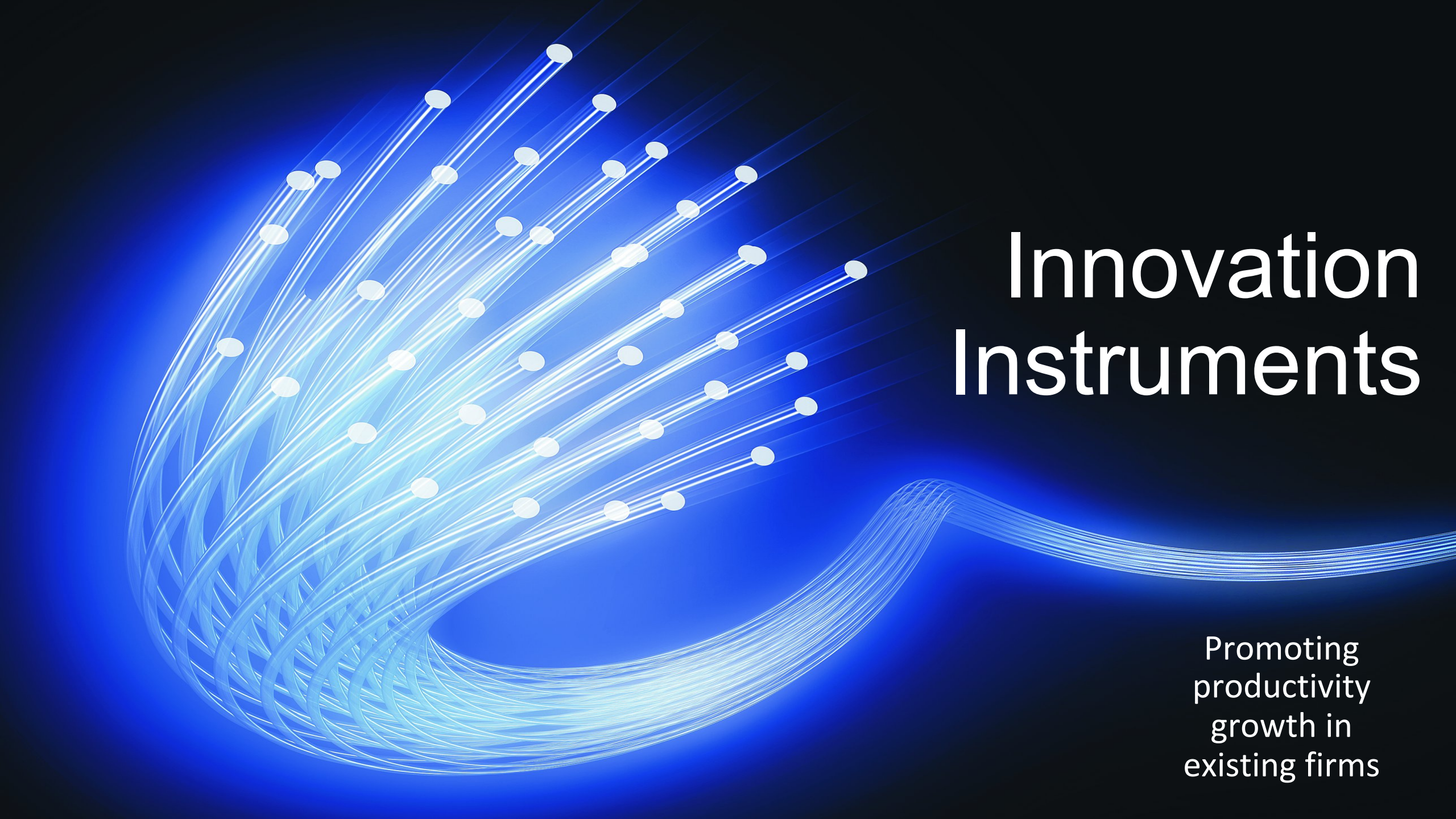


Innovation Instruments

Promoting productivity growth in existing firms

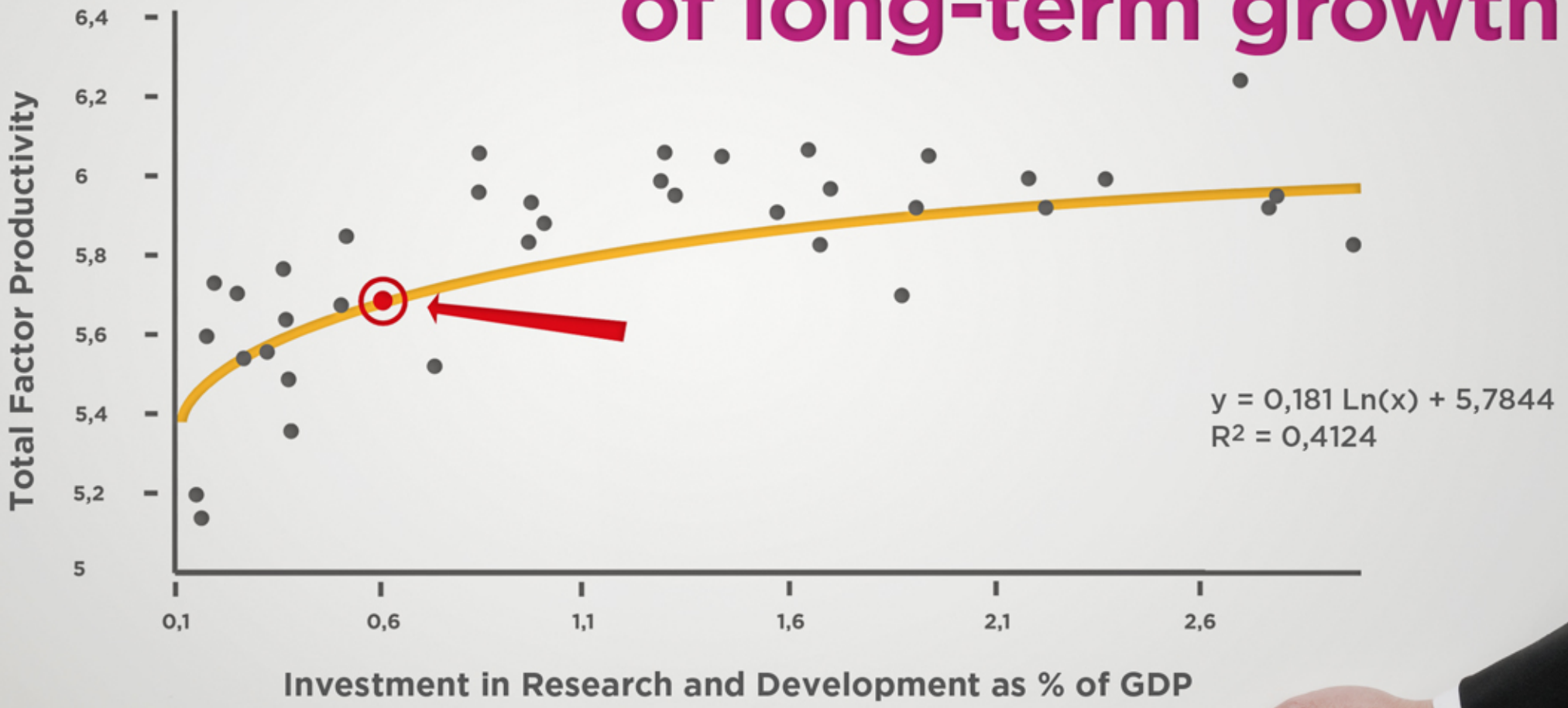
Innovation...

.... is the t**ransformation of new ideas** into economic and social **solutions.** Including:

- doing things more **efficiently**
- a new or significantly **improved product or process**
- a new **marketing practice**
- a new **organizational method**

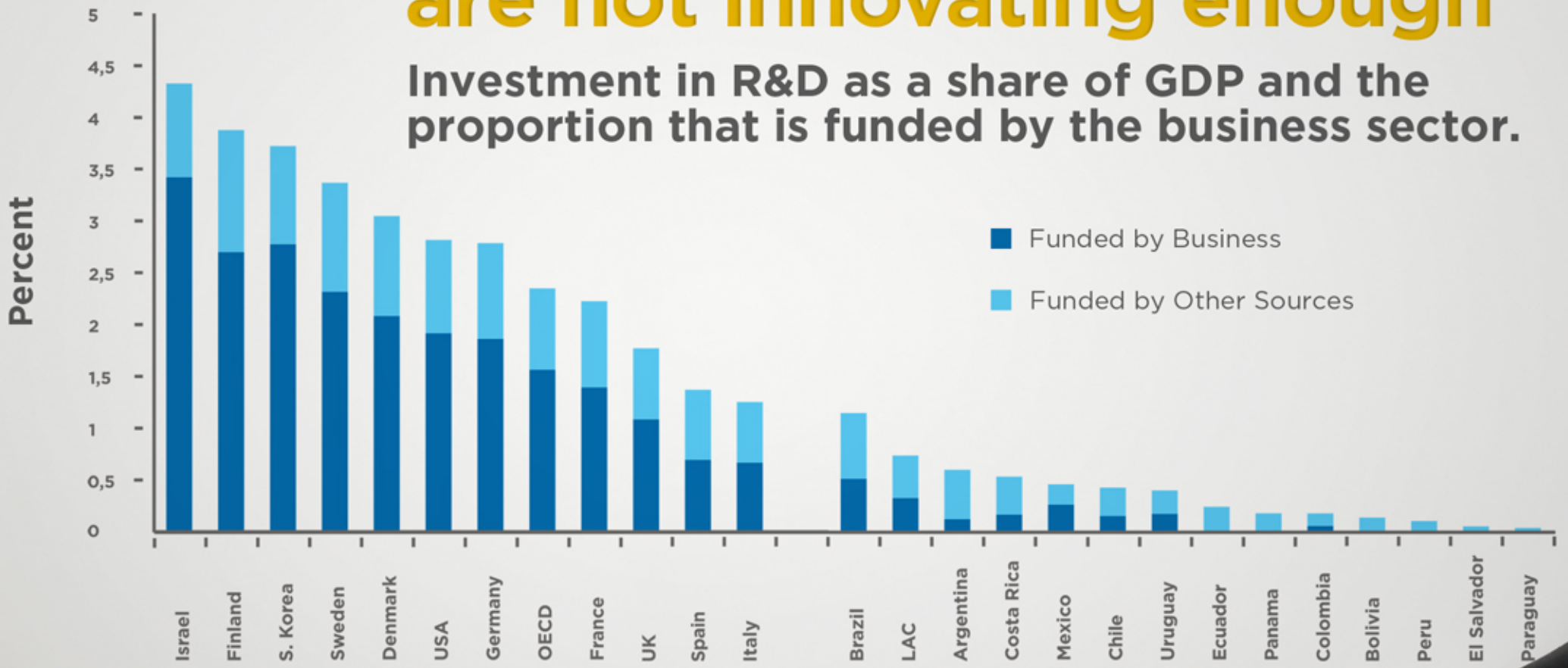
(OECD and Eurostat, 2005)

Innovation is a key determinant of long-term growth



But Latin American economies are not innovating enough

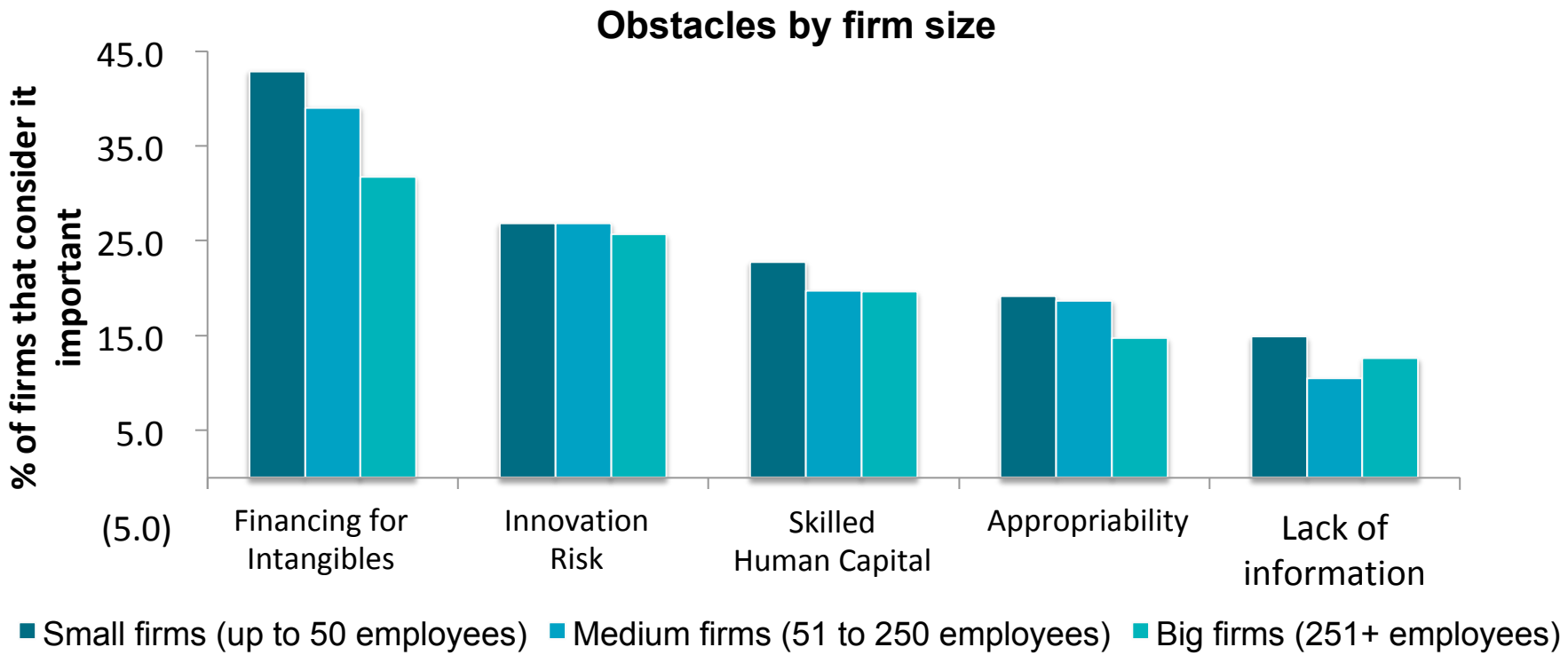
Investment in R&D as a share of GDP and the proportion that is funded by the business sector.



Sources: OECD and RICYT.

LAC Innovation Challenge: WHAT DO FIRMS SAY?

Obstacles to **innovation:**
Evidence from innovation surveys (average for LAC).



Source: Innovation Surveys.

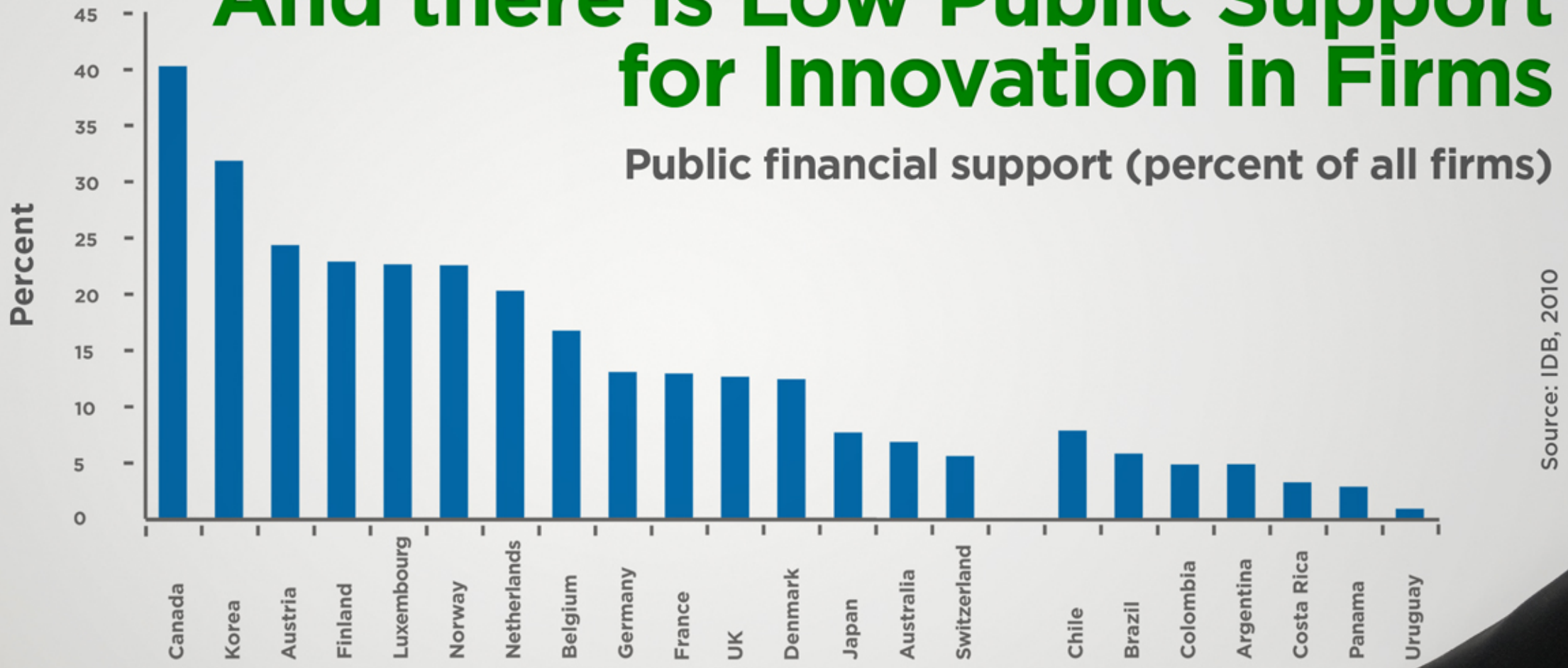
Barriers to innovation in the Caribbean

1. Access to finance – 26% report severe difficulties
2. Cost and time to export – twice as long, costlier than Central America
3. Knowledge barriers
   - Weak protection of intellectual property rights
   - Scant contact with universities and research centers
   - Low level of skills in the workforce
4. Business climate – too much competition from informal businesses, not enough from formal ones

59% of Caribbean businesses want to innovate, but don't

Source : Dohnert et al (2017), based on data from ProTeQin Firm level Survey (2014)

And there is Low Public Support for Innovation in Firms



CERTAIN PRIVATE AND PUBLIC SECTOR CHARACTERISTICS EXACERBATE MARKET FAILURES IN LAC

Government (Public Sector) Failures:

- The **Regulatory System is biased** against Failure
- **Deficient Technological Business Services**
- **Low levels of Institutional Capacity**
- **Limited Supply of Skilled Workers**

Market Failures

Small Firms

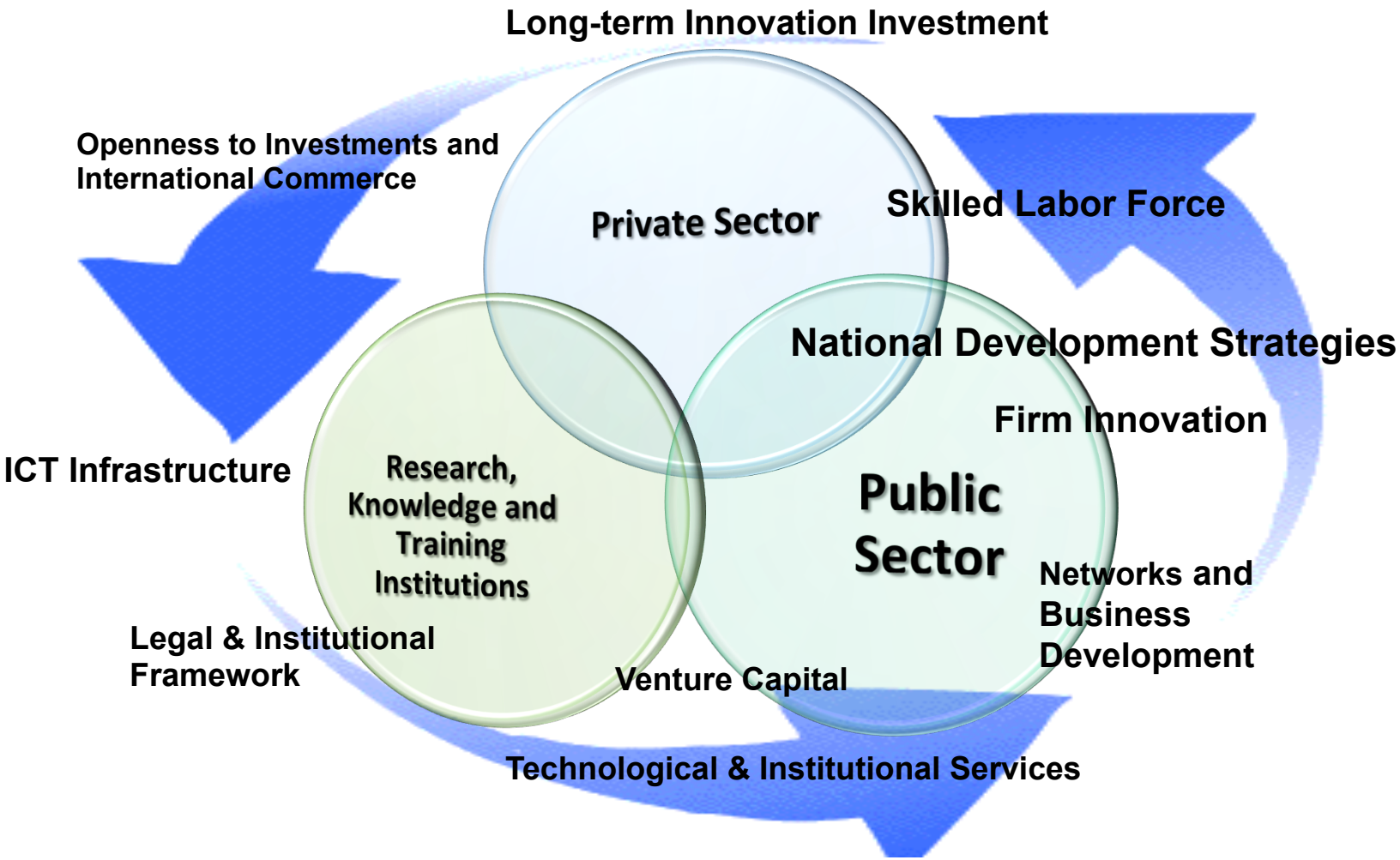
often lack Economies of Scale

Weak linkages

between firms compromise the quality of the entire value chain

Cultural contempt for **failure** creates **inefficiencies** and **risk-adverse** business environments

INNOVATION THRIVES WHEN:
THE WHOLE INNOVATION SYSTEM WORKS



Stimulating private investment in R&D

1. **Matching grants programs:** stimulate joint innovative work by firms and universities, R&D centers
2. **Research Alliances and Networks**: promote research and/or technological development networks between universities or R&D centers and clusters of SMEs or entire sectors
3. **University spin-offs:** funding for university spin-offs that have attracted private sector investment, and/or that have been developed jointly by the university and the private sector
4. **Open innovation:** using demand from the private sector/ resolution of societal challenges and competitions to identify and finance innovative products and services
5. **Public procurement for innovation:** a special case of open innovation – used especially in Europe to generate innovative products and services that respond to public sector needs

Strengthening knowledge diffusion and absorption

1. Business development programs for clusters: supports groups of firms in selected sectors to: a) build collective strategies to penetrate certain market niches; b) upgrade business capabilities; c) financial support for club goods or public goods

2. Technology centers: offer specialized technology advisory services to businesses focused on existing and emerging sectors (in accordance with the priorities of the national strategy)

3. Quality infrastructure: offers specialized labs for testing and achieving quality standards – in many cases the first step that a firm takes along its innovation trajectory

Strengthening knowledge generation

Absolutely necessary for all countries:

1. Promoting the development and/or attraction of specialized human capital in scientific/engineering fields, including digital talent

May be more difficult for the Caribbean, given small scales:

1. Financing scientific or technological research
2. Financing applied research
3. Financing purchase of scientific equipment and/or their operation

Thank you!

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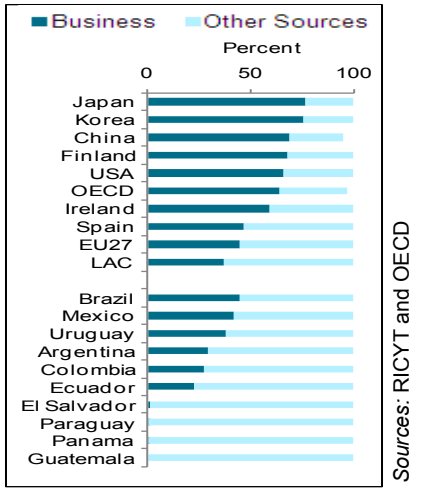
CHALLENGES FOR INNOVATION AND COMPETITIVENESS IN LAC:

- **Private Sector Investment in Innovation is Extremely Low**
  - **Investment in innovation is concentrated in Machinery & Equipment**

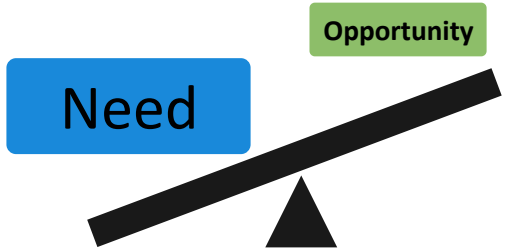
Investment in Innovation by Funding Source



Sources: RICYT and OECD

- **Weak Insertion in Knowledge and Business Networks**

- **Entrepreneurship tends to be driven by need rather than by opportunity**



- **There are low levels of institutional capacity for public policy coordination**

Instrument	Matching Grant Programs	Technology Centers	Research Alliances and Networks	Open innovation
Description / Rationale	Support innovation projects undertaken either by firms or by firms in collaboration with universities (focus on SMEs), or by clusters of firms	Strengthen capacity to offer specialized technology services focused on the productive sector in existing and other emerging sectors (in accordance with the priorities of the national strategy)	Promote the implementation of technological development or innovation projects between actors of the productive sector and actors of the R & D sector, through the formation of alliances and/or sectoral networks.	Resolve problems and / or demands raised by the productive sector or by the social sector in through challenges / competitions that identify and develop innovative projects
Examples	Chile, Argentina, Peru	Uruguay, Peru, Argentina	Uruguay	Chile, Argentina, Peru, Uruguay, Trinidad
Impact	Beneficiaries increased their innovation budgets with minimum substitution of private investments Knowledge generation and diffusion	Knowledge diffusion and absorption	Knowledge generation, diffusion and absorprtion	Every 100 pesos in grants generated 1102 pesos in VA and 456 in additional tax revenues.

Instrument	Financing of spinoffs derived from applied research carried out in R&D institutions w/ private investors	Business Development Programs	Support to BSOs for Business Idea Validation
Description / Rationale	The results of the applied research will be located closer to the needs of society in general, with an impact on the increase in the value of the technology that is being developed and a reduction in the time needed for the products to reach the market	Support for selected firm clusters to upgrade firm productivity. • Building collective strategies for market niches • Support for upgrading business capabilities • Improving Institutional Coordination • Support for specific public goods (club goods)	Select and build capacity in Business Support Organisations to carry out the dissemination, implementation and evaluation of competitions and monitoring of projects that validate new business ideas
Examples	Uruguay	Brazil (Sao Paulo and Minas Gerais)	
Impact		Direct effects: • Positive and significant impact on employment, likelihood of exporting and level of exports. • Effects persistent (and growing) over time. Indirect effects: • Positive spillover on likelihood of exporting. Slight positive effect on level of exporting after three years. • Slight negative indirect effect on employment, but not persistent over time.	

Instrument	Fund for Scientific and Technological Research	Applied Research Fund	Education Fund for Digital Inclusion	Scientific Equipment Program
Description / Rationale	Financing basic research in all areas of knowledge. It consists of experimental or theoretical works that are fundamentally undertaken to obtain new knowledge about the foundations of observable phenomena and facts, without thinking about giving them any application or determined use	Financing applied research projects in all areas of knowledge, that is, projects that consist of original work carried out to acquire new knowledge that pursues a specific practical objective - to determine the possible uses of the results of basic research, or to determine new methods or ways to achieve specific predetermined objectives.	Financing research projects that provide original data with respect to the knowledge already existing in the field of teaching and learning mediated by digital technologies	Supporting the acquisition of expensive scientific equipment and/or the training of technical personnel to operate and maintain such equipment.
Examples	Uruguay	Uruguay	Uruguay	Uruguay
Impact				