

**Statistical Capacity Building (StatCaB) Programme
Online Training Course on
'International Trade Statistics and Balance of Payments'**

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Introduction to Trade in Value Added (TiVA) indicators

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Main concepts behind TiVA and GVC indicators



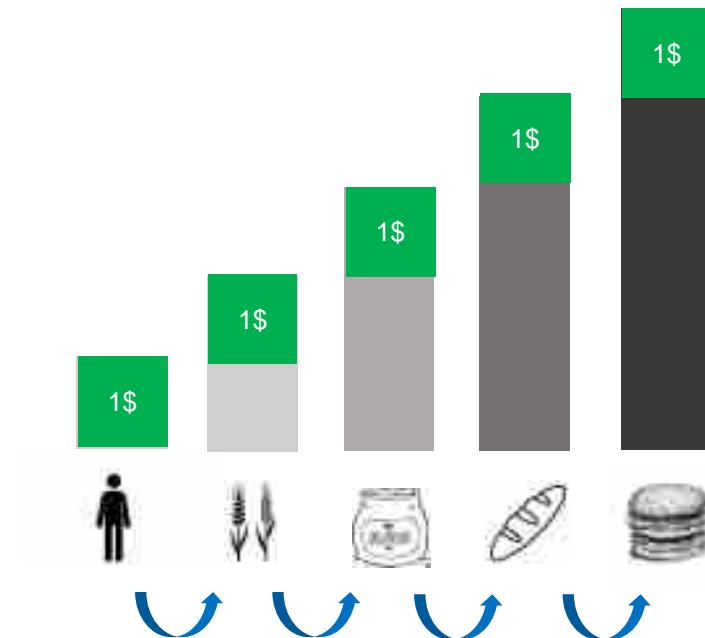
About value added...

Value added = Labour compensation (wages) + Profits + Taxes on production (less subsidies on production)



GDP measures the additional value that is created at every stage of production in all industries and sectors of an economy

$$\text{GDP} = 1\$ + 1\$ + 1\$ + 1\$ + 1\$ = 5\$$$



⇒ Same principle applies to trade in value added !



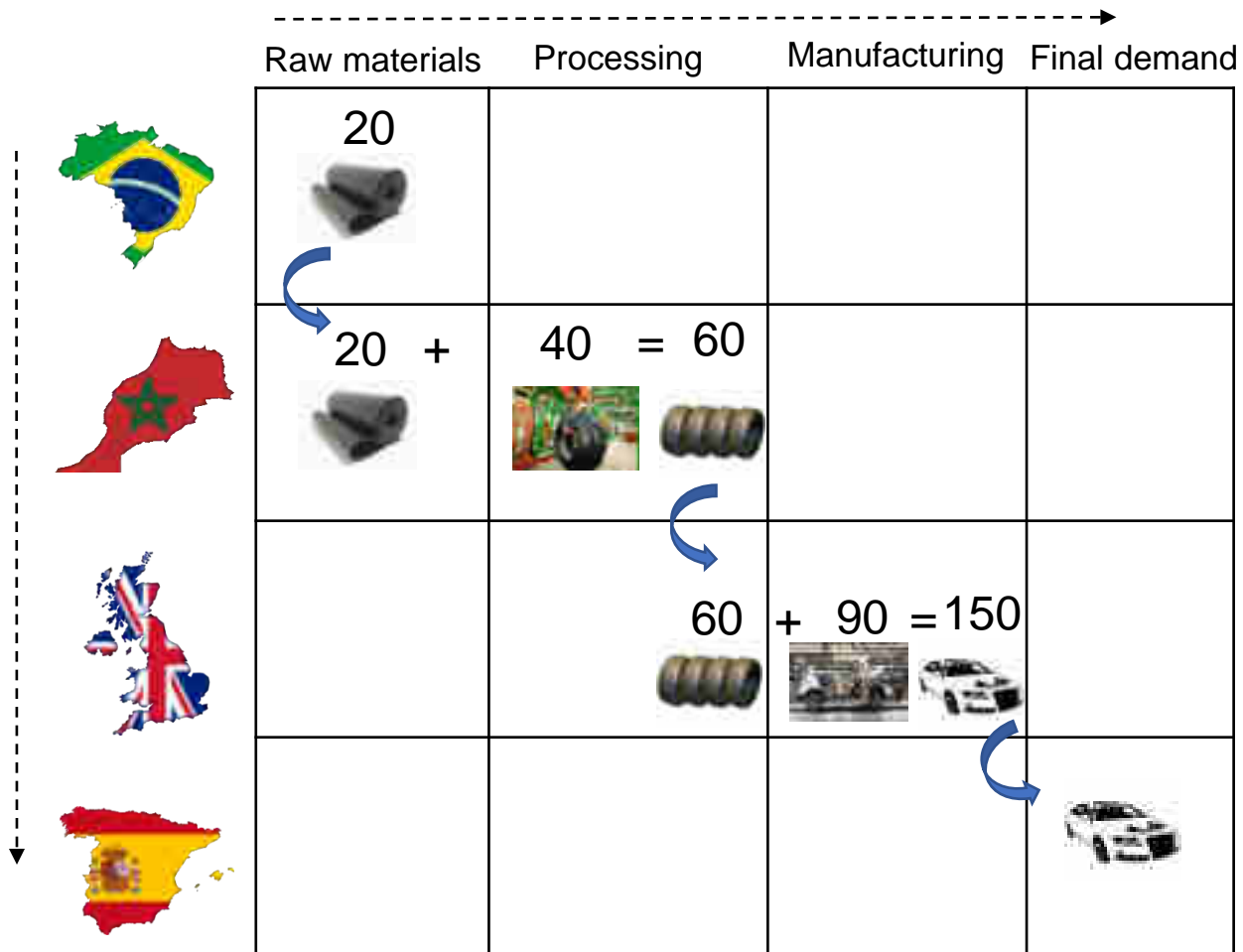
What is trade in value added ?

Trade in value added is a statistical approach that estimates the origin (by country and industry) of the value added that is contained in the exports of goods and services

Some advantages of the TiVA measure:

- ❑ To split traditional gross trade flows into domestic and foreign VA contents
- ❑ To highlight the actual contribution of trade to an economy's GDP, employment... (through the domestic VA content)
- ❑ To address the double/multiple counting observed with traditional trade statistics
- ❑ To estimate the trade taking place within GVCs

Gross vs Value Added measures of trade flows



Gross exports = Domestic VA + Foreign VA

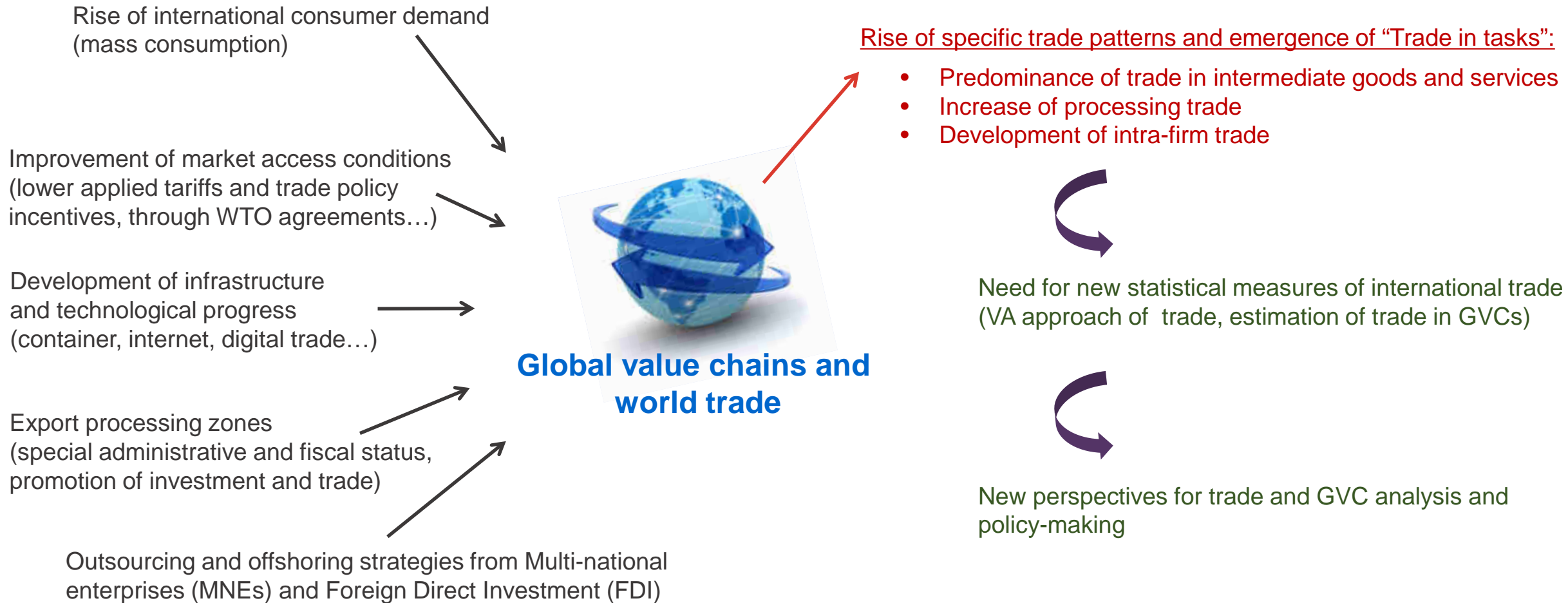
20	20	0
60	40	20
150	90	60
Σ 230	150	80

Multiple counting in gross exports measure of intermediates exchanged within international production networks

Source: WTO, based on UNCTAD "GVCs and Development" 2013 report



Global value chains (GVCs) and world trade - Ins and outs





Key features of trade in GVCs

A definition of GVCs

International organization of investment, production and trade where the different stages of production of goods and services are located in various countries/**regions/firms**

Essentially about trade in intermediates

✓ *Intermediate goods*: parts, components, accessories

✓ *Intermediate services* :

- Business services (R&D, legal consulting,...)
- Information and Communication Technology services (IT consultancy,...)

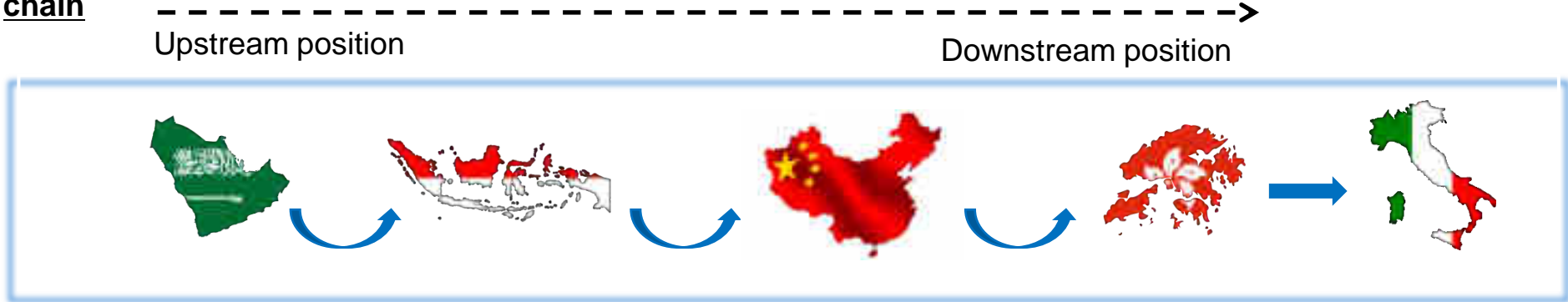
Country/industry participation in GVCs is envisaged in two directions:

- ✓ *Backward linkages (buyer/sourcing side of GVCs)*: import of foreign inputs to produce goods/services for export
- ✓ *Forward linkages (seller/supplier side of GVCs)*: export of intermediates/inputs to GVC partners to produce their exports of goods and services

Schematic presentation of trade in GVCs



1. Economy position in the production chain



2. Industrial task

Oil production Plastic production Plastic box manufacturing Plastic box labelling and packaging ("Manu-services") Final consumption

3. Product type

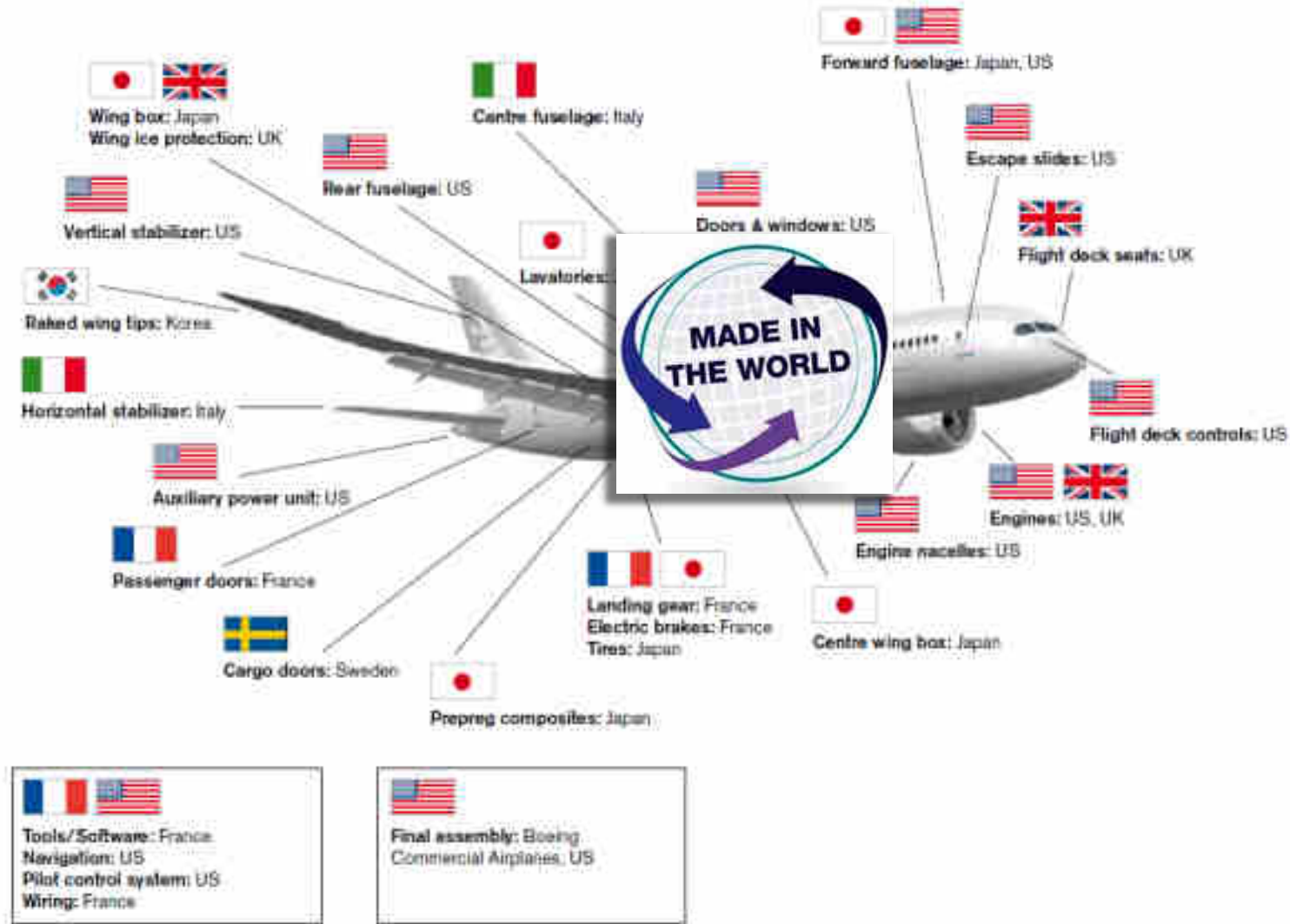
Primary product Intermediate good Intermediate good Final good 

4. Type of GVC participation



An illustration of GVCs 1/3

The Boeing 787 Dreamliner

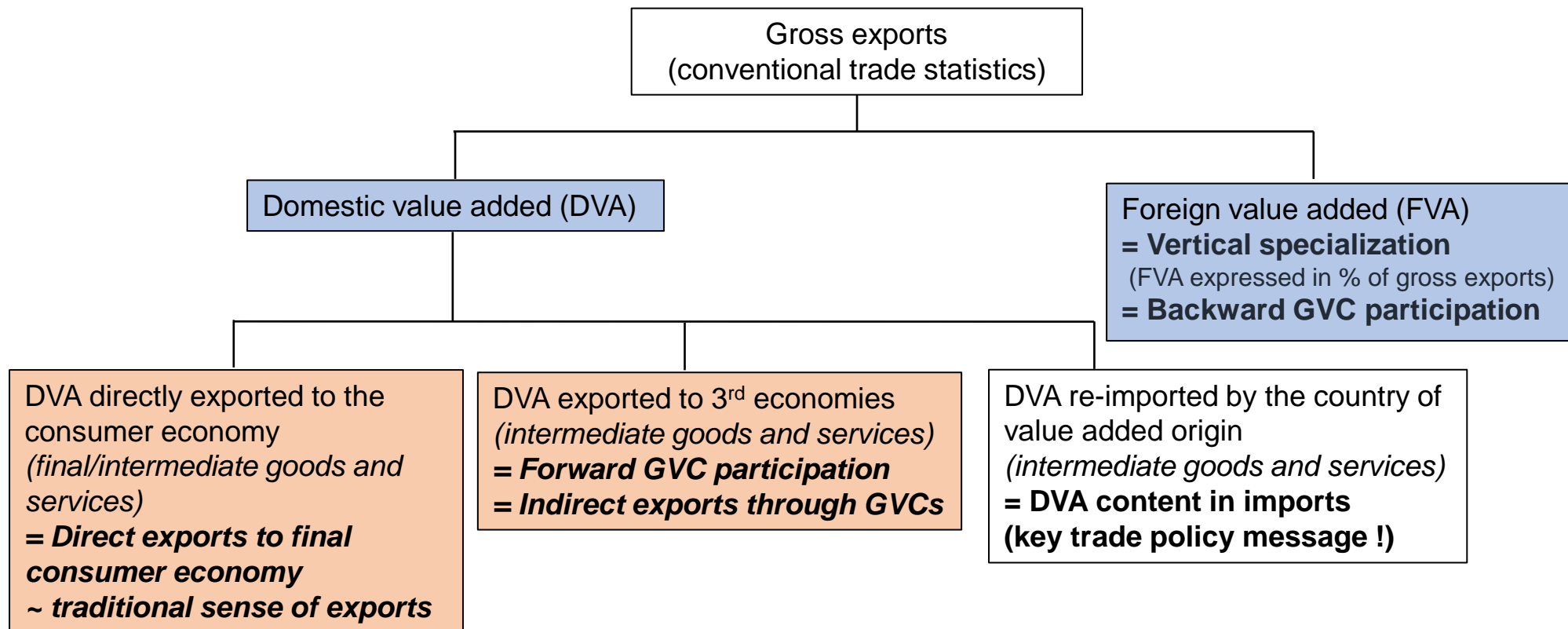




The decomposition of gross exports into domestic and foreign VA contents

A decomposition of gross exports into VA components

Based on DVA destination - An international trade and GVC approach

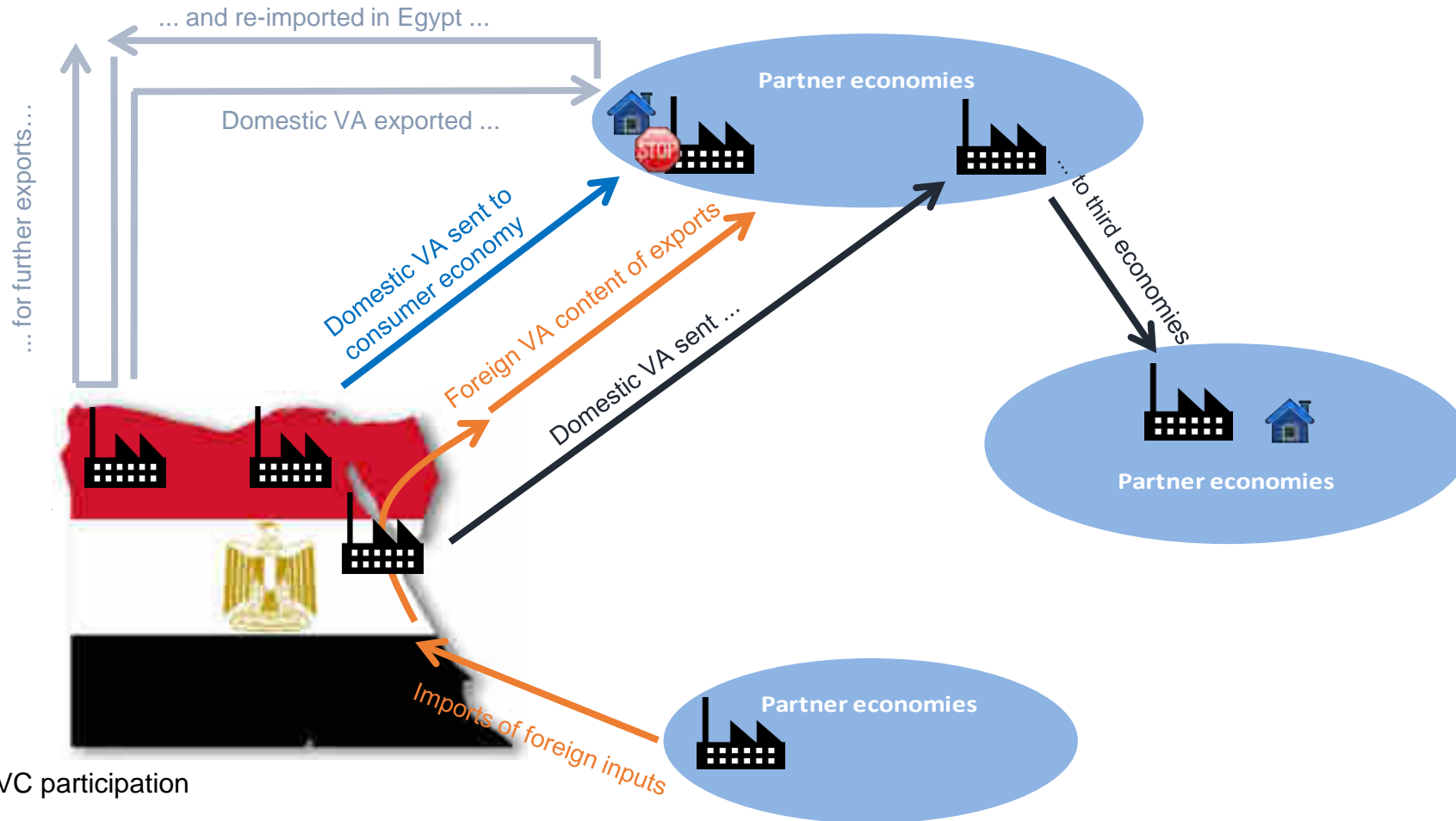


Source: Koopman et al. (2014)

A decomposition of gross exports into VA components



Graphical illustration



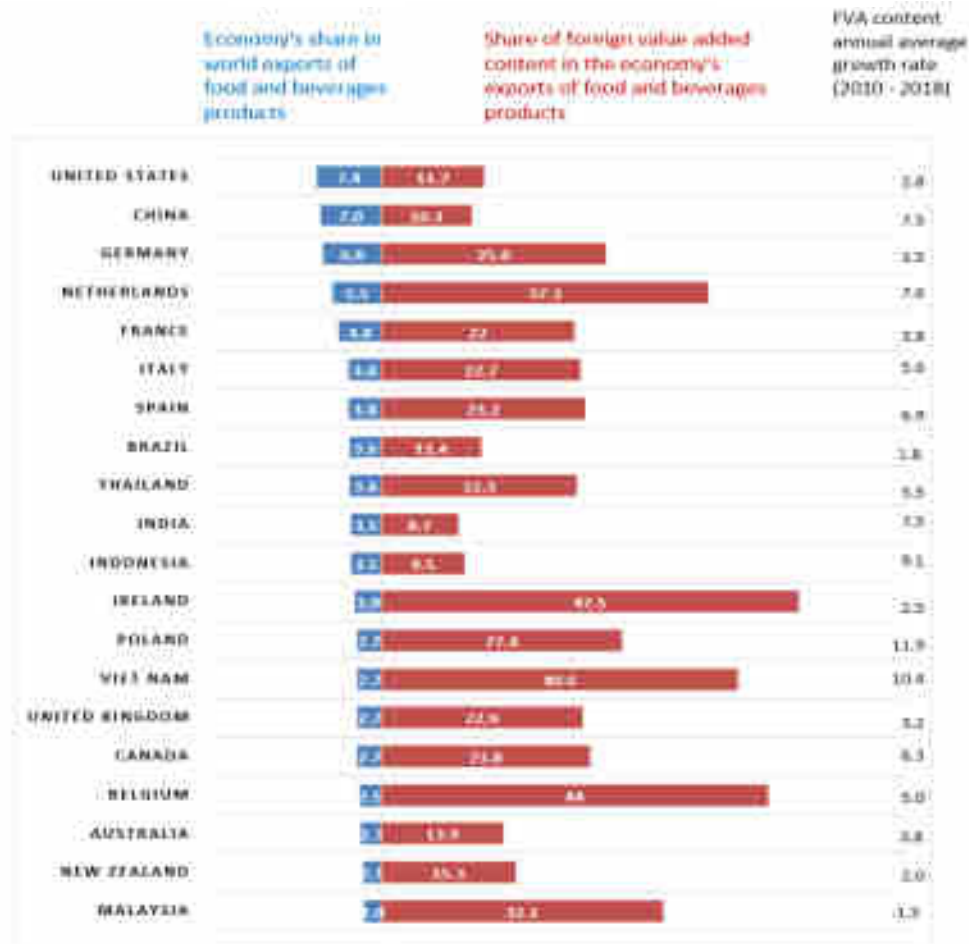
→ : backward GVC participation
→ : forward GVC participation

The foreign value-added (FVA) content of exports (backward GVC participation)



A useful indicator for policy makers

Top 20 exporters of food and beverage products - Shares in world exports and foreign value-added content, 2018



In crisis times, policy makers seek to identify the main dependencies of national industries vis-à-vis foreign suppliers:

- To control/reduce the national dependency for critical goods (e.g. health and food final and intermediate products)
- To go for more resilient (higher resistance to shocks and chain disruptions) and sustainable value chains (lower risks of shortages and business slowdown)

⇒ Using the notion of **FVA content in exports**. An indication of:
⇒ **Countries integration to supply chains**
⇒ **Countries dependency vis-a-vis foreign suppliers**

Source: WTO calculations based on the OECD TIVA database



Importing to export – Good or bad ?

Some factors influencing the level of vertical specialization (VS)

Factor		Foreign VA in exports	Domestic VA in exports	Reason
Size of economy	Large economy (USA, VS = 9.5% in 2018)	↘	↗	Industrial capacity to domestically produce the inputs required for its production and exports (domestic value chains)
	Small economy (Luxembourg, VS = 66.4%)	↗	↘	
Economy's position in GVCs (indust. specialization)	Primary product exporter (Saudi Arabia, VS = 3.7%)	↘	↗	<u>Position in the chain: beginning/upstream</u> Requires less inputs (domestic/foreign) than downstream producers in the chain
	High-Tech components producer (South Korea, VS = 32%)	↗	↘	<u>Position in the chain: middle</u> Imports basic inputs to produce High-Tech/VA components and final products. High Tech. specialization, highly skilled labour force
	Assembler (Viet Nam, VS = 51.1%)	↗↗	↘	<u>Position in the chain: end/downstream</u> Last link in the chain, cumulating the VA of foreign inputs from previous production stages
Level of industrialization	Low (Cambodia, VS = 29%)	↗	↘	Importer of inputs to export (Beginner in GVCs)
	High (Japan, VS = 17.2%)	↘	↗	Producer and exporter of high VA intermediates / final goods and services

Other factors

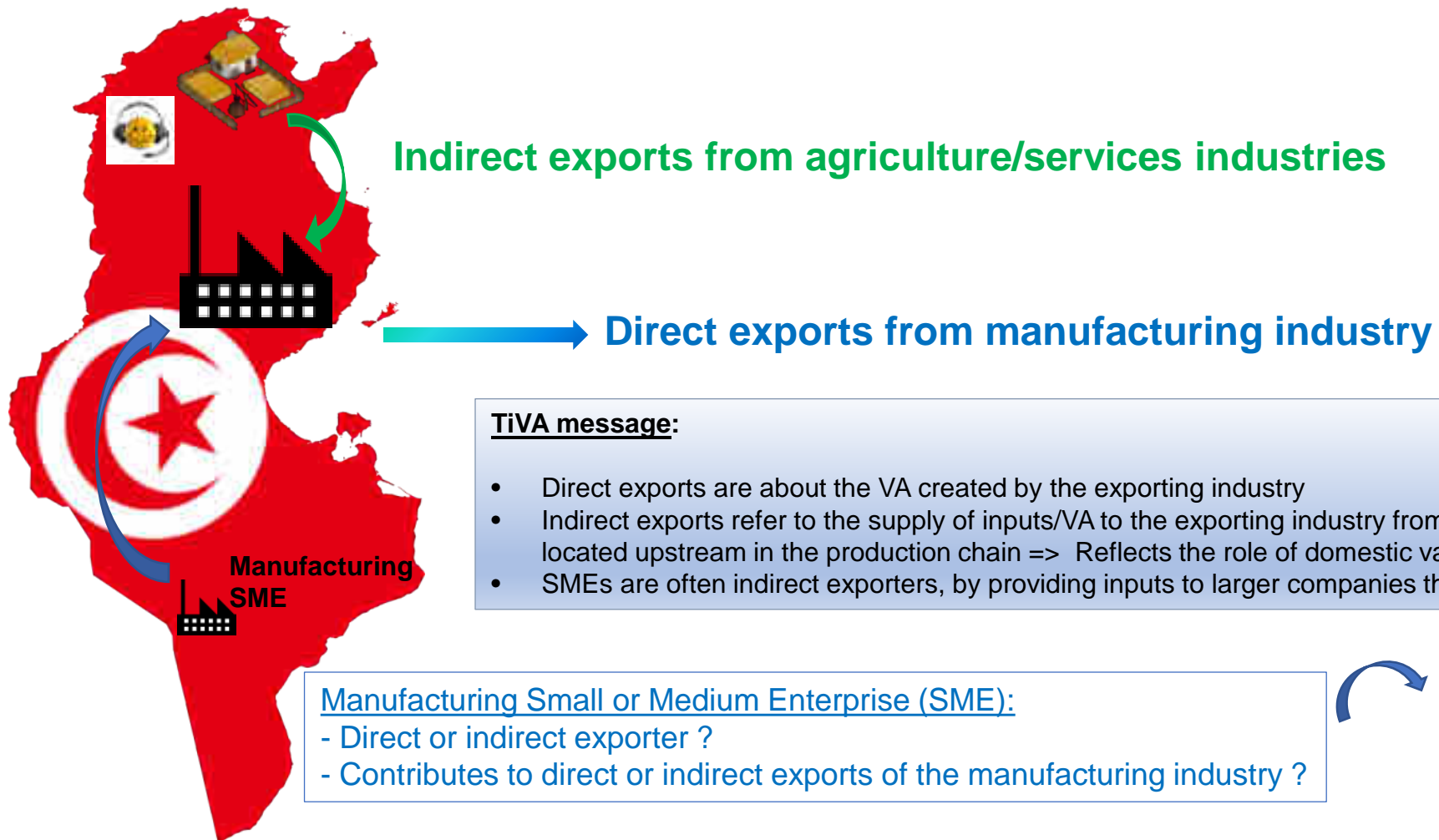
FDI-related exports and exports from processing zones usually have high FVA content



Direct and indirect value added exports

Direct / indirect value added exports

A domestic value chain perspective



Domestic and foreign sectoral VA contributions to Tunisia exports



(% share in industry's total gross exports)

Value added origin ↓

	Domestic			Foreign			Total
	Primary products	Manufactures	Services	Primary products	Manufactures	Services	
Total, of which:	12.5	34.3	24.7	4.0	11.4	13.0	100.0
Export industry → Primary products	74.5	4.0	6.3	3.8	4.5	6.9	100.0
Manufactures	8.8	47.3	10.4	4.5	14.5	14.4	100.0
Services	2.7	3.2	77.0	2.3	4.0	10.7	100.0

: direct domestic VA exports of services (*from the services sector itself*)

: indirect domestic VA exports of services (*services embedded in exports of other domestic industries*)

: foreign services content of exports (*services imported by national industries to produce their exports*)

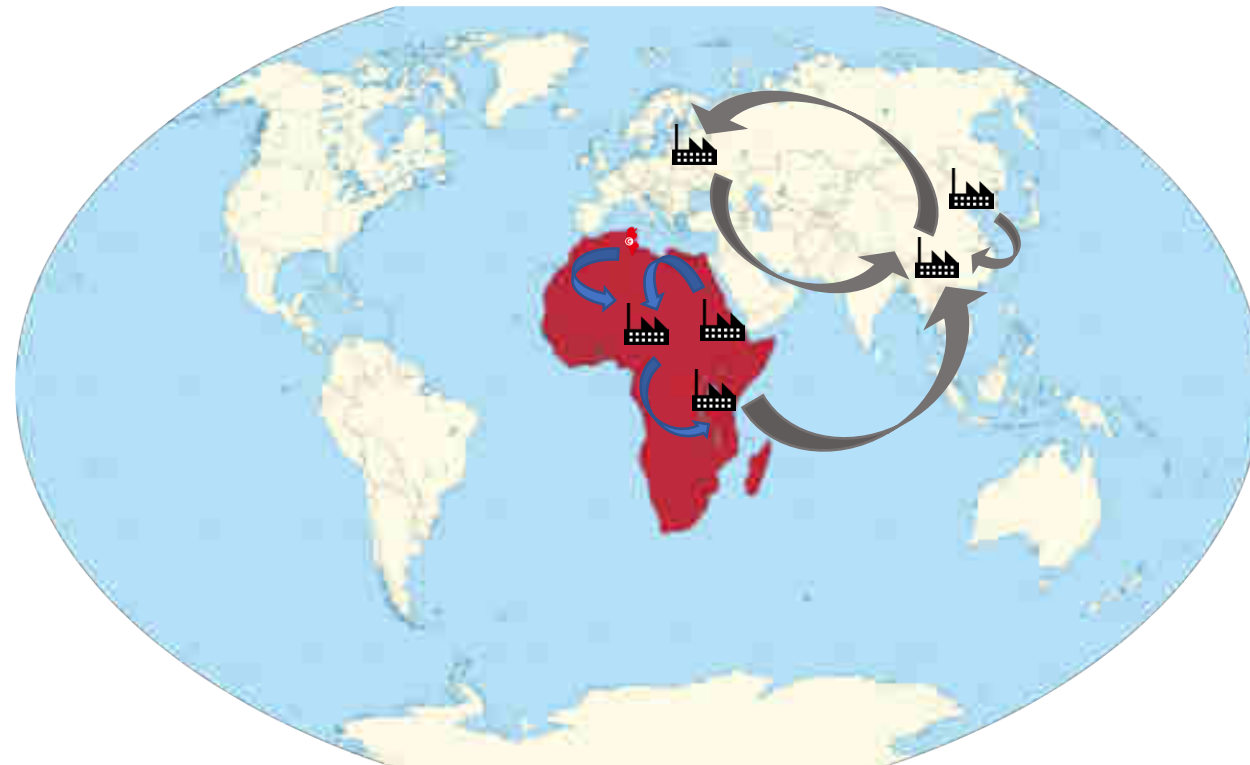
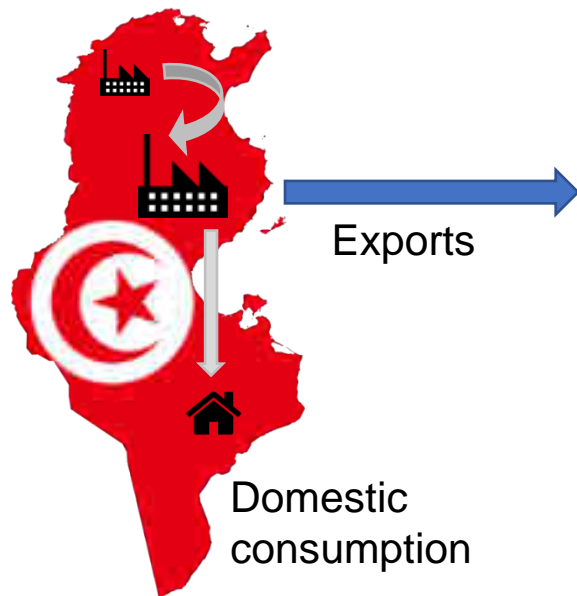
Source: OECD TiVA database



GVC indicators and core messages derived from TiVA

The geographical dimensions of value chains

Domestic (DVCs) – Regional (RVCs) – Global (GVCs)



Domestic value chains



- National production networks
- Exchange of VA inputs for domestic market or exports

Regional value chains



- Geographical proximity
- Regional consumer markets
- « Asia factory »: industrial linkages in South-East Asia

Global value chains

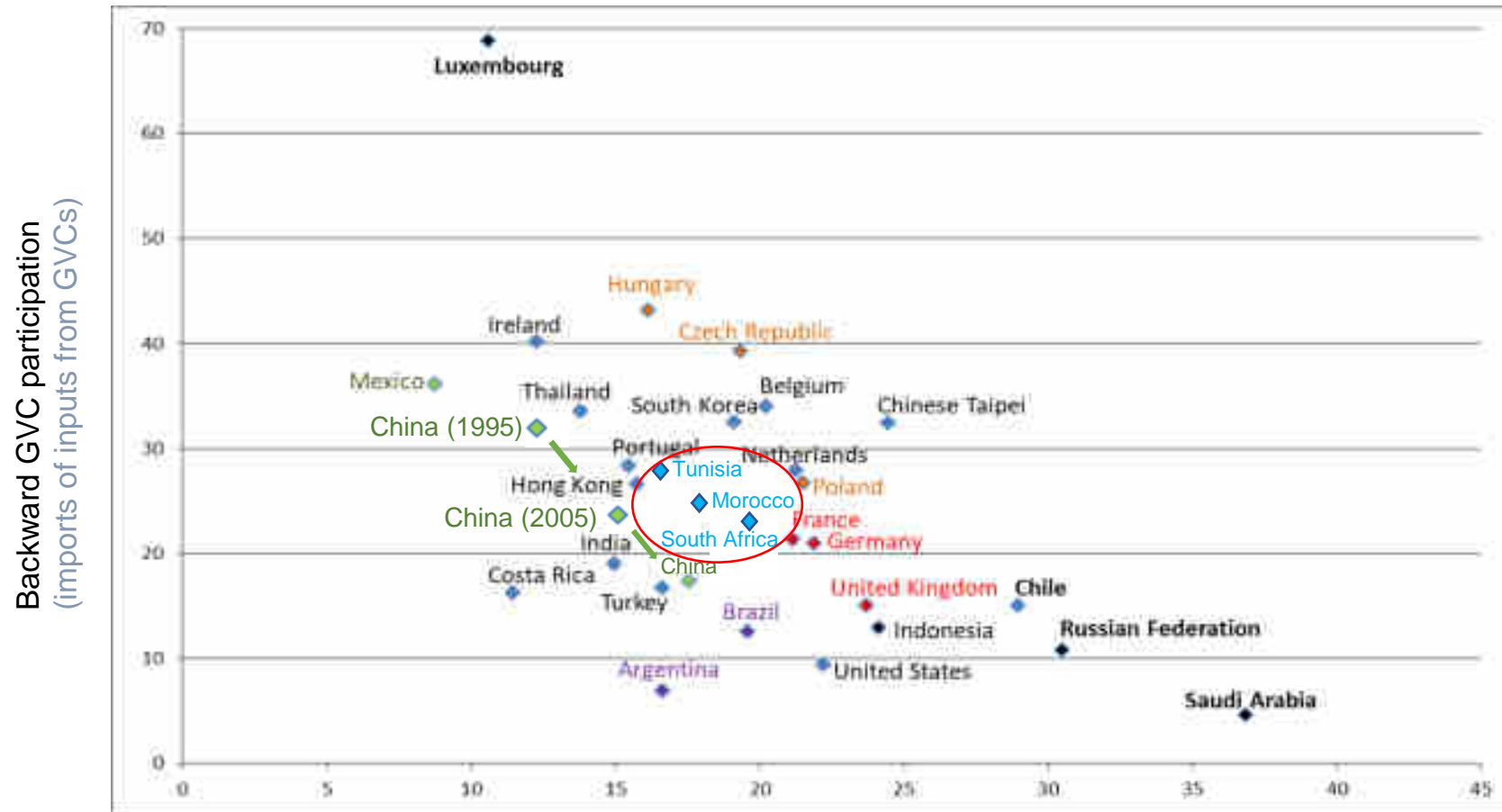


- FDI
- MNEs offshoring strategies
- Export Processing Zones

The participation of economies in GVCs



GVC participation index, selected economies, 2018 (% in total gross exports)



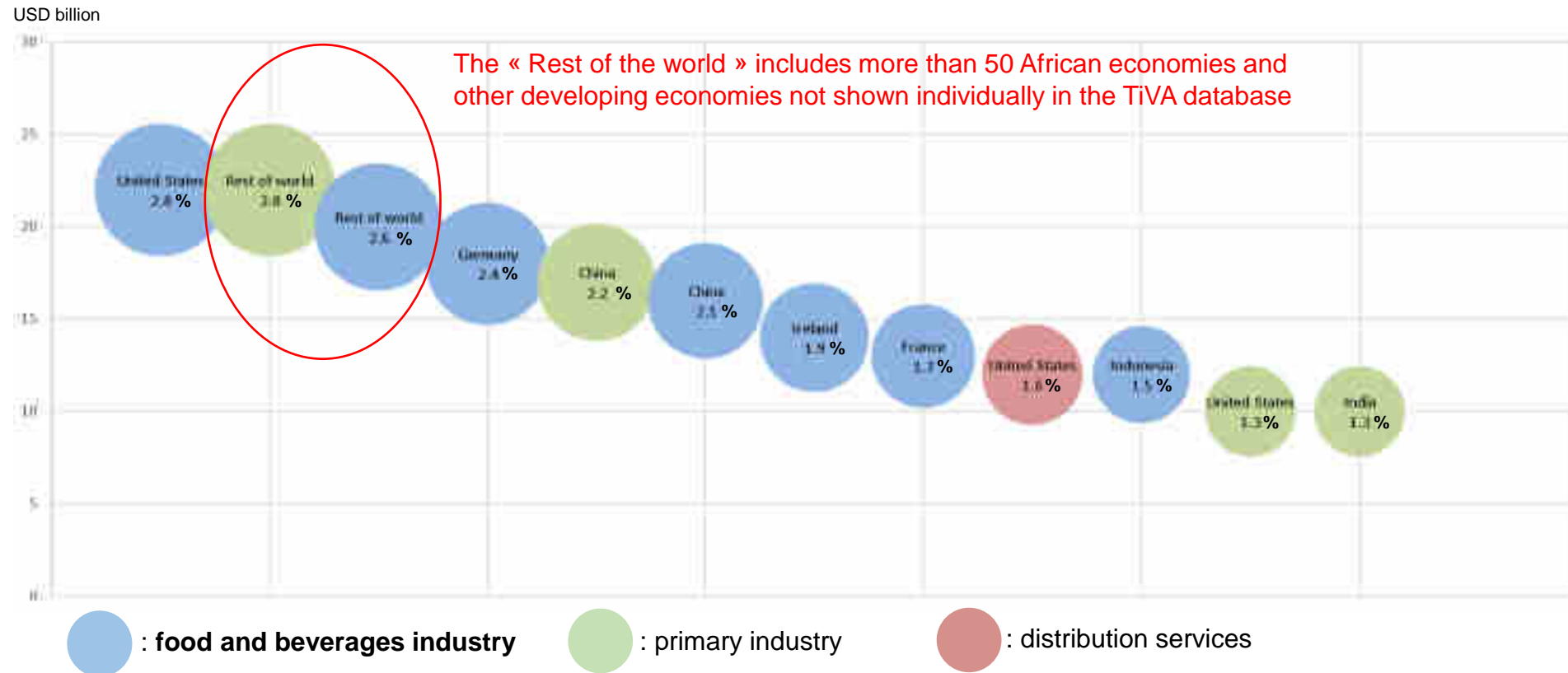
Forward GVC participation (exports of inputs to GVCs)

Source: OECD TiVA database

Key players in food and beverages GVCs



Top 12 value-added contributors to world exports of food and beverages products, 2018
(USD billion and % share in world exports of food and beverages products)



Source: OECD TiVA database



The actual role of services in exports highlighted by TiVA

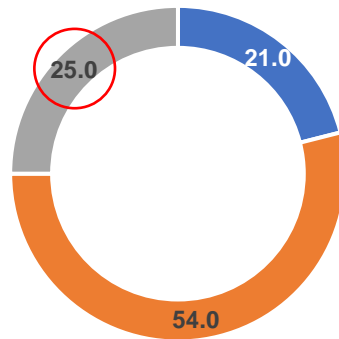
The actual role of services in exports

Structure of world exports, by main sector, 2018



In gross terms

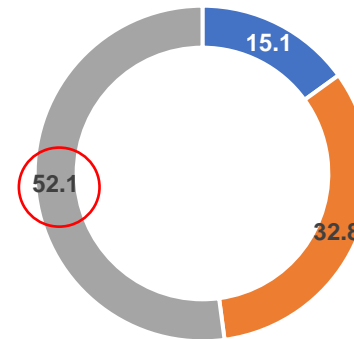
2018



■ Primary products ■ Manufactures ■ Services

In value-added terms

2018



■ Primary products ■ Manufactures ■ Services

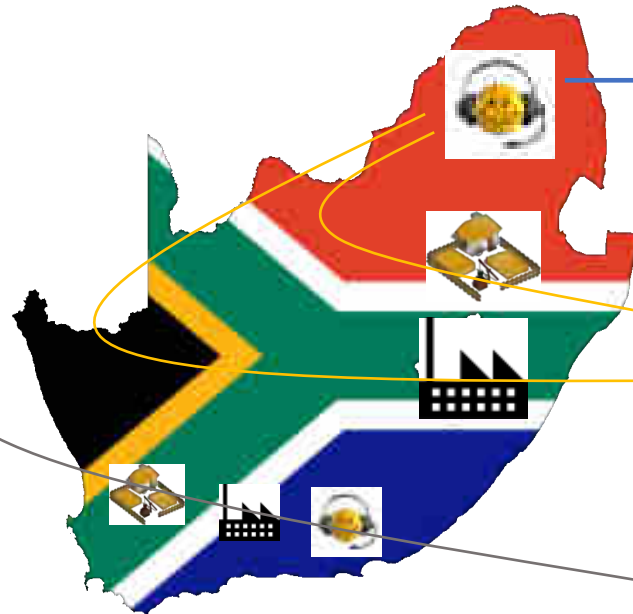
TiVA data highlight the actual role of services in exports => **Why ?**

The services value added contents in exports

Why services become so important with TiVA



Total services VA content in exports = direct services exports + indirect services exports + foreign services content



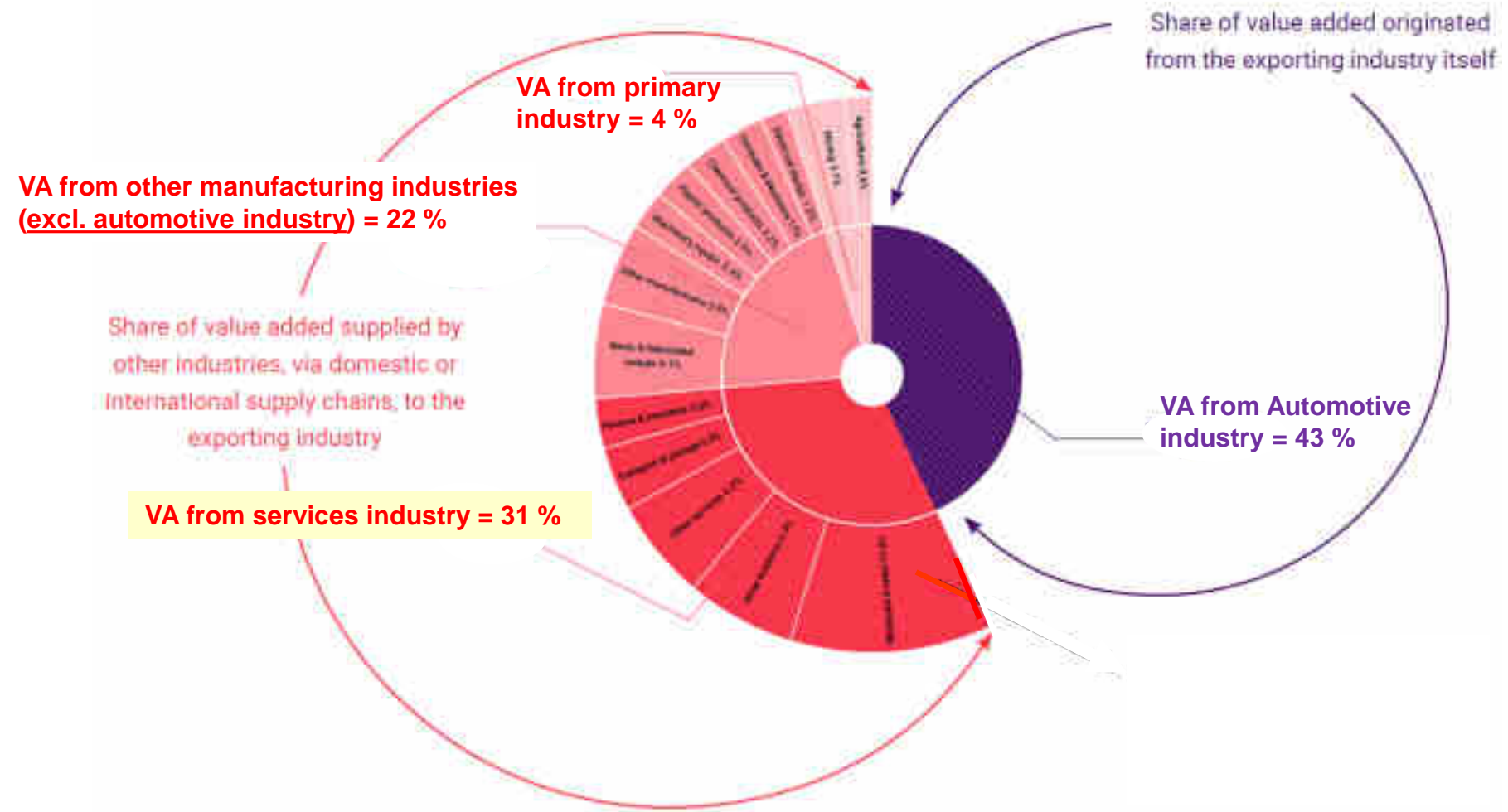
Direct DVA exports of services
from the services sector itself
(~ traditional sense of exports)

Indirect DVA exports of services
Domestic services provided to manufacturing/
primary sectors for their exports

Indirect FVA exports of services
Services provided by foreign companies to
domestic/exporting industries

Sectoral origin of value-added in world exports of automotive products

An example of the role of services in the manufacturing sector





Recap on TiVA key GVC policy messages

TiVA key policy messages

TiVA and GVCs



TiVA message: Importing to export

or foreign value added (FVA) content of exports, backward GVC participation, vertical specialisation (VS).

FVA is a sign of integration in production chains (e.g. South Korea VS rate of 30% in 2020) and also an indication on the level of dependency vis-a-vis foreign suppliers

TiVA message: Protectionist measures

can affect national companies which they are supposed to protect: companies already involved in GVCs or prevent others from joining GVCs

TiVA message: Exporting to supply chains partners

Or forward GVC participation

Exporting inputs to the next production step in the chain

TiVA message:
High interconnections (backward, forward) between countries and industries within supply chains

TiVA message: The role of services in exports

is as important as that of goods
More especially the indirect contribution of services in exports of manufactured goods

TiVA message: Indirect DVA exports

The role of domestic value chains (DVCs)
National industries supplying VA inputs to exporting ones

TiVA message: Domestic VA (DVA) content in imports

Domestic VA is present not only in exports but also in imports ("Circular trade", returned DVA, back and forth intra-firm VA exchanges)

TiVA key policy messages

GVCs risks

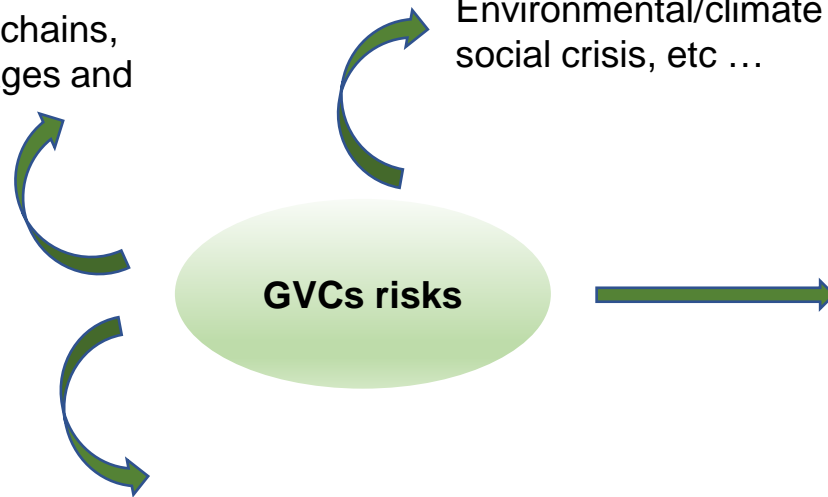


Shocks propagation

Recent crisis (COVID-19, Ukraine war,...) impacted on supply chains, involving disruptions, shortages and inflation

Other potential and rising risks

Environmental/climate change, geopolitical, social crisis, etc ...



Towards more resilient GVCs :

- Diversification of foreign suppliers
- Identifying and focusing on essential industries
- Conducive regulatory environment
- ...

TiVA message: Dependency vis-a-vis foreign suppliers

Info on the concentration of FVA content on few countries/industries

The Africa TiVA project - 2020 to June 2023



Project objective

To launch a **statistical capacity building program for 5 African pilot economies** to develop a sustainable production of Supply-and-Use tables (SUTs) and other statistics, in line with TiVA requirements, and **to increase the coverage of Africa in the OECD and other global TiVA databases**

Multiple stakeholders unified their resources, skills and experience to reach the project goals

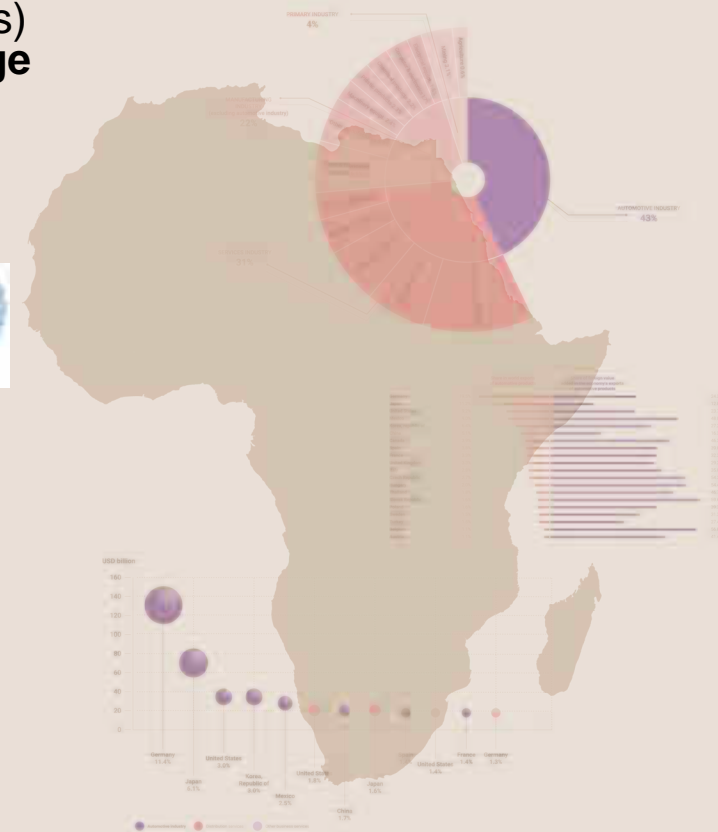


5 African pilot countries

Cameroon, Côte D'Ivoire, Egypt, Nigeria and Senegal

Objectives achieved and deliverables

- Building a sustainable statistical capacity
- Country integration in the TiVA DB
- Country reports (first TiVA results)
- Training activities
- The UNECA AfCIOT regional database



A statistical tool for regional value chains analysis within the AfCFTA

Thank you

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