

Job creation from e-commerce: Sectoral linkages and implications for ASEAN

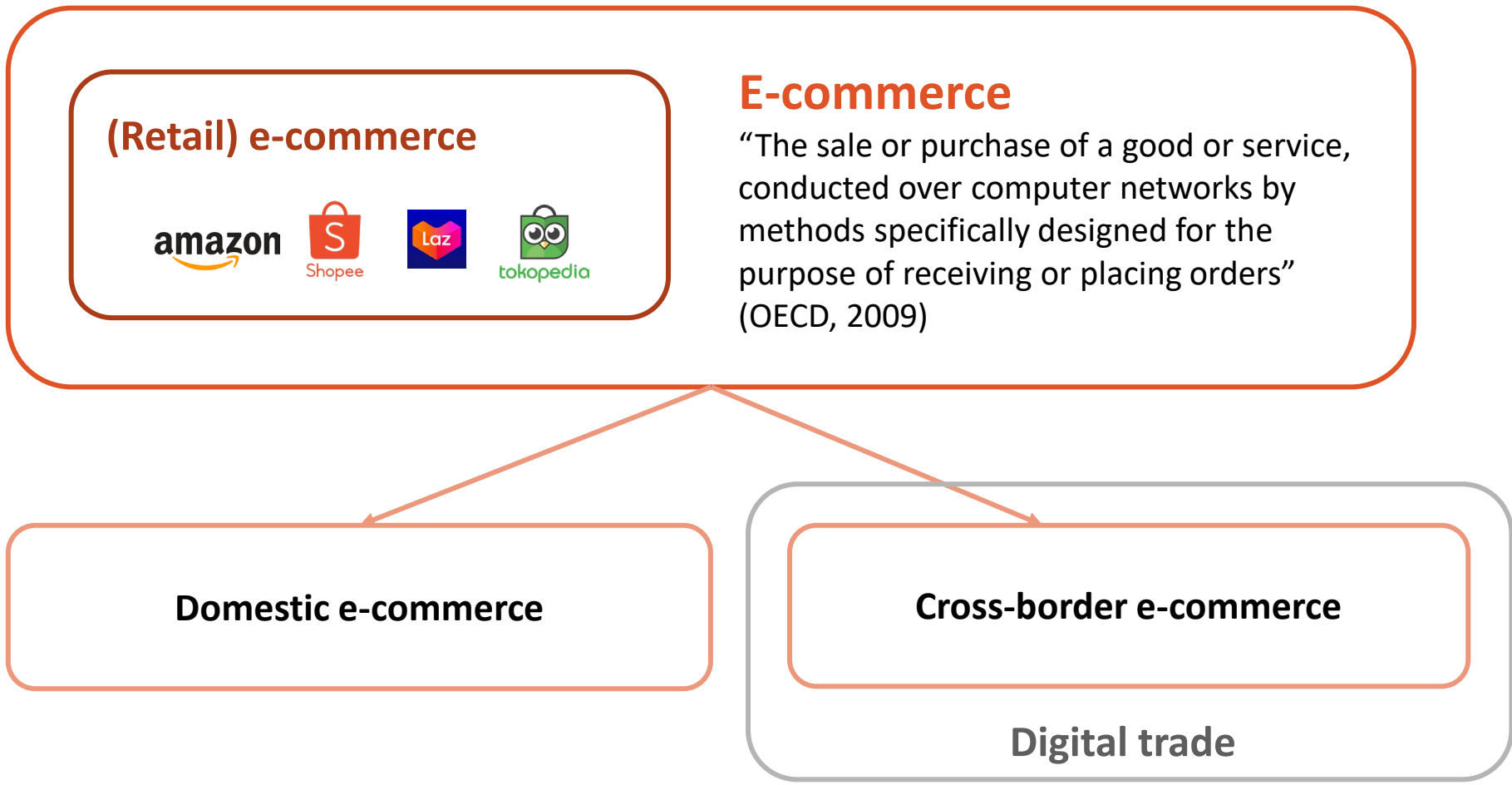
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Outline

- 1 Background: E-commerce landscape in ASEAN**
- 2 Estimating job creation of e-commerce: Singapore's Case**
- 3 Implications for ASEAN**
- 4 Key takeaways**

Behind the scene of online shopping

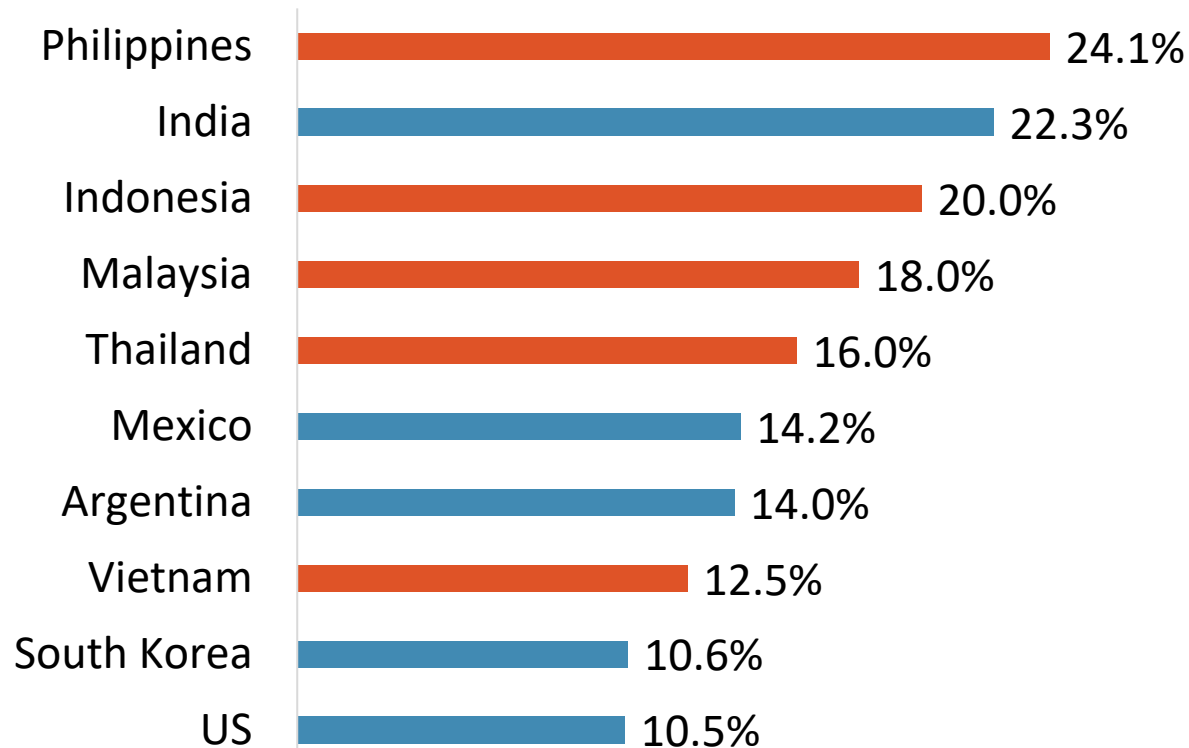


Source: ACI analysis based on OECD-WTO-IMF-UNCTAD Handbook on Measuring Digital Trade (2023)

Southeast Asia leads the growth of retail e-commerce

- 5 ASEAN countries among the top 10 countries with the fastest retail e-commerce sales growth
- Traditional retail still dominates
- Substantial growth potential compared with a mature market like China

2023 top 10 countries ranked by retail e-commerce sales growth (% change)



Source: eMarket

2021 Share of e-commerce on total retail

Geography	Share
China	33%
Singapore	14%
Thailand	11%
Indonesia	10%
World	9.7%
Philippines	5%

Source: PPRO

ASEAN's collective actions to facilitate e-commerce development

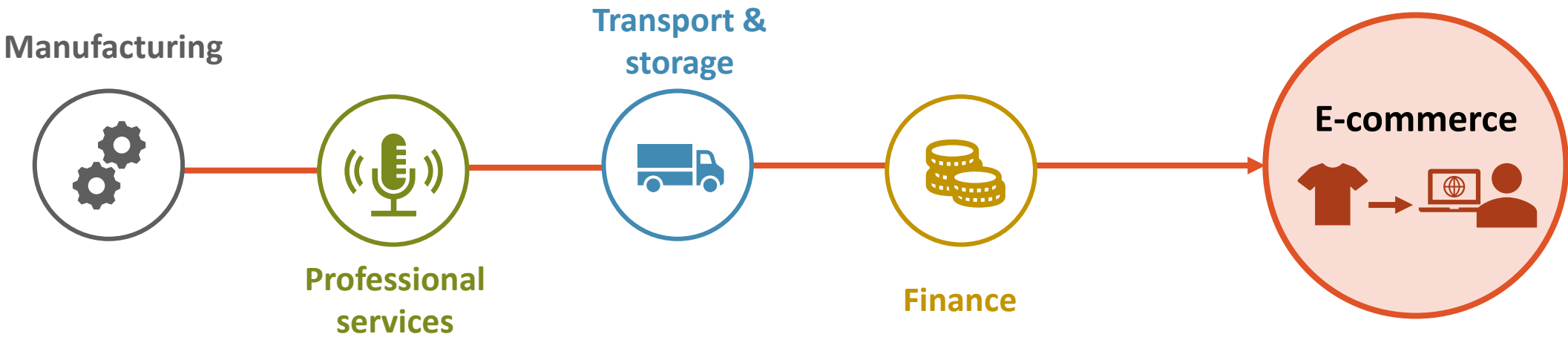
ASEAN Agreement on Electronic Commerce (2019)

Member States shall cooperate in 11 areas (e.g. e-commerce legal and regulatory framework) to intensify the use of e-commerce

Cross-border e-commerce and digital trade are among the 9 core elements in the negotiations of the ASEAN Digital Economy Framework Agreement (**DEFA**)

E-commerce has a significant impact on the labour market

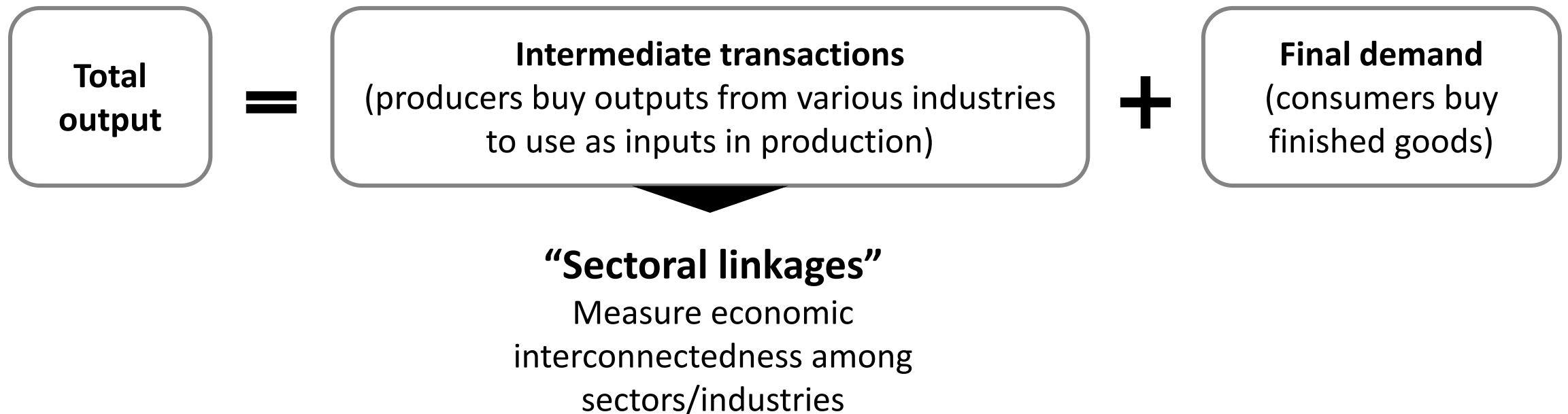
- E-commerce brings new business and job opportunities to various industries along the value chain
- To serve the growing demand due to e-commerce, the economy needs...
 - More existing jobs: **textile workers**, **delivery drivers**
 - New roles: **live-streaming hosts**, **fraud analysts**



Research question: How many jobs are created by e-commerce?
How many labour inputs are involved in the e-commerce-related production process?

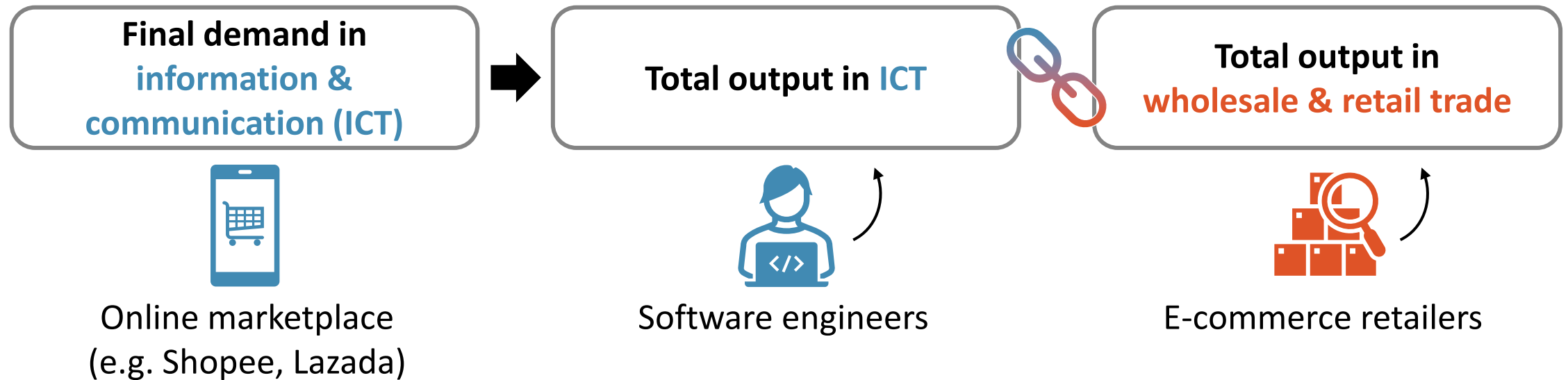
Methodology: Input-output (IO) analysis (Part 1)

IO table records the flows of goods and services between different industries



Methodology: Input-output (IO) analysis (Part 2)

A change in **final demand** in an industry prompts a chain reaction via **sectoral linkages**



Higher total **output** creates a higher number of **jobs**, **directly** and **indirectly**

Data

- 3 datasets sourced from Singapore Department of Statistics (DOS)



To serve the demand increase in an e-commerce-related industry, how many additional jobs are generated in...

- the same industry (**Direct effect**)
- a different industry (**Indirect effect**)

Total effect = direct effect + indirect effect

The higher the share of indirect effect, the stronger the linkage between this industry and the others

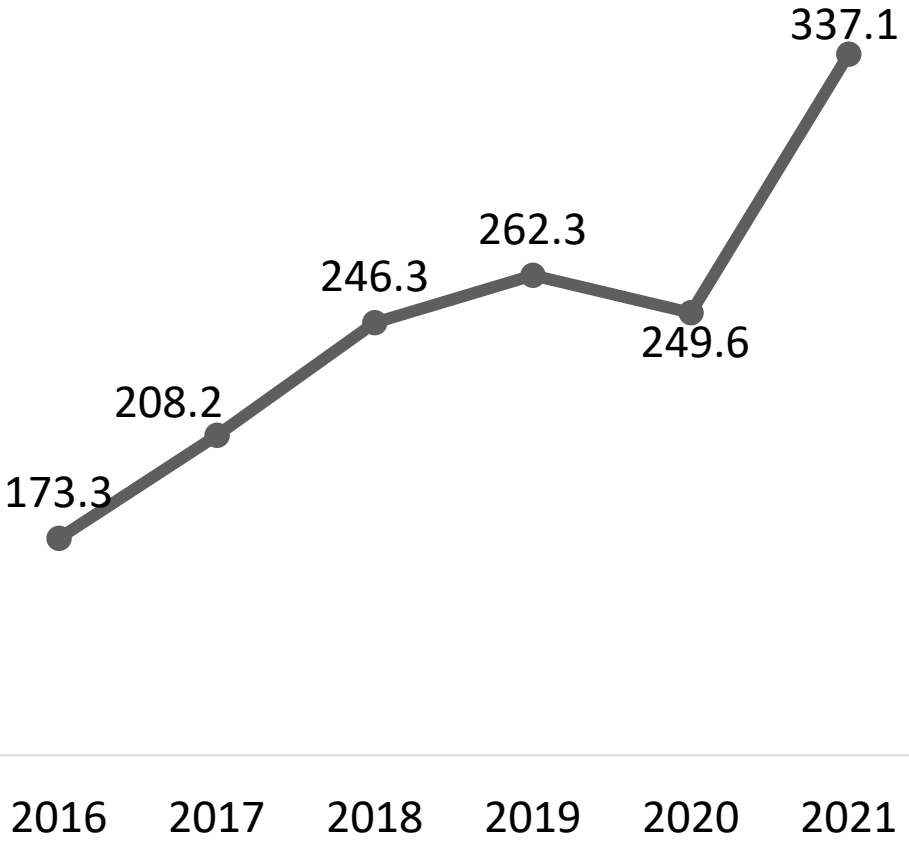


E-commerce revenue generated by 7 industries of the services sector, except finance

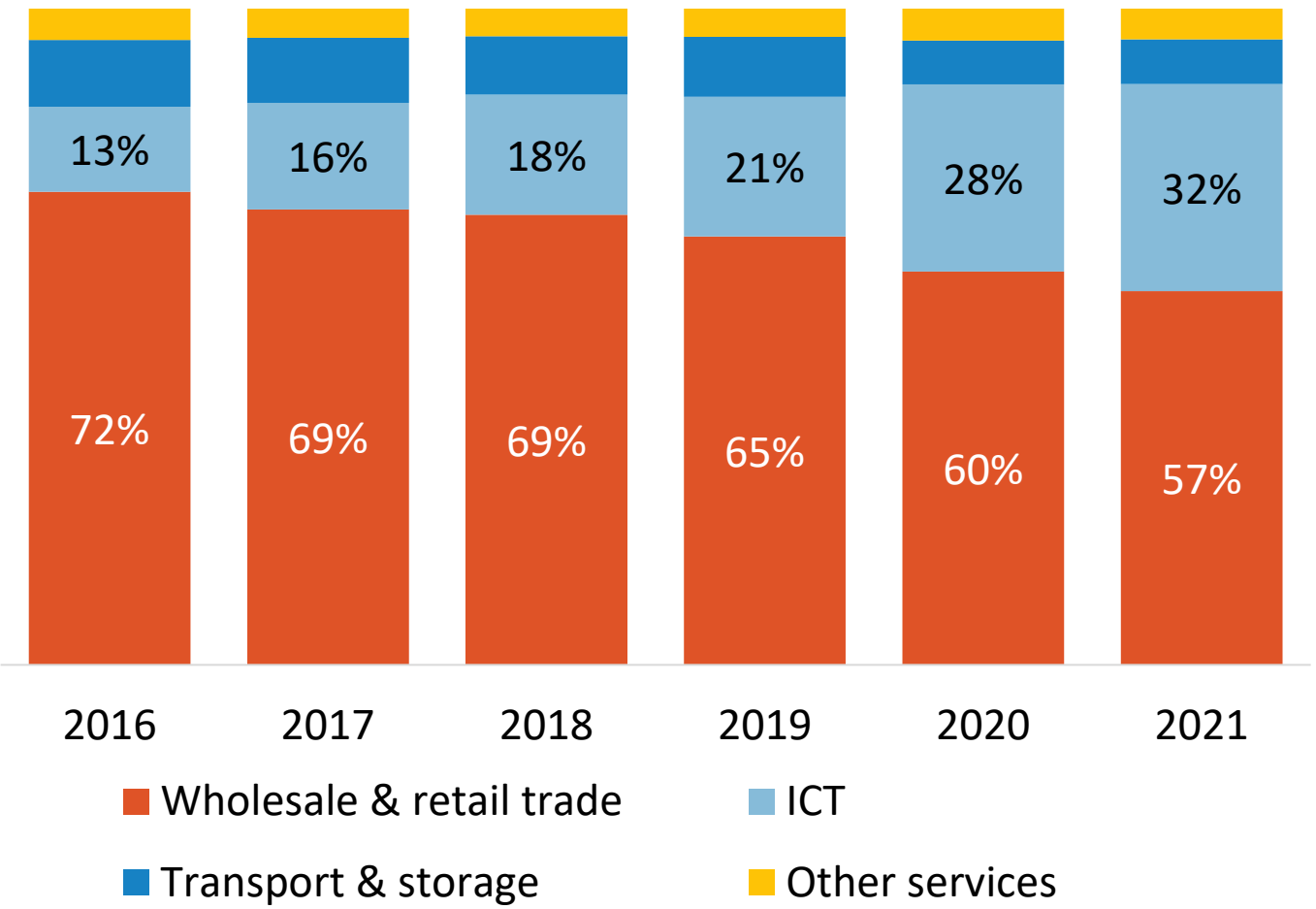
1	Wholesale & retail trade
2	ICT
3	Transport & storage
4	Accommodation & food services
5	Real estate & professional services
6	Administrative & support services
7	Recreational & community services

Overview of Singapore's e-commerce market

E-commerce revenue of total services sector (billion SGD)



Share of e-commerce revenue



Note: "Other services" include (1) accommodation & food services, (2) real estate & professional services (3) administrative services and (4) recreation & community services

Source: DOS

Estimating total job creation in the economy

Estimated total employment creation (thousands)

	Total effect	Direct effect	Indirect effect	Direct %	Indirect %
2016	636	474	162	74.5%	25.5%
2019	941	692	249	73.5%	26.5%
2021	1,209	880	329	72.7%	27.3%

Source: ACI analysis using data from DOS

Job creation effect of services industries (2021)

- **Wholesale & retail trade and ICT:** primary drivers of e-commerce-related employment
- ICT, 2nd highest indirect share: its demand growth triggers substantial spill-over effects

Estimated total employment creation (thousands) in 2021

Services industries	Total effect	Direct effect	Indirect effect	Direct %	Indirect %
Wholesale & retail trade	624	455	169	73%	27%
ICT	305	196	109	64%	36%
Recreational & community services	72	69	3	96%	4%
Transport & storage	66	48	18	73%	27%
Accommodation & food	52	48	4	92%	8%
Real estate & professional services	46	41	5	89%	11%
Administrative services	44	23	21	52%	48%

Source: ACI analysis using data from DOS

Indirect job creation effect (2021)

1-7: Industries with e-commerce revenues

- 2, 5, 7 benefit the most from the indirect effect

8-11: Others without e-commerce revenues

- Over 65k new job opportunities in total

		Wholesale & retail trade			ICT			
		1	2	3	4	5	6	7
1	Wholesale & retail trade	NA	1841	609	12105	389	490	242
2	Transport & storage	42154	NA	163	4730	214	521	109
3	Accommodation & food	14363	2841	NA	12909	663	653	358
4	ICT	7740	574	131	NA	665	530	284
5	Real estate & professional services	33148	2860	864	28904	NA	1448	892
6	Administrative services	19360	2395	360	12973	633	NA	506
7	Recreational & community services	19706	2641	670	16185	871	14469	NA
8	Manufacturing	12562	3207	625	12338	801	613	388
9	Construction	3084	642	339	2027	532	383	318
10	Finance	14747	858	222	4672	392	1019	187
11	Others	2250	302	326	1806	87	362	153

Source: ACI analysis using data from DOS

Lessons from Singapore

- 1. Wholesale & retail trade and ICT:** significant contributions to e-commerce revenue and job creation
- 2. Labour-intensive services industries gain indirectly:** closely connected to the above core e-commerce industries
- 3. Sectoral linkages spread job creation effect:** e-commerce creates new jobs even for industries without e-commerce revenue streams

Employment multipliers of wholesale & retail trade industry in ASEAN-6 (2021)

- **Employment multiplier:** thousands of jobs **per billion USD** of demand increase in wholesale & retail trade
- Vietnam has the highest multiplier due to high labour intensity in its wholesale & retail trade industry
- In Singapore, 25% of new job opportunities arise in other industries, which is the highest among ASEAN

Estimated employment multiplier of wholesale & retail trade in 2021

Country	Total multiplier	Direct effect	Indirect effect	Direct %	Indirect %
Singapore	2.5	1.9	0.6	75%	25%
Malaysia	35.9	30.9	5	86%	14%
Thailand	49.6	42.7	6.9	86%	14%
Philippines	119.8	111.6	8.2	93%	7%
Indonesia	132.5	119.2	13.3	90%	10%
Vietnam	167.7	149.9	17.8	89%	11%

Source: ACI analysis using data from ADB

Indirect job creation per billion USD of demand increase in wholesale & retail trade

	SGP	MYS	THA	PHL	IDN	VNM
Primary (Agriculture + mining)	0	620	2181	1967	3448	2707
Manufacturing	29	1157	1571	680	2593	2625
Utilities	10	270	238	204	304	745
Construction	8	974	185	143	1217	2346
Transport & storage	183	287	572	2948	1695	3294
Post & telecommunications	62	186	370	256	456	437
Finance	121	623	969	398	1280	1834
Hotel & restaurants	54	125	359	31	1160	2128
Business services (Real estate, etc.)	32	52	265	166	179	1078
Administrative services (Community services, etc.)	107	655	203	1368	962	617

In contrast to Singapore, wholesale & retail trade in other ASEAN-6 countries has strong linkages with:

- Primary industry
- Manufacturing
- Transport & storage

Key takeaways

1

The fast-growing e-commerce holds potential for enhancing sectoral linkages

- The interconnected e-commerce activities require labour inputs from various industries

2

IO analysis showed 1.2 million e-commerce-related jobs were generated in Singapore in 2021

- Wholesale & retail trade and ICT are the key drivers of e-commerce-related employment
- Sectoral linkages play a crucial role in multiplying the benefits of new business models

3

ASEAN countries need to strategise digital transformation based on industrial structure

- Unlike Singapore, wholesale & retail trade in other ASEAN-6 countries:
 - More labour-intensive
 - Weaker connection with the services sector
- Empower the workforce in the primary and secondary industries with essential digital skills for seizing new opportunities brought by e-commerce

Thank you!

