

MAPPING THE BRAZILIAN SCIENTIFIC DIASPORA

An analysis of Claro's labor market data using the
name recognition tool Namsor

UNDERSTANDING BOSTON'S BRAZILIAN SCIENTIFIC DIASPORA

- 1 INTRODUCTION & MOTIVATION
- 2 CHOOSING THE STUDY AREA
- 3 BRAZILIAN DIASPORA
- 4 SCIENTIFIC DIASPORA
- 5 ANALYSIS

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What are **Scientific Diasporas**?

“Scientific Diaspora” refers to highly educated individuals who have emigrated and now contribute to innovation, research, and development in host countries.

Origin of the term:

- Historically tied to communities forced to migrate due to political, religious, or ethno-racial persecution while maintaining cultural and ancestral ties.
- In the 1980s, expanded to include highly qualified individuals, coining "scientific diaspora."

Key concepts:

- Contrasts "brain drain" (negative connotation) with "brain circulation" (positive framework).
- Migration is not a permanent loss if strategies foster engagement and collaboration across borders.

Why study **Scientific Diasporas**?

Potential of Scientific Diasporas

- Enables knowledge exchanges and collaboration between sending and receiving countries.
- Strengthens global competitiveness through cross-border links in science, technology, and innovation.

Focus on Brazilian Diaspora

- Brazilian policies have facilitated the placement of researchers abroad.
- Shift from "brain drain" to "brain circulation," emphasizing their potential as a resource.

Challenges and Opportunities

- Lack of data on the Brazilian scientific diaspora.
- This study proposes a methodology to identify, map, and analyze diasporas, using Greater Boston as a case study.

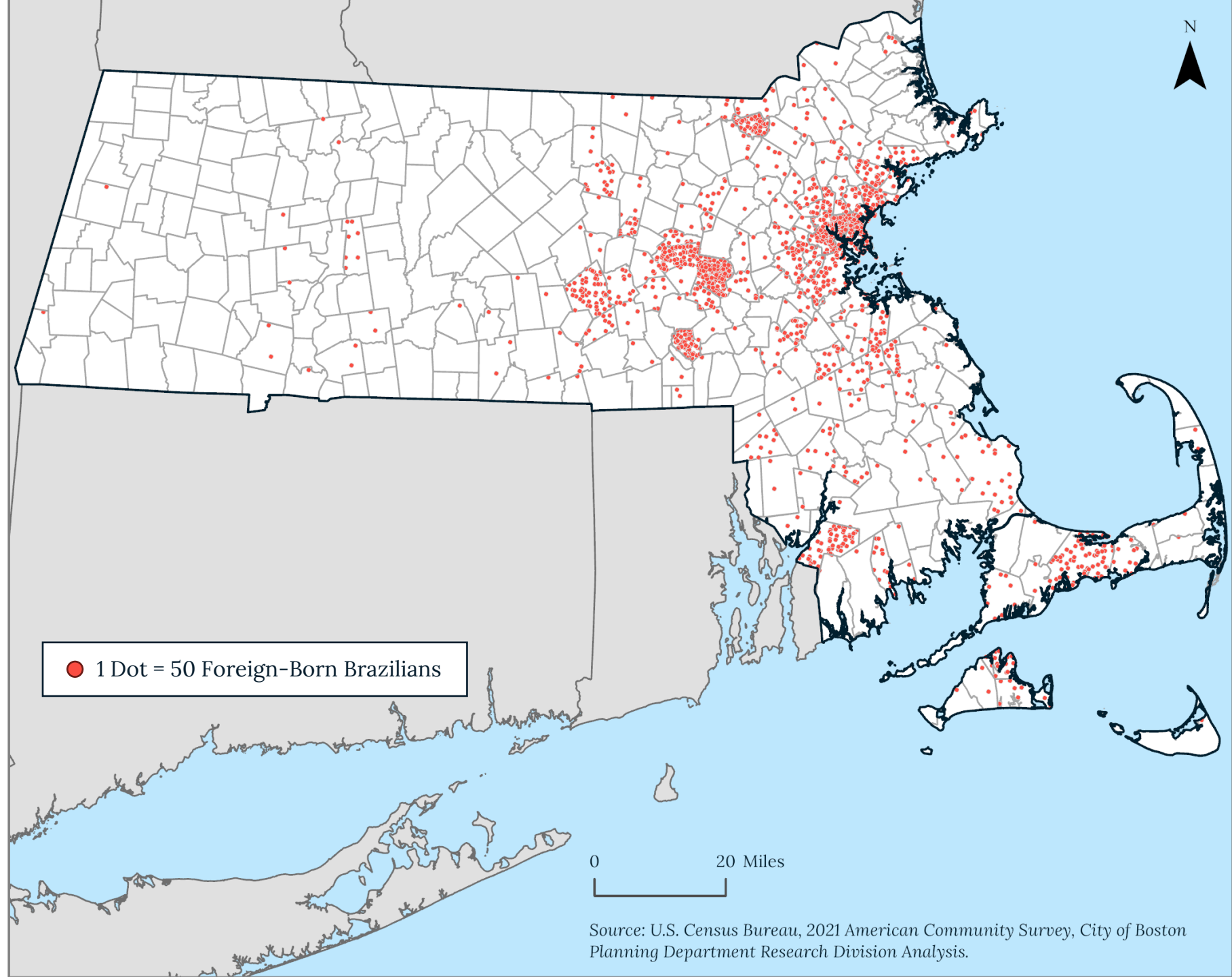
Why Boston?

- Boston is a global hub for science and innovation – the City is a major recipient of NIH funding and a center for research and development.

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Greater Boston is home to a large Brazilian population, according to the Census.



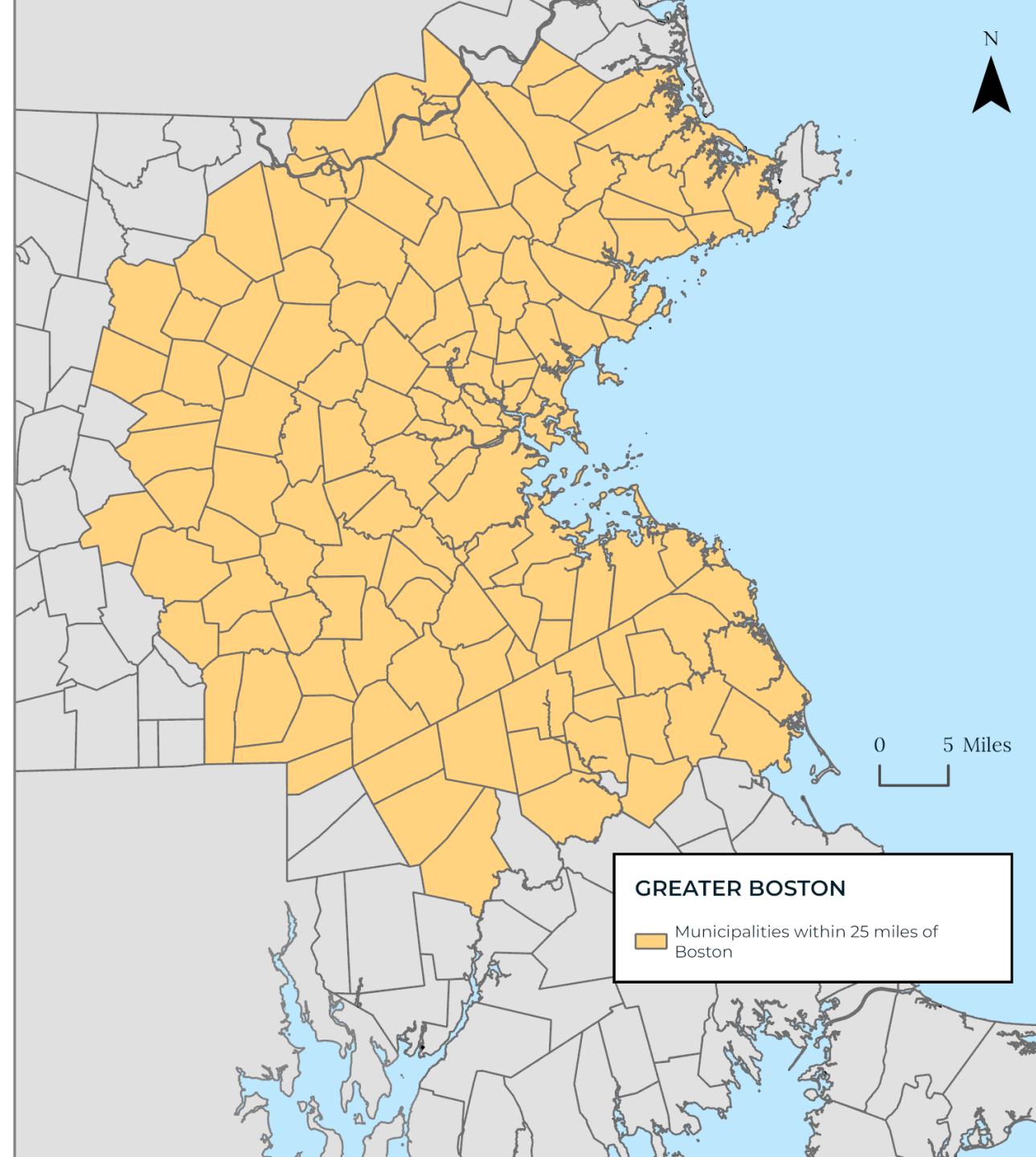
Source: U.S. Census Bureau, 2021 American Community Survey, City of Boston Planning Department Research Division Analysis.

Choosing the study area: **GREATER BOSTON**

Many LinkedIn users list their location based on metropolitan areas rather than specific cities.

By focusing on Greater Boston, we capture all professionals who might otherwise be underrepresented if only Boston was considered.

We also capture all people within Boston's expansive labor market.



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We can filter LinkedIn profiles to capture the Brazilian Diaspora in Greater Boston



Brazilian profiles using **name recognition (Namsor)** of Portuguese names with Brazilian origin



Use **city and university keyword filters** (e.g., “São Paulo”, “Universidade Federal”) to capture additional Brazilian profiles.



Remove profiles from other Portuguese-speaking countries (e.g., Cabo Verde, Portugal) that might have been **misidentified** as Brazilian

Sample query of the Brazilian Diaspora in Greater Boston using Claro:

Supply
Current search

Save Refresh + New search ^ Collapse

Greater Boston

Portuguese names with Brazilian Origin (Namsor)

Additional city and university keyword filters to capture other Brazilians

Location Massachusetts AND Location Boston, MA, l mi 25 AND

Diaspora Portuguese AND (Country of Origin Brazil OR

Free Text Brazil OR Free Text São Paulo OR Free Text Minas Gerais OR

Free Text Rio de Janeiro OR Free Text Pernambuco OR Free Text Ceará OR

Free Text Bahia OR Free Text Brasília OR Free Text Uberlândia OR

Free Text Fortaleza OR Free Text Campinas OR Free Text Viçosa OR

Free Text Goiás OR Free Text Alagoas OR Free Text Paraná OR

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To capture the “Scientific” aspect of the diaspora, we will use additional filters in Claro.



For a highest-constrained sample, we will use the “degree” filter to search for people with **doctorate degrees** (PhD and MD).



To cast a wider net, we will use the industry filter for **scientific industries** as a catch-all for the larger scientific diaspora:

Hospital & Health Care	Pharmaceuticals
Higher Education	Medical Practice
Research	Civil Engineering
Computer Software	Medical Devices
Biotechnology	Environmental Services

Query filter for **doctorate degree** holders in Greater Boston using Claro



Degree Doctor of Medicine X

OR X

Degree Doctor of Philosophy X

Query filter for **scientific industry** profiles in Greater Boston using Claro



Industry Hospital & health care X	OR X	Industry Higher education X	OR X
Industry Research X	OR X	Industry Computer software X	OR X
Industry Biotechnology X	OR X	Industry Pharmaceuticals X	OR X
Industry Medical practice X	OR X	Industry Civil engineering X	OR X
Industry Medical devices X	OR X	Industry Environmental services X	

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Among the total number of Brazilian profiles in Greater Boston, **more than 300 are people with PhDs and MDs**, and **more than 1,200 are people in scientific industries**.

	Total Brazilian Diaspora Profiles	Doctorate (PhD, MD)	Doctorate (PhD, MD) %	Scientific Industry	Scientific Industry %
Greater Boston	13,862	319	2.3%	1,176	8.5%
United States	467,223	6,448	1.4%	21,963	4.7%
World (excluding Brazil)	1,770,994	19,810	1.1%	79,125	4.5%

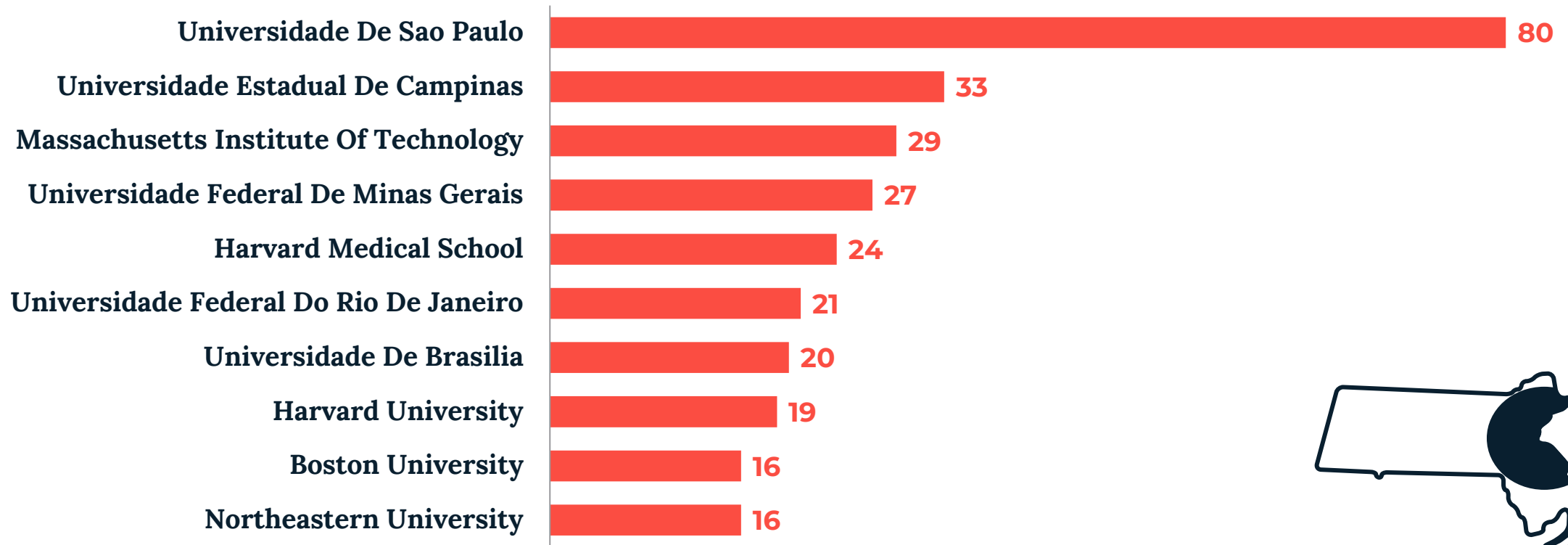
Source: Claro Analytics, Namsor, City of Boston Planning Department Research Division.

GREATER BOSTON



Most Brazilians with doctorates in Greater Boston were educated at top universities in Brazil, with the University of São Paulo leading the way.

Top 10 Schools Among Brazilians in Greater Boston with a PhD or MD



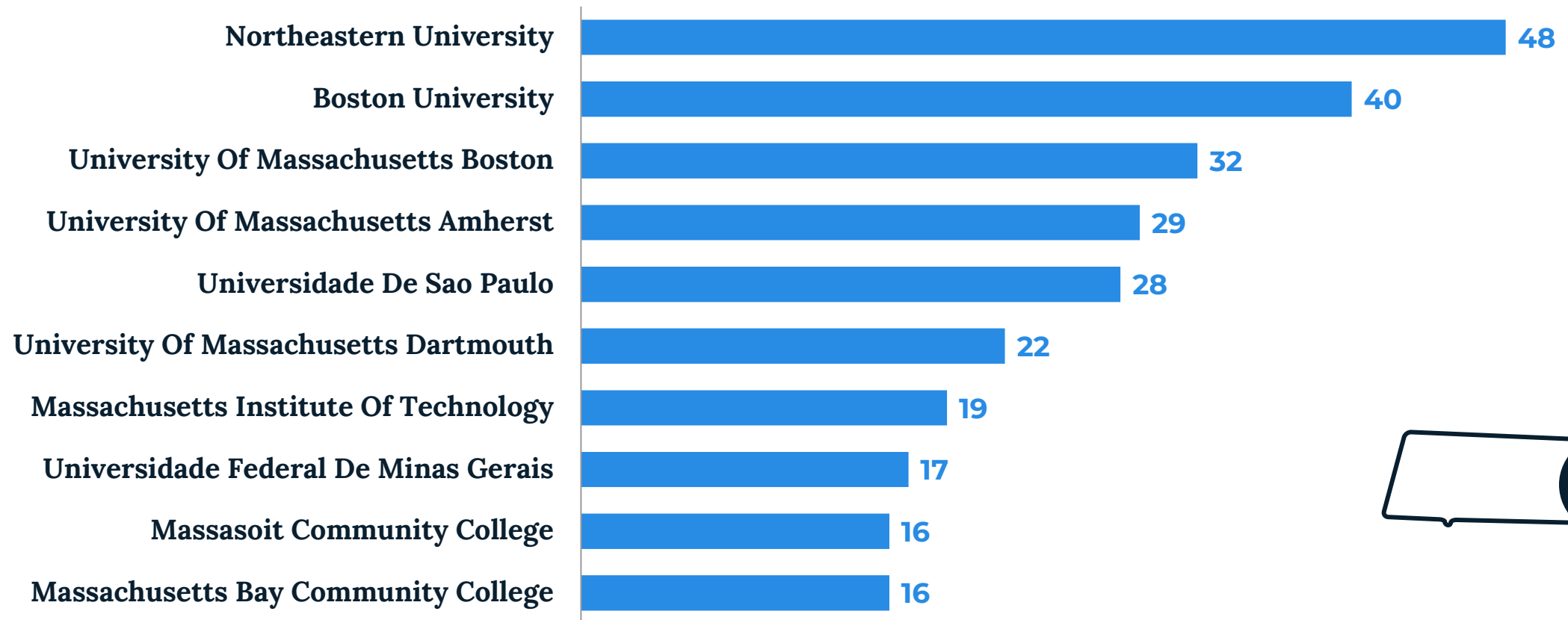
Source: Claro Analytics, Namsor, City of Boston Planning Department Research Division.

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Brazilians working in scientific industries in Greater Boston were primarily educated at Boston's major research universities like Northeastern and Boston University.

Top 10 schools among Brazilians in Greater Boston in a scientific industry



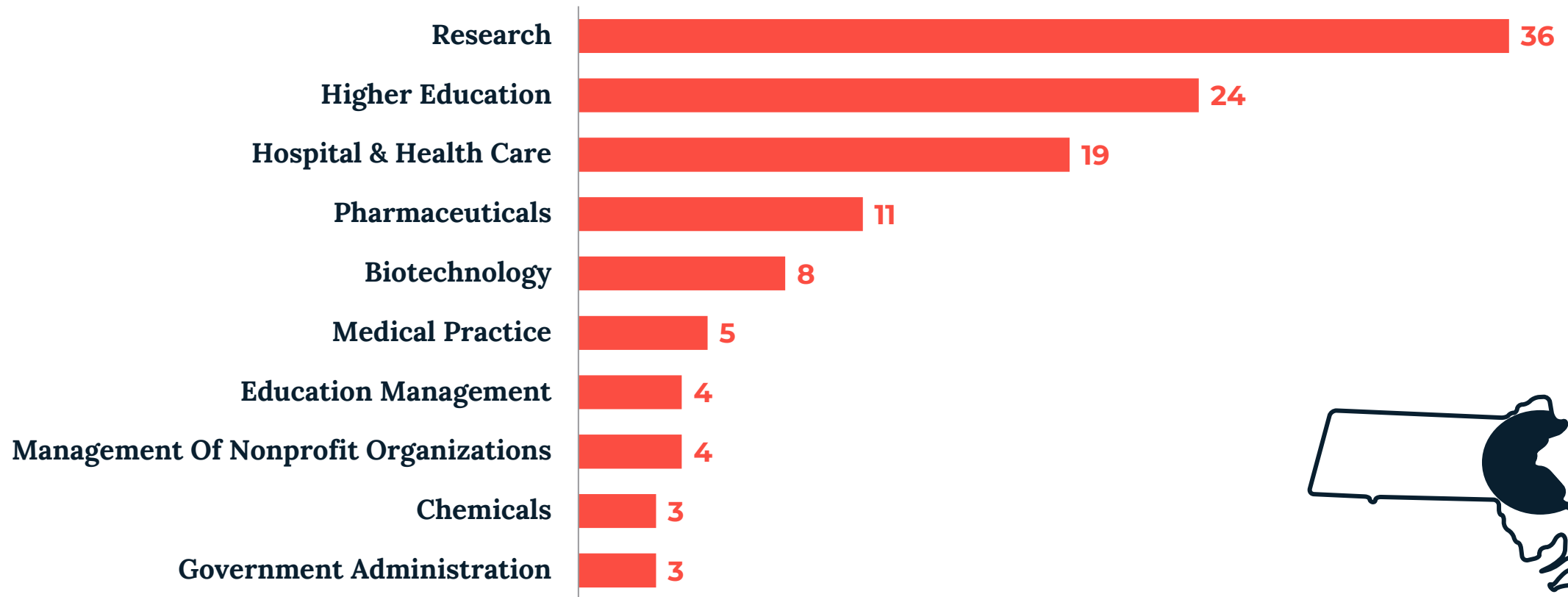
Source: Claro Analytics, Namsor, City of Boston Planning Department Research Division.

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The majority of Brazilians with doctorates in Greater Boston are employed in Research, Higher Education, and Hospitals & Health Care.

Top 10 industries among Brazilians in Greater Boston with a PhD or MD



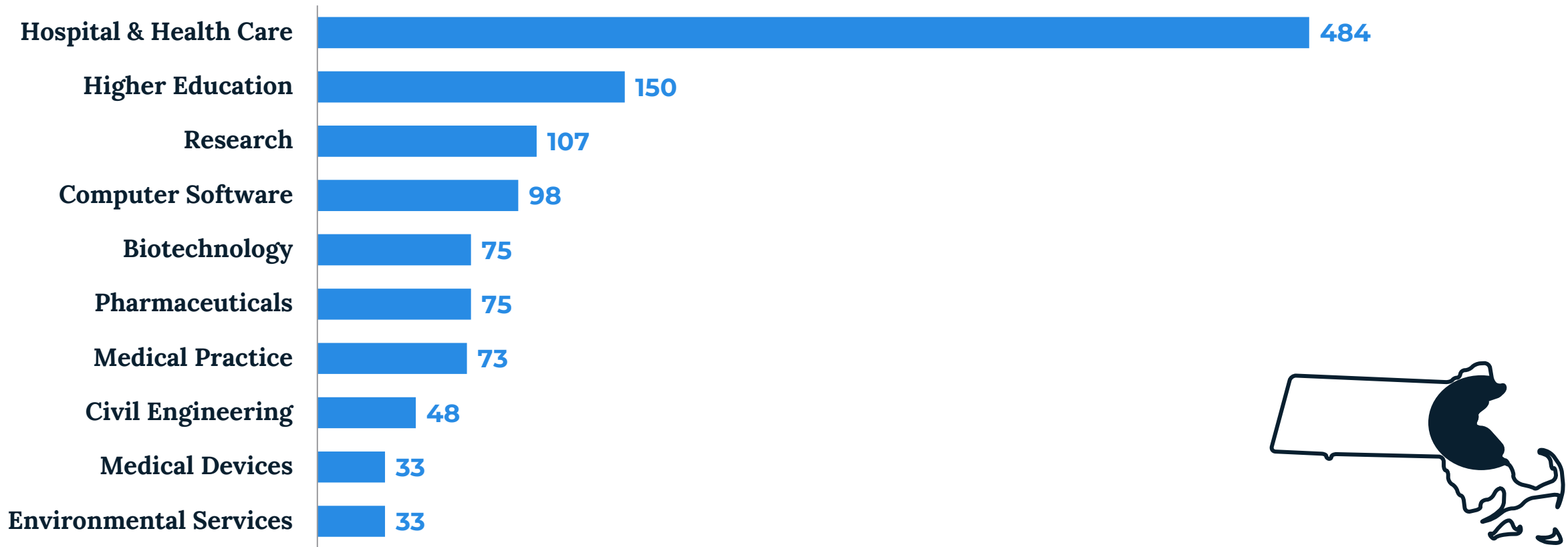
Source: Claro Analytics, Namsor, City of Boston Planning Department Research Division.

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Nearly 500 Brazilians in scientific industries in Greater Boston work in Hospitals & Health Care, followed by significant numbers in Higher Education and Research.

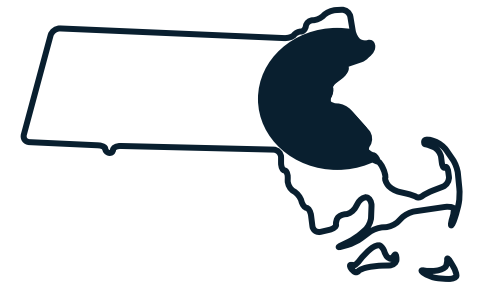
Top 10 industries among Brazilians in Greater Boston in a scientific industry



Source: Claro Analytics, Namsor, City of Boston Planning Department Research Division.

Brazilians with **doctorates** work as Teachers and Professors. 23 work as Biologists.

Top 10 occupations among Brazilians in Greater Boston with a PhD or MD



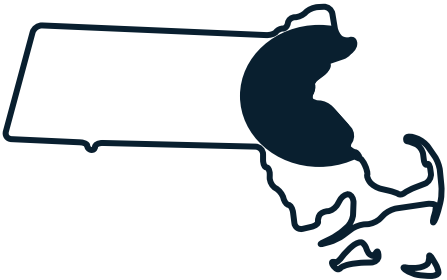
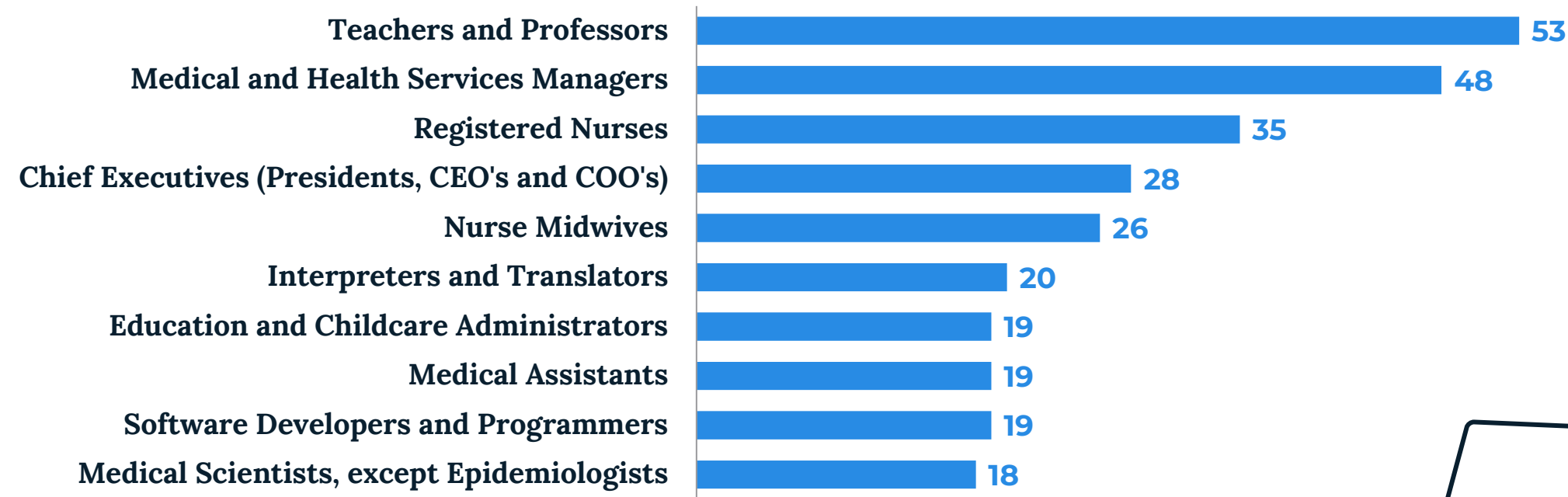
Source: Claro Analytics, Namsor, City of Boston Planning Department Research Division.

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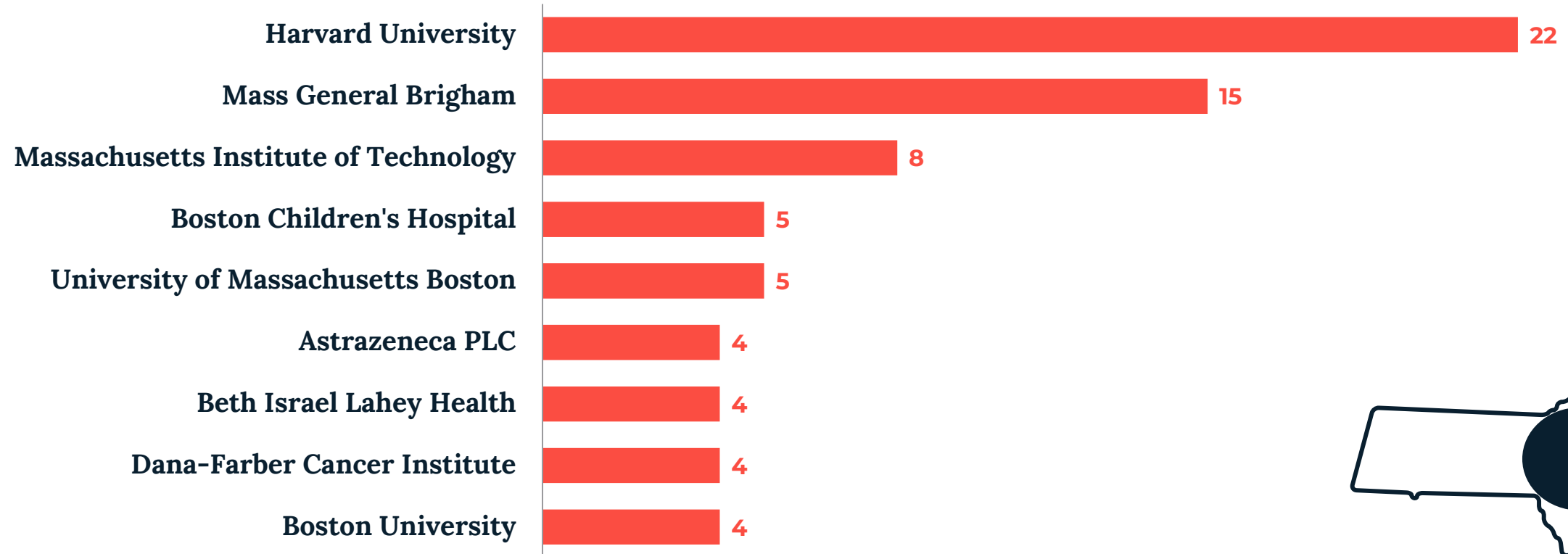
More than 50 Brazilians in Boston working in a **scientific industry** work as Teachers and Professors, and nearly 50 work as Medical and Health Services Managers.

Top 10 occupations among Brazilians in Greater Boston in a scientific industry



Harvard University and Mass General Brigham employ the largest number of Brazilians with doctorates in Greater Boston.

*Top **companies** among Brazilians in Greater Boston with a **PhD or MD***



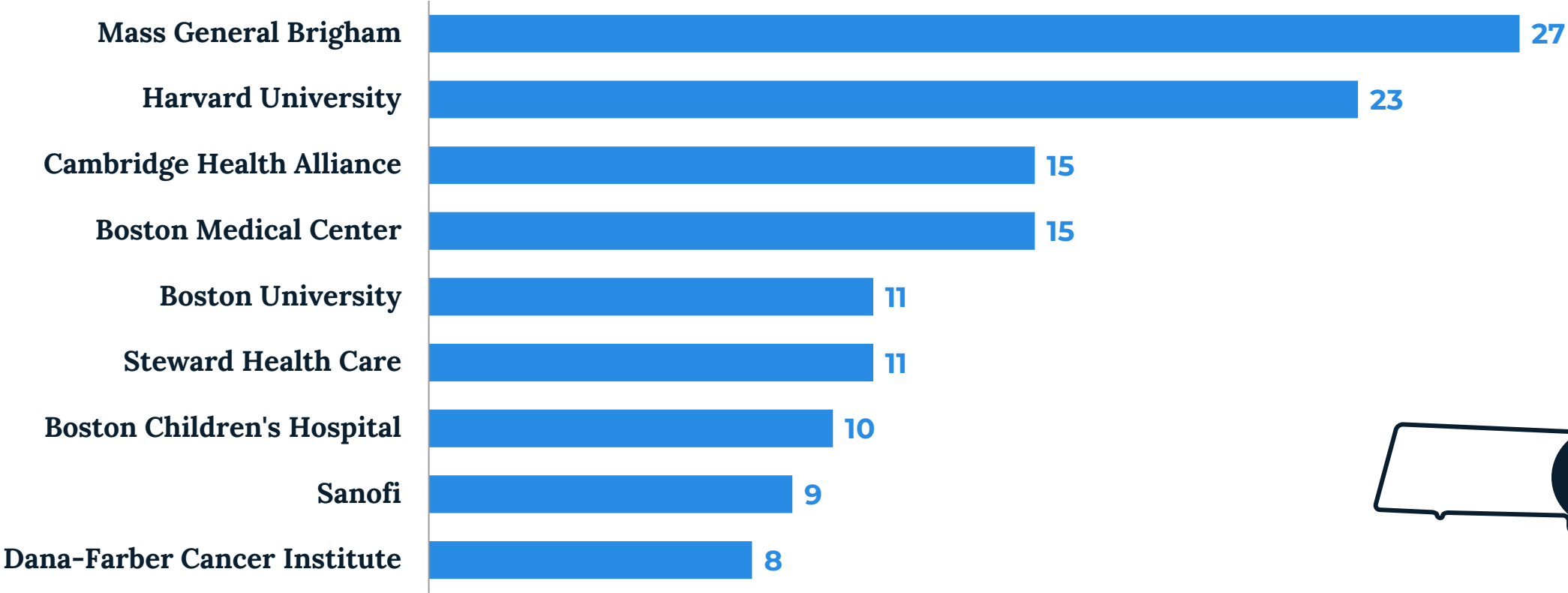
Source: Claro Analytics, Namsor, City of Boston Planning Department Research Division.

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Mass General Brigham and Harvard University are the top employers of Brazilians working in scientific industries in Greater Boston.

Top 10 companies among Brazilians in Greater Boston in a scientific industry



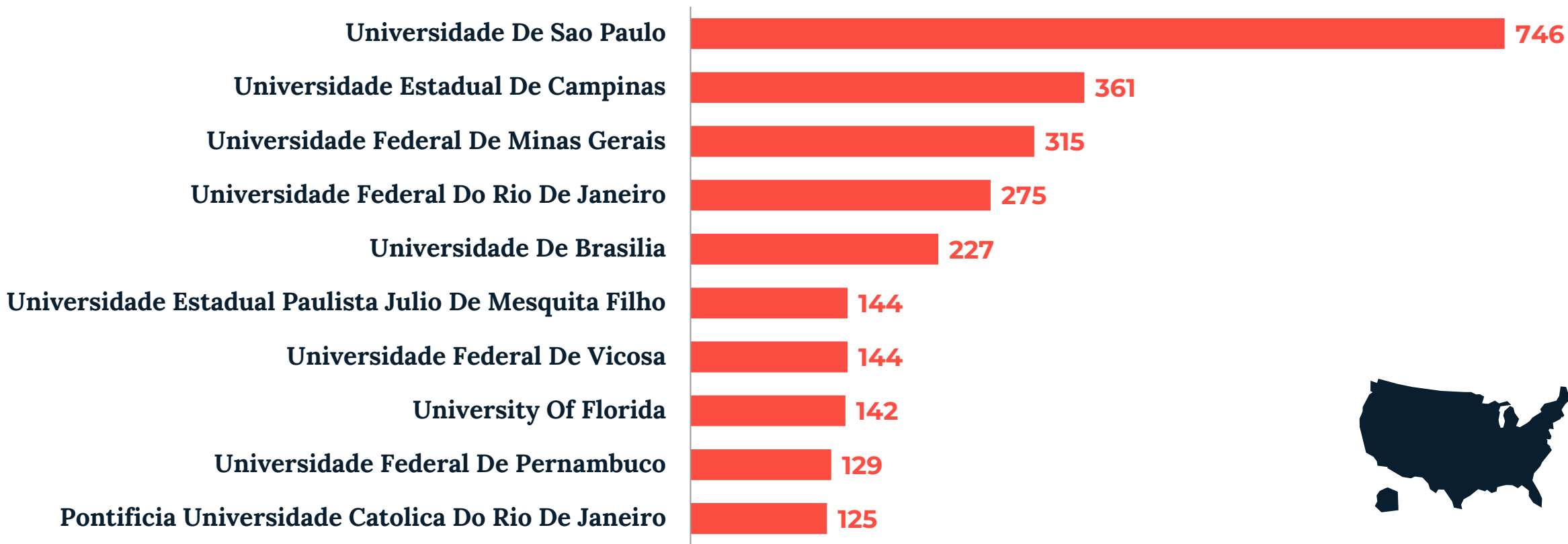
Source: Claro Analytics, Namsor, City of Boston Planning Department Research Division.

UNITED STATES



Most Brazilians with doctorates in the US were educated at Brazil's top universities.

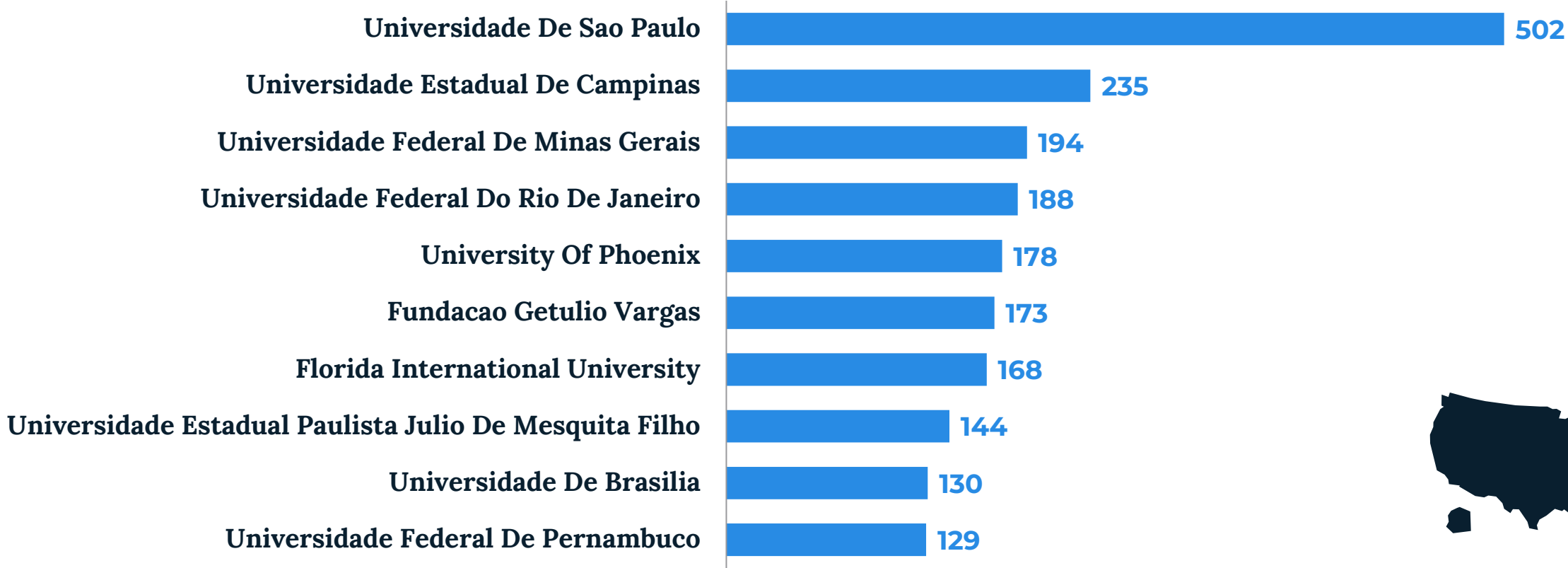
Top 10 Schools Among Brazilians in the US with a PhD or MD



Source: Claro Analytics, Namsor, City of Boston Planning Department Research Division.

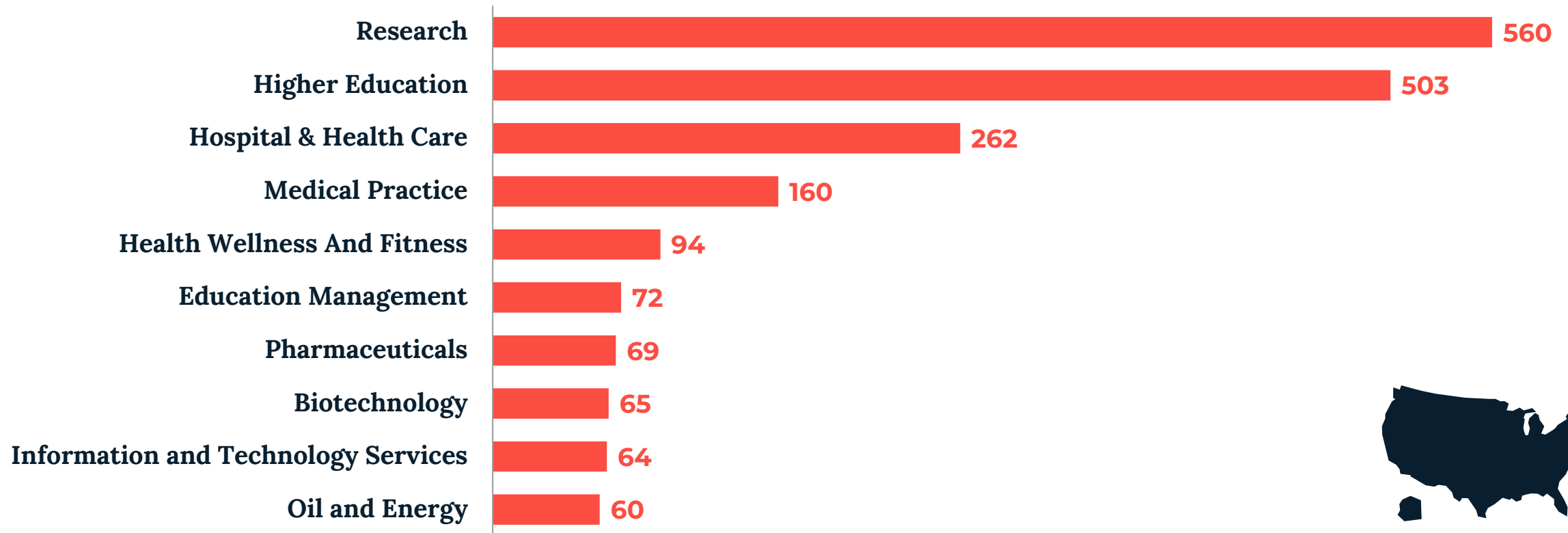
Brazilians working in scientific industries in the US were primarily educated at Brazil's leading universities.

Top 10 schools among Brazilians in the US in a scientific industry



Brazilians in the U.S. with doctorates are predominantly employed in research and higher education, underscoring their strong presence in academia and scientific fields.

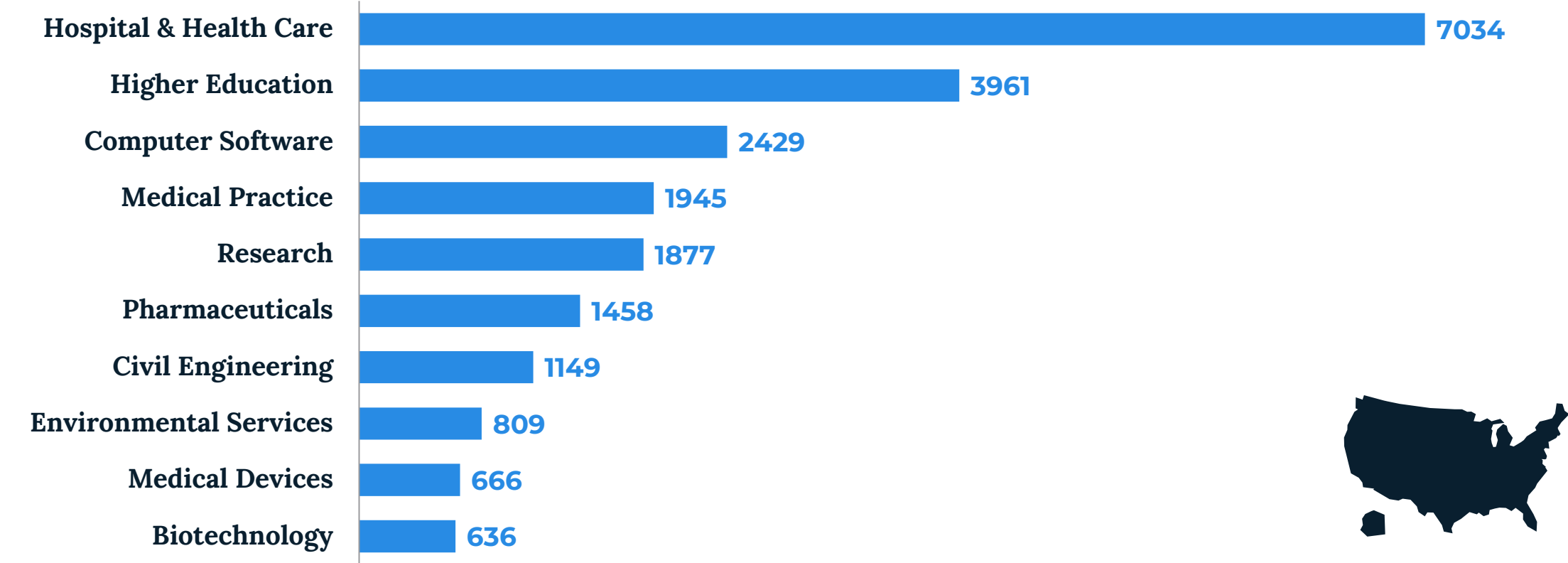
Top 10 industries among Brazilians in the US with a PhD or MD



Source: Claro Analytics, Namsor, City of Boston Planning Department Research Division.

Brazilians in the U.S. with scientific expertise are heavily concentrated in the health care sector, followed by significant representation in higher education and the tech industry.

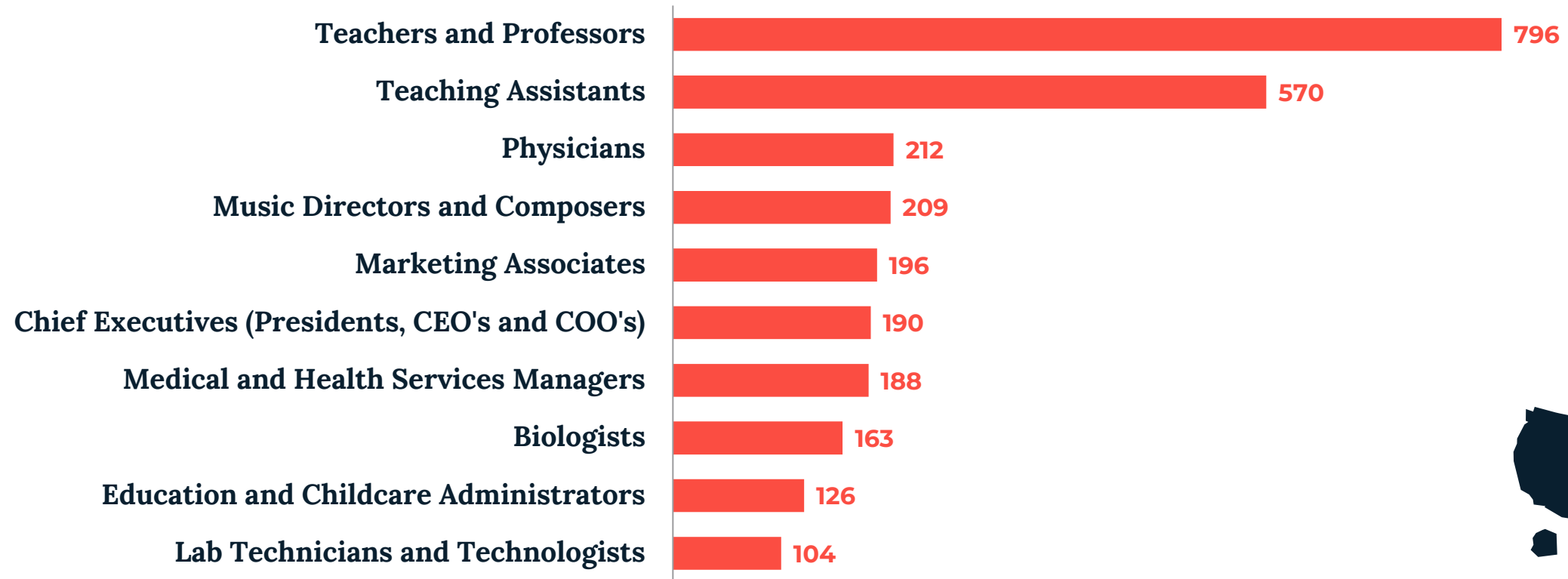
Top 10 industries among Brazilians in the US in a scientific industry



Source: Claro Analytics, Namsor, City of Boston Planning Department Research Division.

Brazilian professionals in the US with PhDs or MDs are most concentrated in academia, with nearly 800 working as Teachers and Professors, followed by roles in healthcare and education.

Top 10 occupations among Brazilians in the US with a PhD or MD



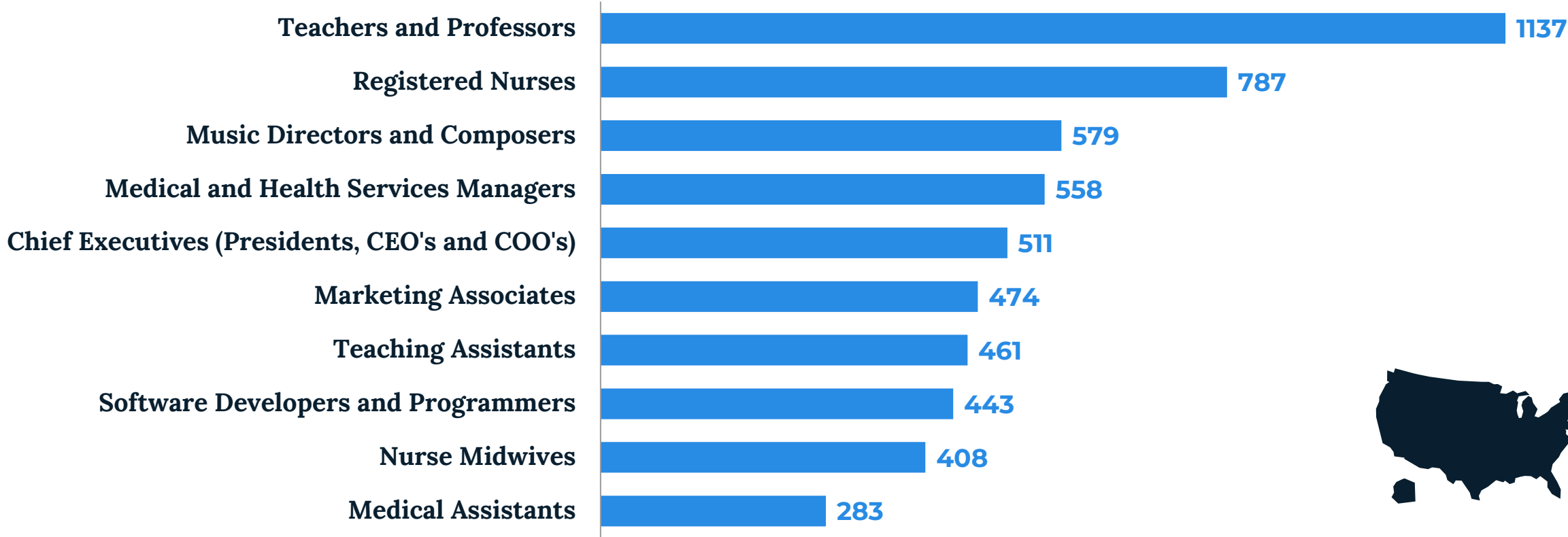
Source: Claro Analytics, Namsor, City of Boston Planning Department Research Division.

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Brazilian professionals in scientific industries in the US predominantly work in education and healthcare, with over 1,100 as Teachers and Professors and over 700 as Registered Nurses.

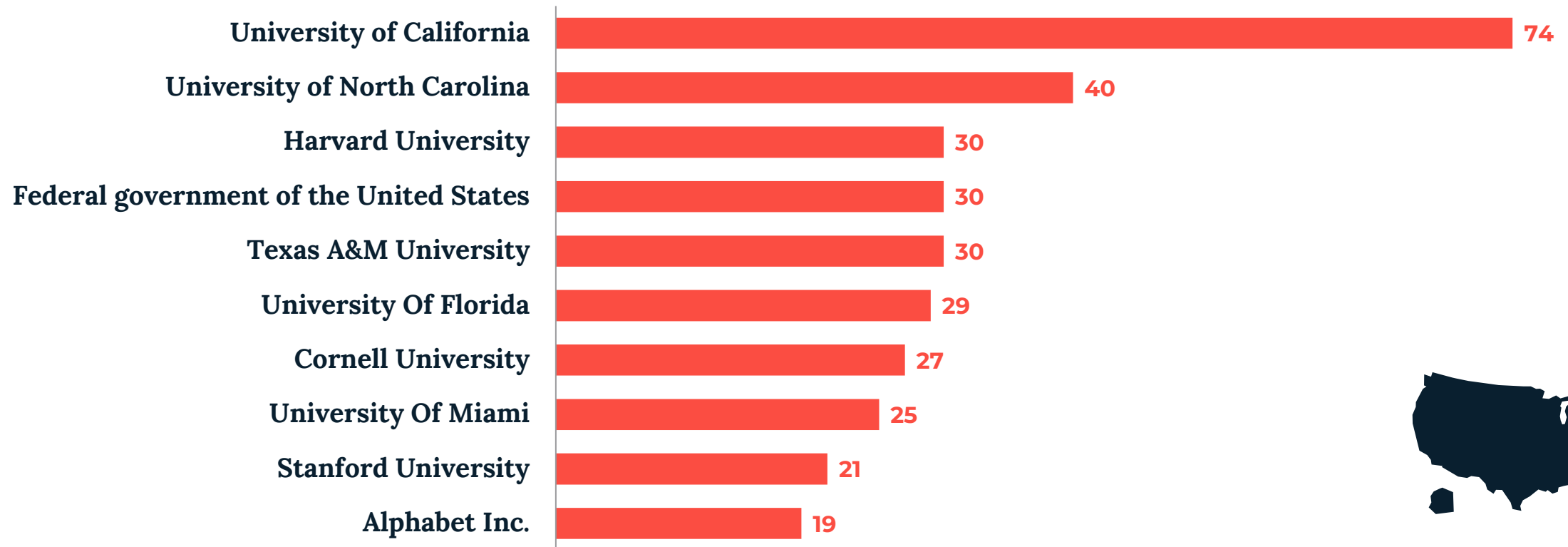
Top 10 occupations among Brazilians in the US in a scientific industry



Source: Claro Analytics, Namsor, City of Boston Planning Department Research Division.

Brazilians in the US with doctorates work at leading American research universities.

Top 10 companies among Brazilians in the US with a PhD or MD



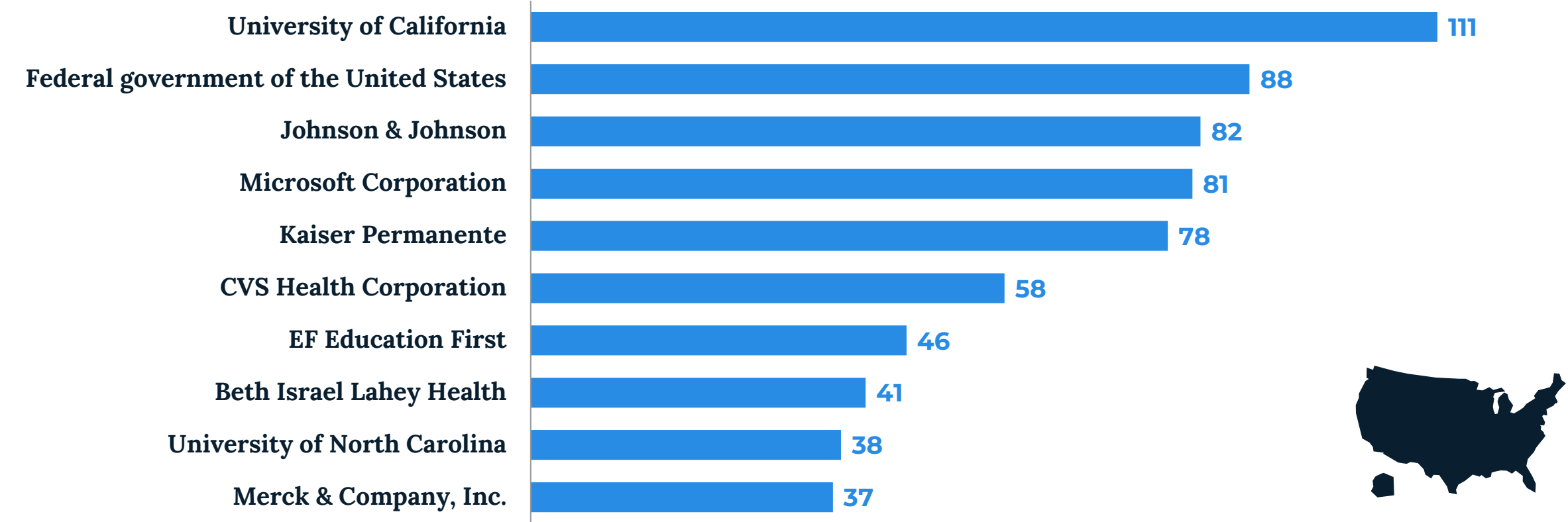
Source: Claro Analytics, Namsor, City of Boston Planning Department Research Division.

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Brazilians in the US in scientific industries work at leading research universities and healthcare companies.

Top 8 companies among Brazilians in the US in a scientific industry



Source: Claro Analytics, Namsor, City of Boston Planning Department Research Division.



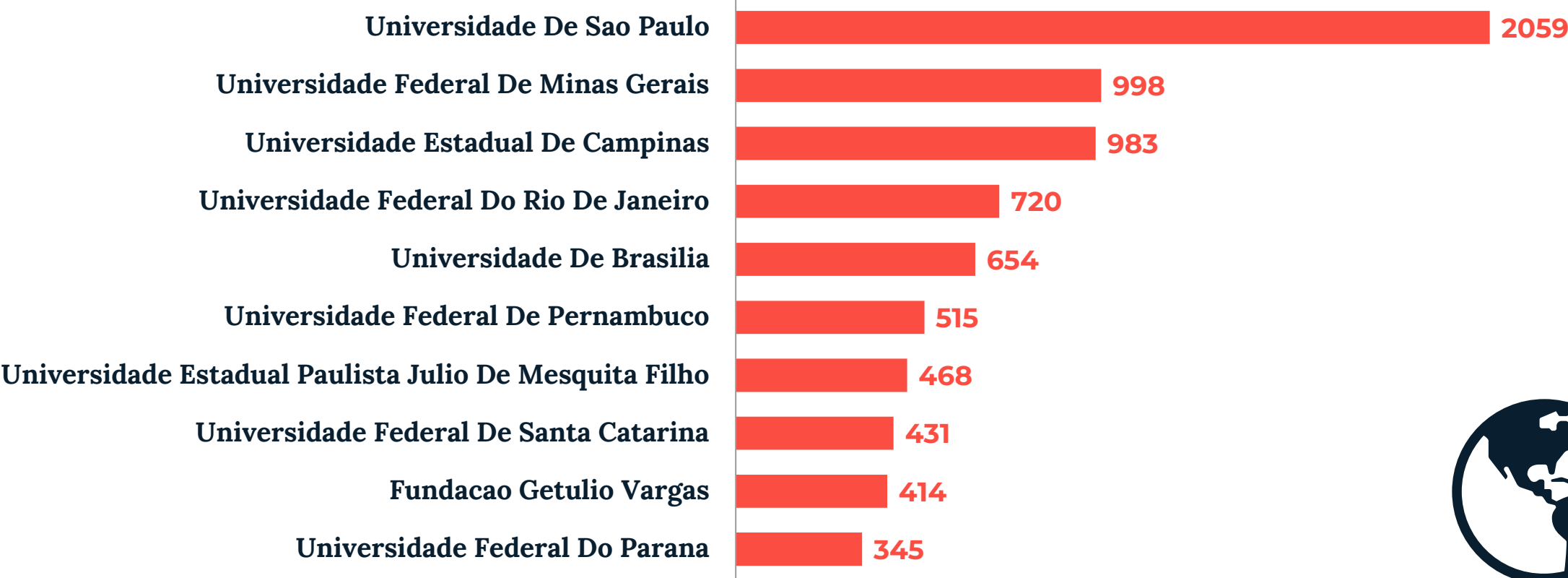
WORLD

(excluding Brazil)



Most Brazilians with doctorates in the world were educated at Brazil's top public and private universities.

Top 10 Schools Among Brazilians in the world with a doctoral degree

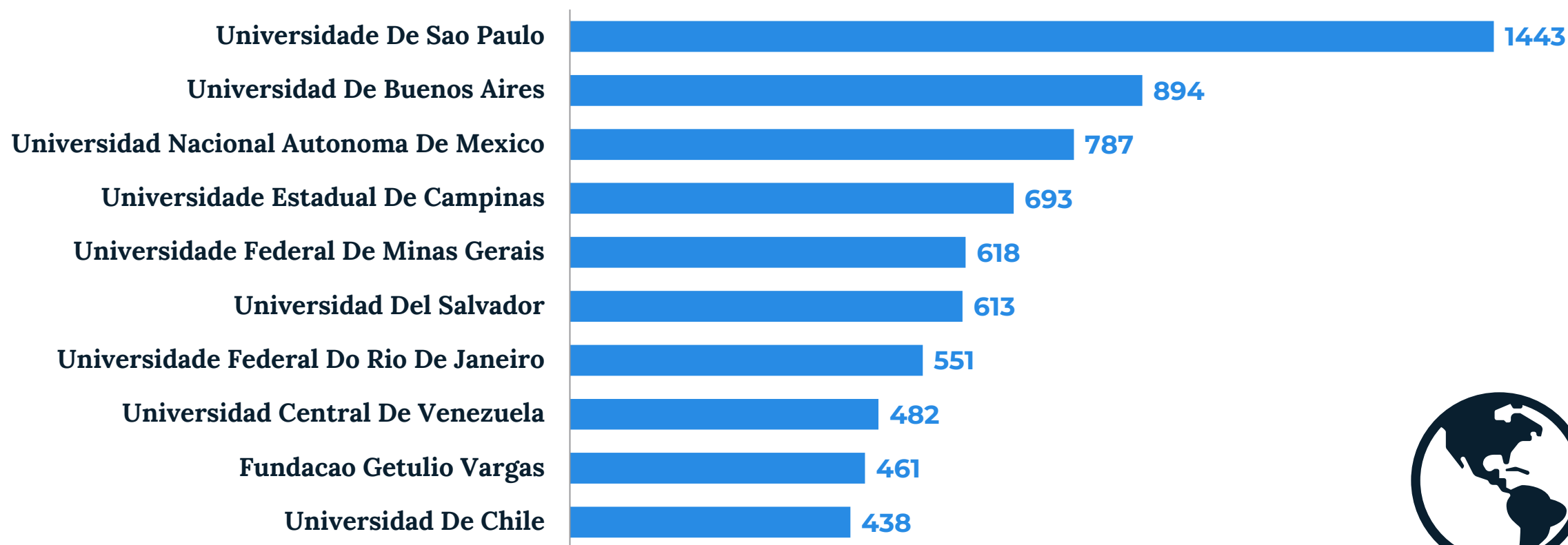


Source: Claro Analytics, Namsor, City of Boston Planning Department Research Division.



Brazilians working in scientific industries in the world were educated at Brazil's leading universities, and other top South American universities.

Top 10 schools among Brazilians in the world in a scientific industry



Source: Claro Analytics, Namsor, City of Boston Planning Department Research Division.

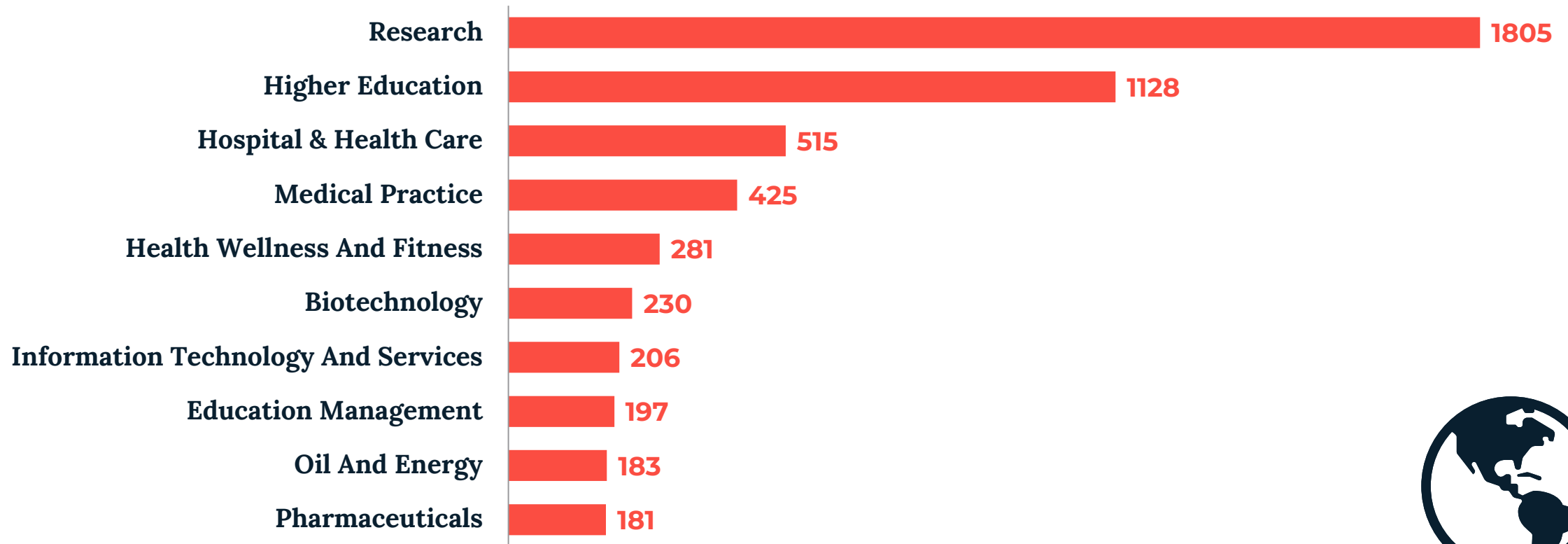
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Brazilians in the world with doctorates are employed in a diverse array of industries, but primarily Research and Higher Ed.

Top 10 industries among Brazilians in the world with a doctoral degree



Source: Claro Analytics, Namsor, City of Boston Planning Department Research Division.

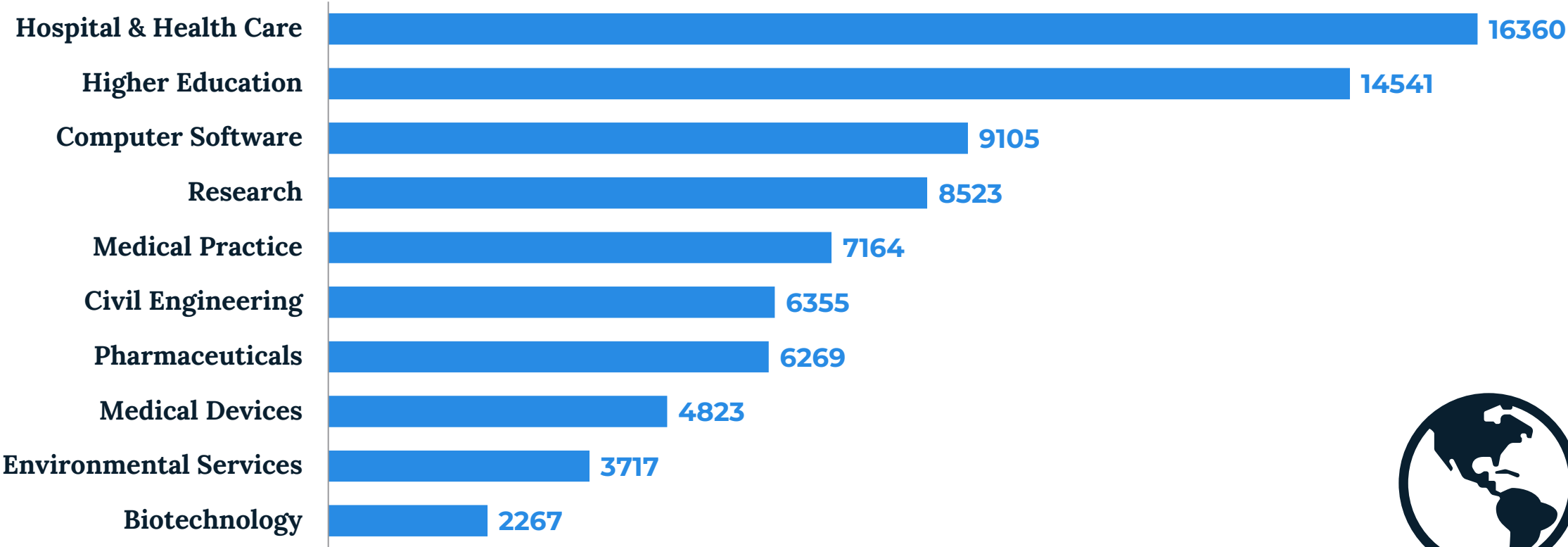
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City of Boston

Brazilians in the world with scientific expertise are heavily concentrated in the higher ed, civil engineering, and health care sectors.

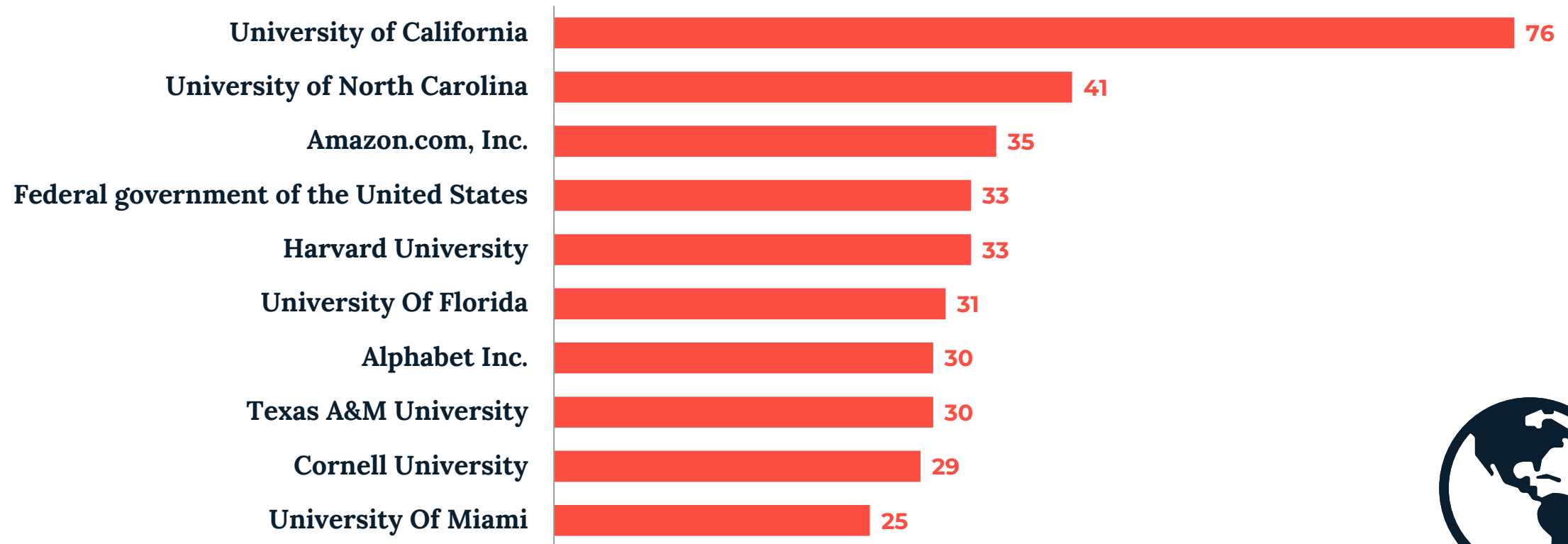
Top 10 *industries* among Brazilians in the world in a scientific industry



Source: Claro Analytics, Namsor, City of Boston Planning Department Research Division.

Brazilians in the world with doctorates work at top U.S. universities and companies.

Top 10 companies among Brazilians in the world with a doctoral degree



Source: Claro Analytics, Namsor, City of Boston Planning Department Research Division.

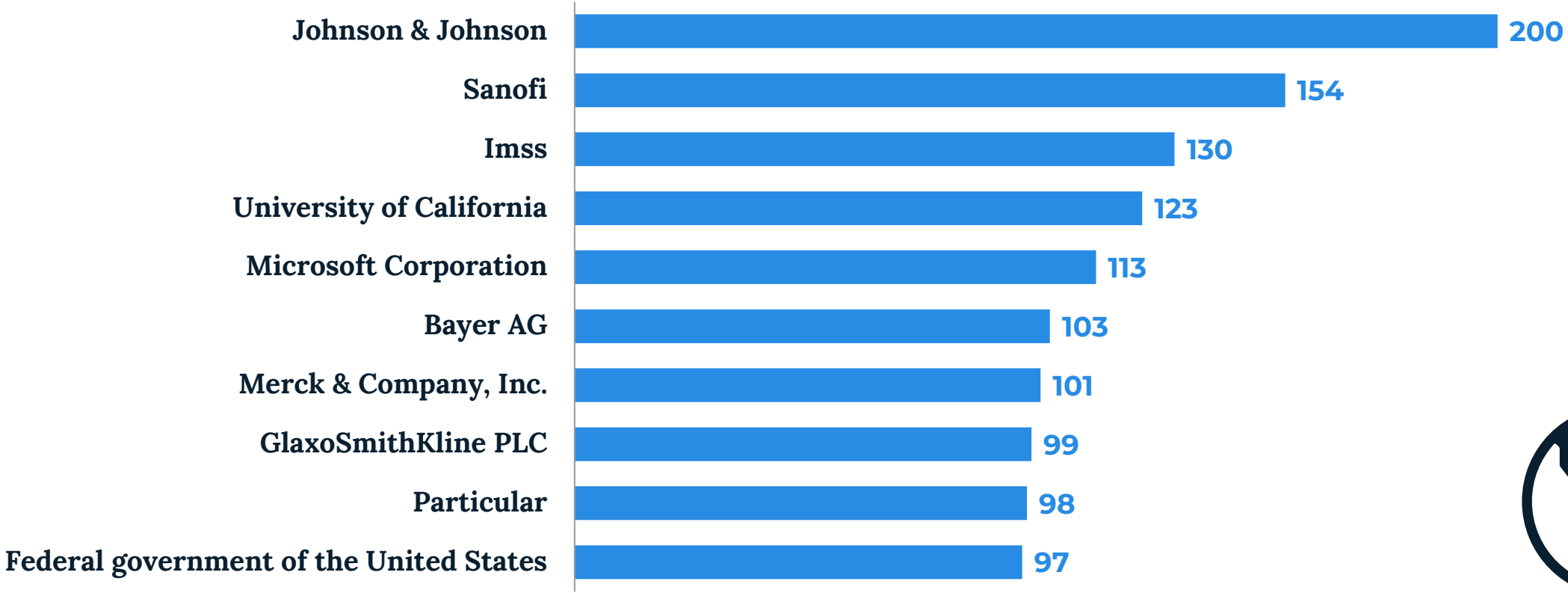
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Brazilians in the world in scientific industries work at leading multinational healthcare companies.

Top 10 companies among Brazilians in the world in a scientific industry



Source: Claro Analytics, Namsor, City of Boston Planning Department Research Division.



APPENDIX: **ABOUT CLARO AND NAMSOR**



How it works:

Data Aggregation: Collects professional profile data across platforms (e.g., LinkedIn).

Filters and Custom Queries: Allows advanced searches based on job titles, industries, degrees, skills, and location. Users can create targeted queries to analyze specific workforce segments.

A powerful labor market intelligence platform that aggregates data from various sources such as LinkedIn and job boards to provide real-time insights into employment trends.



What is Namsor?

A name analysis tool that uses algorithms to infer diaspora, country of origin, and gender from personal names.

How it works:

Diaspora: The algorithm matches names to global ethnic groups based on linguistic and cultural patterns.

Country of Origin: It predicts the likely country of origin for a name, using databases of names from around the world.

➤ **These two models are integrated with Claro.**

Namsor Algorithm Accuracy and Limitations

Diaspora: Identifies Lusophone names with 85%-95% accuracy, including Brazilian, Portuguese, Luso-Asian, and Luso-African origins.

Country of Origin: Differentiates Lusophone diasporic groups with ~75% accuracy (e.g., Portugal, Brazil, Angola, Mozambique, Cape Verde).

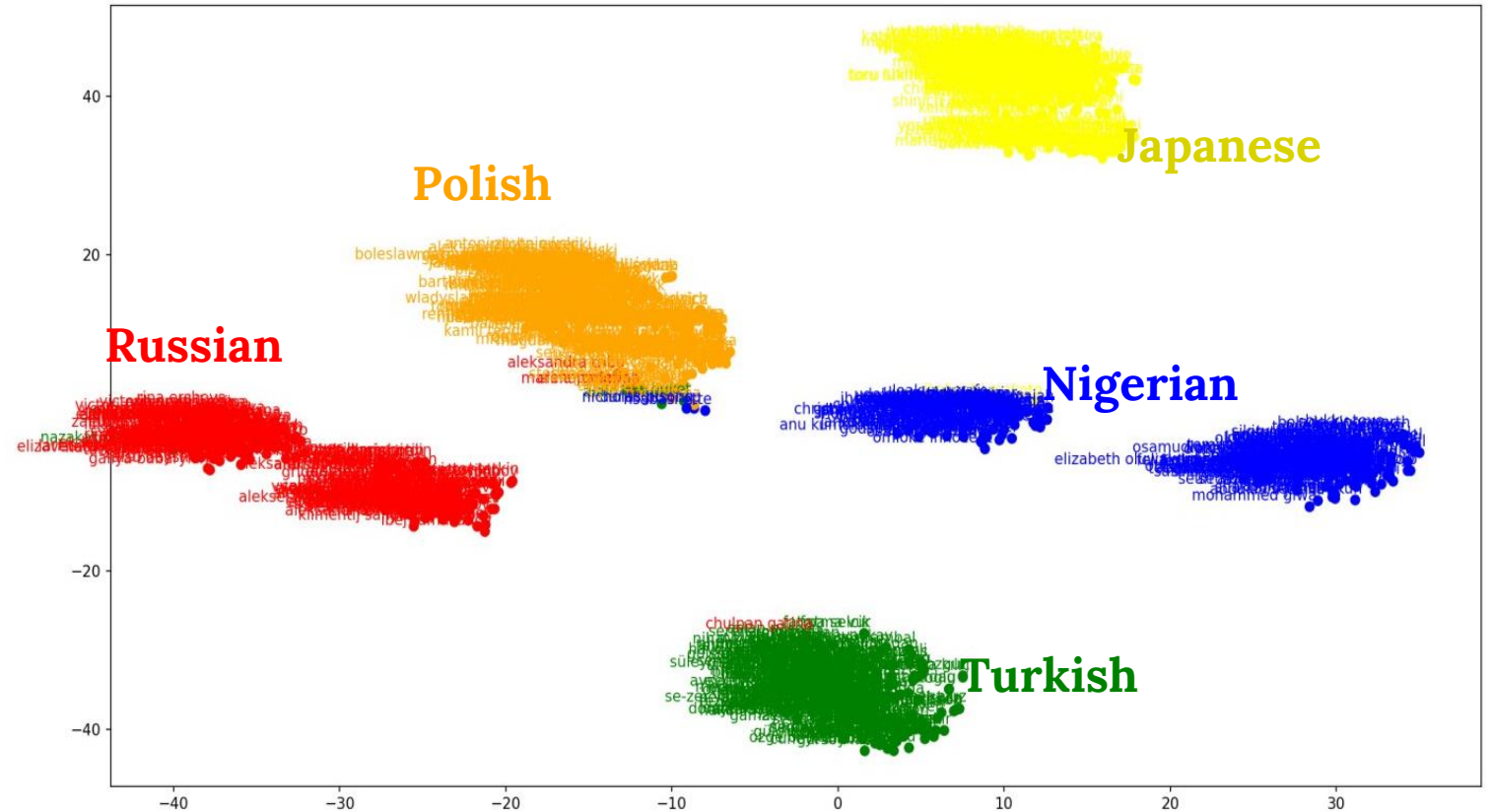
Visualizing the Namsor algorithm

Namsor uses a natural language processing (NLP) model, embedding a representation of a word as real-valued vectors that encodes the meaning of the word in such a way that the words that are closer in the vector space are expected to be similar in meaning.

Names that are closer in the vector space belong to the same gender/geographic/linguistic/racial/ethno-cultural group.

Easy case: distinct ethnic groups

Russian, Nigerian, Turkish, Japanese and Polish names are quite distinctive.



Hard case: Portuguese-speaking diasporic groups are harder to differentiate

French, Portuguese, Italian, Spanish names belong to the same linguistic group, have had significant cross-migration and cultural exchanges.

Portuguese (from Portugal)
and Brazilian Portuguese
name are hard to differentiate
(current model accuracy is
~75%).

