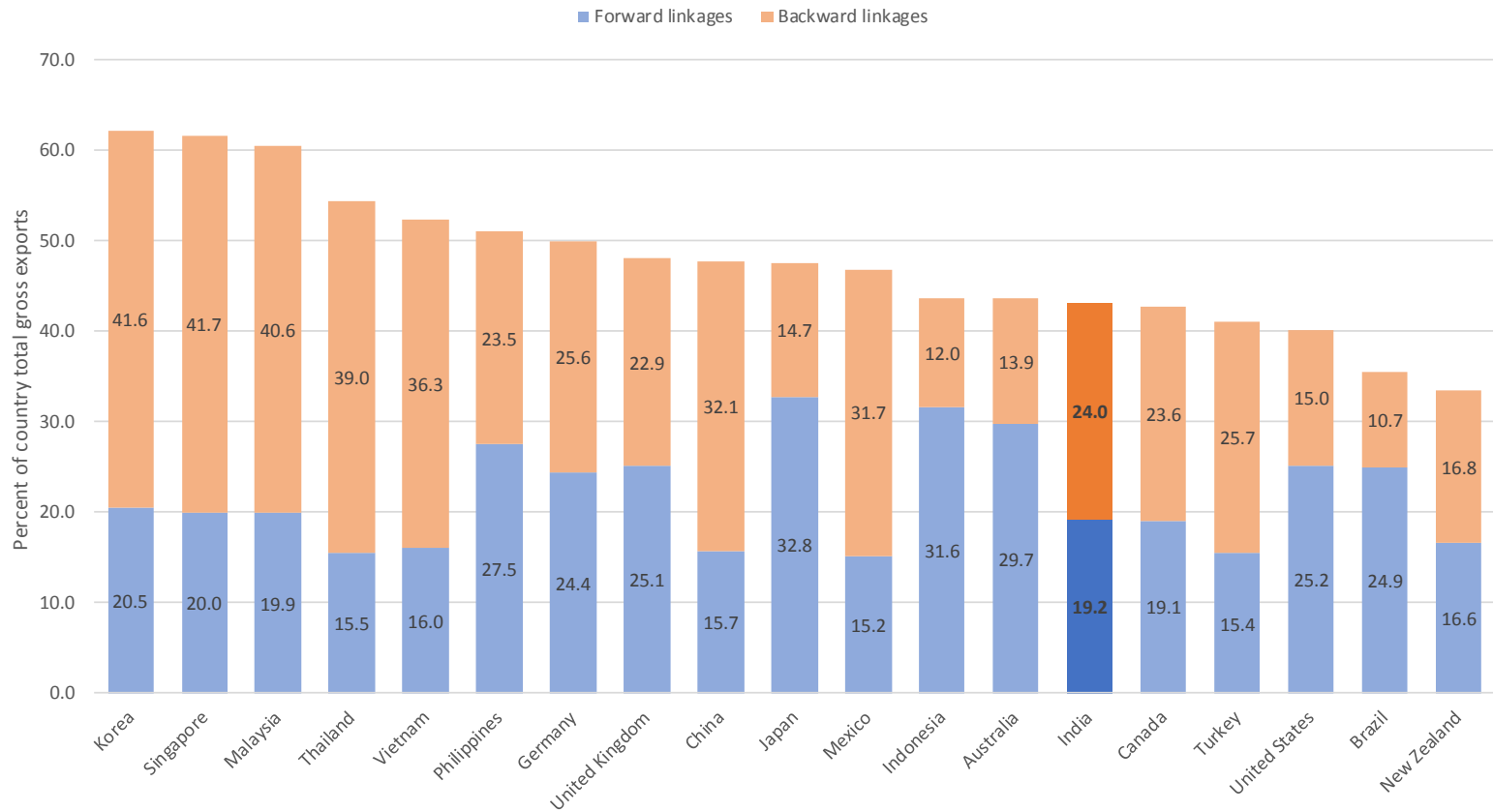
Digitization of Goods



Global Value Chains



Integration into Global Value Chains, 2011



Data flows and India's exports

- Cross-border data flows are vital for India's exports of services
- US, Canada and Europe are top three destinations for computer software exports
- Over 40 percent of India's goods and services exports consist of software services and IT enabled services (ITES) I.e. financial analysis, accounting, medical transcription, provision of apps for smartphones.
- Approximately 65% of India's IT and IT-enabled exports are delivered cross-border and online
- 15% delivered through commercial presence which also relies on data flows

Data Flow Barriers and Restrictions

- Information Technology Rules (2011) limit cross-border transfer of sensitive personal data
 - » when “necessary” or when subject gives consent – the former difficult to prove
- National Data Sharing and Accessibility Policy (2012) requires government data be stored in India
 - » Particularly for cloud providers to compete for contracts
- Companies (Accounts) Rules (2014) requires backups of financial information, if stored overseas, be stored in India
- National Telecom M2M roadmap (2015) requires gateways and app servers that serve Indian customers be located in India
- RBI – Storage of Payment System Data (2018)

Costs of data restrictions

- Limits access to digital commerce networks and online resources
- Limits the ability of businesses to synthesize large data sets
 - » applies to data processing and internet services, and businesses that depend on data for delivery
- Affects business models, reduces productivity, innovation, and business competitiveness
- Forces businesses to invest what are frequently lower quality data facilities

Common reasons for restrictions

- Privacy
- Cybersecurity
- Law enforcement
- Digital protectionism
- Level the playing field

Economic costs of data localization

- Proposed and enacted data localization measures in India would reduce GDP by 0.1%
 - » Reduce investment in India by 1.4%
- Economy-wide data localization would reduce India's GDP by 0.8%

Regulating for a digital economy

Ensure the realization of legitimate regulatory goals i.e. privacy, security while maximizing the economic and trade opportunities of cross-border data flows

“Reduce risk to an acceptable level relative to the economic and social benefits expected from these activities” OECD 2015

Privacy and data flows

Reason for data restrictions: privacy can be eroded if personal data is sent to countries with lower levels of privacy

- EU Data Directive/GDPR
- US Approach

Managing the risks, maximizing the opportunities

- Develop robust domestic privacy laws
 - » India's White Paper
 - » Puttaswamy v. Union of India 2017
- APEC CBPR
- Privacy Shield
- CPTPP regulatory bargain

Cybersecurity

Rational for restrictions: data is more secure when locally stored

Risk Assessment

- Data is not necessarily more secure because data remains local
- Security is a function of expertise, resources, physical environs
- Large sophisticated data providers with distributed data centers provide better security than local small business
- » Centralized in-country data offer one point of attack

Data Flows and Cybersecurity – managing the risks

- Government and private sector cooperation in critical infrastructure sectors
- Strong data encryption, deletion of data when not necessary, and up-to-date security software
- Fragmenting across data centers, or through use of access management procedures
- Resilience and data recovery can also rely on multiple data sets and different geographic locations /countries

Law enforcement

Reason for restrictions: provides rapid access to data for law enforcement purposes

- MLAT are too slow for law enforcement
 - » Information sharing reserved for exceptional circumstances
 - » Poorly designed to respond to regular requests
- Data often held in US
 - » 10-month process
 - » May refuse or require changes to request

Building Trust

- Reform the mutual legal assistance treaty process
- Negotiate data-sharing agreements, either bilaterally or multilaterally
 - » US Cloud Act
- Avoid government ‘backdoors’ that erode trust in the internet by businesses and consumers

Regulate OTT Players

Reason for restrictions: level the playing field with incumbent telecom providers

Major OTT players invest in their own networks

- » Account for 50% of intra-Asia and trans-Pacific traffic
- » Invest in alternative distribution, e.g. TV White Space to extend access
- Not clear that OTT providers reduce investment in domestic infrastructure
 - » OECD - “Virtuous cycle” – innovation at the edge increases demand for and expands investment in broadband infrastructure.

Reforms

- Reform licensing to turn the challenge of OTT providers into an opportunity
 - » India was 1st country to introduce unified licensing for traditional and OTT providers
- Convergence of fixed and mobile, voice, and text and video offer opportunities to attract new investment in ICT and media

Digital protectionism

Reasons for restrictions: data localization will force development of local data centers. Blocking access to competitors will benefit local companies

- Estimated that China blocks access to 3000 websites include 11 of top 25 global sites
- Restrictions may be inconsistent with WTO commitments
- Lead to retaliation by others, increasing costs for local firms
- Data as a key enabler and input of productivity and growth

Building a digital economy

- Determine fit-for-purpose regulation
 - » especially in privacy, consumer protection, IP, and financial regulation/competition law
- Governments need to ‘go digital,’
 - » includes delivering digital services and supporting digital startups
- Ensure education prepares students for the jobs the digital economy will produce
- Develop a digital trade policy