



Accounting for Global Value Chains: Extended System of National Accounts and Integrated Business Statistics

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United Nations Statistics Division

25th Conference of International Input-Output Association (IIOA)
June 19-23, 2017
Atlantic City, NJ, USA



If NAFTA Ends, Ford's Move to China Will Be Just the Start

Business Statistics Division

BY SHANNON O'NEIL | JUNE 22, 2017

The auto industry is changing in ways that favor the U.S. – as long as Mexico and Canada are part of its supply chain.



Americas

QUARTERLY



If NAFTA Ends, Ford's Move to China Will Be Just the Start

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Ford announced this week that instead of building its new Focus – the best-selling car in the world – in a new \$1.6 billion dollar Mexico-based plant, it will ship cars for North American customers from China.

Ford has promised that its decision won't reduce its workforce. Yet even if that is true, American workers will lose. Today the compact Focus uses steel from Wisconsin, axles from Oregon, seatbelts from Indiana, grills from Michigan, tire pressure sensors from Tennessee, front-side shafts from North Carolina and Ohio, and the list goes on. With the shift, these raw materials, parts and components will be sourced and put together in Asia, eliminating dozens of U.S. based suppliers, and likely costing many of their employees their jobs. While assembly was scheduled to move from Michigan to Mexico, that would have ensured ongoing American employment – as over 40 percent of the value of vehicles “made in Mexico” comes from U.S. factory floors and U.S. offices. For products imported from China – as the new Ford Focus will be starting in 2019 – this number is a negligible 4 percent.



The Paradigm Shift:

The Old and New World of Production and Trade

- **New conceptual framework**
GVC model is a useful tool to determine complex industry interactions of global production, link geographically dispersed activities and actors of **a single industry**, and determine the roles they play in economies.
- **Size matters:** Global value chains (GVCs) account for a rising share of international trade, GDP, employment and use of natural resources
- **Shift in trade policy:** Protection of the domestic producers from external competition through tariffs to protection of the consumer, workers and environment by diminishing the difference in the product, labor and environmental standards.



The Paradigm Shift: The Old and New World of Production and Trade

- **Implications for official statistics:** combining *international accounts* with cross border transactions between countries with *global accounts* describing the inter firm and intra firm networks as a global assembly line of globally produced goods and services.
- understanding the functional and geographical unbundling of production
- Supply-chain trade should be not viewed as standard *trade in parts and components* rather than in *final goods and services in end markets* governed by a single industry



The Paradigm Shift:

The Old and New World of Production and Trade

How trade is to be understood

- Trade between countries turned into global production systems – made in the world
- Nations do not trade but firms trade
- Firms along the domestic, regional and global value chains have to be mapped and analyzed – traders, retailers, producers, lead firms capturing the gain: revenue, profit and employment
- Fundamental trade off in supply chain fragmentation is between specialization gains and coordination costs



The Paradigm Shift:

The Old and New World of Production and Trade

How trade is conducted:

- Lower entry level for firms to participate in global markets: less own competence required in technology, skills and capital
- Network firms look for opportunities in economic (product, process, price, market and market share) upgrading
- Regional value chains allow for regional integration with focus on near markets, e.g. focus of ASEAN, NAFTA, EU, SADC, etc.



The Paradigm Shift: The Old and New World of Production and Trade

How trade is governed

- Inter-firms relationship between lead and supporting firms in GVC are governed by different structures to address complexity of information and knowledge, degree of codification and capacity of supplier
- Tariffs are rationalized
- Non-tariff measures related to standards for protecting consumers are becoming more important. Private standards are more important than public standards. Buyer and producers driven supply chains are seeking harmonization of standards



Recognition of Economic Globalization and Global Accounts

- 2007 ISIC Rev 4 Strict ownership principle whether ISIC manufacturer versus ISIC wholesaler
- 2008 SNA – Introduction to globalization in goods for processing, merchandising, IPP, SPEs
- 2009 WIOD data base, EC Project on MR IO tables
- 2009 Exiopol, EC project on EE-MR-Input Output Tables
- 2009, European MEETS program including EuroGroup Register
- 2010 Global Inter-Country Input-Output table, Koopmans, Wang and Wei
- 2011 The Impact of Globalization on National Accounts (UNECE, 2011)
- 2011 IDE Jetro/WTO report on Tiva analysis
- 2012 System of Environmental Economic Accounts (SEEA -2012)
- 2013, OECD/WTO Trade in Value added Data base
- 2015, Guide to Measuring Global Production (UNECE, 2015)



Recognition of GVCs

- 1990s “buyer-driven” and “producer-driven” modes of global commodity chain governance, work by G. Gereffi.
- 2000, workshops on value chains held in Bellagio, Italy
- 2005, G. Gereffi, J.Humfhrey and T. Sturgeon, Governance of the global value chain –theoretical framework
- 2009 Capturing the gains project, economic and social upgrading in global production networks
- 2009 Jason Dedrick study on the ipod
- 2013 Sturgeon report Global Value Chains and Economic Globalisation
- 2014 Duke Global Summit, Governance and development in a value chain world – globalvaluechain.org



Key principles

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- National perspective to measuring GVCs
- Extended multi-partner country SUT and integrated accounts - GVC accounts of the SNA
- A corporate/global enterprise perspective – large cases – integrated business statistics

Implications

- Consistent SUT and integrated accounting framework across territories: products (linking goods and services), activities (income and jobs), business functions (supporting services to core business, geography(partner countries))
- Multi-partner country GVC Accounts with shared national data compiler ownership between partner countries



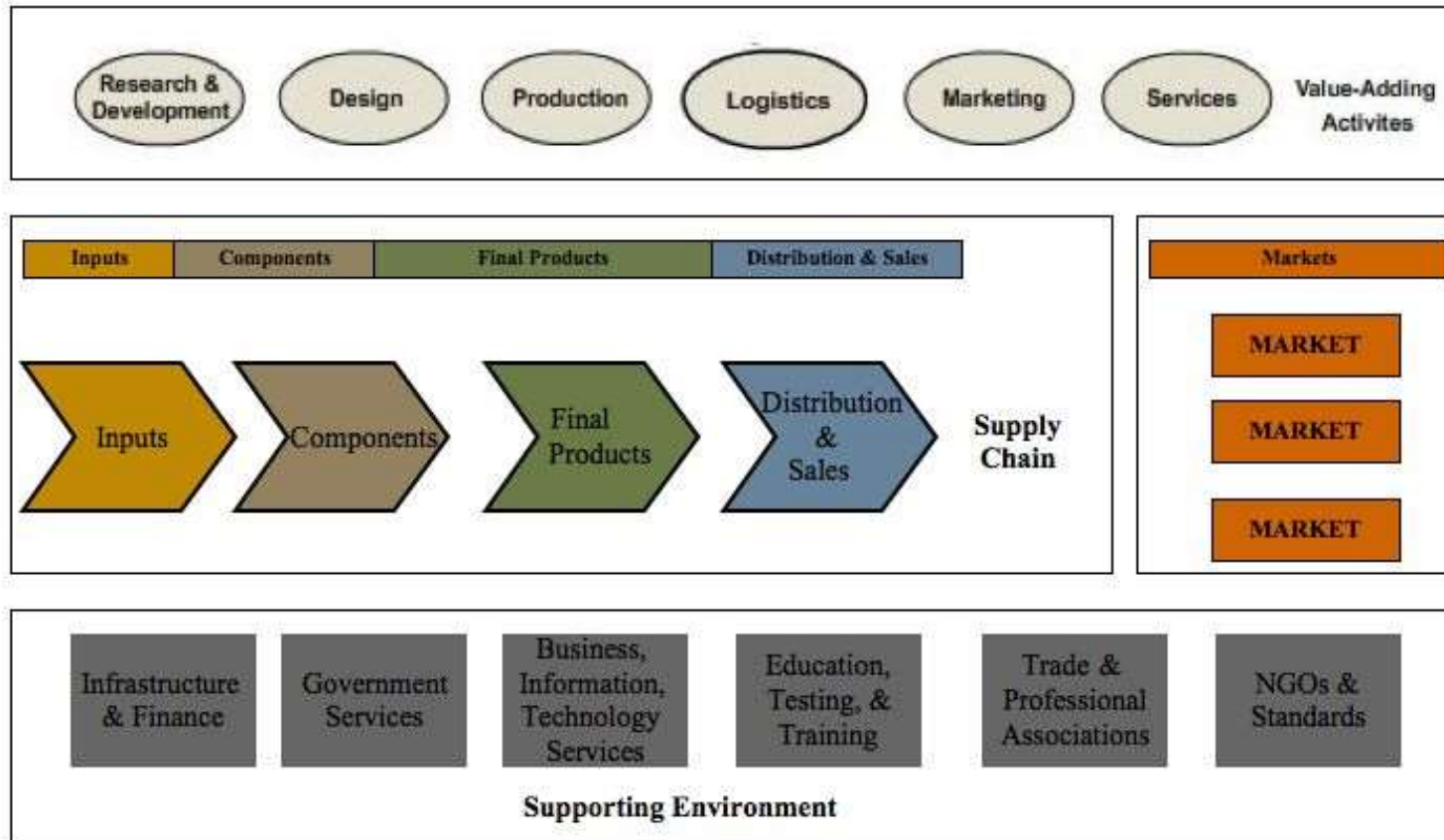
A **Global Value Chain** is a set of interrelated activities (from conception to its end use and beyond) that cross economic territories which are coordinated by lead firms for a) the production of a product (good or service), b) its delivery to market(s), c) supporting its uses, and d) recycling.

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



Global Value Chain (GVC) Framework

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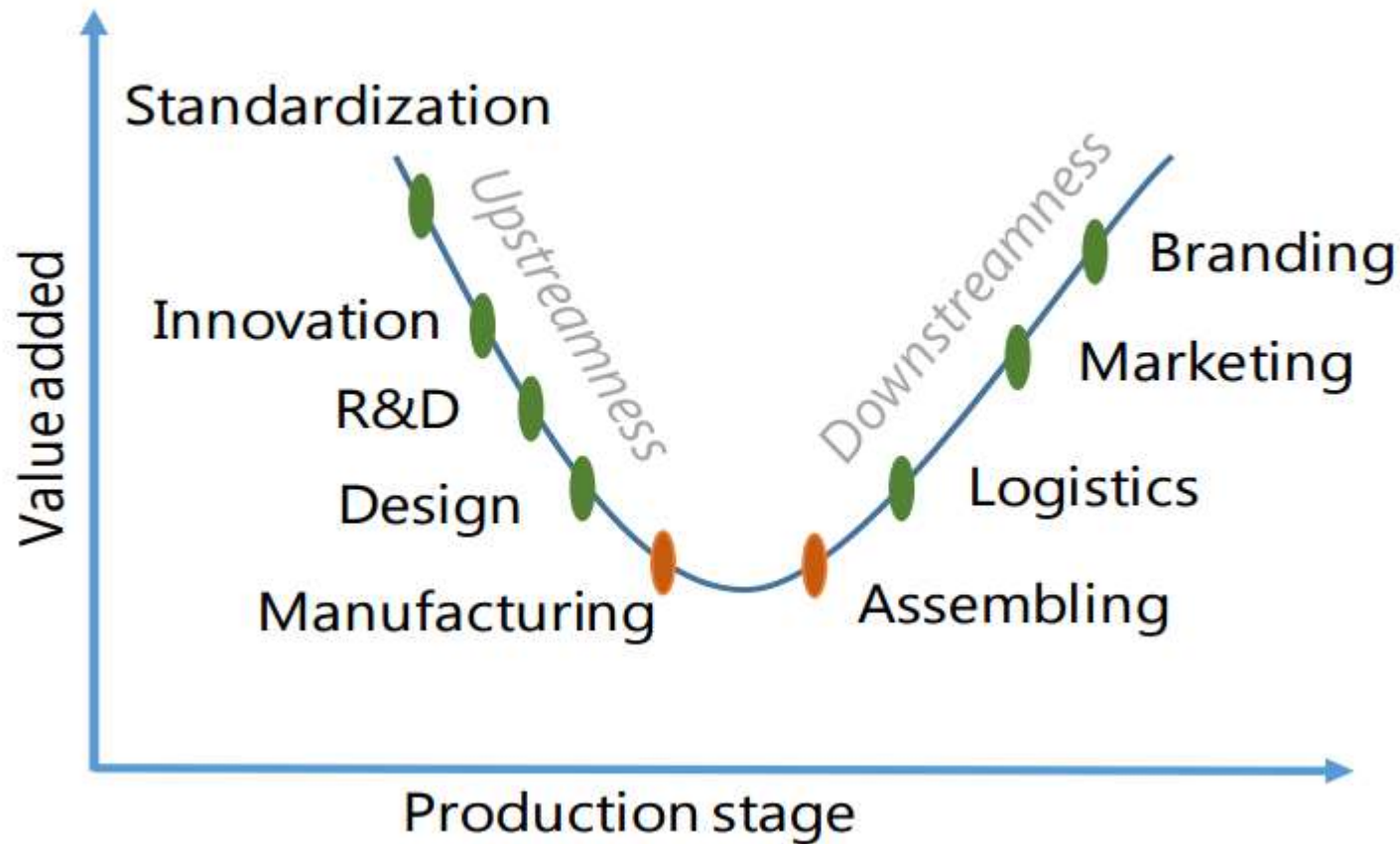


Source: Frederick (2010)



Global Value Chain (GVC) Framework

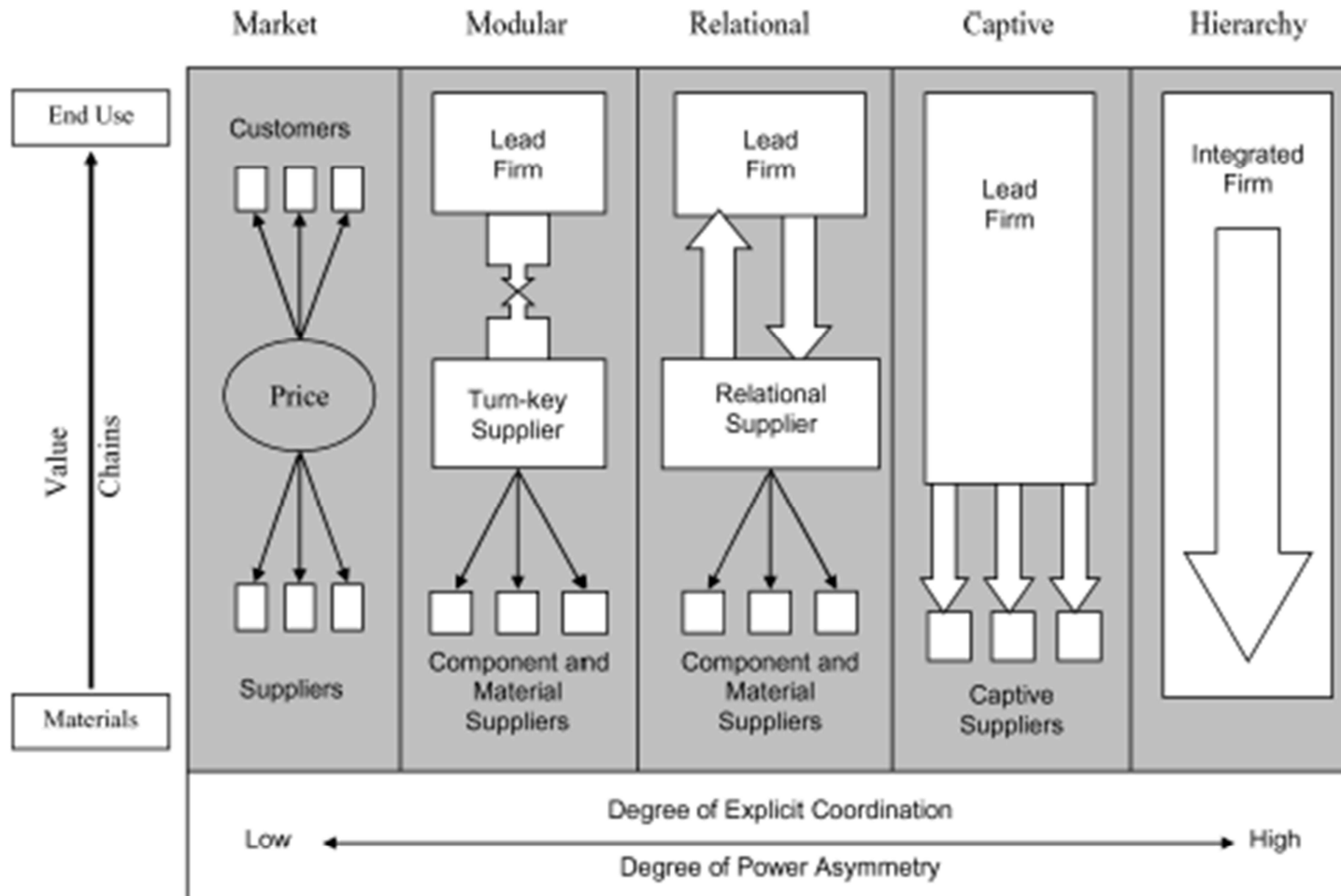
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Governance types for GVCs

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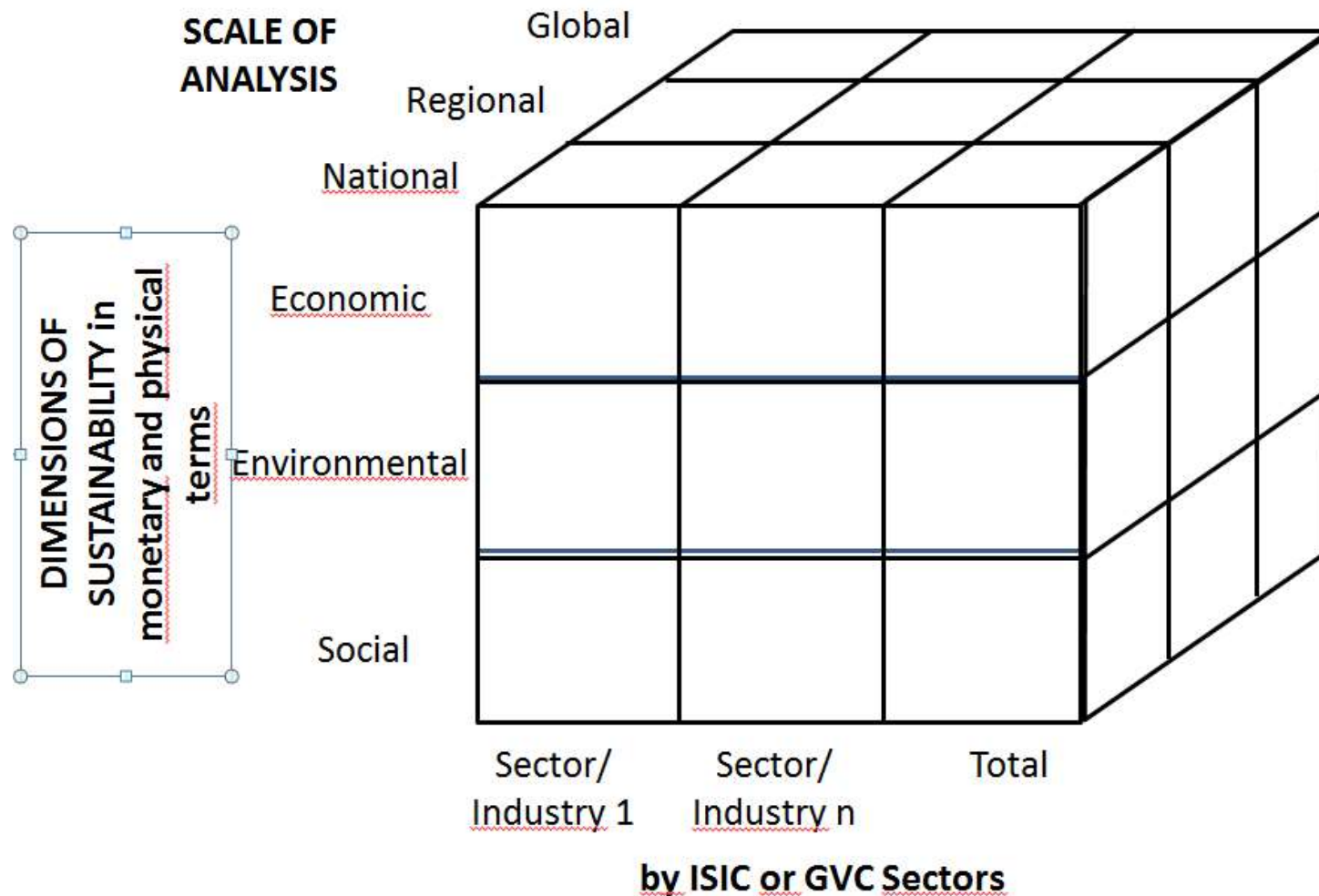


The governance of global value chains, 2005 (G. Gereffi, J. Humphrey and T. Sturgeon



Cube of Global Value Chains

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Global enterprise perspective

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- Global enterprise:
 - entity that operates its business activities through foreign affiliates and/or by interacting with foreign affiliates
- Business activities are:
 - Production lines and tasks of the core business activity
 - Business functions supporting core business activity
 - Exchange of technology and use of international platforms
 - Access to global finance and global tax planning



Strategies of global enterprise:

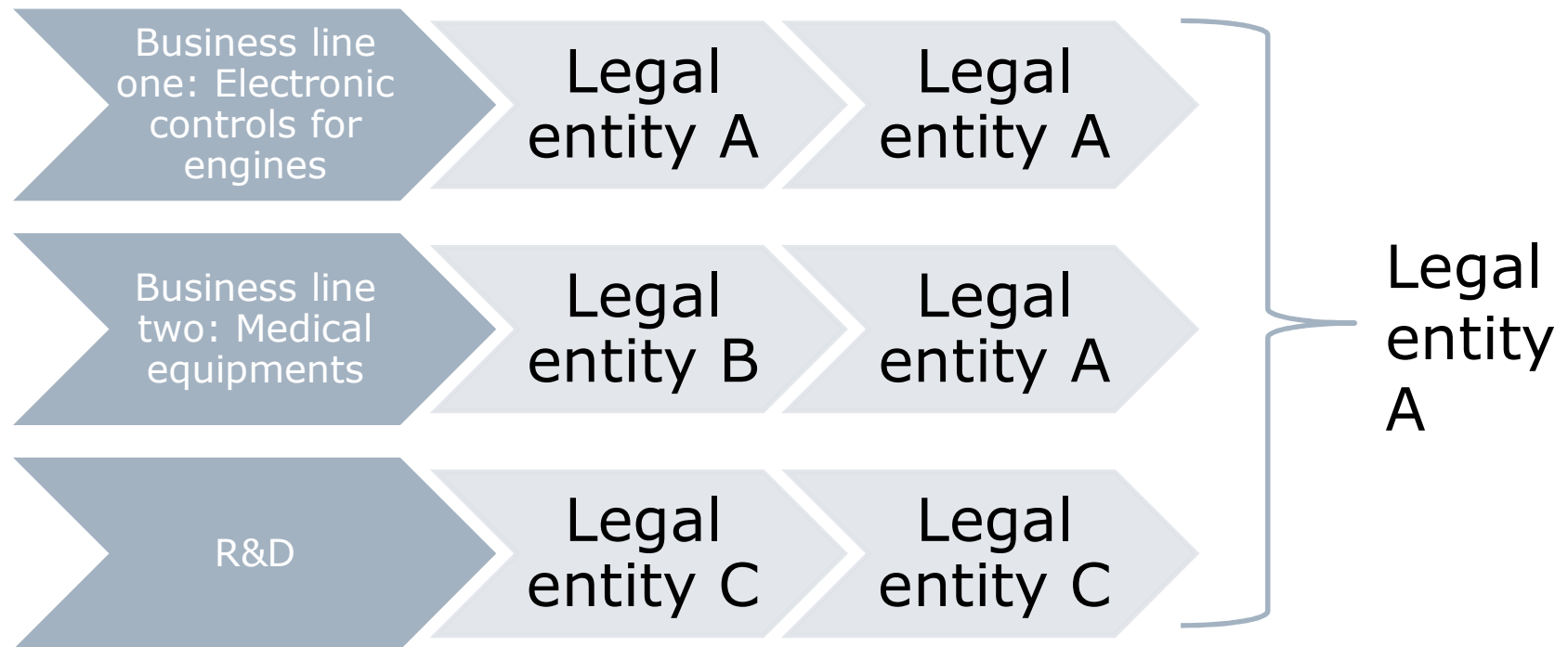
- Industrial strategy
 - Where to locate core business activities
 - Where to locate related business functions
 - How to manage technology and intangible assets
- Financial and tax planning strategy
 - Where to locate financial activities
 - Where to locate tax revenues



Global enterprise perspective

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- Rapid changes in legal structures of global enterprises in a single country over time





Global enterprise perspective

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Decision structure of a Global Enterprise

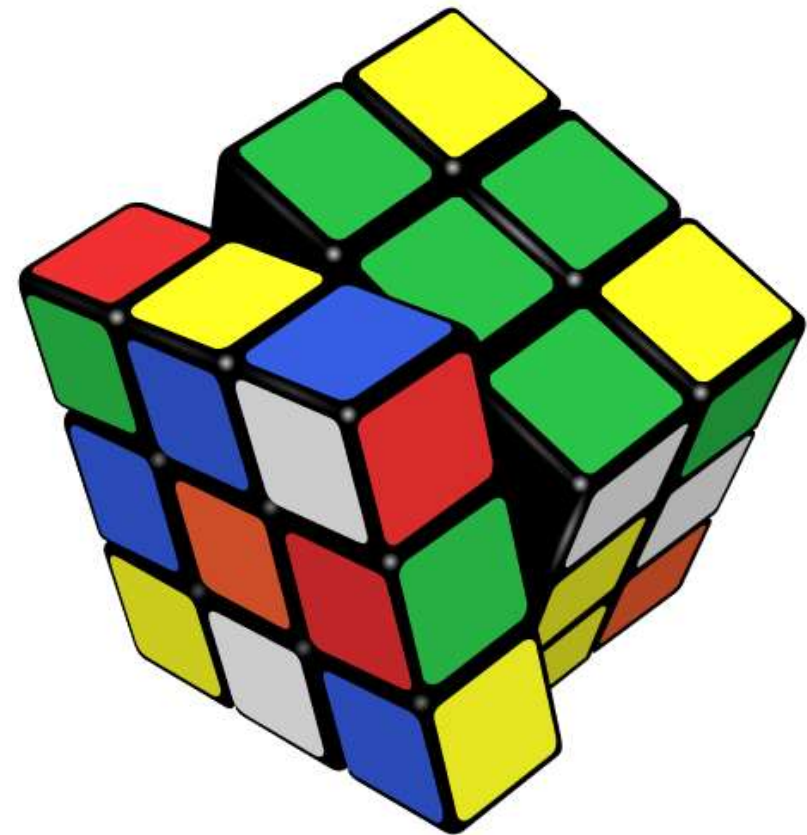
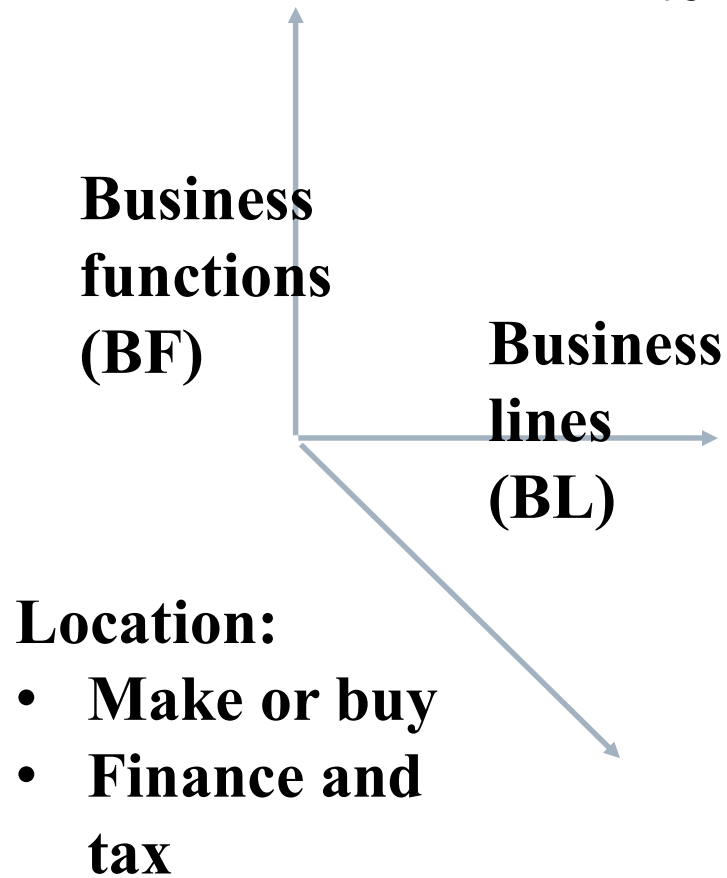




Table 3: The proposed classification and analytical framework

Breakdown of GE activities as a step by step decomposition process

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➔ Business line

BL
X

➔ The business line and its business supporting activities defines a business process

BL	BF1	BF2	BF3	BF4	F	BF6	BF7	BF8	BF9
X		X		X			X	X	

➔ Each business process can be carried out internally (I) or externally (E) the GE

M	BL	BF1	BF2	BF3	BF4	BF5	BF6	BF7	BF8	BF9
I	X		X					X	X	
E			X		X				X	

➔ Each business process can be located in the resident country (R) or abroad (F)

L	M	BL	BF1	BF2	BF3	BF4	BF5	BF6	BF7	BF8	BF9
R	I	X		X					X	X	
R	E			X		X				X	
F	I	X		X						X	
F	E			X		X					

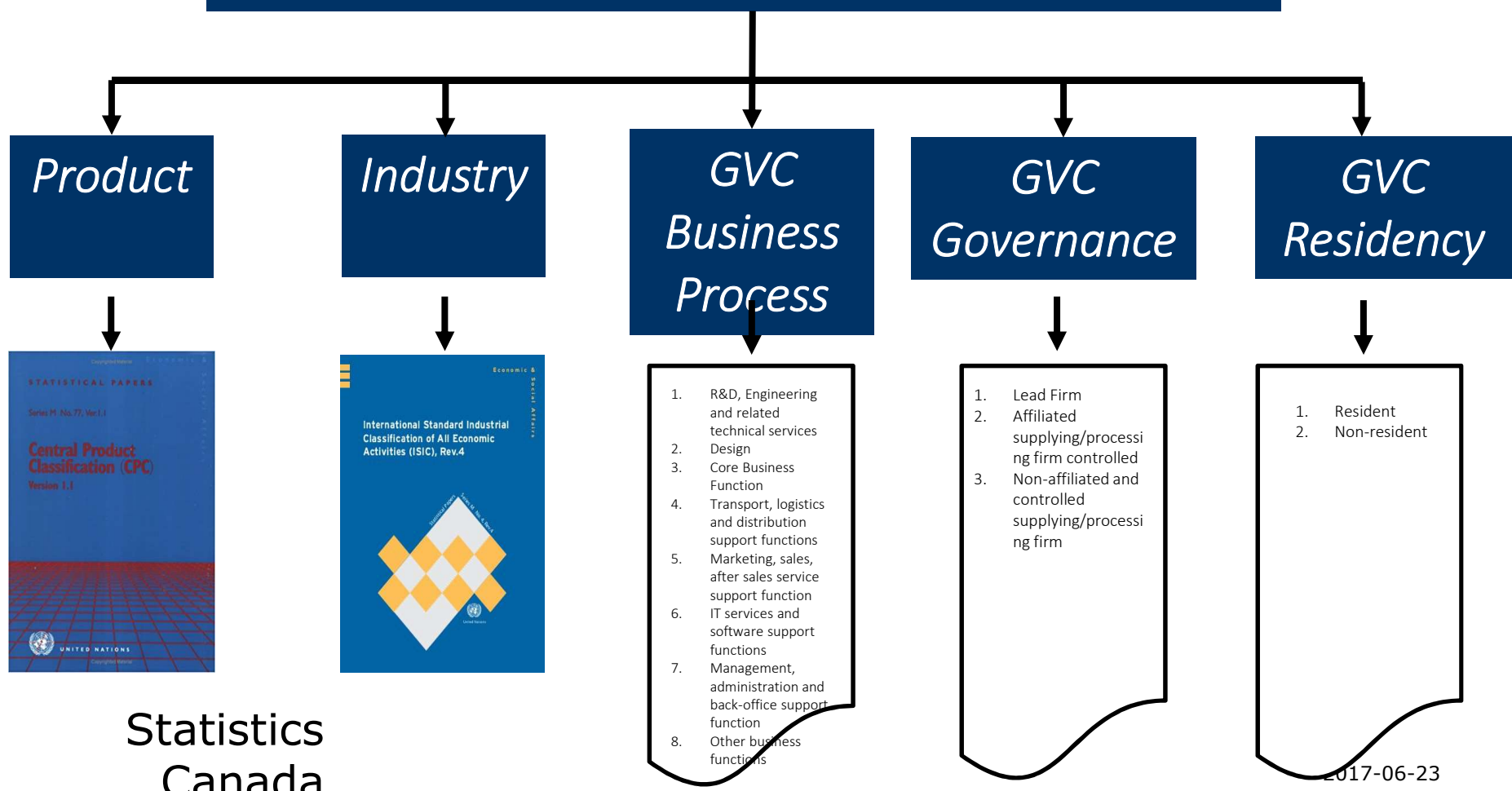
➔ This process can be reiterated for each business process (BP) independently from each other

BL	L	M	BL	BF1	BF2	BF3	BF4	BF5	BF6	BF7	BF8	BF9
BP1	R	I	X		X					X	X	
BP1	R	E			X		X				X	
BP1	F	I	X		X						X	
BP1	F	E			X		X					
BP2	R	I	X	X	X	X		X	X			X
BP2	R	E		X				X			X	
BP2	F	I		X		X		X	X			
BP2	F	E	X		X				X	X	X	

A Conceptual Framework for Global Enterprise operations for profiling



Classifications of the GVC accounts

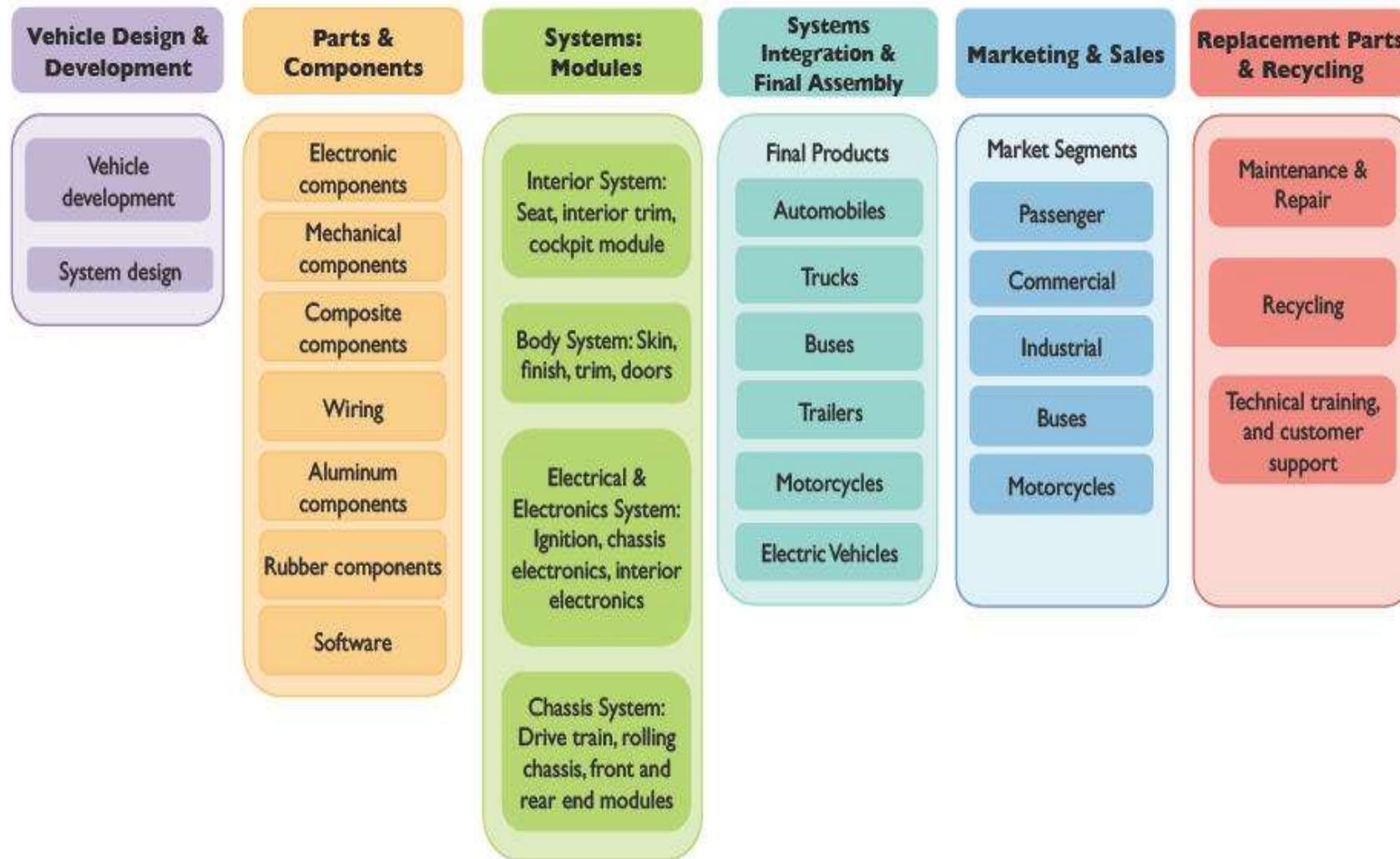


Statistics Canada



Automotive Global Value Chain - NAFTA and EU

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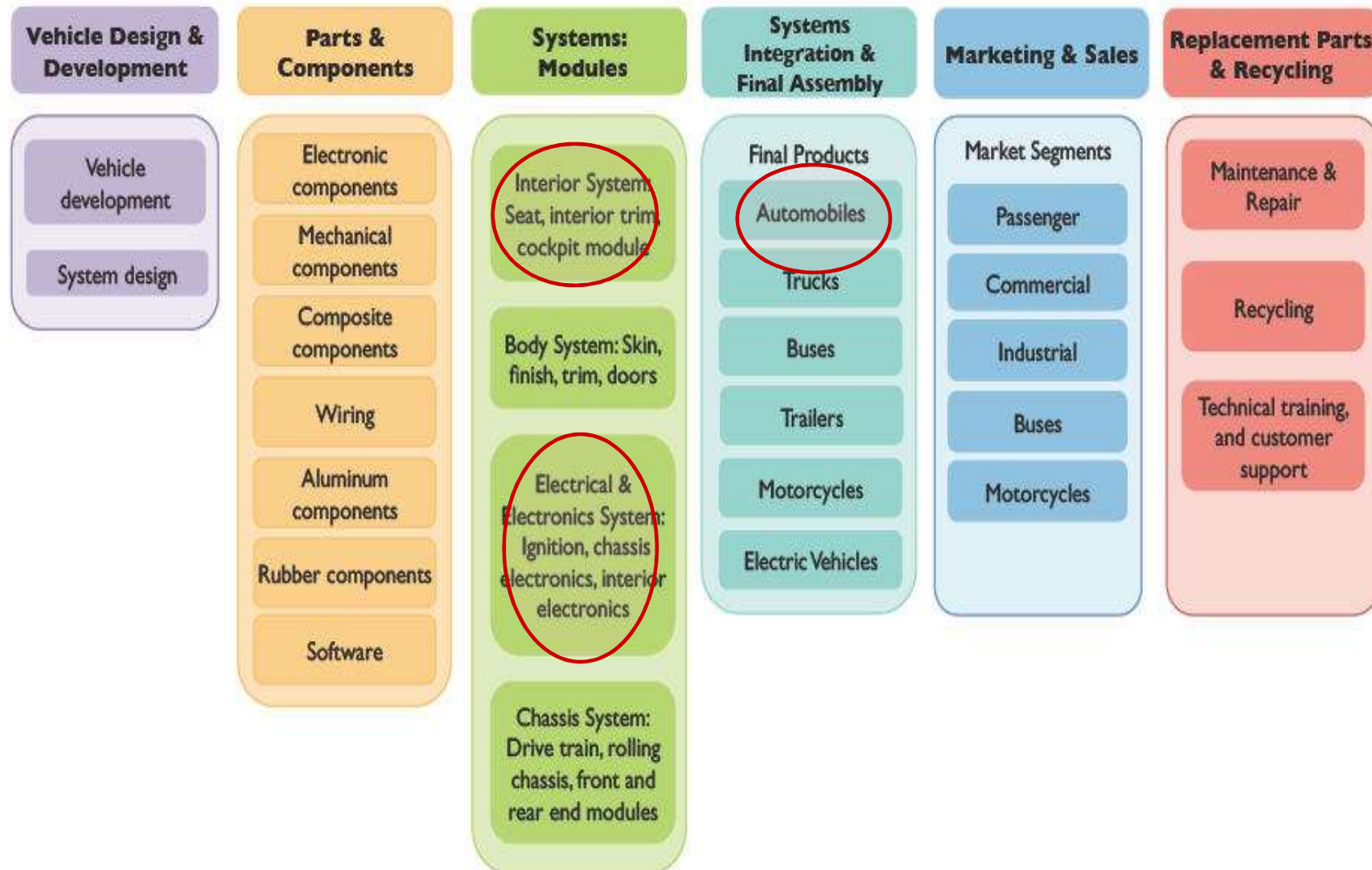


Source: Timothy Sturgeon, Jack Daly, Stacey Frederick, Penny Bamber and Gary Gereffi (2016) *The Philippines in the Automotive Global Value Chain*



Morocco in the automotive GVC

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Standardized product codes (HS, CPC etc)

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Example: Automotive GVC HS codes

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*



Multi partner country SUT structure

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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	foreign owned	nationally owned	others	lead firms	other	lead firms	other	GVC gov. structure	other	

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

...



Reporter Multiple values

Year 2015

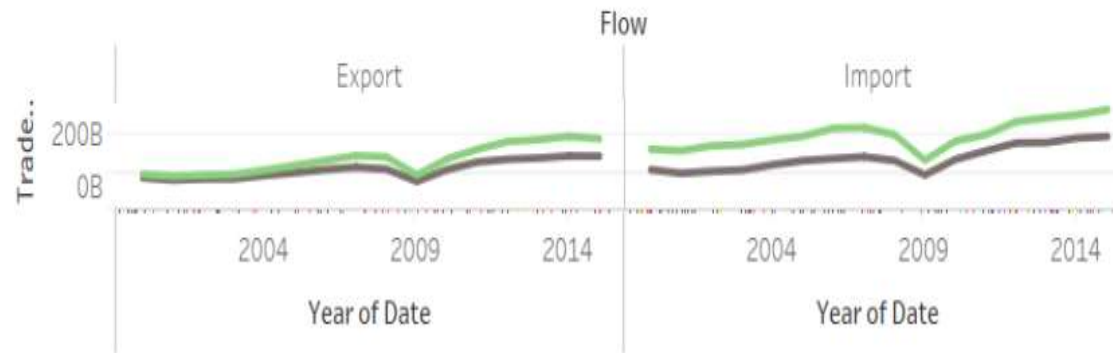
Partner All

Flow Export

Top N Repo.. 20

Top N Part.. 20

Trends



Product Group

- Final Vehicles (Pass+Comm)
- Intermediate Vehicles

Product Group

- Final Apparel
- Final Apparel & Footwear
- Final Electronics
- Final Footwear
- Final Textiles
- Final Vehicles (Pass+Comm)
- Final Vehicles Commercial
- Final Vehicles Passenger

Data Availability

Reporter

USA

2015

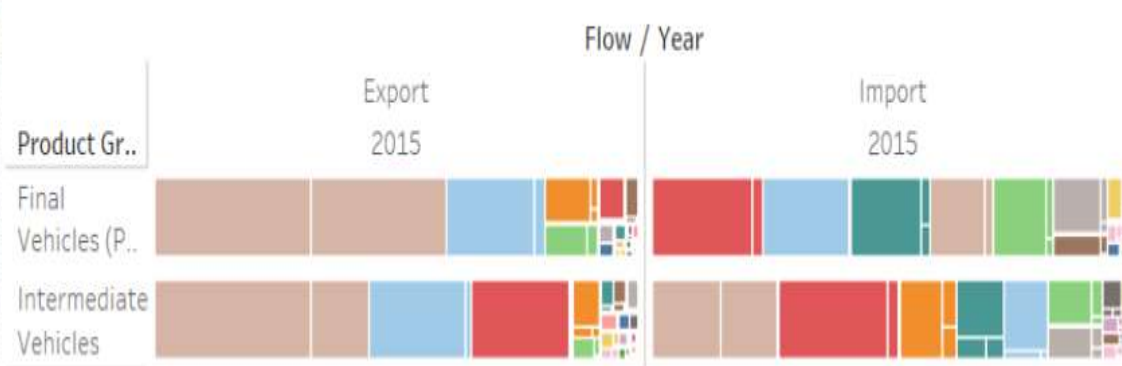
Mexico

2015

Canada

2015

Top Traders



Partner

- Belgium
- Canada
- China
- China, Hong Kong SAR
- France
- Germany
- Ireland



Reporter Multiple values

Year 2015

Partner All

Flow Export

Top N Repo.. 20

Top N Part.. 20

Data Availability

Reporter

Germany 2015

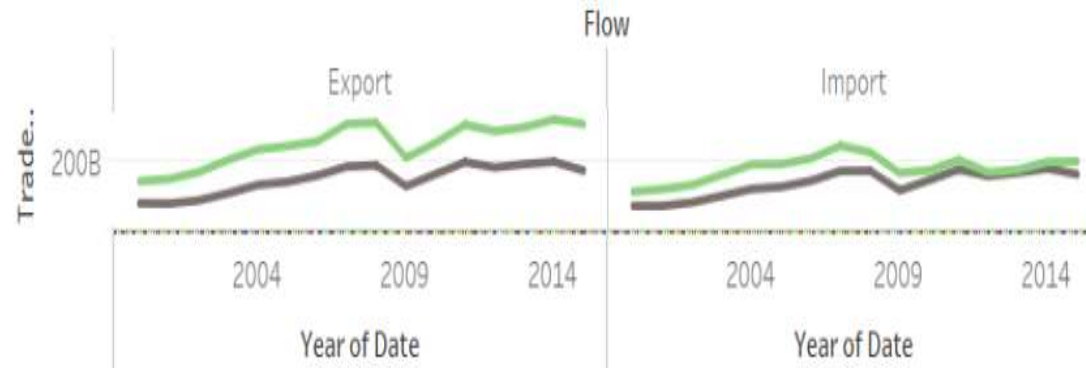
United Kingdom 2015

France 2015

Spain 2015

Italy 2015

Trends



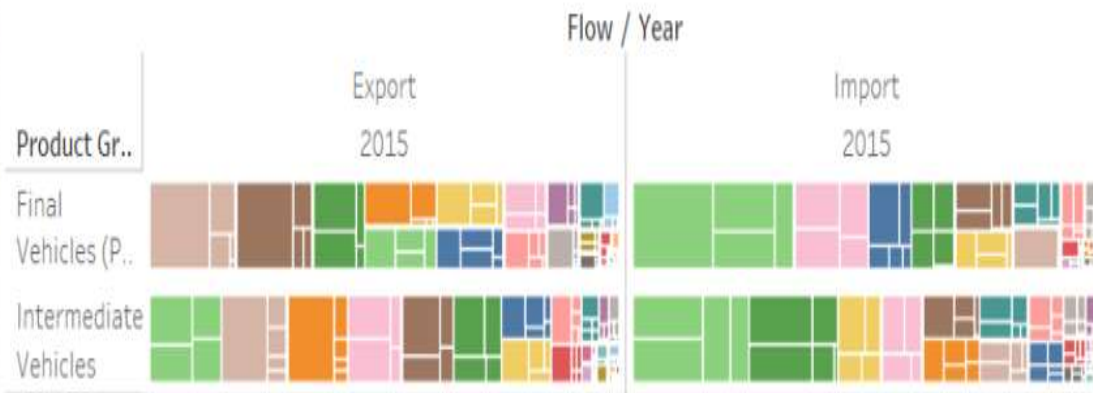
Product Group

- Final Vehicles (Pass+Comm)
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- Final Apparel
- Final Apparel & Footwear
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- Final Footwear
- Final Textiles
- Final Vehicles (Pass+Comm)
- Final Vehicles Commercial
- Final Vehicles Passenger

Top Traders



Partner

- Belgium
- Canada
- China
- China, Hong Kong SAR
- France
- Germany
- Ireland



- Experimentation and testing with compiling standardized regional multi-partner country GVCs
 - agri-food sector
 - apparel and textiles sector
 - automotive sector
 - electronics sector
 - tourism sector



Research agenda for System of National Accounts

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- concepts
 - control versus economic ownership – contract manufacturing, aircraft leasing
 - centre of economic interest – corporate relocations, headquartering
- statistical units (FGPs, global enterprise group, etc.)
- classifications (product (CPC, BEC, Business Functions), activity (ISIC) classification, sub-sectoring of institutional sector



Research agenda for System of National Accounts

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- accounts for multi-partner country SUT and integrated accounts for specific GVC sectors
- transactions (financial accounts)
- price and volume measures (industrial processing services, trade in services – merchanting, intra company services, IPP related services)



Future GVC specific statistical products

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- **UN Handbook** on Accounting for Global Value Chain: Extended System of National Accounts and Integrated Business Statistics
- **Multi-partner country SUTs for GVC specific industries** – standardized and recurrent
- Global (enterprise) Group **Register** (GGR) (building on Euro Group Register (EGR))
- Methodologies and infrastructure for **data sharing** between countries
- Methodologies for resolving GVC related **asymmetries** in merchandise trade, trade in services, income and foreign affiliate trade statistics
- **Classifications** for BEC, Business Functions, Product and industry classifications for GVC industries



Thank you!

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