Lessons From Mexico's Life-sciences Innovation Ecosystem for Indonesia

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HigherHeight's Training of Trainers Kickoff
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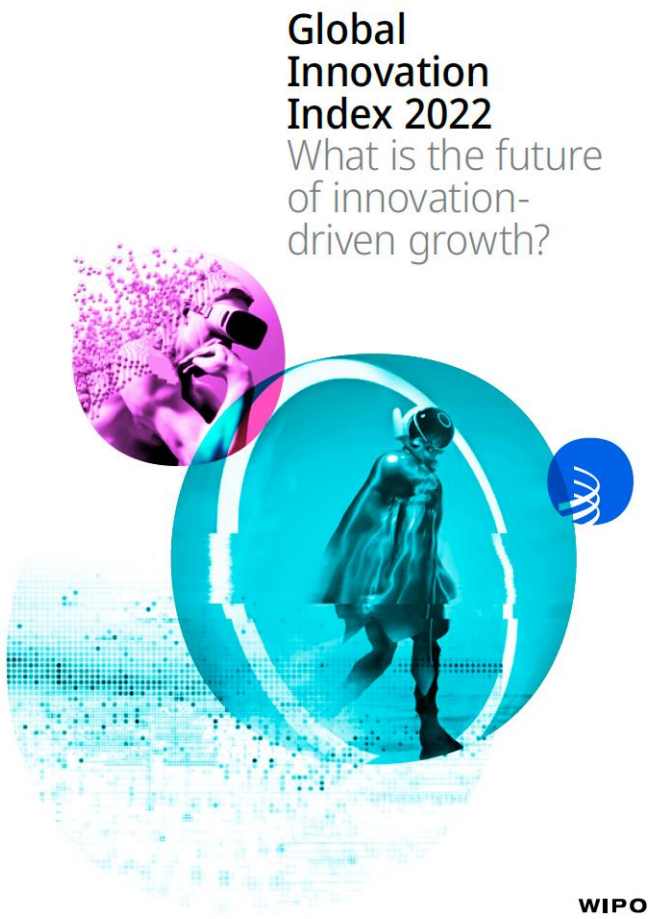
How Does Mexico Rank on Global Innovation Index?



Overall

1. Switzerland
2. United States
3. Sweden

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6. Republic of Korea
7. Singapore
50. Chile
54. Brazil
58. Mexico
75. Indonesia

Mexico

- 3rd out of 18 countries in Latin America and the Caribbean

Indonesia

- 13th out of 17 countries in South East Asia, East Asia, and Oceania
- Rose 12 places from 2021 rankings

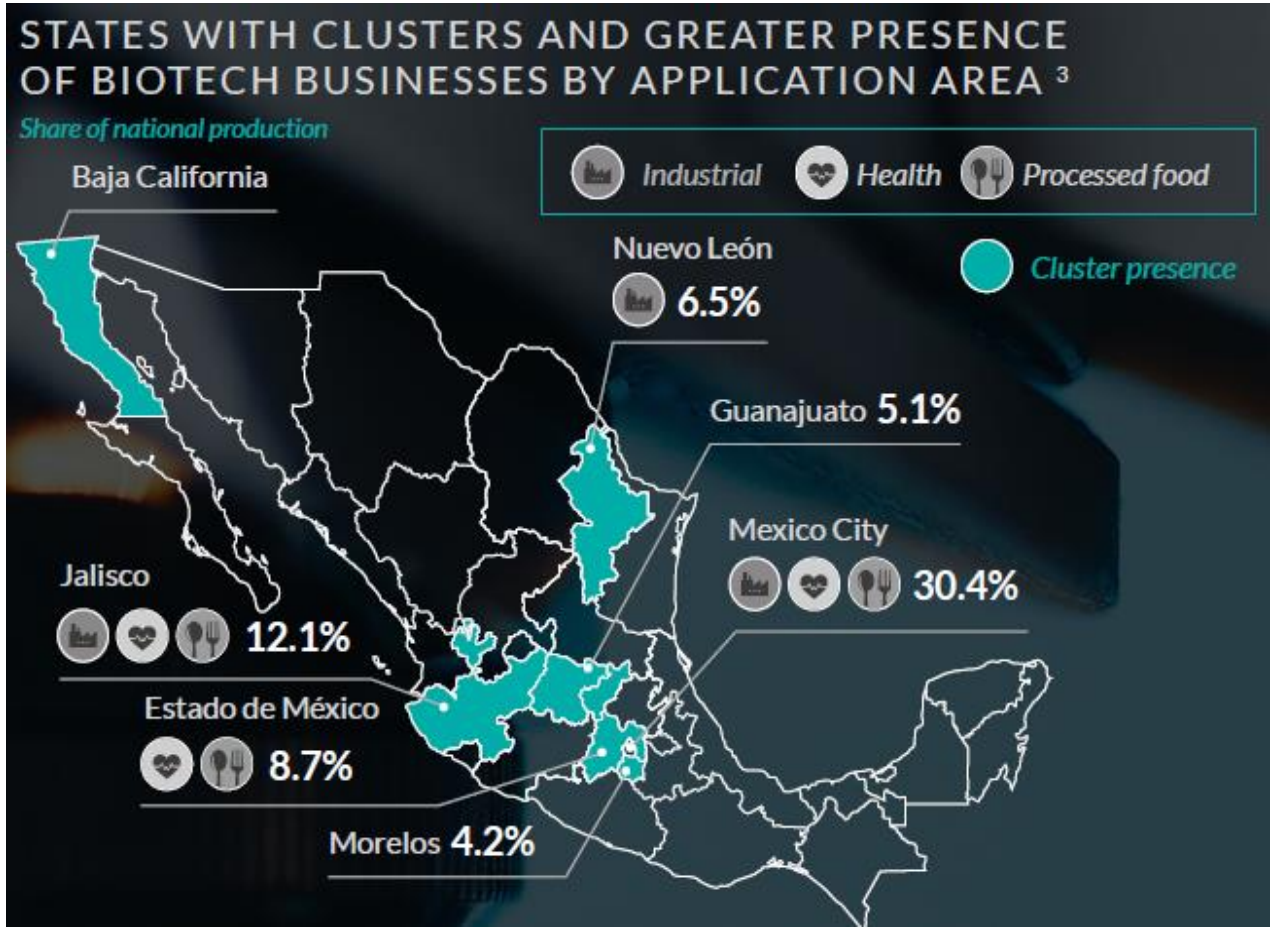
Mexico's Life-sciences Ecosystem

- Mexico is Latin America's 2nd-largest market for pharmaceuticals and medical devices, after Brazil. Market valued at $7 billion in 2021.
- Mexico has the 17th-most biotechnology companies in the world.
- 20 of the 25 largest pharmaceutical companies in the world have operations in Mexico.
- Emergence of life-science startups, including about 200 biotech companies that develop or use biotech in Mexico.
- Mexico is the 5th-most biodiverse region in the world.



Life-sciences Innovation Clusters in Mexico

- 7 key biotech clusters in Mexico.
- 70 biotechnology development projects underway, including:
  - Biotech applied to aquaculture in biopharma-ceuticals in Baja California.
  - Processed foods and biofuels in Sinola.
  - Industrial biopharma in Morelos.
  - Bioprocesses and environment in Queretaro.



Source: ProMexico, "Biotechnology in Mexico," https://ethic.com.mx/docs/Infografias/sectores/Biotechnology-Mexico.pdf

Talent Initiatives Enabling Mexican Life-sciences Innovation



- Mexico has significantly expanded investment in university biology undergraduate and PhD programs.
- There are around 600 pure biotechnology programs in 130 universities and biotech graduate programs in 80 higher education institutions.
- More than 12,000 institutions offer programs linked to biotechnology research program, half of them in states with biotech clusters.

Federal Programs Supporting Mexican Life-sciences Innovation

- **Mexico's Bioeconomy Acceleration Fund:** Launched in 2019 by BIOFUN, seeks to close the market gap in funding productive biotechnology startups.
- **Technological Innovation Fund (FIT):** Aims to promote innovation initiatives of tech-based startup and entrepreneurs pursuing significant technological innovation projects
- **100,000 Strong in the Americas Innovation Fund:** PPP working with companies, foundations, and academic networks to stimulate and support higher education partnerships between the United States and the rest of the Western Hemisphere.

Mexico's Life-sciences Ecosystem Advantages



- Large, diverse population.
- Low manufacturing costs.
- Advanced legal frameworks.
- Skilled scientists/workforce.
- Strategic position hub for international companies.
- Natural gateway to regional markets.
- Improving IP environment.

Competitive costs (% of savings)	
-35.9%	R&D in biotechnology
-31.5%	Clinical trials
-39.3%	Product testing
-14.4%	Pharmaceutical manufacturing

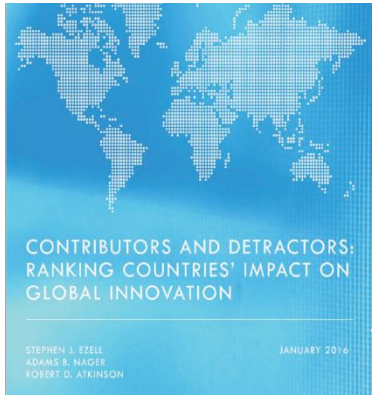
Key Innovation Priorities for Mexico



1. Increase investment in research and development.
2. Increase investment in education.
3. Continue to bolster and support entrepreneurship
4. Leverage tax policy to stimulate R&D and innovative activity.
5. Strengthen IP rights.
6. Continue to embrace trade and FDI liberalization.

Increase Government Funding of University Research



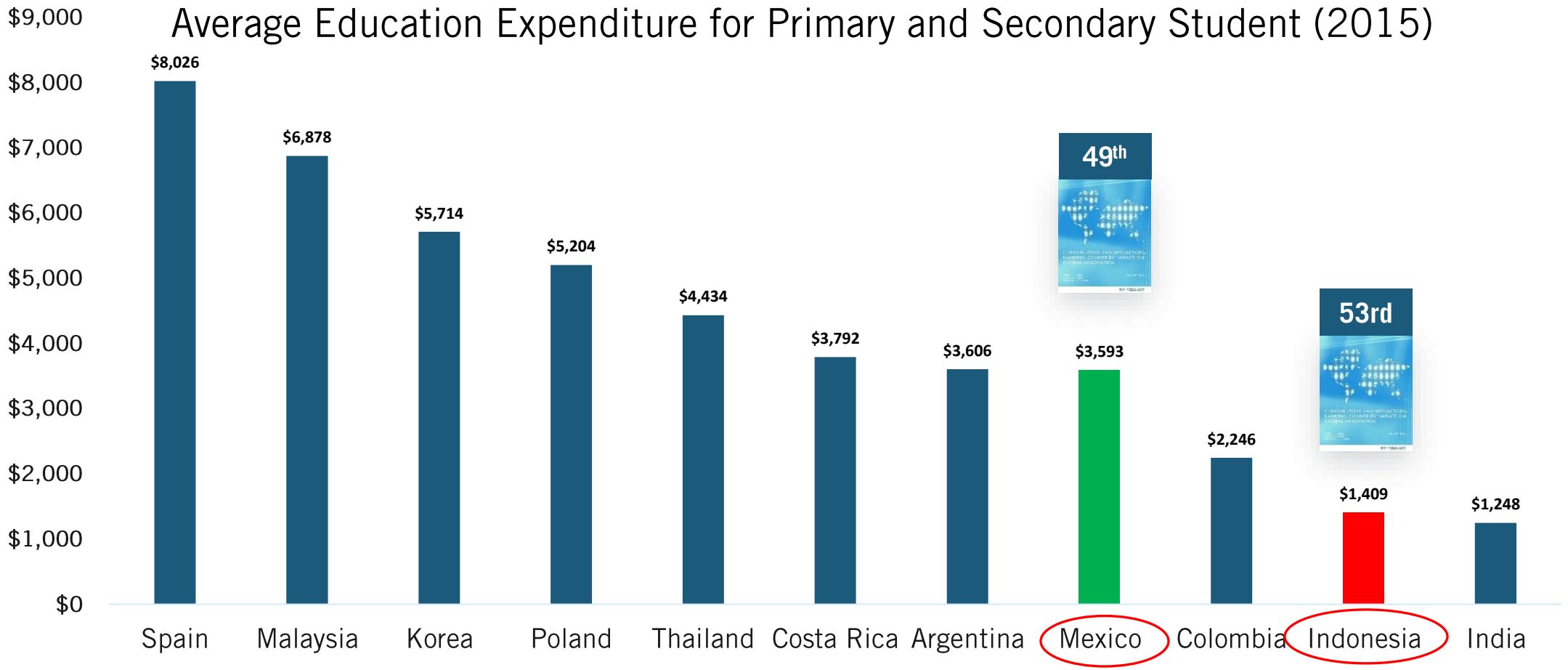


Government Funding of University Research (per capita, 2015)

Source: ITIF, *Contributors and Detractors: Ranking Countries' Impact on Global Innovation*, 2016

Invest More in Human Capital/Education

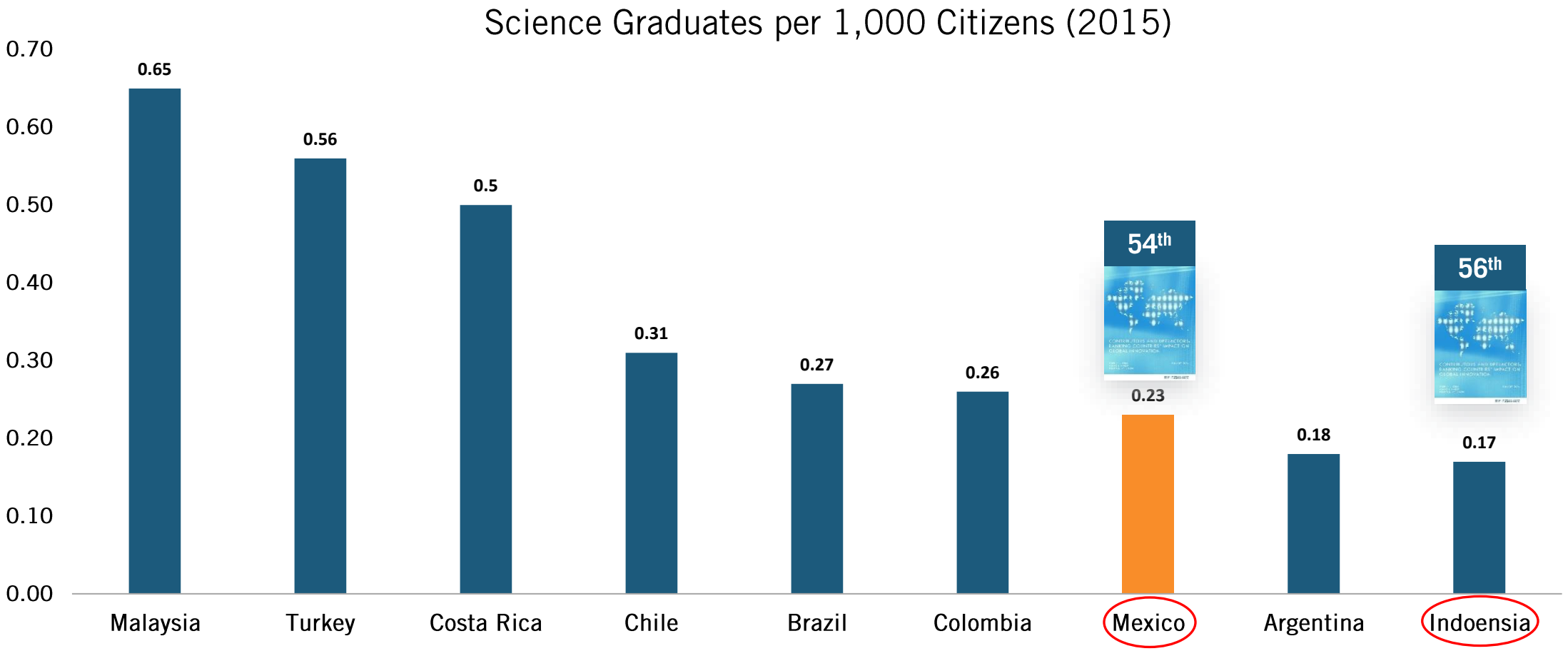




Source: ITIF, *Contributors and Detractors: Ranking Countries' Impact on Global Innovation*, 2016

Increase the Number of Science Graduates





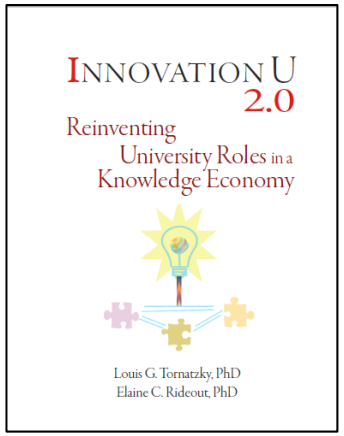
Source: ITIF, *Contributors and Detractors: Ranking Countries' Impact on Global Innovation*, 2016

How Mexico Is Supporting Entrepreneurship

- Launched the National Entrepreneur Institute (INADEM).
- Introduced a joint Entrepreneurship and Innovation Council (MUSEIC) to "strengthen the North-American high-impact entrepreneur ecosystem."
- CONACYT University and Technology Transfer Centers Program.

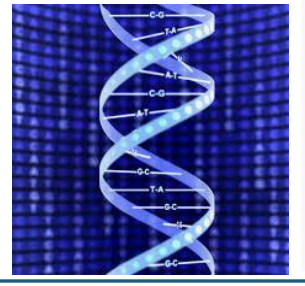
Reform University Policies to Spur Innovation and Entrepreneurship

- ✓ Give academic researchers ownership rights of IP deriving from government-funded research (e.g., "Bayh-Dole").
- ✓ Give students rights to the IP they invent at universities.
- ✓ Increase *permeability*: Take faculty members' commercial experiences into account in tenure decisions; allow faculty to suspend tenure to pursue commercialization opportunities.
- ✓ Support the development of university incubators.
- ✓ Develop university entrepreneurship rankings.



Life-Sciences Innovation Opportunities for Mexico & Indonesia

- Enhance R&D collaboration between biopharmaceutical industry, research institutions, and universities.
- Recognize that the vast majority of biopharmaceutical value creation comes from R&D/clinical trials, not manufacturing itself.
- Adopt an “attraction” not a “compulsion” approach to the sector.
- Recognize the value innovative medicines produce for society and that the industry depends upon profits to reinvest in innovation.
- Set a goal of becoming a “G20” life-sciences innovator.





Terima kasih!

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