

THE STATE OF STEM TALENT 2020



ILLINOIS
INNOVATION
INDEX

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HORIZON



Colleen D. Egan
Illinois Science & Technology
Coalition and Institute
President & CEO

Illinois Science and Technology Coalition and Institute's
Equity ARC Framework

Access to Opportunity

Responsible Use of Power

Connection through Community Voices



Access to Opportunity

Equality means everyone has the same access to an opportunity, and equity means everyone gets their needs met. While equality and equity are not the same, they do work together. We cannot meet the needs of our community without a proper access baseline, which we provide. We understand that baseline is not enough when considering how we support opportunity

We must level the playing field and build an inclusive network for all companies, organizations, and students across Illinois, no matter who they are or from where they come. In our mission to grow equity, we must focus on marginalized communities that we have traditionally left behind to have an equal shot at success and opportunities within the STEM world.

Responsible Use of Power

Using power responsibly requires understanding the existing power structures, inequalities, and inequities in the broader world and then designing interventions.

We have a responsibility to name our power in the relationship with our community and think about how to use it to steer professional and educational equity. This means:

- **Inviting and Including:** Not just asking what our community needs, but inviting them to the conversation to represent themselves.
- **Sharing Power:** Creating more opportunities to give our power directly to our community members, whether it is the power of choice, decision-making, or intervention.

Connection through Community Voices

We believe that the innovation economy cannot thrive or survive without keeping diversity, equity, and inclusion at the forefront of our work. We are connectors, conveners, and catalysts for change. It is our responsibility to bridge the educational and professional gaps across all of Illinois.

We are a source for all people of all backgrounds and walks of life to explore STEM career pathways, and we believe that anyone that sees themselves in this work can *be* in this work. We aim to open doors for those who may not have exposure to STEM curriculum in their environment by providing them with the adequate resources to learn and connecting them to the right networks to succeed.



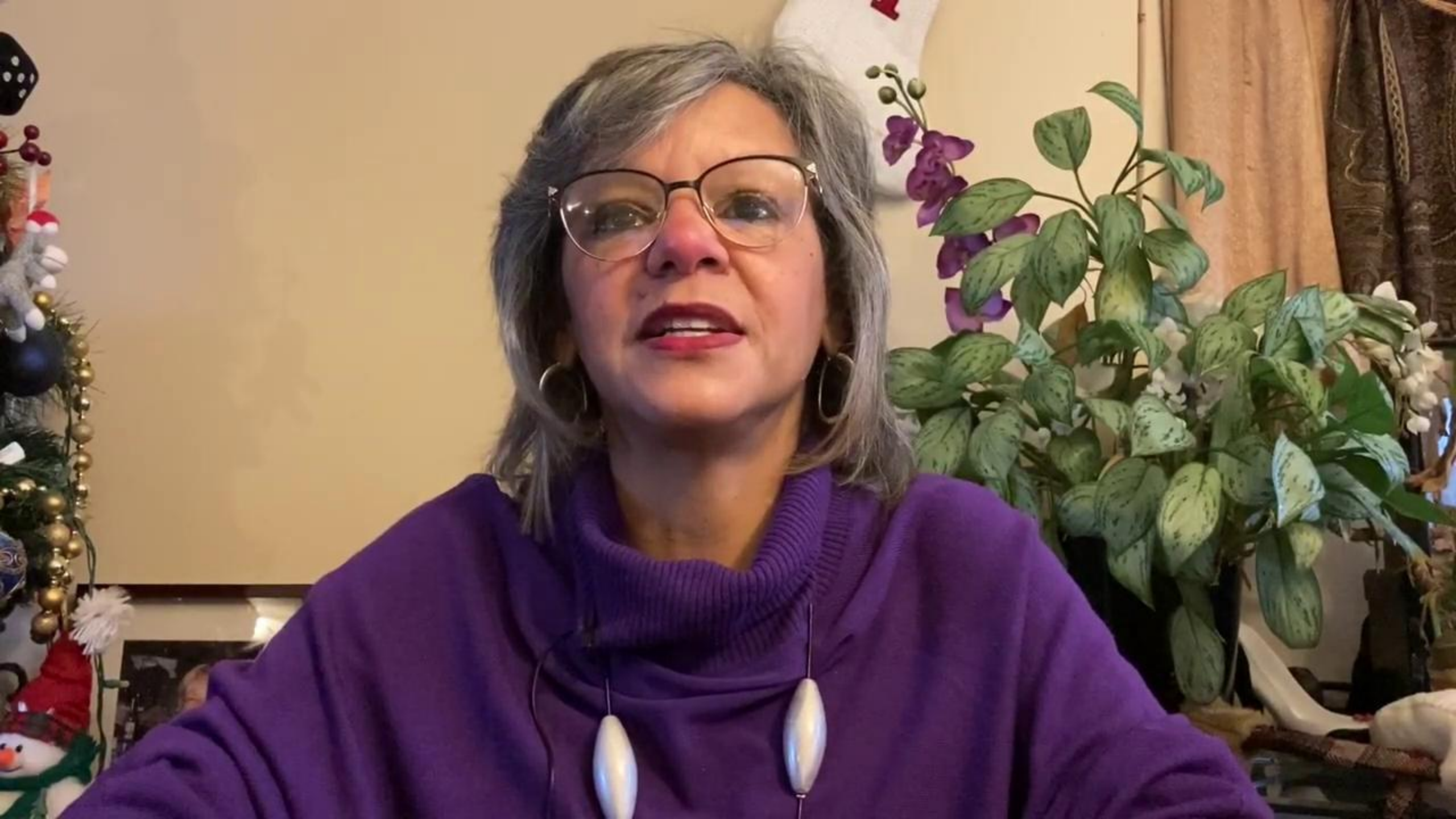
**UNTIL
JUSTICE
JUST IS**

eliminating racism
empowering women
ywca
metropolitan chicago



Congresswoman Robin Kelly

U.S. Representative
Illinois' 2nd Congressional District



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Our History

Founded in partnership with the State of Illinois as a technology adviser and economic development partner.

30+
years old



A Shared Voice

Providing a shared voice for the state's R&D community.



**We measure, connect and advocate
for the state's innovation economy.**

Our Members and Funders



Corporations

Universities &
Federal Labs



Northwestern



ISTC's Pillars

A red-tinted background featuring a candlestick chart with a horizontal line intersecting it.

DATA

A blue-tinted background featuring a large, ornate domed building, likely a state capitol.

ADVOCACY

A green-tinted background featuring a group of students, with one student in the foreground looking intently at a project.

EDUCATION

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University Entrepreneurship



Research & Development



STEM Talent



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STEM TALENT 2020

Assessing a Decade of
Pipeline Development

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Supply



STEM degree production



Areas of degree strength



Talent migration

Demand



STEM jobs



Job fields of strength



Top occupations

Features



Diversity in STEM



Computer & data science



Biomedical & biotech

STEM Talent Supply

In 2019, Illinois awarded **24,861 bachelor's, master's, and doctoral degrees** in STEM areas—a new record for the state.

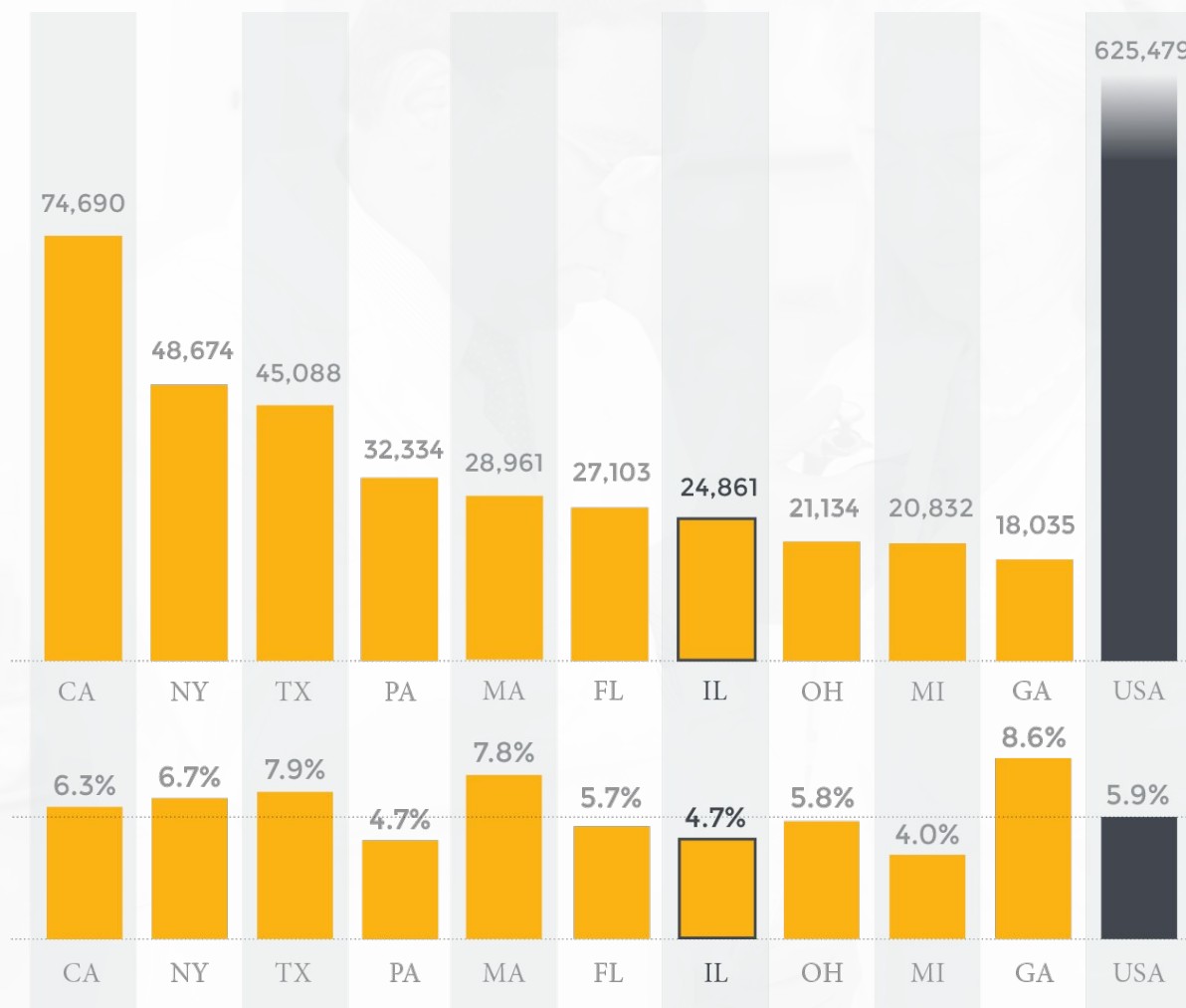
Illinois **ranks 7th** nationally in STEM degrees.

STEM degrees Illinois have grown by **4.7% annually since 2010**, outpacing non-STEM degree growth of just 0.9%.

Illinois trails the national trend of **5.9% annual growth** in STEM over the past decade.



STEM Degrees Top 10 States, 2019



Source: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics

istcoalition.org

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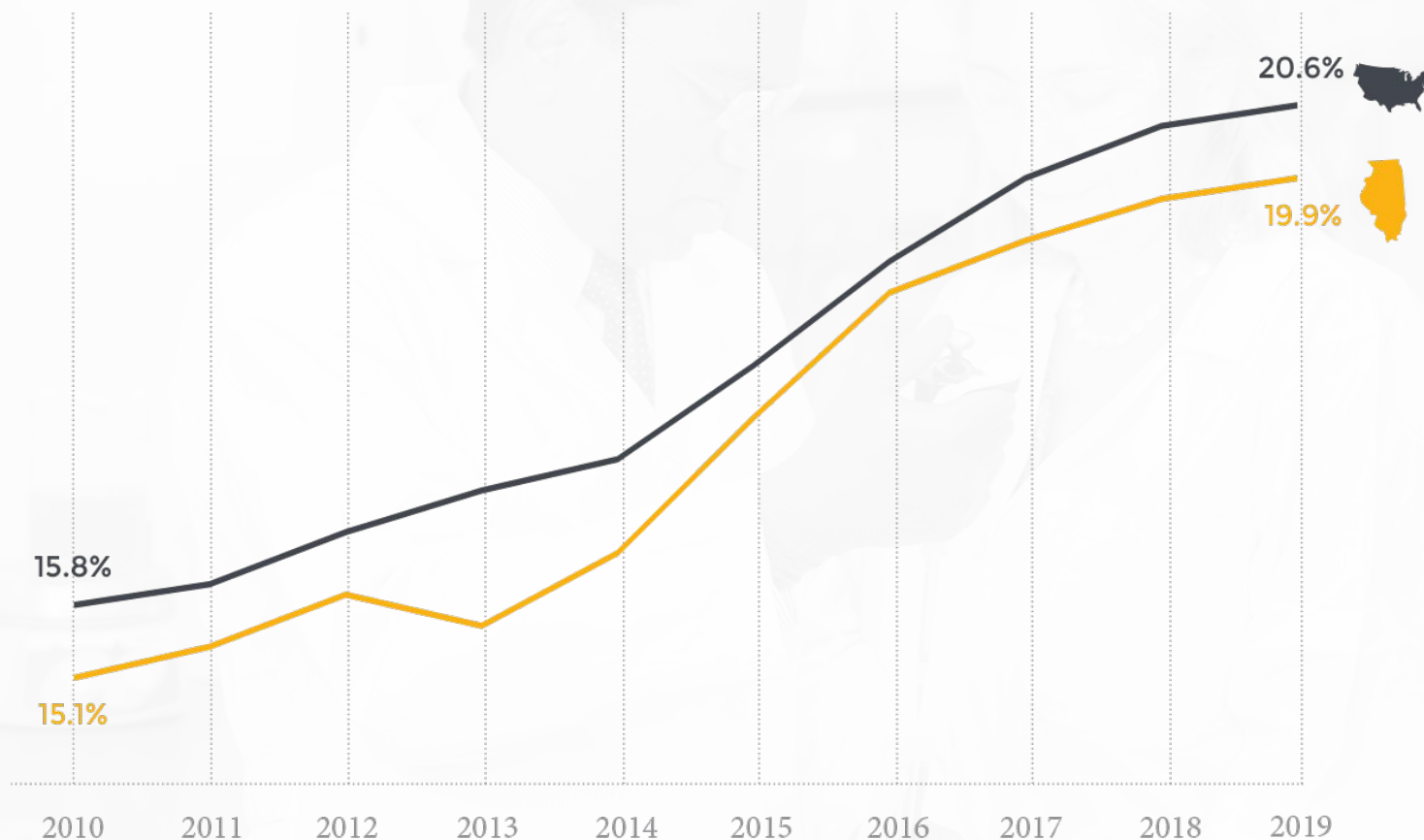
STEM Talent Supply

The share of degrees awarded in STEM has grown from **15.1% in 2010**, to **19.9% in 2019**.

Despite this growth Illinois still trails the national average for the share of degrees in STEM (**19.9% vs. 20.6%**).



STEM Degree Share IL vs US, 2010-2019



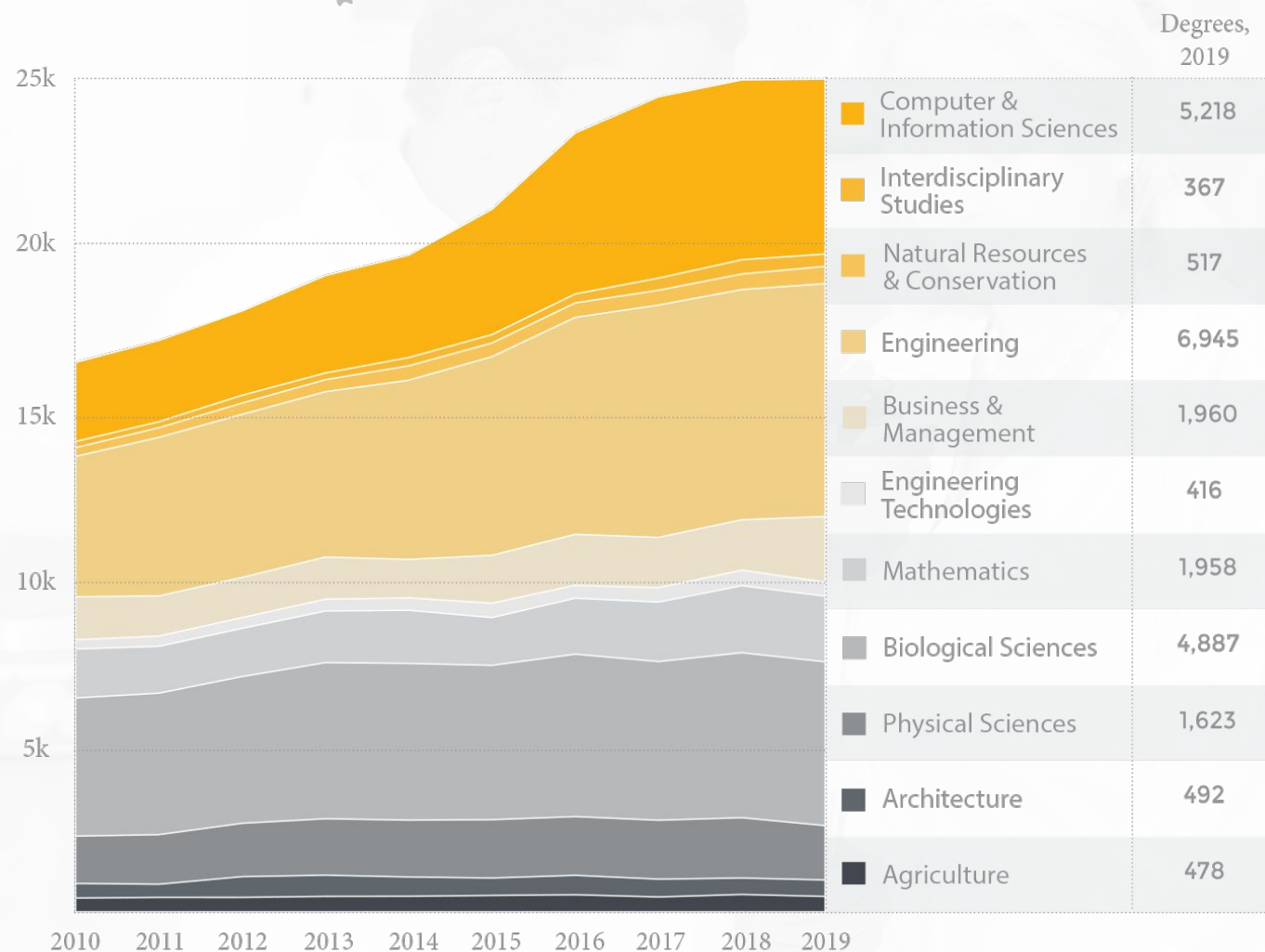
STEM Talent Supply

By subject area, STEM degrees are led by engineering (**6,945 degrees**), computer and information sciences (**5,228**), and biological sciences (**4,887**).

Illinois **leads the nation** in STEM business and management degrees (**1,960**), and **ranks 4th** in STEM agriculture degrees.



STEM Degrees by Subject Illinois, 2010-2019



Source: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics

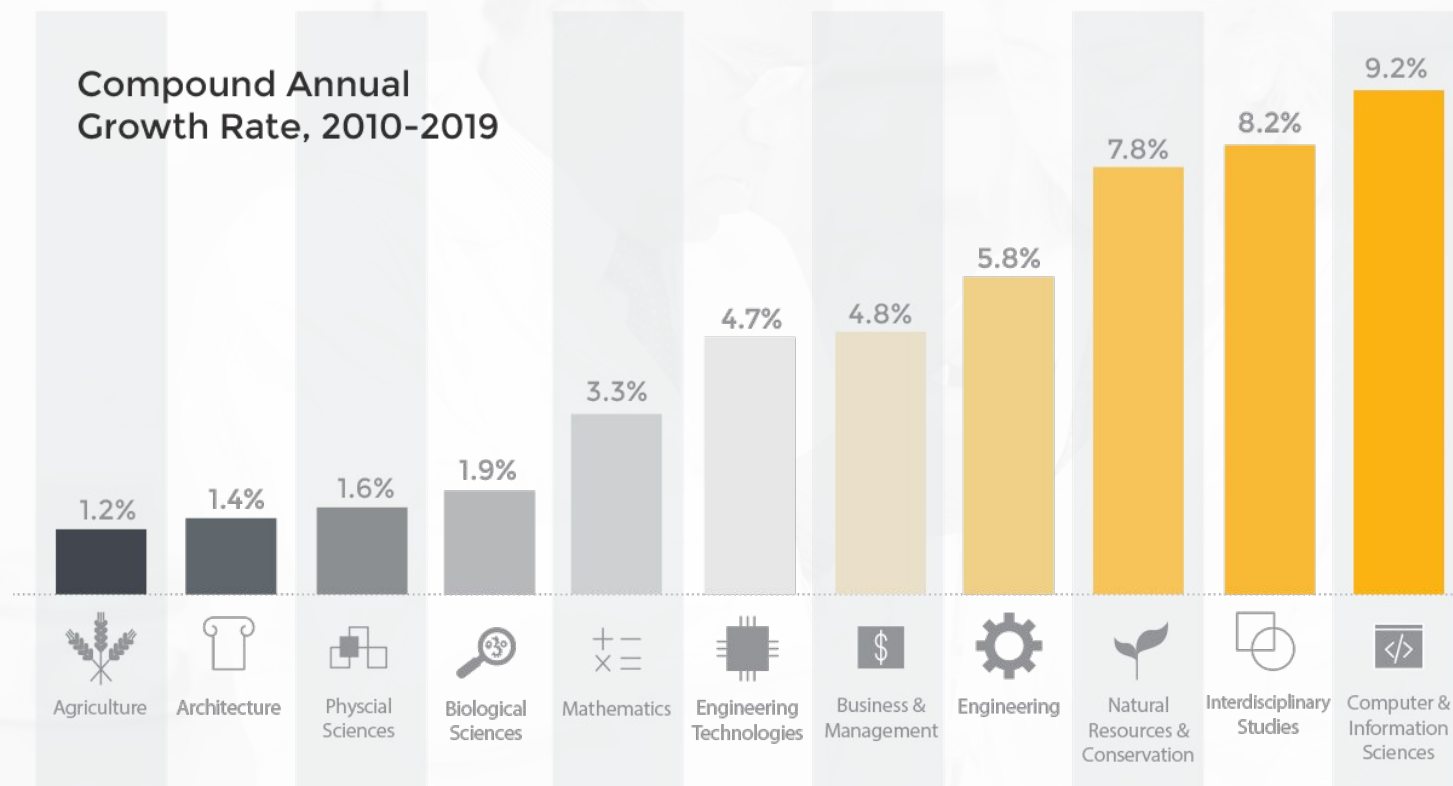
STEM Talent Supply

Growth is led by computer and information sciences (**9.2% annual growth**) and interdisciplinary studies (**8.2%**).

Natural resources and conservation (**7.8%**) and engineering (**5.8%**) have each seen annual growth exceeding 5% since 2010.



STEM Degrees by Subject Illinois, 2010-2019



Computer and Data Science Degrees

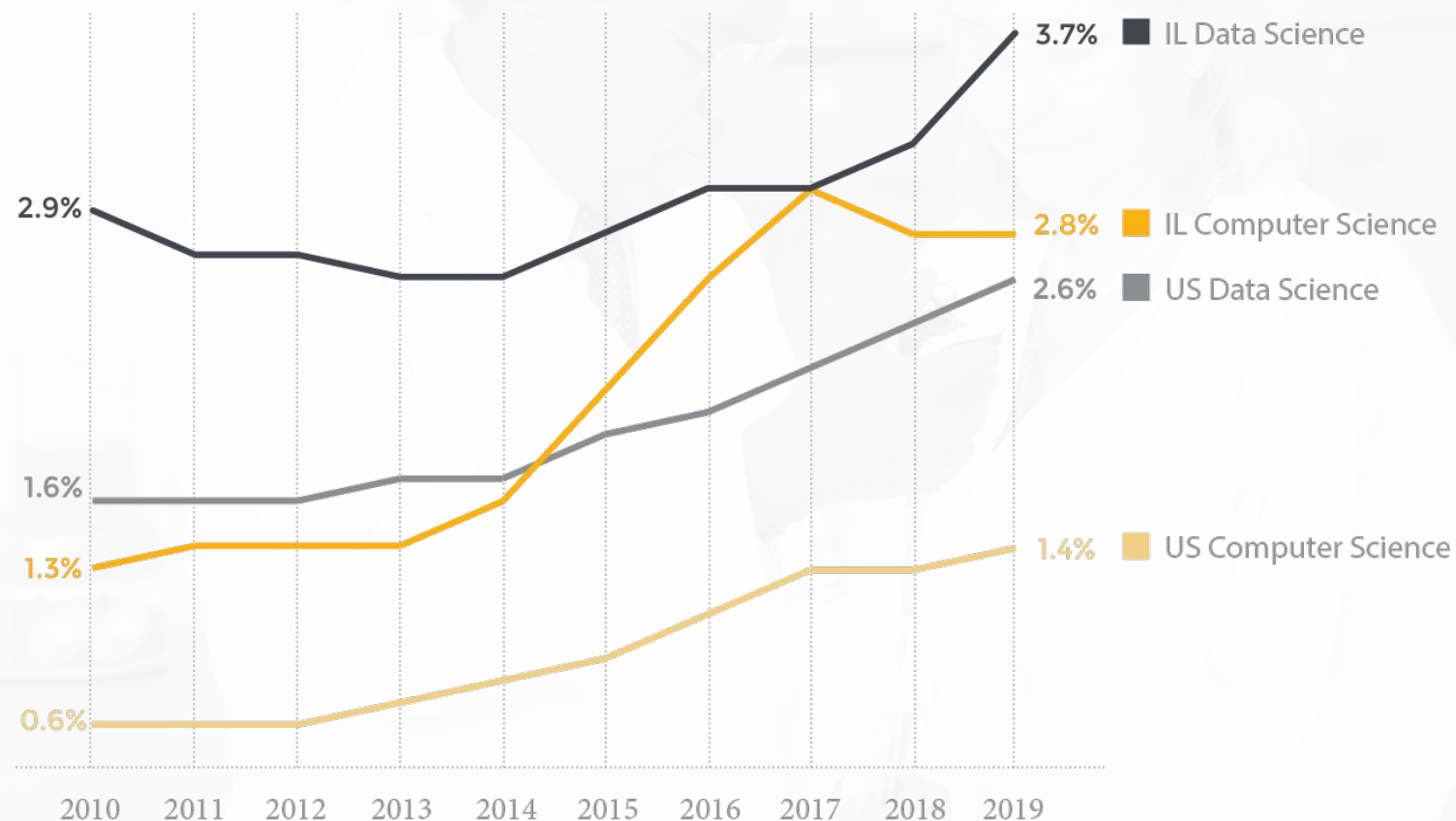
Illinois awarded **3,443 degrees in computer science**, a decline of nearly 300 degrees from the state's peak degree output of 3,733 in 2017.

Illinois **rankes 3rd nationally** in computer science degrees.

Illinois awarded **4,574 data science-related degrees**, 6th most among states nationally.



Share of Degrees in Computer and Data Science IL vs. US, 2010-2019



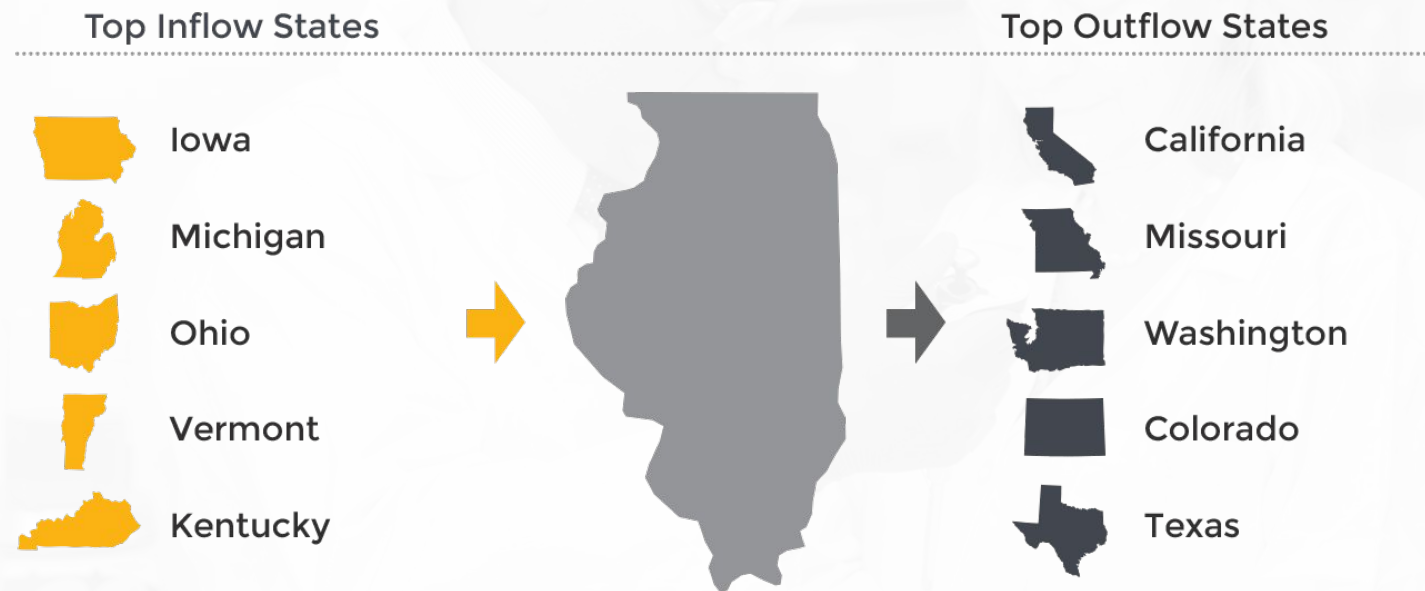
Source: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics

STEM Talent Supply

Most common origins for STEM talent migrating to Illinois include neighboring states **Iowa**, **Kentucky**, **Michigan** and **Ohio**, along with **Vermont**.

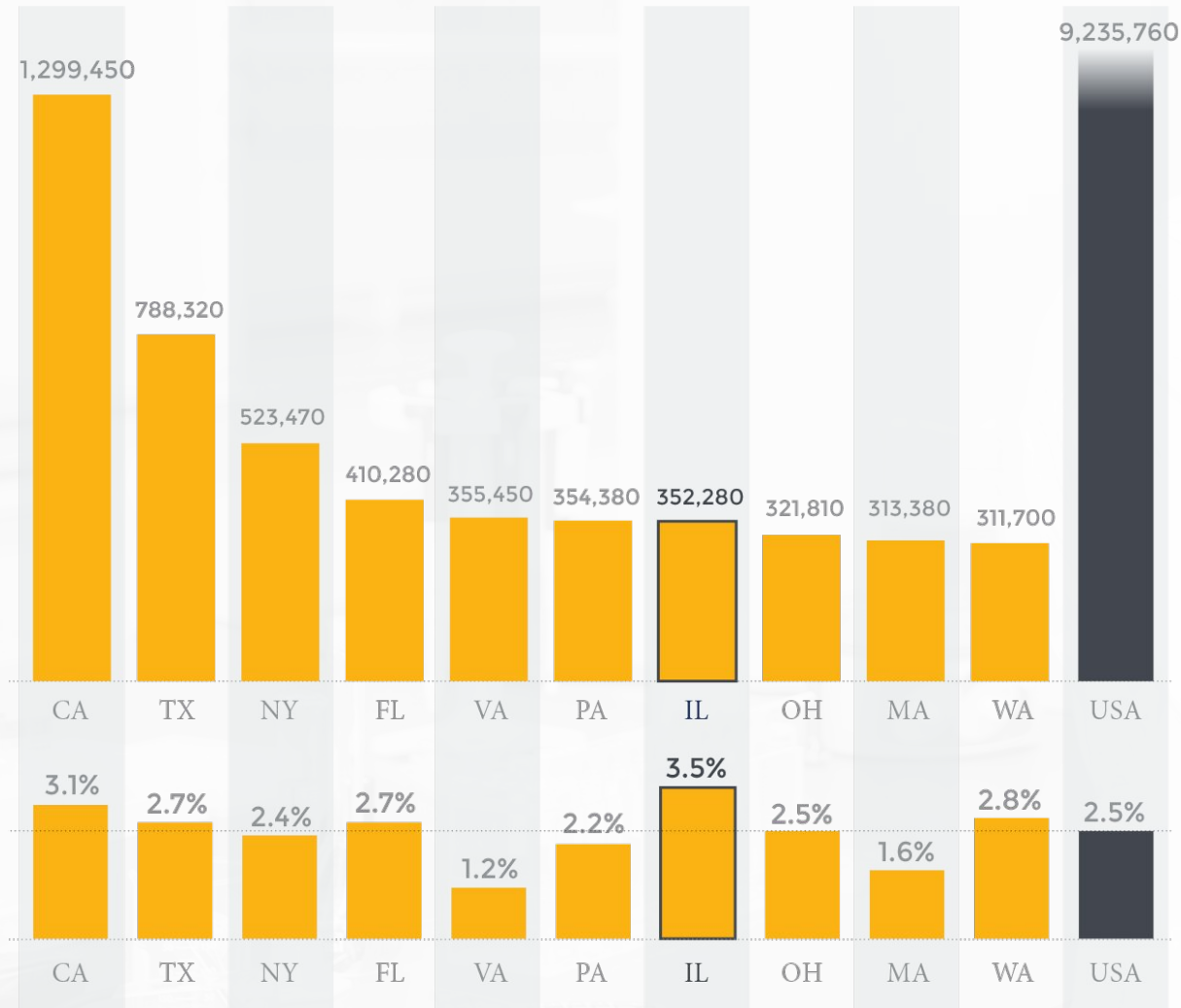
Leading destinations for STEM talent leaving the state include **California**, **Washington**, **Colorado**, and **Texas**—as well as neighboring **Missouri**.

STEM Talent Migration Illinois, 2010-2019





STEM Jobs Top 10 States, 2019



STEM Talent Demand

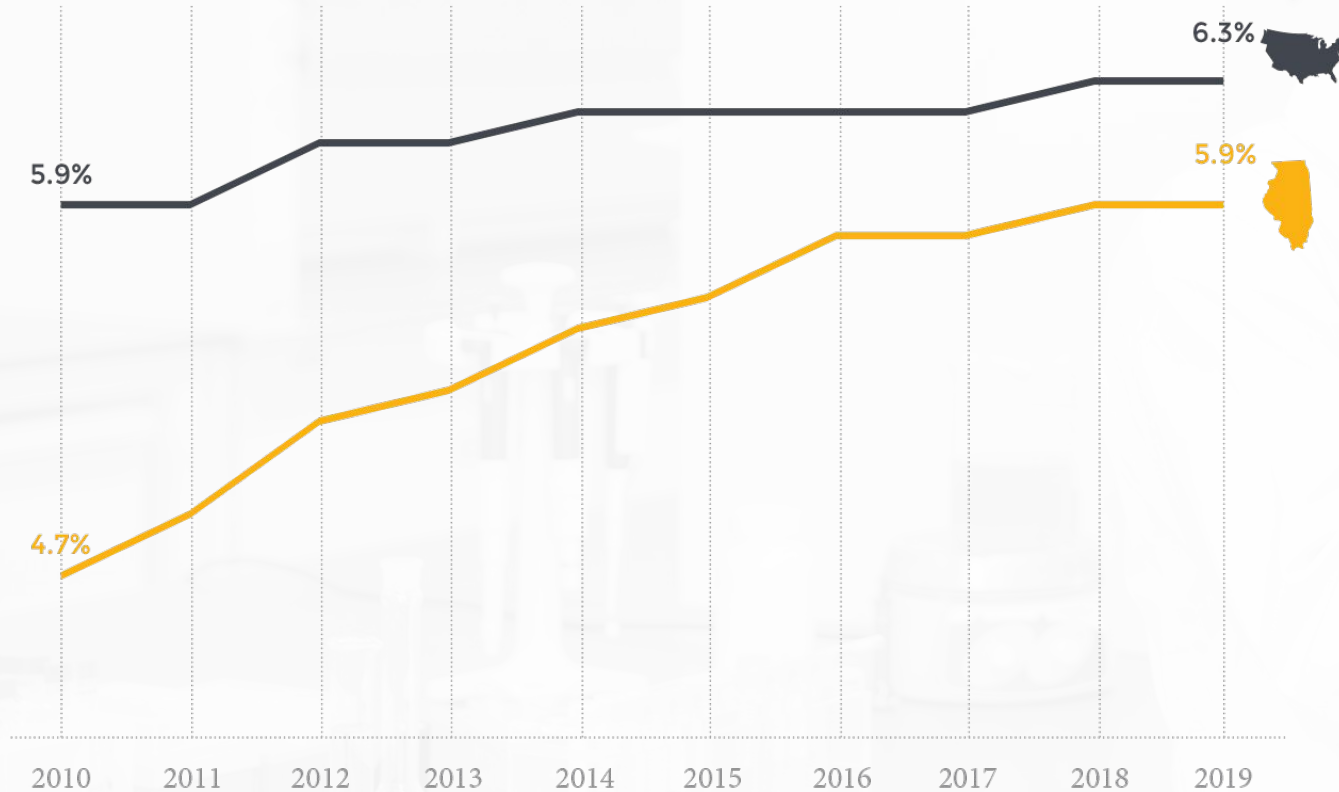
STEM jobs in Illinois reached 352,280 in 2019, with state adding more than **90,000 STEM jobs** since 2010.

By percentage, no state among the top 10 in STEM employment has grown more quickly than Illinois (**3.5% annually**).

Illinois **ranks 7th** nationally in STEM jobs.



STEM Job Share IL vs. US, 2010-2019



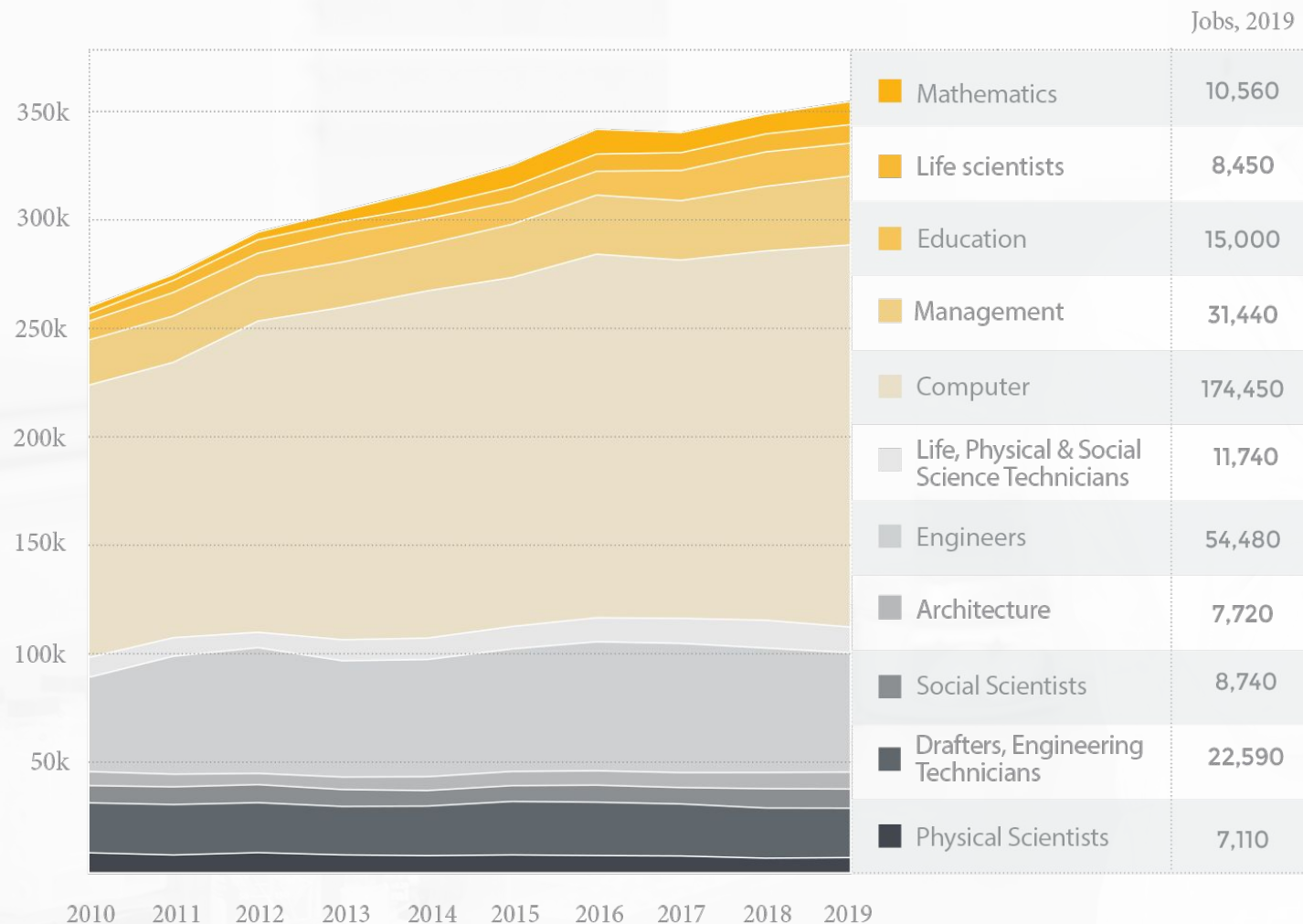
STEM Talent Demand

5.9% of Illinois' jobs are in STEM fields, compared with **6.3%** nationally.

The share of jobs in STEM have grown significantly—**increasing by 1.2% since 2010**—closing the gap between Illinois and the national average.




STEM Job Fields Illinois, 2010-2019



STEM Talent Demand

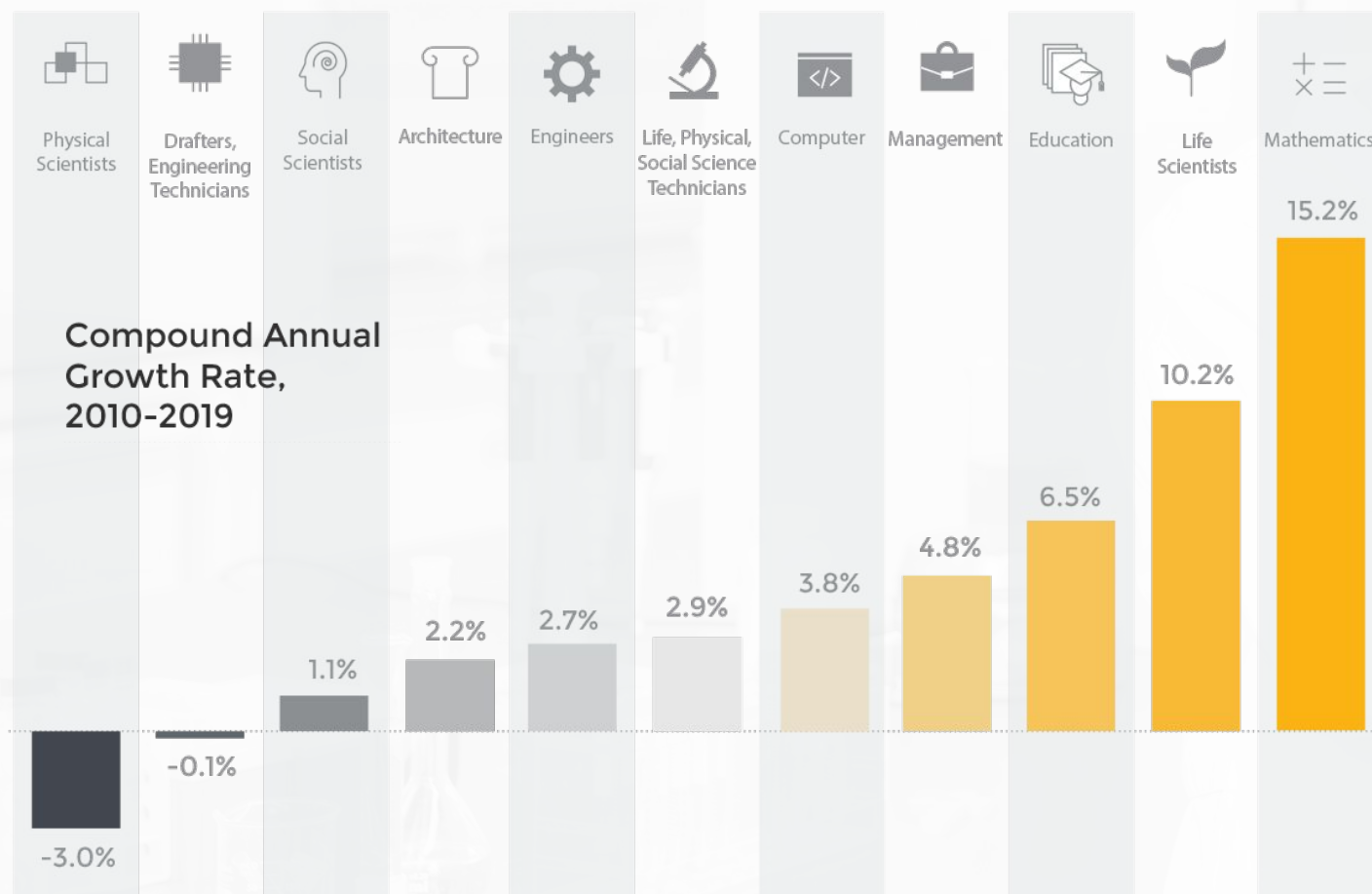
STEM jobs in computer-related fields **reached 174,450**, nearly half of all STEM jobs in the state.

Other leading STEM job fields in Illinois include **engineering (54,480)** and **STEM management (31,440)**.



STEM Job Fields

Illinois, 2010-2019



STEM Talent Demand

Mathematics (including data science) the most quickly growing STEM job field (**15.2% annual growth**), with life sciences (**10.2%**) also growing quickly.

Jobs in computer-related fields have grown by **3.8% annually in Illinois since 2010**, slightly faster than the national trend of 3.5%.

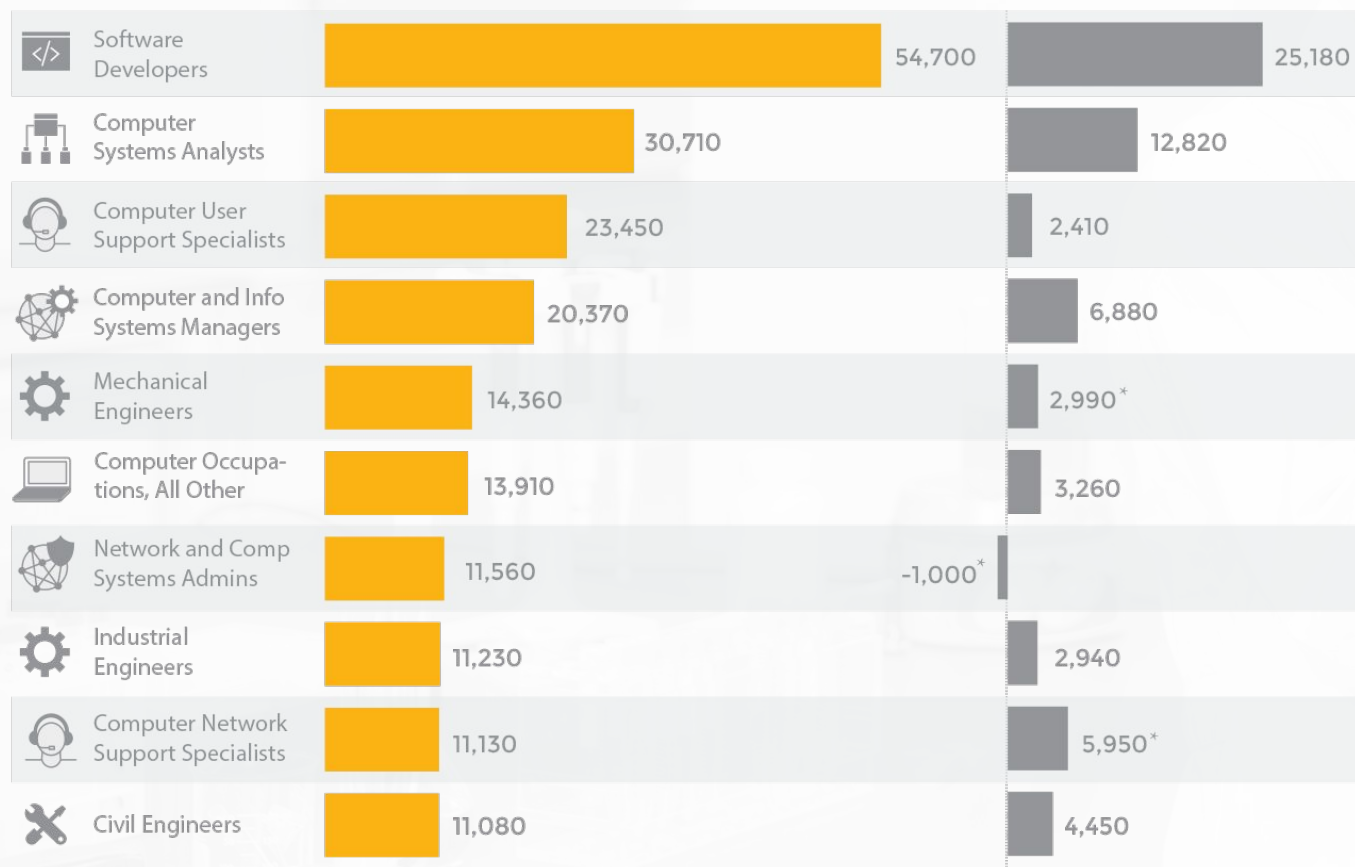
Illinois has added **more than 30,000 computer-related STEM jobs** since 2010, nearly three-times more than in any other field.



Top STEM Occupations Illinois, 2019

■ Illinois Employment 2019

■ Jobs added since 2010



STEM Talent Demand

7 of the top 10 largest STEM occupations by employment in the state are in computer-related fields.

Illinois has added more more than **25,000 software development jobs** since 2010.

Software Developers (**54,700**);
Computer Systems Analysts (**30,710**);
and Computer User Support Specialists (**23,450**).

Biomedical & Biotechnology Talent

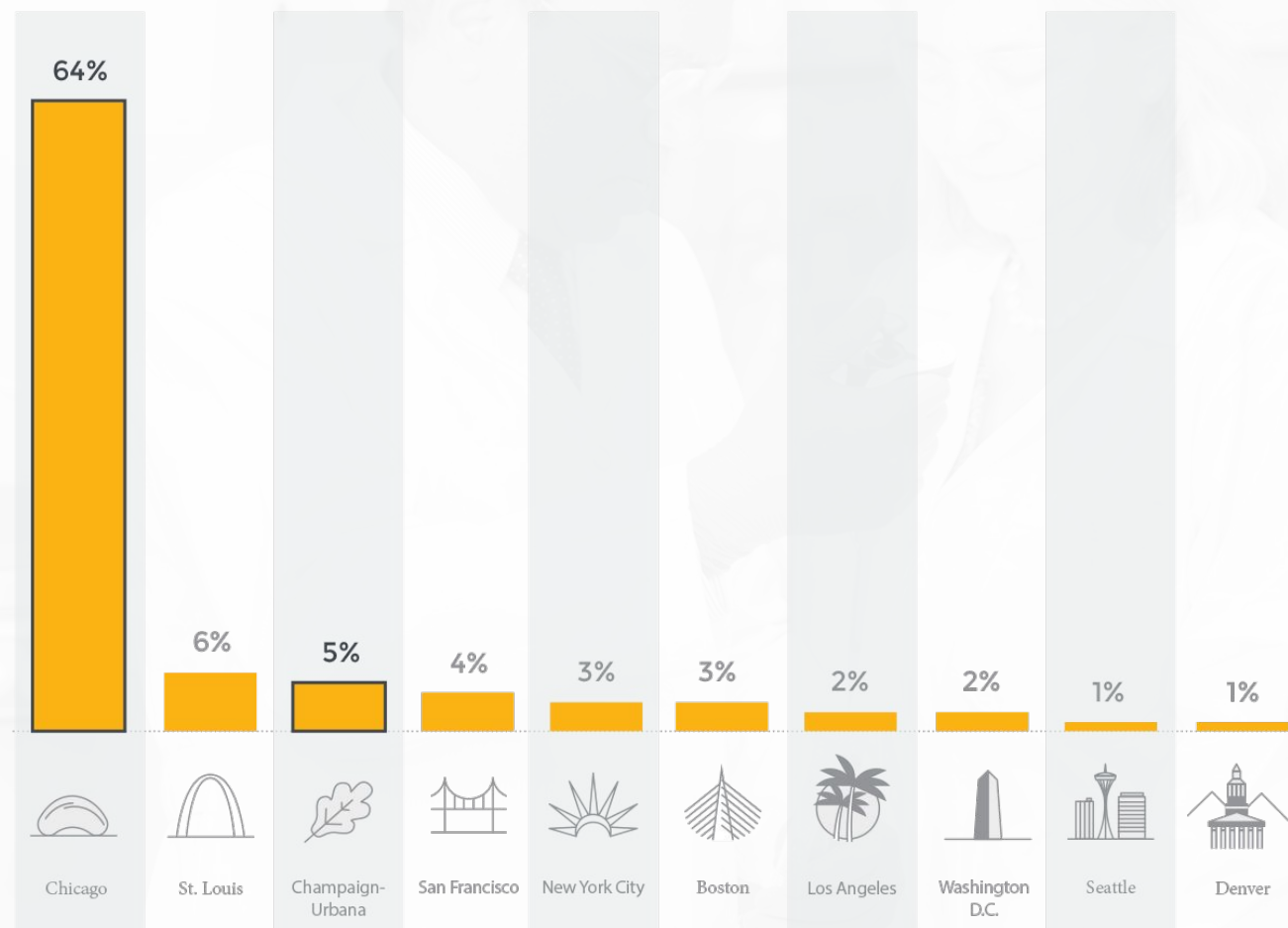
In 2019, Illinois awarded **4,761 degrees** in biomedical & biotechnology-related areas, **7th most nationally**.

Jobs in biomedical & biotechnology in Illinois **reached 9,180 in 2019**—more than doubling since 2010. Illinois **ranks 12th** in biomedical and biotechnology jobs.

Retention of recent grads is strong, with **72% remaining in Illinois** after graduation.



Retention of Biomedical & Biotechnology Recent Grads Illinois, 2010-2020



Source: LinkedIn

Diversity, Equity, and Inclusion in STEM

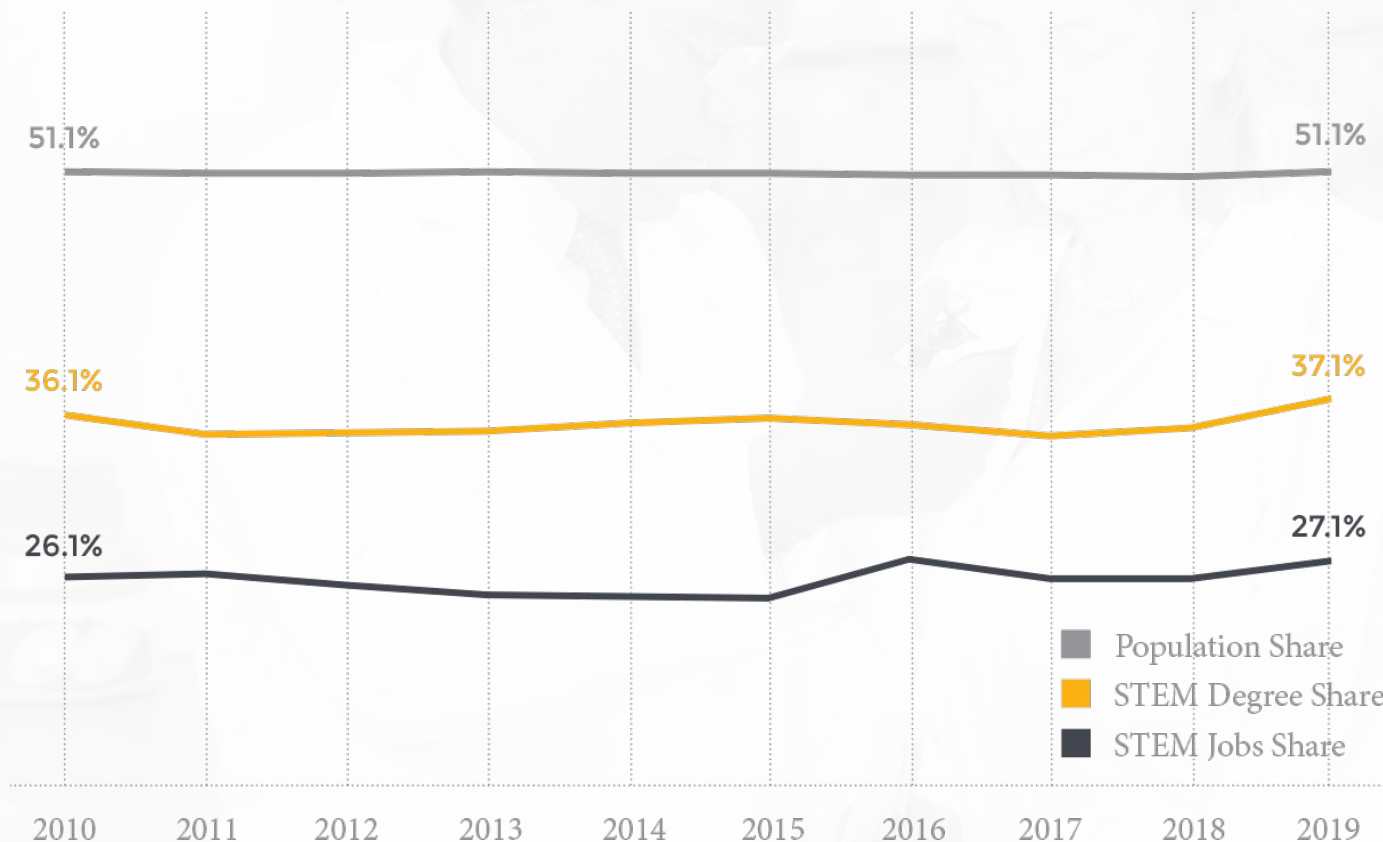
Women, Black and **Latinx** populations are all underrepresented in STEM degrees and jobs.

Women make up **37.1% of STEM degrees**, and **27.1% of STEM jobs**.

The share of women earning STEM degrees, and in STEM jobs, has **risen by 1% since 2010**.



Share of Women in STEM Illinois, 2010-2019



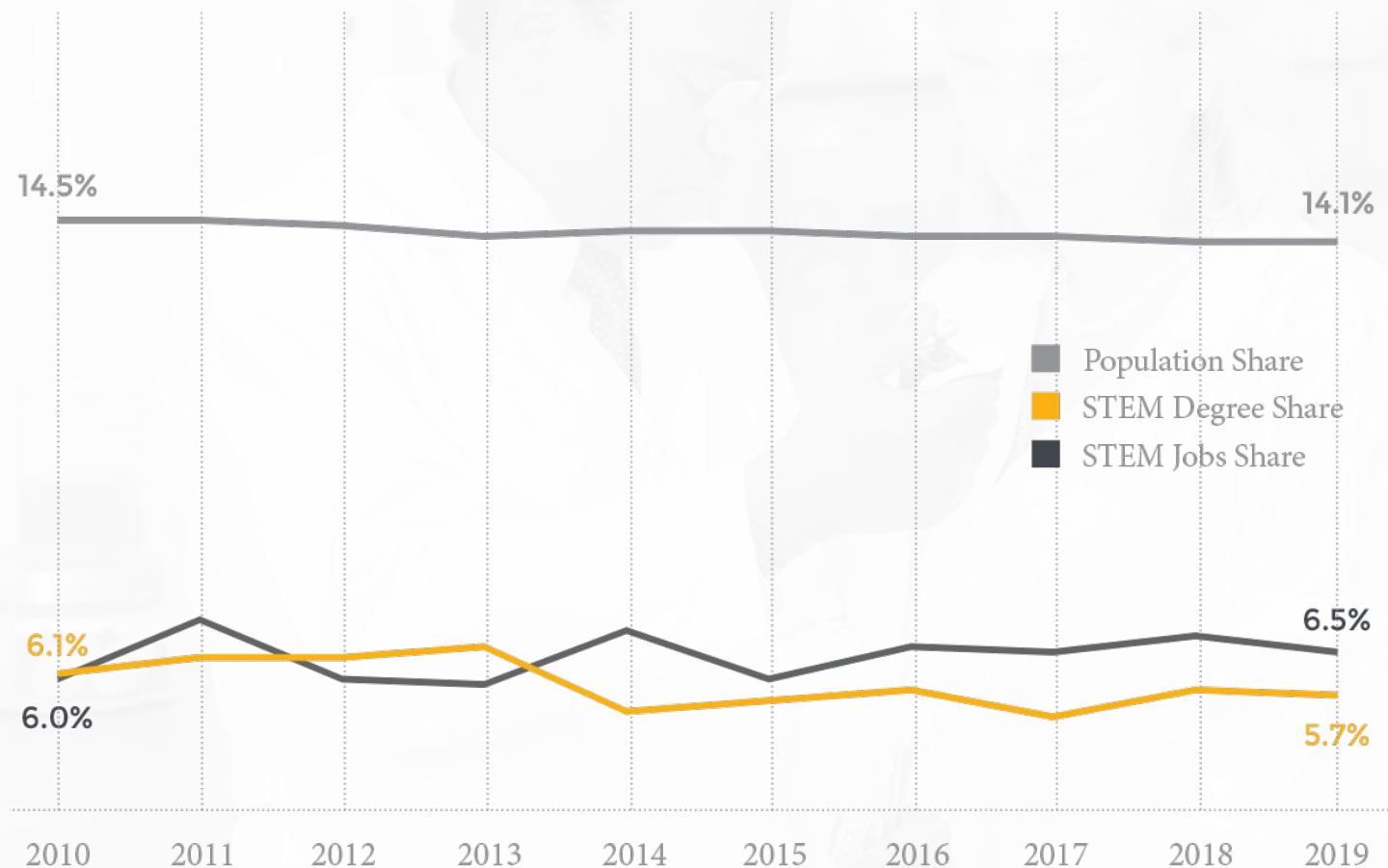
Diversity, Equity, and Inclusion in STEM

Black Illinoisans make up 14.1% of the population, but **5.7% of STEM degrees**, and **6.5% of STEM jobs**.

The share of Black students earning STEM degrees has **fallen by 0.4% since 2010**, while the share of Black professionals in STEM jobs **rose by 0.5%**.



Share of Black Illinoisans in STEM Illinois, 2010-2019



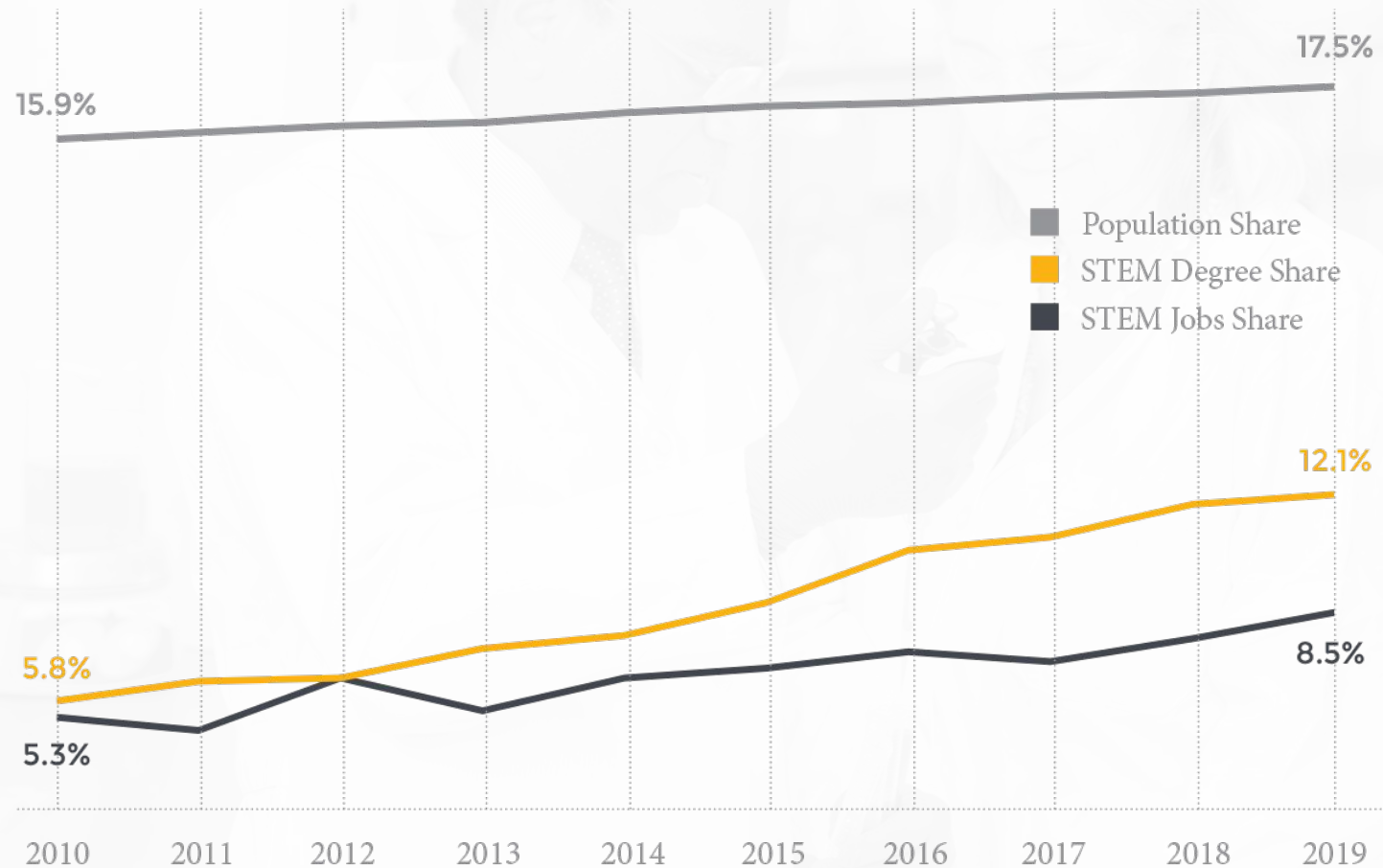
Diversity, Equity, and Inclusion in STEM

Latinx Illinoisans make up 17.5% of the population, **12.1% of STEM degrees**, and **8.5% of STEM jobs**.

The share of Latinx students earning STEM degrees has **risen by 6.3% since 2010**, while the share of Latinx professionals in STEM jobs **rose by 3.2%**.



Share of Latinx Illinoisans in STEM Illinois, 2010-2019



Source: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, U.S. Census Bureau

Challenges

- Diversity, equity, and inclusion
- Enrollment decline
- Talent migration

Strengths

- + STEM job growth
- + Computer and data science
- + Retention in biomed & biotech

Looking Forward

- ✓ Increase funding to public education to reverse downward enrollment trend
- ✓ Double-down on computer and data science
- ✓ Increase connectivity between students and employers
- ✓ View DEI as the “next Silicon Valley”

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Data Partners



Members & Partners



Full Index: istcoalition.org/data

Panel Discussion: Illinois' Talent Landscape



Pete Kadens

Azenity Labs

Founder and Chairman



Irina Konstantinovskiy

Horizon

Executive Vice President and
Chief Human Resources Officer



Ginger Ostro

Illinois Board of Higher Education

Executive Director



Dorri McWhorter

YWCA Metropolitan Chicago

Chief Executive Officer

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