



Measuring Global Value Chains

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- National perspective to measuring GVCs
- GVC Satellite accounts of the SNA
- Based on integrated business statistics
- Consistent framework across territories
- Multi-partner country GVC Satellite Account with shared national data compiler ownership
- Built on the work done by OECD, UNECE, WTO, IMF and others

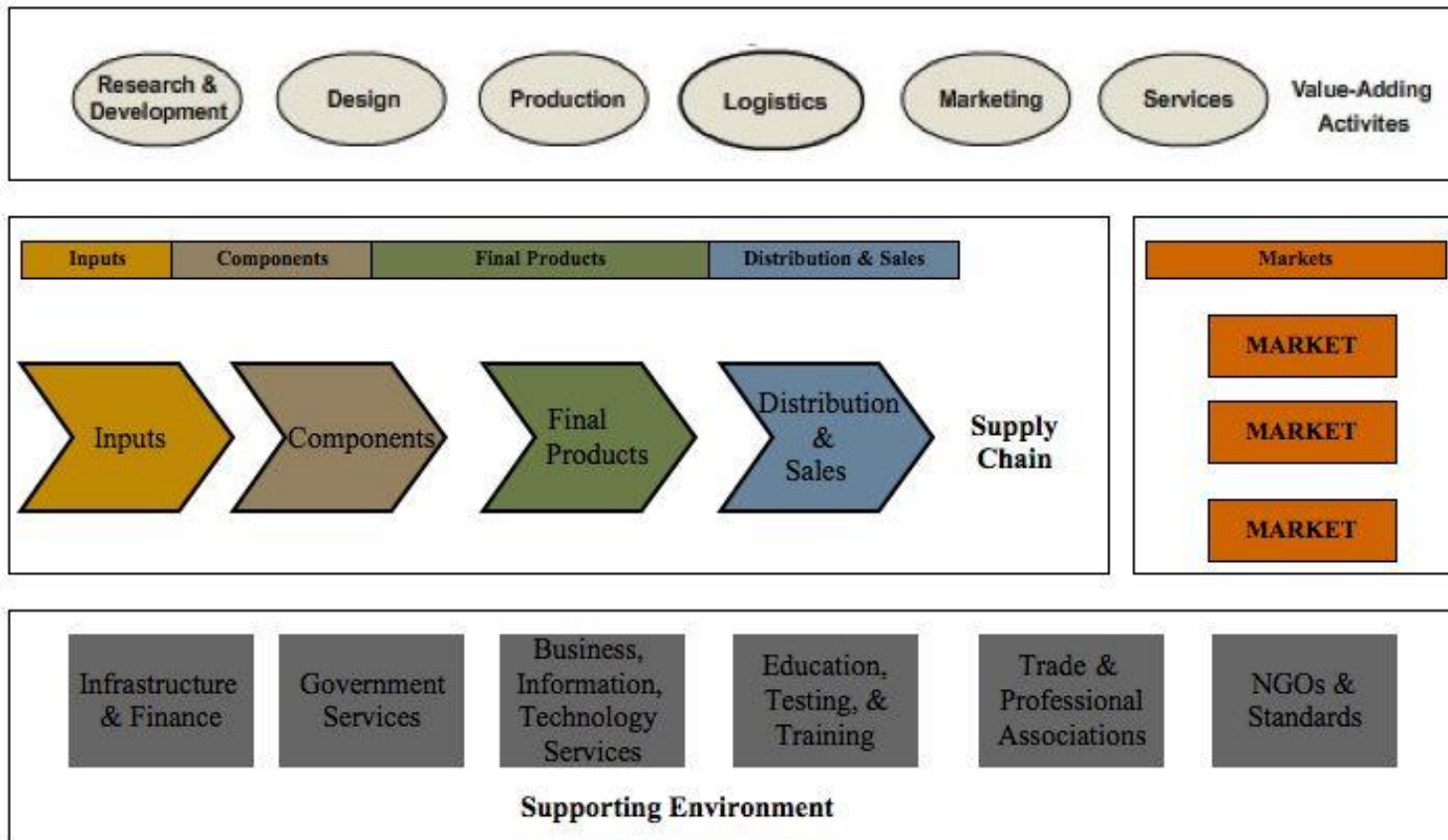


- The template is described in Chapters 9 and 10 of the *Handbook Accounting for Global Value Chains*
- Empirical applications of the template: automotive GVC in North America (and others in the making)



A **Global Value Chain** is a set of interrelated activities (from conception to its end use) that cross economic territories which are coordinated by lead firms for the production of a product (good or service), its delivery to market(s), supports its uses, and recycling.

- The GVC framework include 4 dimensions that describe the structure, dynamics and relationships among stakeholders in GVCs:
 - Business functions
 - Geographical scope
 - Governance
 - Institutional context



Source: Frederick (2010)



How to translate this into an accounting framework?

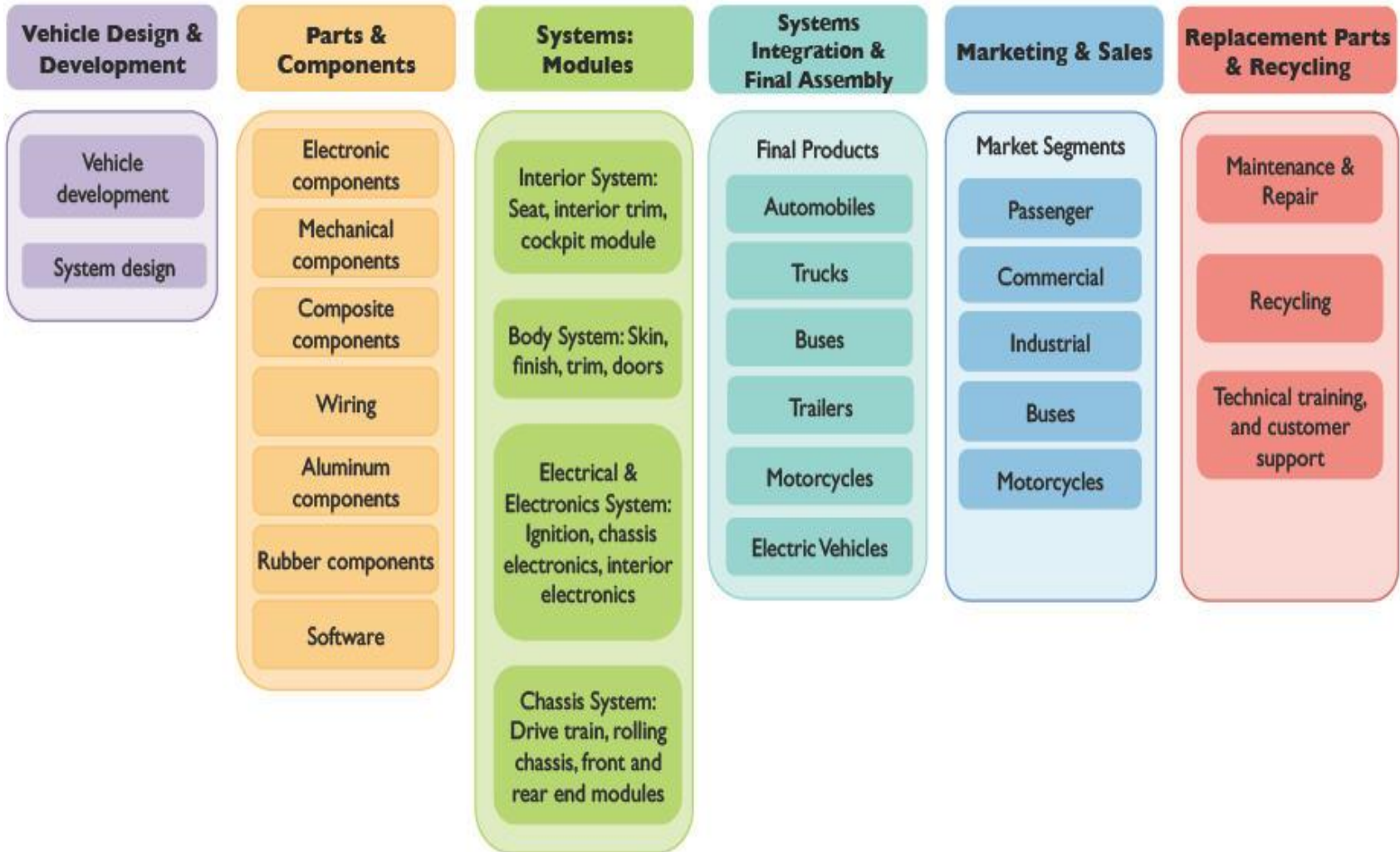
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- Define and classify the **relevant actors** in the GVC, e.g. lead firms, suppliers, (affiliated and non-affiliated suppliers)
- Define and classify the **products** relevant for the GVC
- Define and classify the **business functions** relevant for the GVC
- Identify the main (partner) **countries** in the GVC [perspective of national data compiler]
- **Collect** relevant information
- Build the accounts in cooperation with partners



Automotive GVC

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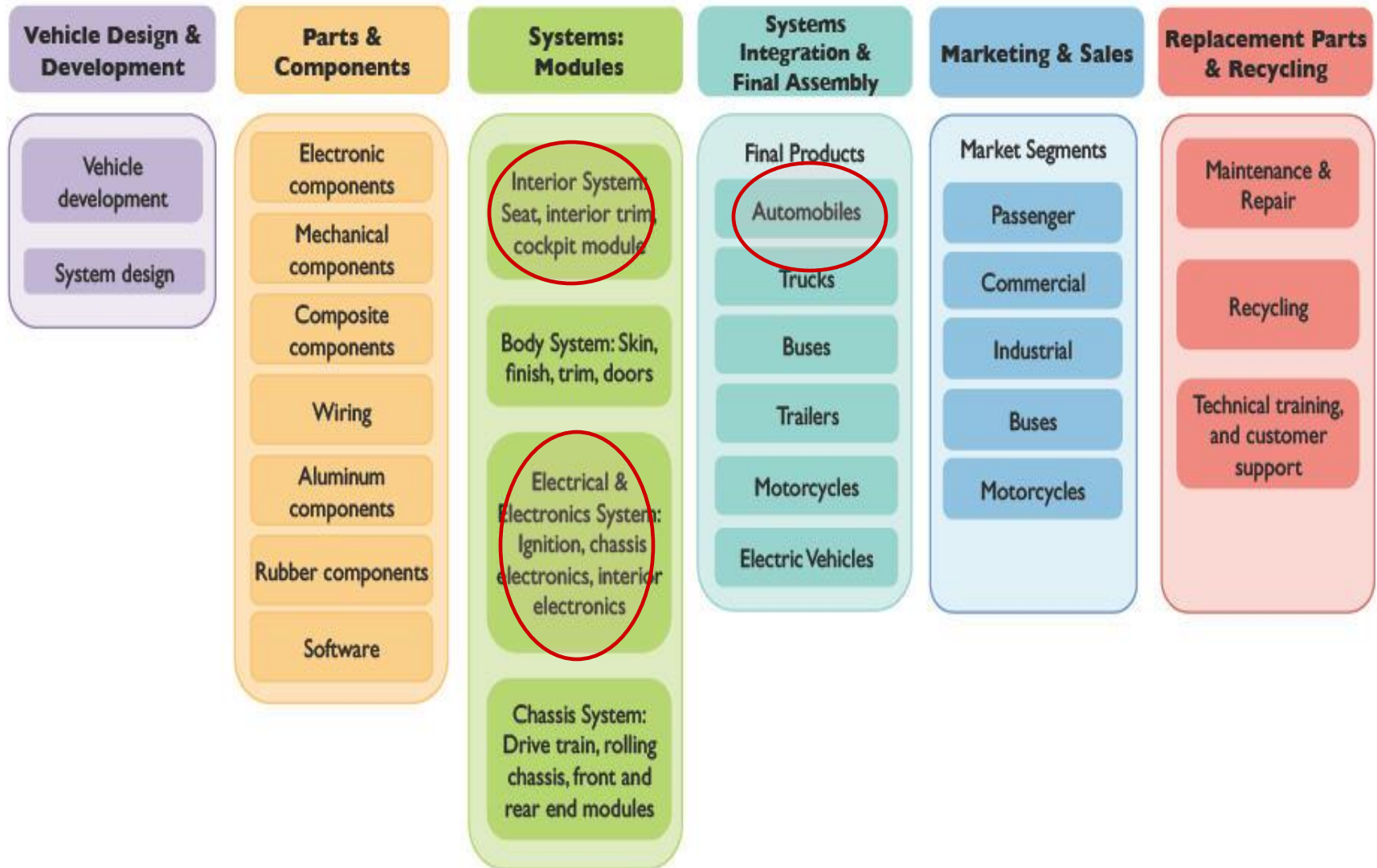


Source: Timothy Sturgeon, Jack Daly, Stacey Frederick, Penny Bamber and Gary Gereffi (2016) *The Philippines in the Automotive Global Value Chain*



Morocco in the automotive GVC

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Methods for constructing a GVC

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- Select of the type of GVC (e.g. automotive, apparel, electronics, etc.)
- Establishing the GVC geographical boundary (what partner countries are involved in this GVC?)
- Product mapping of intermediate and capital products used in production and production of GVC products
- Identification and development of the business frame of GVC participating firms in terms of lead firms and specialised suppliers of intermediate products and capital goods used for the production of GVC products
- Application of the GVC classification, concepts and methods to the participating firms
- Data collection for GVC related firms
- Compilation of the GVC accounts



Identification (and measurement) of the governance structure of the GVC

Lead firm

Controlled firm

Non-controlled firm

Importance of business registers, large case units to focus on lead firms and supplying firms



Example: Automotive GVC HS codes in Morocco

Value Chain Stage/ Subassembly	HS Codes (2002)	HS Code Descriptions	Producer
Passenger vehicles	8703	Passenger vehicles	Lead Firms
Body system	870600	Chassis fitted with engines	
Drive train	840733 840734 840820	Reciprocating piston engines used for the propulsion of vehicles of Chapter 87	Lead Firms
Body system (suspension, panels front & rear end modules, interiors)	401110 401211 8708 8707 7007	Tires, Brakes, Road wheels and parts, Suspension systems, Steering wheels, columns and boxes, Bodies, Laminated safety glass, Bumpers, Radiators, Silencers and exhaust pipes, Sealed beam lamp units, Seats, Safety seat belts, Instrument panel	Suppliers
Drive train / Electrical Equipment	8708 854430 8512	Parts/accessories of motor vehicles of headings 87.01-05; Gear boxes, Drive-axles with differential, Clutches, Ignition wiring sets, : Electrical lighting, windscreen wipers, defrosters, Air conditioning	

Source: Ouljour H., Jansen R. Sturgeon T. (2017) *Measurement of Morocco's participation in the Automotive Global Value Chain*



ISIC 72		ISIC 293,...		ISIC 292		ISIC 291			ISIC 73 ISIC 451		ISIC ...		ISIC ...		Other ISIC	
Research and development		Parts and Components		Systems: Modules		System integration and final assembly			Marketing and sales		replacement parts and recycling		Logistic			
GVC gov. structure		other		GVC gov. structure		other		GVC gov. structure		other		lead firms		other		
						Lead firms		foreign owned		nationally owned		others				

Where

ISIC 72 - Scientific research and development

ISIC 293 - Manufacture of parts and accessories for motor vehicles

ISIC 292 - Manufacture of bodies (coachwork) for motor vehicles; manufacture of trailers and semi-trailers

ISIC 291 - Manufacture of motor vehicles

...



- The compilation of the full set of accounts (production, generation of income, etc.) for the firms participating in the GVC
- Compilation of a GVC-specific multi-partner country SUTs

Where, for example, the relevant business functions are explicitly identified as well as the governance structure and relevant products



Extended Supply Table

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Extended Supply Table at basic prices

		INDUSTRIES									Imports			Total supply at basic prices (15)		
		Agriculture (1)	Manufacturing (2)				...	Trade, transport and comm. (7)	Finance and business services (8)	Other services (9)	Output (10)	Total (11)	from Country A (12)		from Country B (13)	Other (14)
			Total	ISIC 291 - Manufacture of motor vehicles		other		Business functions - ISIC	Business functions - ISIC	Business functions - ISIC						
			Lead firms													
			foreign owned	nationally owned												
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
PRODUCTS	(1)														
	(2)														
	Input products - CPC	(3)														
	Components - CPC	(4)														
	Final products - CPC code	(5)														
	Services of R&D - CPC code	(6)														
	Services of Design - CPC code	(7)														
	(8)														
	Total	(9)														
Adjustments	CIF/FOB adjustments on imports	(10)														
	Direct purchases abroad by res	(11)														
	Total	(12)														



Extended Use Table

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Extended Use Table

	INDUSTRIES										FINAL USE					Total use (20)		
	Agriculture	Manufacturing				...	Trade, transport and communication	Finance and business services	Other services	Total	Final consumption expenditure	Gross capital formation	Total	Exports				
	total	ISIC 291 - Manufacture of motor vehicles			...	Business functions - ISIC	Business functions - ISIC	Business functions - ISIC				Total	to Country A	to Country B	Other			
	(1)	(2)	Lead firms foreign owned	nationally owned	other	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(15)	(16)	(17)		(18)	(19)
PRODUCTS (1) (2)	Input products - CPC-BEC codes (3)			Components - CPC-BEC codes (4)			Final products - CPC code (5)			Services of R&D - CPC code (6)			Services of Design - CPC code (7)		 (8)
Adjustments	CIF/FOB adjustments on exports (10)																	
GVA	Total at purchasers' prices (13)																	
	Compensation of employees (14)																	
	Other taxes less subsidies on production (15)																	
	Consumption of fixed capital (16)																	
	Net operating surplus/net mixed income (17)																	
	Gross operating surplus/gross mixed income (18)																	
	GVA (19)																	
	Total input at basic prices (20)																	



Country coverage

A GVC can involve a large number of countries

- It may not be practical to aim for a full coverage of the countries involved in the specific GVC, rather focus on the major firms in partner countries based on significant shares in exports and imports
- In the North American Automotive GVC the focus on Canada-Mexico-United States and the rest is treated as RoW
- In the Moroccan Automotive GVC the main players are Morocco, France and Spain [Morocco perspective]



Multi-country IxI IOT

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Industry x Industry IOT		Country A			Country B			Country C			Ctry A	Ctry B	Ctry C	Export to ROW + discrepancies	Total output
		Industry 1	Industry 2	Industry 3	Industry 1	Industry 2	Industry 3	Industry 1	Industry 2	Industry 3					
Country A	Industry 1														
	Industry 2														
	Industry 3														
Country B	Industry 1														
	Industry 2														
	Industry 3														
Country C	Industry 1														
	Industry 2														
	Industry 3														
Net taxes on products, payable to foreign gov'ts															
Import from Rest of the World															
Net taxes on products															
Gross value-added															
Total input															

From **Draft Handbook on Supply and Use and Input-Output Tables with Extensions and Applications** UN *forthcoming*



Cooperation among countries

- Resolving trade asymmetries
- Data sharing
- Coordinating the statistical programmes

Importance of establishing agreements and appropriate governance structure to undertake international data compilation projects



The compilation of GVC satellite accounts is data intensive

However

- There is often a limited number of large firms that are involved in a GVC
- Generally a lot of the information already exists in the Statistical Offices

Possible development of a GVC questionnaire

Importance of integrated business statistics, large case unit, micro-macro data linkages



- Accounting for GVC using a national perspective provides a macro approach to the measurement of GVC and national accounts and prices
 - it focuses the national accounts compilation on capturing more precisely the dominant interlinkages between firms and countries involved in the GVC
- It promotes the micro-macro linkages and integrated business statistics by taking a lead firm based approach
- It provides a venues for countries to resolve asymmetries
- National ownership
- Needs to be established as a regular statistical office activity and not as a one-time exercise





Thank you!