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# Innovation, Industrial Dynamics and the Global Economy

Piergiuseppe Fortunato  
UNCTAD

Adapting IP to a digital world for Diversification and Transformation  
19 March 2018, Geneva

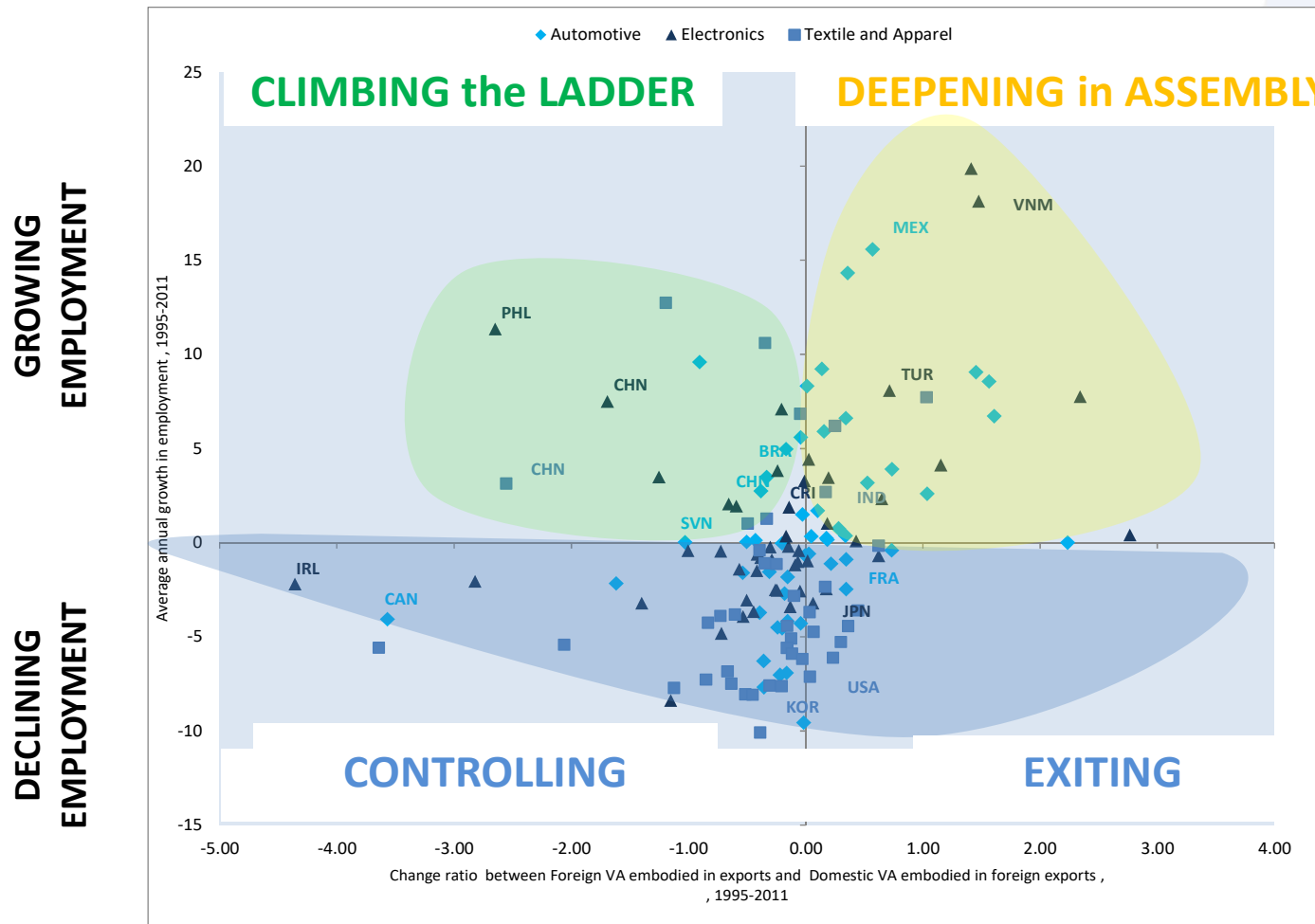
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## The world economy has become more integrated

- Rising **share of trade in world output**, initially through increased flows amongst advanced economies, but with increasing developing countries participation since the 1970s
- Dramatic rise of cross-border capital flows, including **foreign direct investment (FDI)**
- **Restructuring of production around GVCs**: goods are no longer made in one country and shipped, but go through many stages (each associated with a specific task) traversing several geographic borders and adding components and value before they reach their final markets

# GVCs made new actors entering in global trade dynamics

## BUT



Source: OECD Development Centre- UNCTAD- ECLAC-ECA-ESCAP- Transforming Economies Report (forthcoming based on World Bank World Development Indicators, 2016).

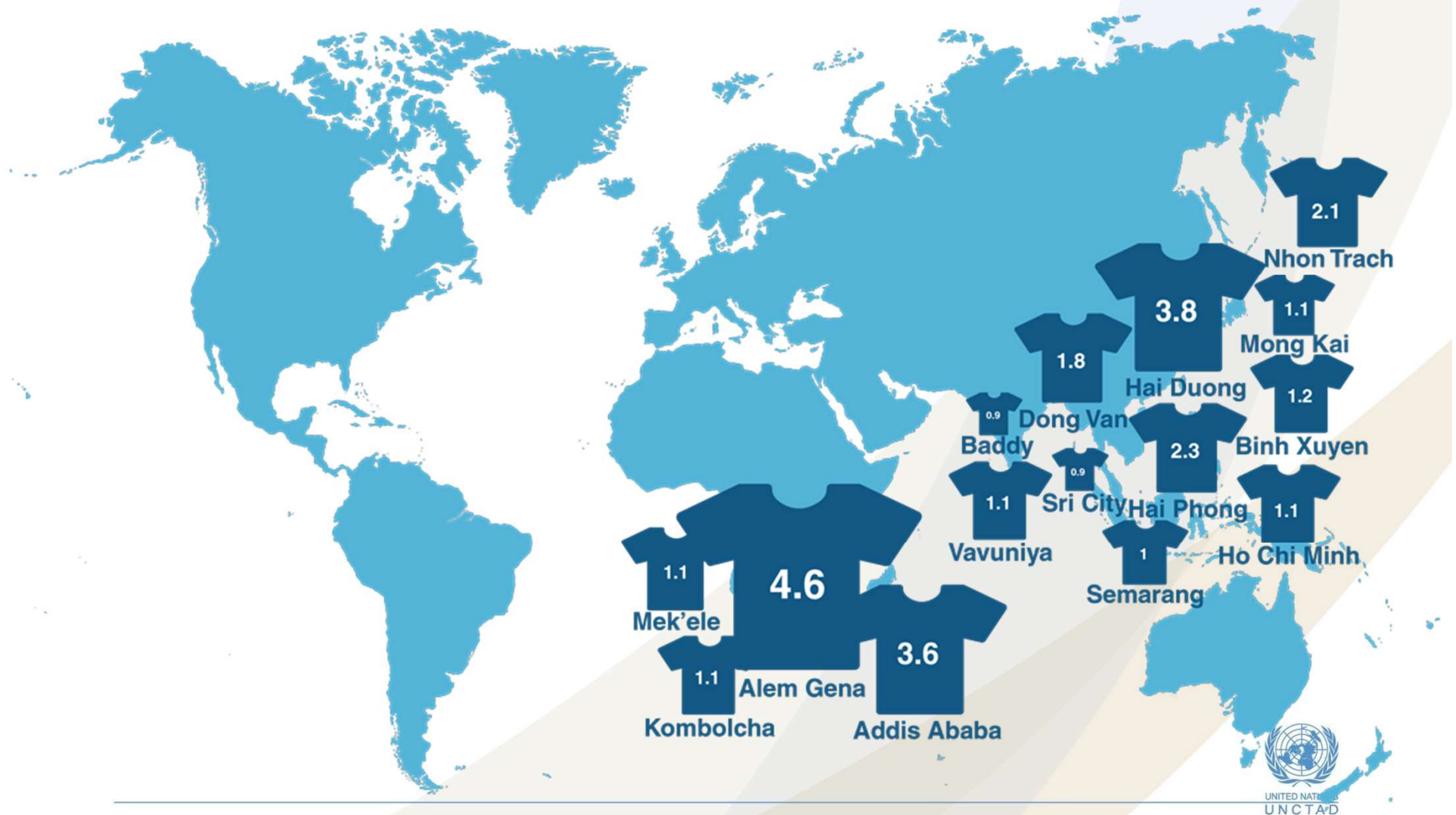
## Top 20 WORLD FDI destination cities, 2013-15 in automotive



## Top 20 WORLD FDI destination cities, 2013-15 in electronics



# Top 20 WORLD FDI destination cities, 2013-15 in textile

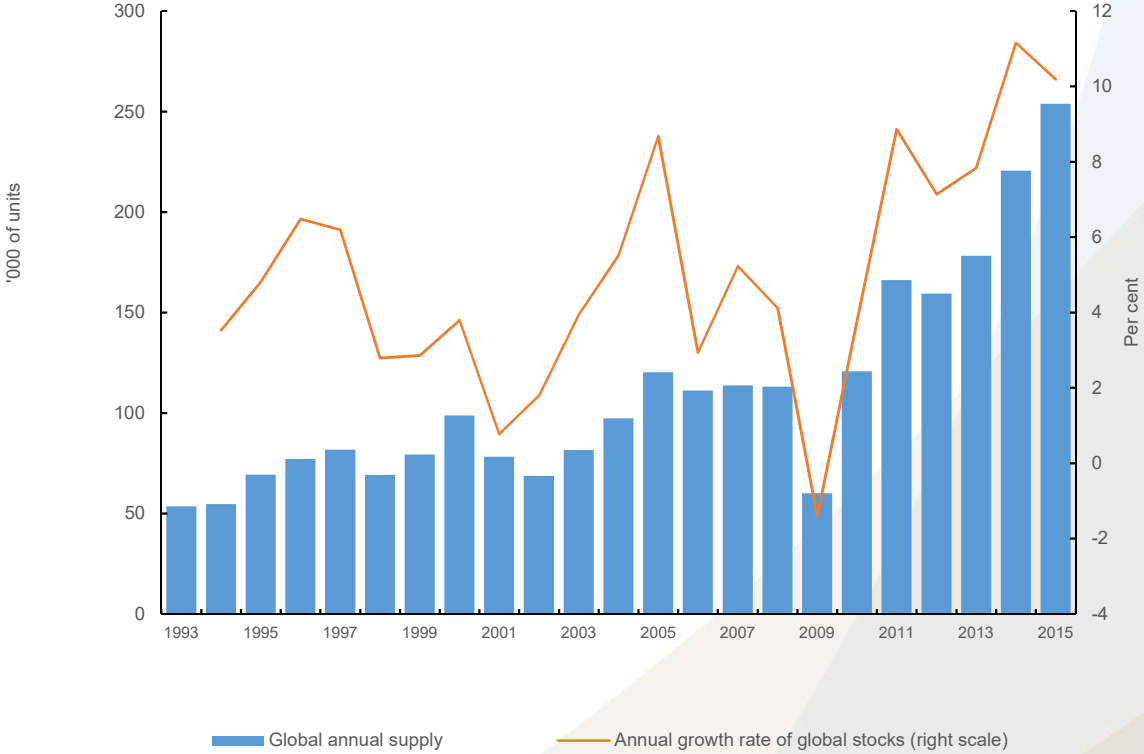


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## Game changers

- Supply side: accelerated pace of innovation (automation & digitisation)
- Demand side: changing aspirations and values (green production & transport, workers rights)

# The use of robots has increased rapidly since 2010



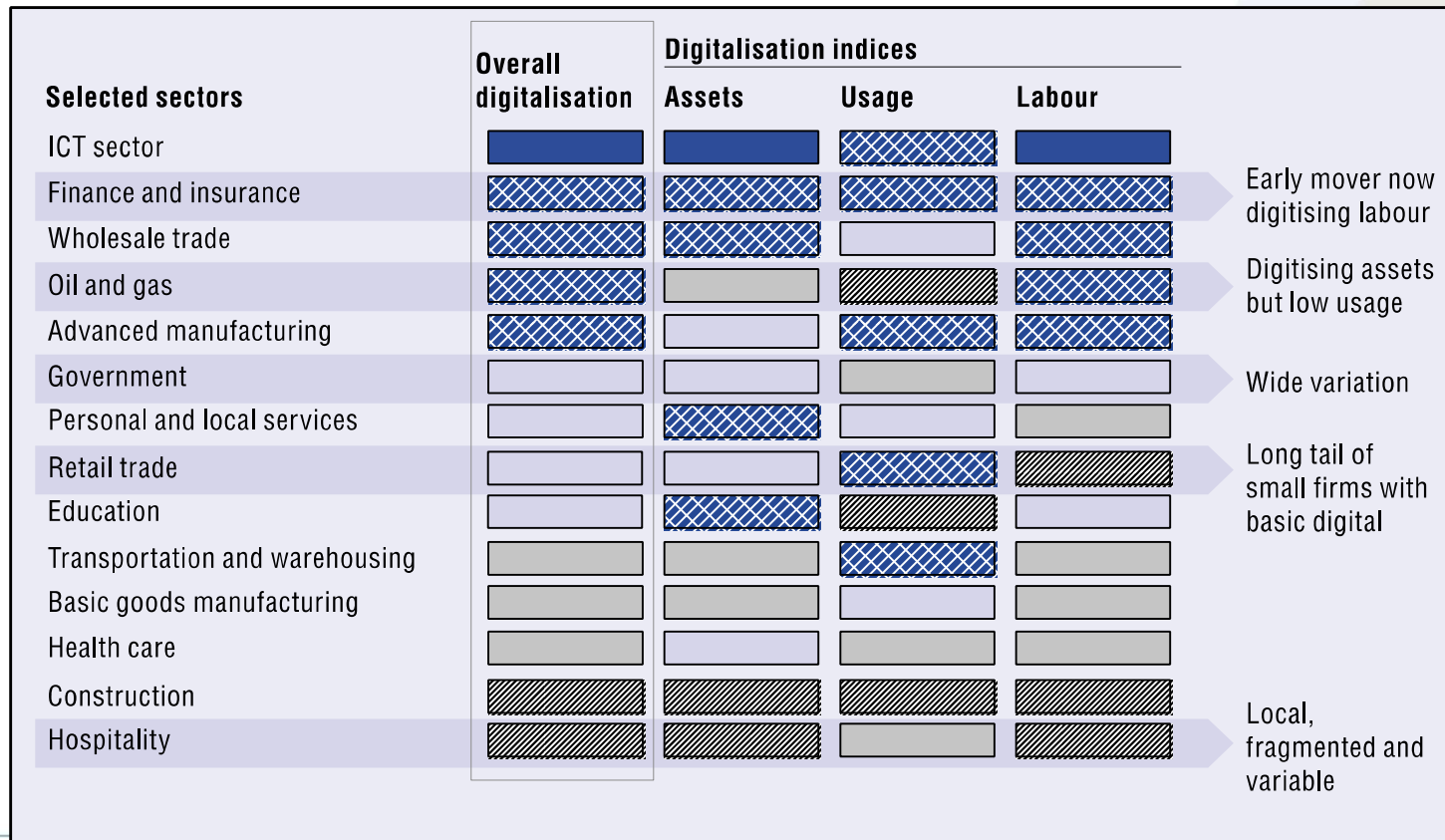
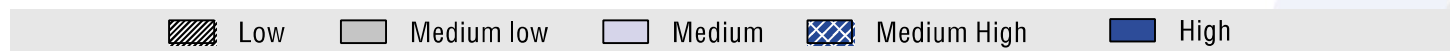
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# Digitization is affecting all aspects of businesses, but at different speeds

The Industry Digitisation Index of US industries, 2017



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# GVCs in transition

## Changes in the organisational structure

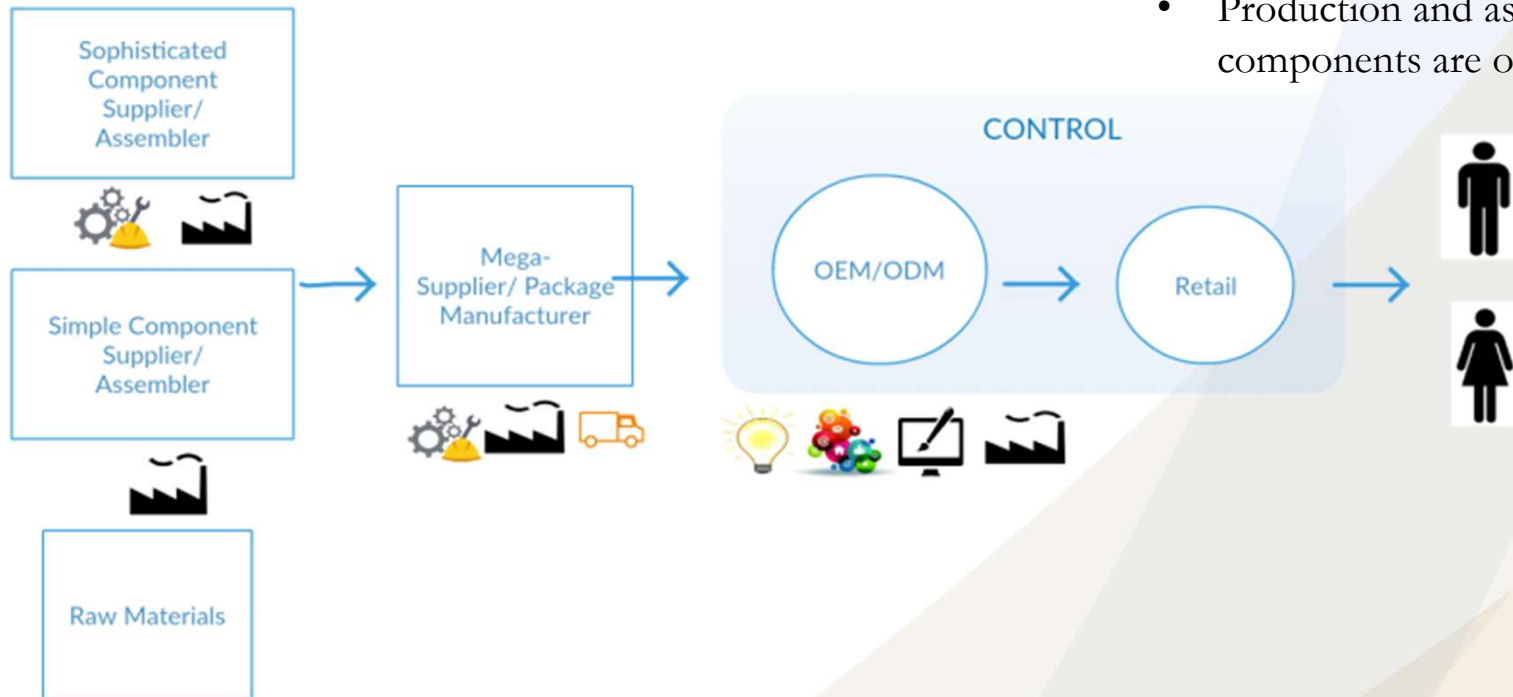
Key trends in innovation and demands are driving change in the organization of production

The digitisation of manufacturing is redefining the organization of production within and between firms (& the source of rents)

From (traditional) **OEM-** or **retail-centred** chains to **platform-** and **consumer-centred** chains

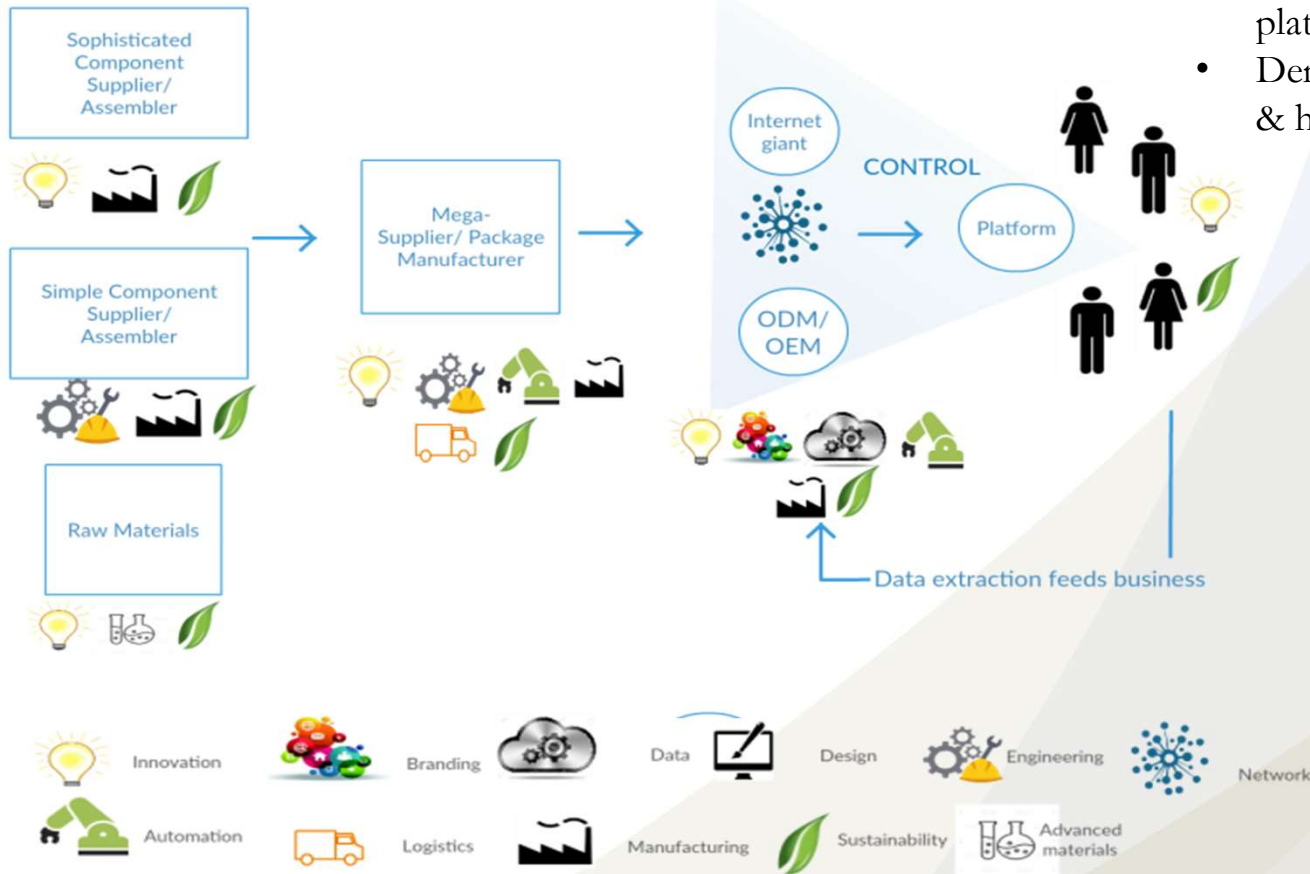
# The Traditional GVC

- Design of the product and retail are retained by controlling firm (OEM/ODM)
- Production and assembling of components are outsourced



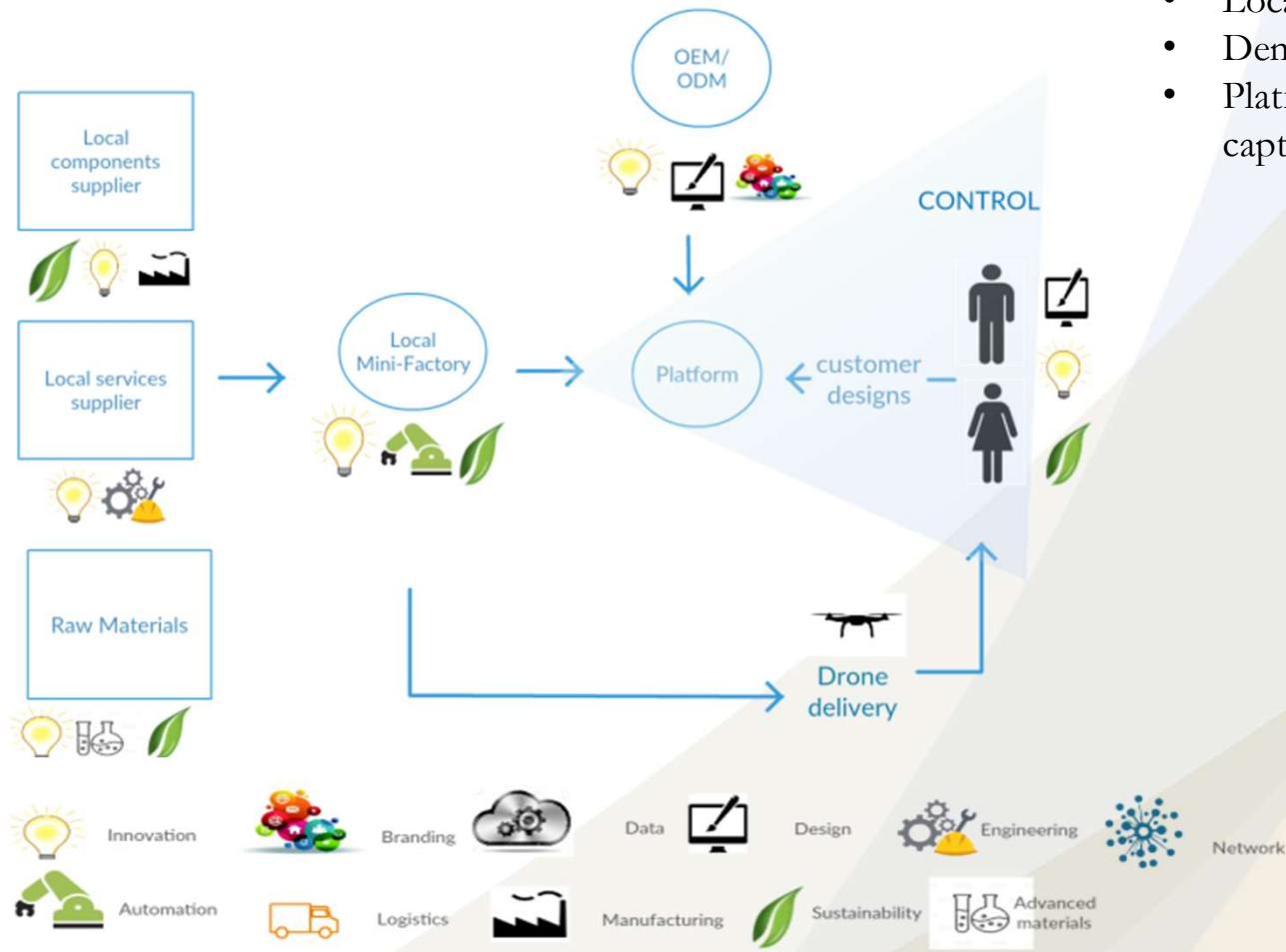
# The Platform-centred GVCs

- Data is an asset (main source of power)
- Control found in networks and platforms
- Demand-side economies of scale & huge first mover advantage



# The Consumer-centred GVC

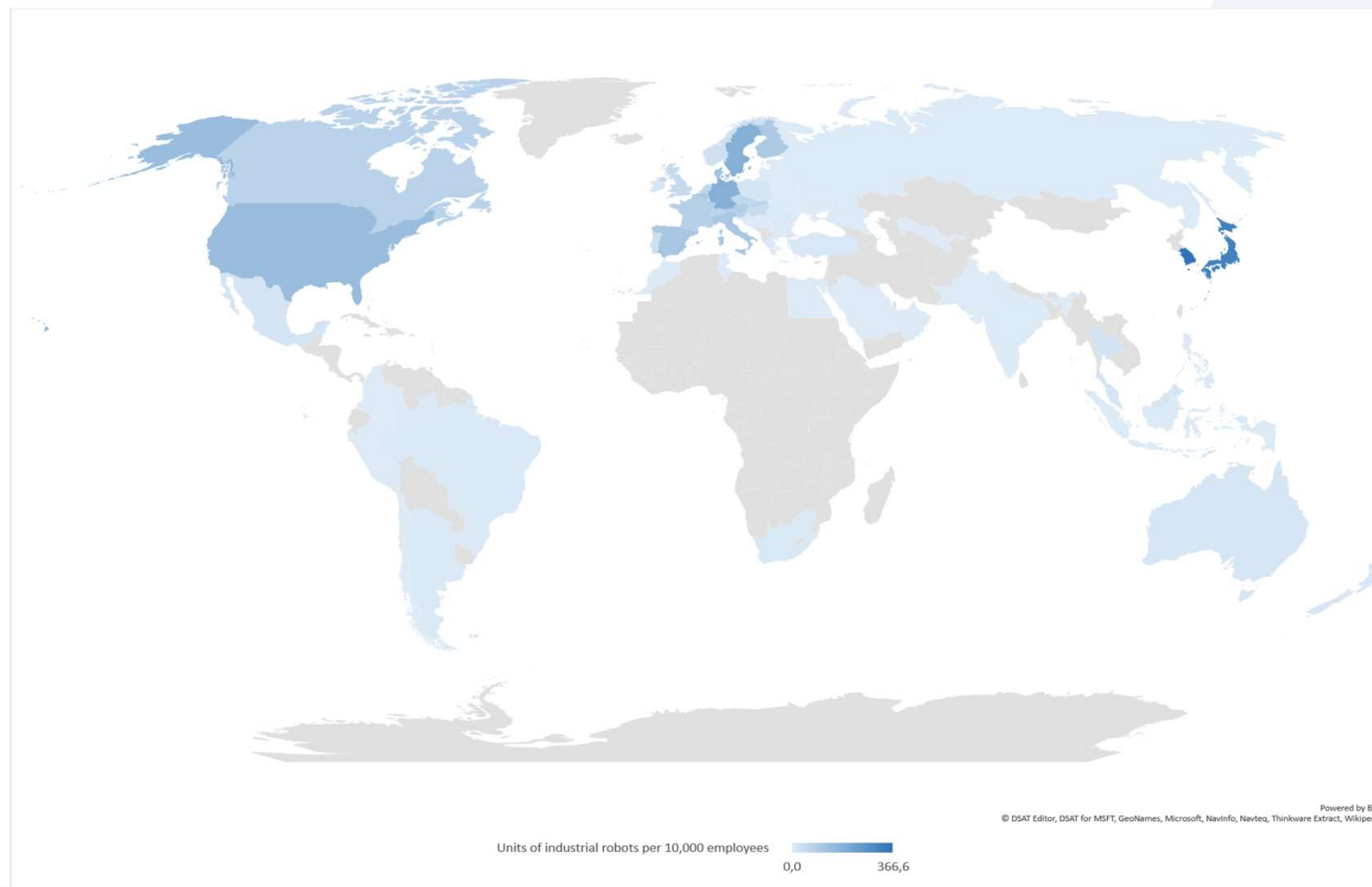
- Customer design (linked to innovation, eg 3d printing)
- Local on-demand production
- Demand for sustainability
- Platform still keep control & capture value



# The future is already here....but not (yet?) for all

## Disparities Across Countries – Geographical concentration

Robot density in manufacturing (robots per 10 000 employees)



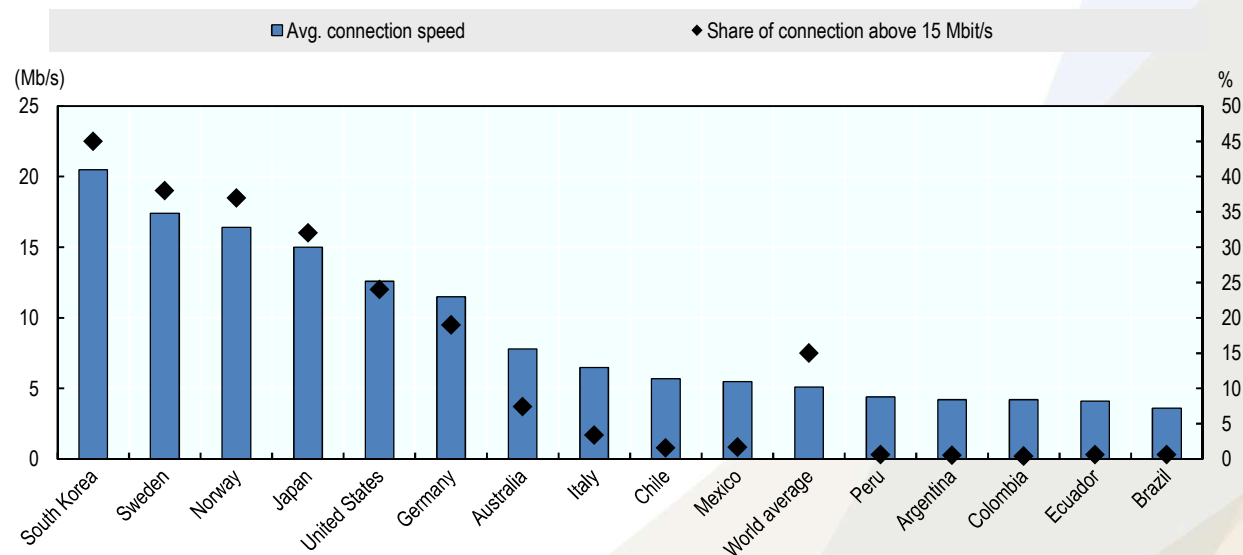
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# The future is already here....but not (yet?) for all

## Disparities Across Countries

### Internet connection speed & share of fast connection



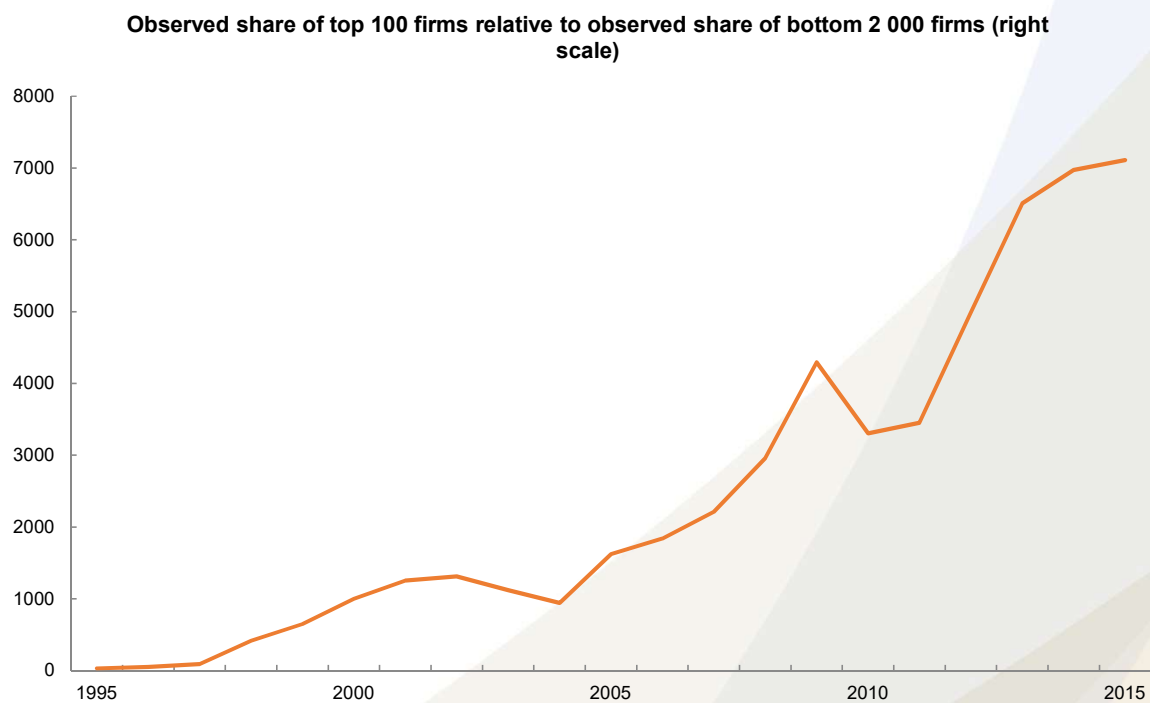
Source: OECD Development Centre elaboration on Akamai Faster Forward State of the Internet Report, 2017

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# Raising disparities across firms – Market concentration

## The era of superstars

Ratios of market capitalization of the top 100 non-financial firms, 1995–2015



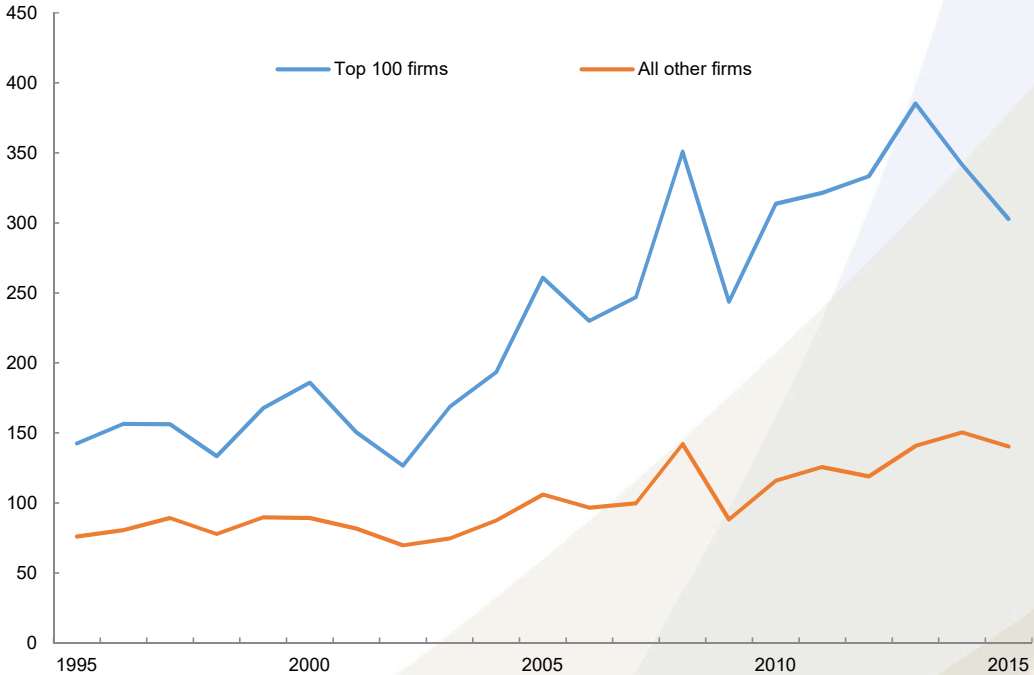
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# What are the drivers of rising market power and concentration?

Average labour productivity of the top 100 firms compared with all other firms, 1995–2015



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## Digital Polarization?

- Market concentration and noncompetitive pricing are particularly evident in information intensive & digital activities
- Digital content can be spread instantly facilitating the attempts of market expansion & new avenues have been opened to create artificial scarcity and erect fences wherever possible
- E.g. “network effects”, through which the benefits associated to the use of a service raise with the number of users, give rise to the capture of consumers and “demand-side economies of scale” which allow the largest firm in an industry to increase its attractiveness to consumers

# Going Forward

- Regulation! Regulation! Regulation! (domestic & global to avoid market capture, increase competition & reduce rents)
- Investment! Investment! Investment! (the transition towards the new industrial & services model will require high(er) level of investments)



# PTPRs- PRODUCTION TRANSFORMATION POLICY REVIEWS

The PTPRs are a **Policy Assessment Tool** to identify **actionable policy options** and detect **future opportunities**

The PTPRs build on a **5 pillar framework for effective governance and for successful production systems**

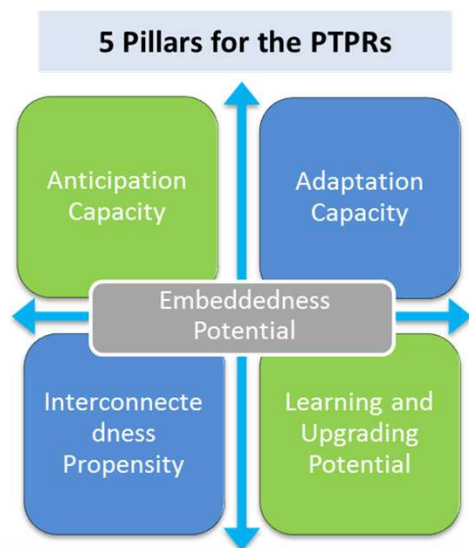
Anticipation capacity	• The capacity of the private and public sectors to detect future opportunities, factor in voices for change, and anticipate change.
Adaptation capacity	• The capacity of the private and public sectors to adapt to external conditions and take actionable steps.
Embeddedness potential	• The capacity of the private and public sectors to create long-term linkages and capture/retain local value.
Interconnectedness propensity	• The density and variety of networks in which the agents of the production and innovation systems, as well as government institutions, are involved and the capacity to deal with them.
Learning and upgrading potential	• The quality and quantity of the learning base and the system's attitude towards learning by doing and knowledge accumulation.

# On-going PTPRs



# The PTPR of Chile: a 15-month country targeted support process

**Multi-stakeholder consultations in the country**  
**International peer-review** (Government of Emilia Romagna, Italy; NIR-Sweden, DLR- Germany)

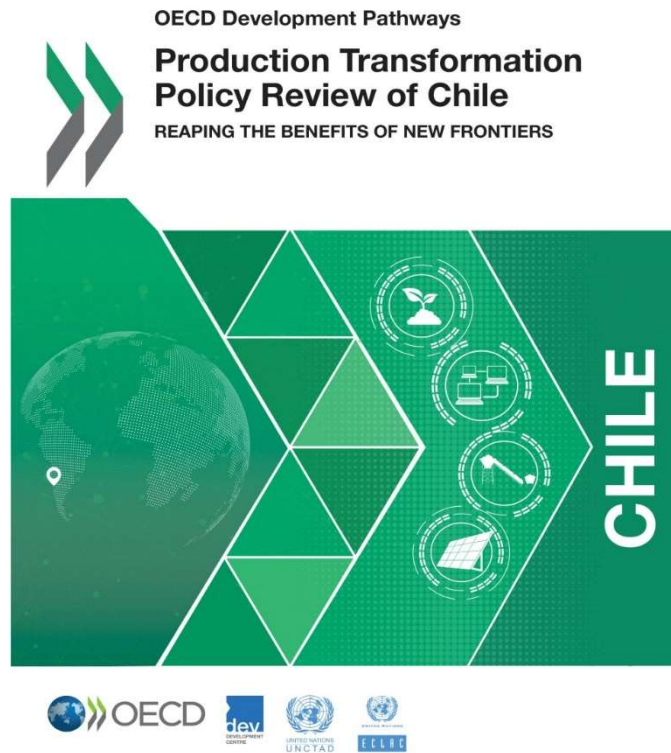


5 dimensions for assessing the potential of production and innovation systems and policies for transformation and upgrading

- Shared **visions** for the **future**
- **Concrete recommendations** in going forward to transform Chile
- Taking stock of experiences for **knowledge sharing** with other countries **Initiative for Policy Dialogue on GVCs, Production Transformation and Development** as a space for continuous policy support, reporting of reforms' implementation and monitoring of global changes



# PTPR Chile in a nutshell



Chile is a relatively stable, high growth and open economy and Chileans today are on average better off than in the 1990s

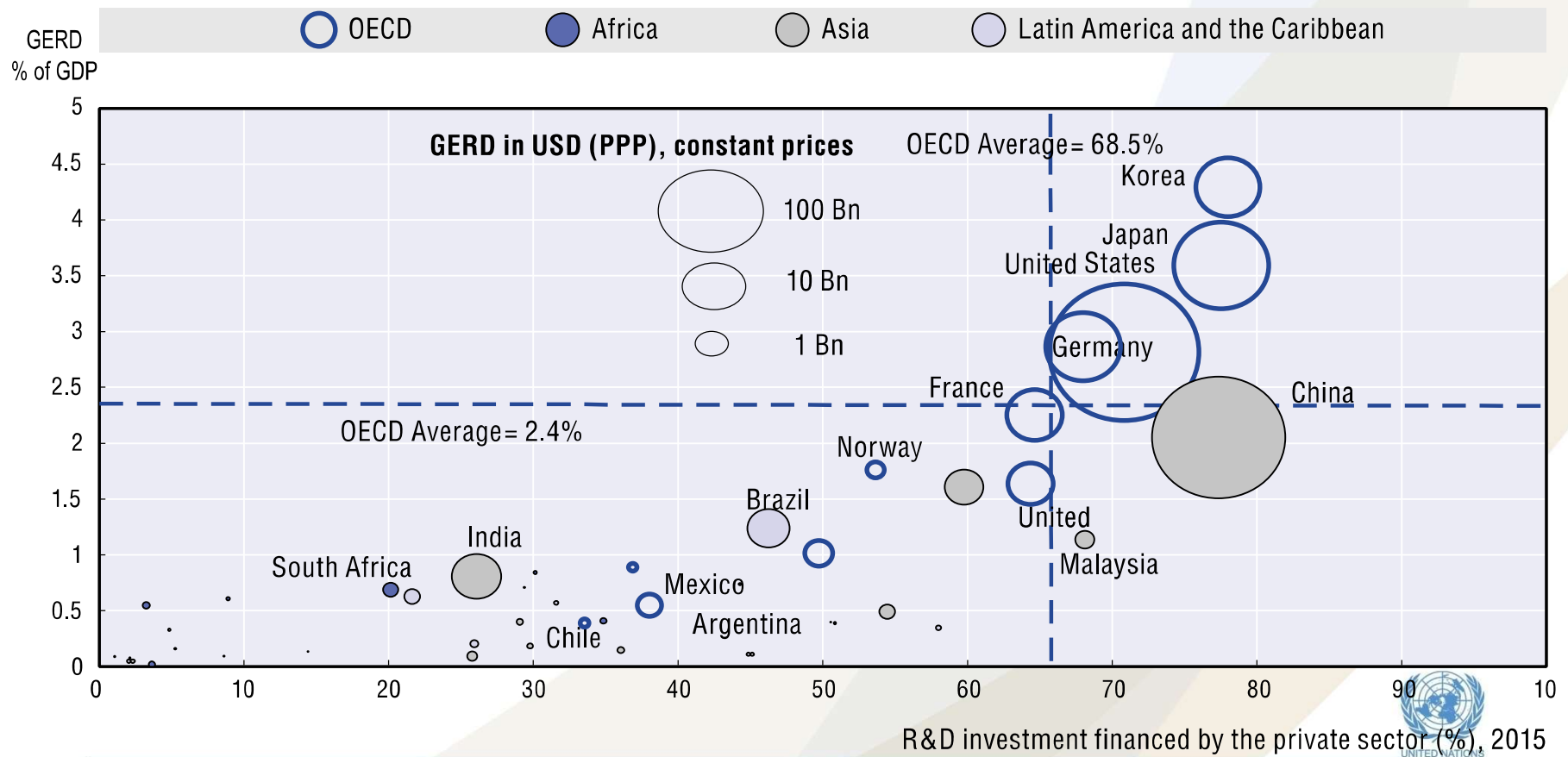
Three barriers hamper future progress:

- **Low productivity**
- **Limited diversification** leaves the country vulnerable
- **High concentration** of economic opportunities in few activities, firms and regions limits innovation

# PTPR Chile focus on innovation

## Chile lags behind in public and private R&D

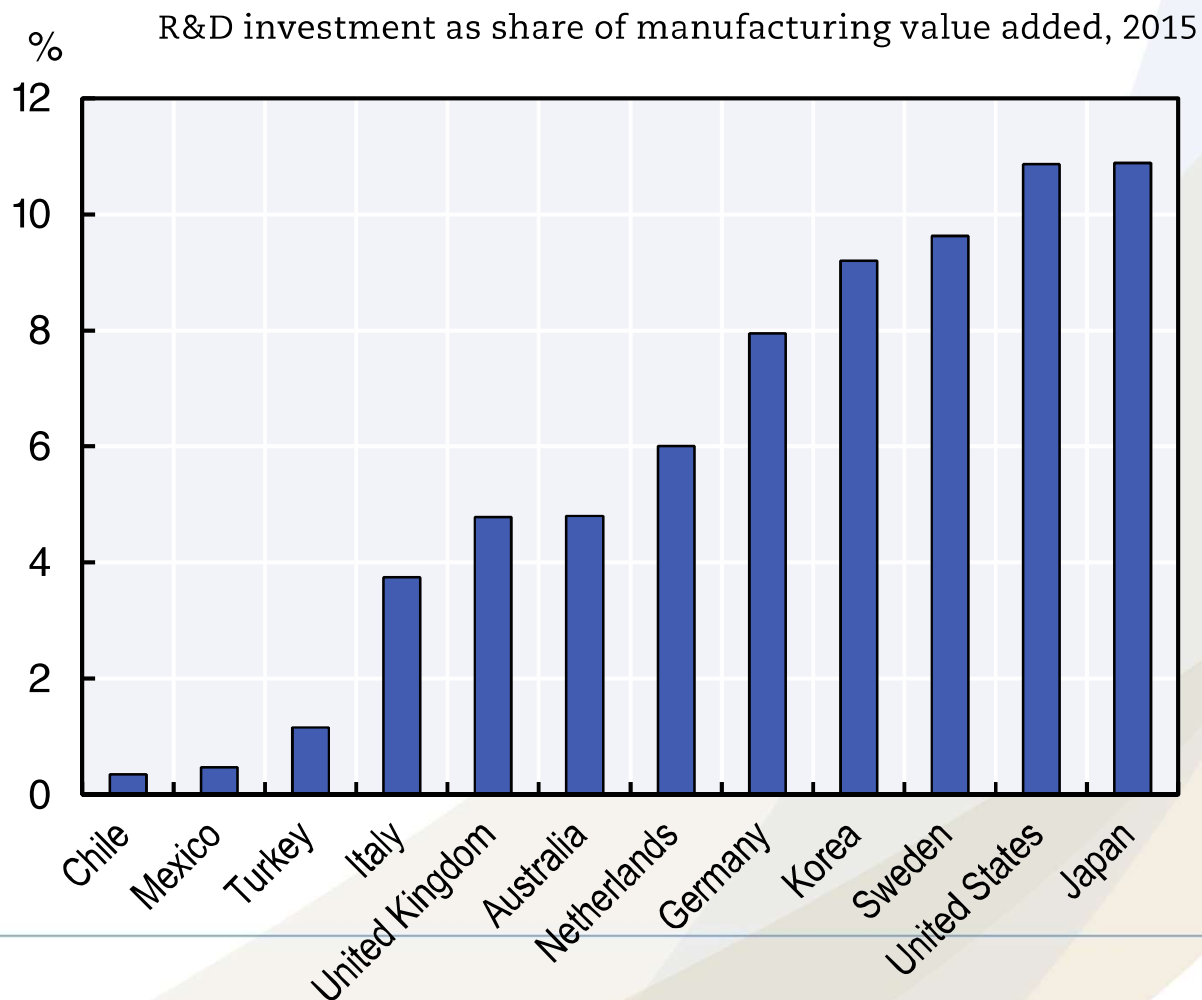
2015





## PTPR Chile focus on innovation

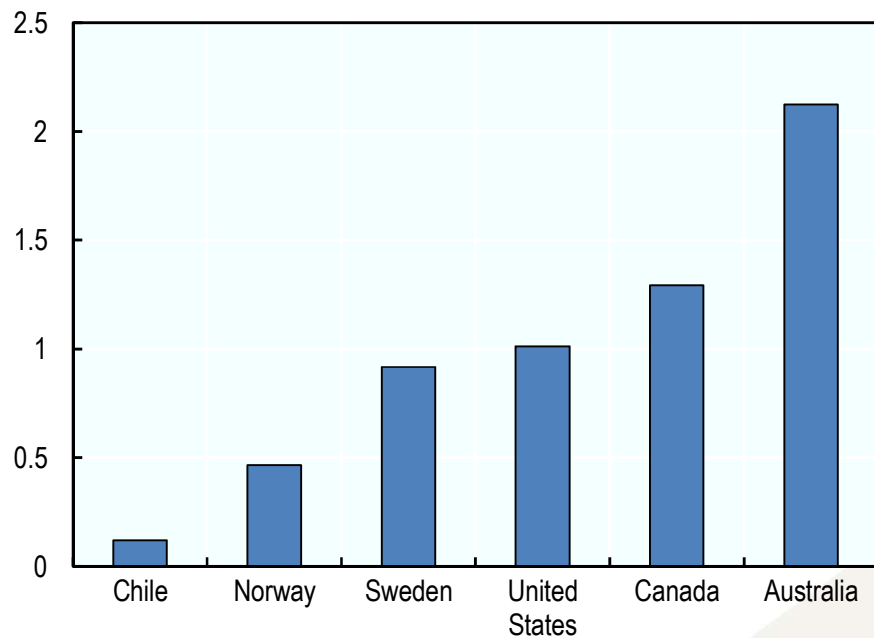
### Chile Manufacturing sector invest little in R&D



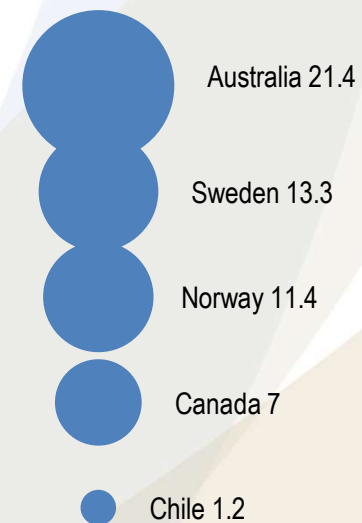
# PTPR Chile focus on innovation

Chile lags behind leading mining countries in innovation

Panel A: R&D intensity in mining, 2015



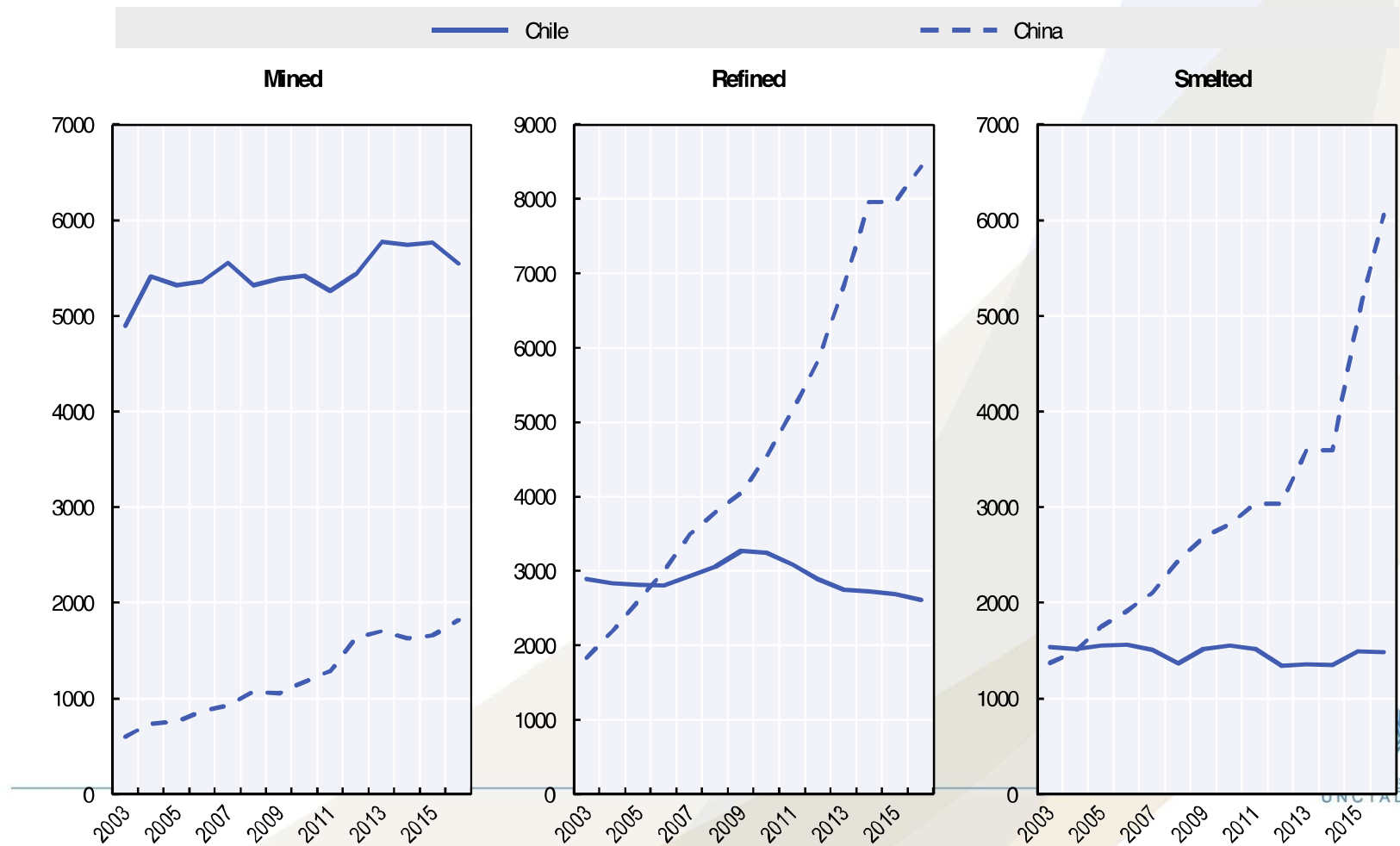
Panel B: Total R&D personnel/1 000 employees, 2014



# Risk of *de-sophistication*

## Copper production stages, Chile and China, 2003-16

Kilo metric ton (kMT) of copper content, by production stage



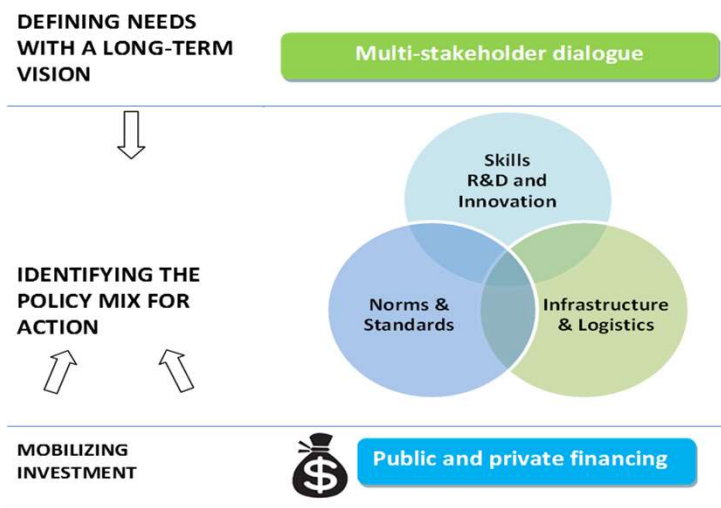
Chile has taken steps to **transform** the economy and reap the **benefits** of new demands and technologies

### Current agenda

<b>Continuity</b>	<ol style="list-style-type: none"> <li>1. Modernising the state</li> <li>2. Facilitating business development</li> <li>3. Fostering skills development and innovation</li> </ol>
<b>Novelty</b>	<ol style="list-style-type: none"> <li>4. Enabling public-private partnerships to address strategic challenges</li> </ol>

### Progress overview of Chile's strategic programs, 2017

Governance dimensions	Progress Overview
Anticipation capacity	Long term road maps
Adaptation capacity	Revision of the road maps
Learning and upgrading potential	Public private consultation
	Synergies among different programs
Interconnectedness propensity	<b>Within government</b>
	Private sector
	Academia
	Civil society
	Regional
Embeddedness potential	<b>International</b>
	Standards and norms
	<b>Open government and effective M&amp;E</b>



Positive progress
  Margin for improvement
  Need Reform



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## To consolidate the progress made Chile will need to:

- Advance in **modernizing the state** to cope with a fast-changing, uncertain and complex landscape (greater cooperation across line ministries)
- Strengthen and **institutionalize anticipation capacity** (increased dialogue and improved information flows across all affected stakeholders)
- Advance towards a **place-based approach** to policy making (increasing capabilities in local governments & implementing effective mechanisms for resource transfers)

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## Conclusions

- Globalization has delivered a *partial* prosperity
- New opportunities, new challenges
- Policy (and politics) matters:
  - Regulation to escape market concentration
  - Investment to escape geographical concentration
- Domestic and Global action needed (*act together*)