

Technology & the Texas Economy



THE TEXAS STATE CHAMBER

Winter 2023



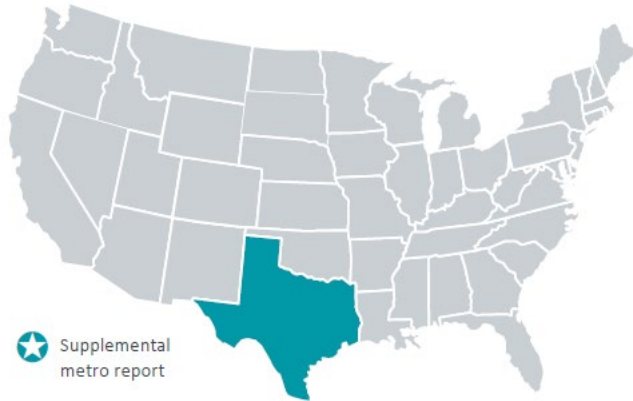
CompTIA - Cyberstates View

Nationally tech begins to resurge from pandemic

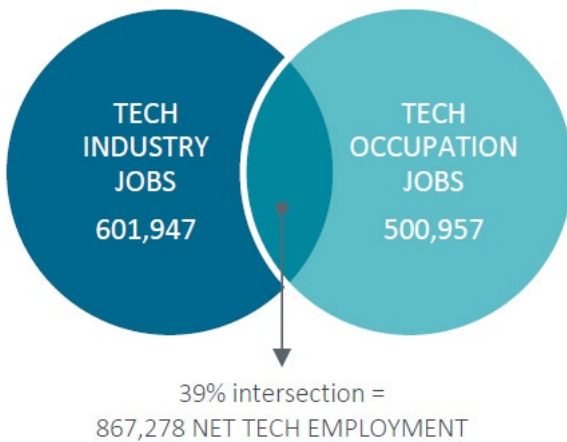
- Net tech employment in the United States was 9,156,390 workers in 2022, an increase of 3.2% year-over-year.
- Since 2017, the IT services and custom software services category powered job growth, accounting for 52% of job gains. Software [product] accounted for 29% of the job gains in the same time period. Tech manufacturing saw a fall in number of jobs created in 2020 and 2021 but is forecasted to grow at 1.2% in 2023.
- According to projections from the U.S. Bureau of Labor Statistics and Lightcast, in the next ten years the tech workforce will grow twice as fast as the overall U.S. workforce. The macro trend of digital transformation means demand for tech talent across the full spectrum of tech job roles will continue unabated.
- The replacement rate for tech occupations during the 2023-2033 period is expected to average about 7% annually, or approximately 400,000 workers each year, totaling several million through 2033. The total turnover rate, which encompasses workers transitioning within tech such as those promoted into a new role, is estimated to average 36% annually during the period.

CompTIA - Cyberstates View

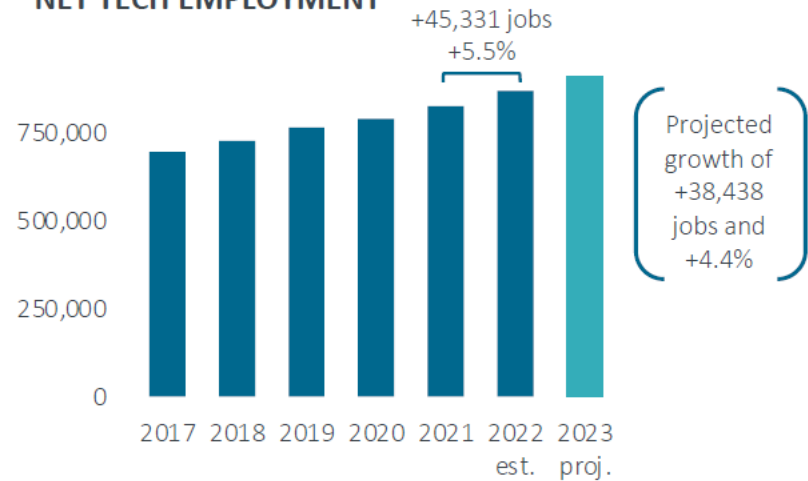
Texas a Tech Leader, and Growing



- 2nd NET TECH EMPLOYMENT RANK
- 1st NET TECH EMPLOYMENT JOBS ADDED RANK
- 45th TECH BUSINESS ESTABLISHMENTS % CHANGE RANK
- 1st DIVERSITY INDEX QUARTILE [1st = top | see footnote]



NET TECH EMPLOYMENT



TXP Technology Impact Analysis

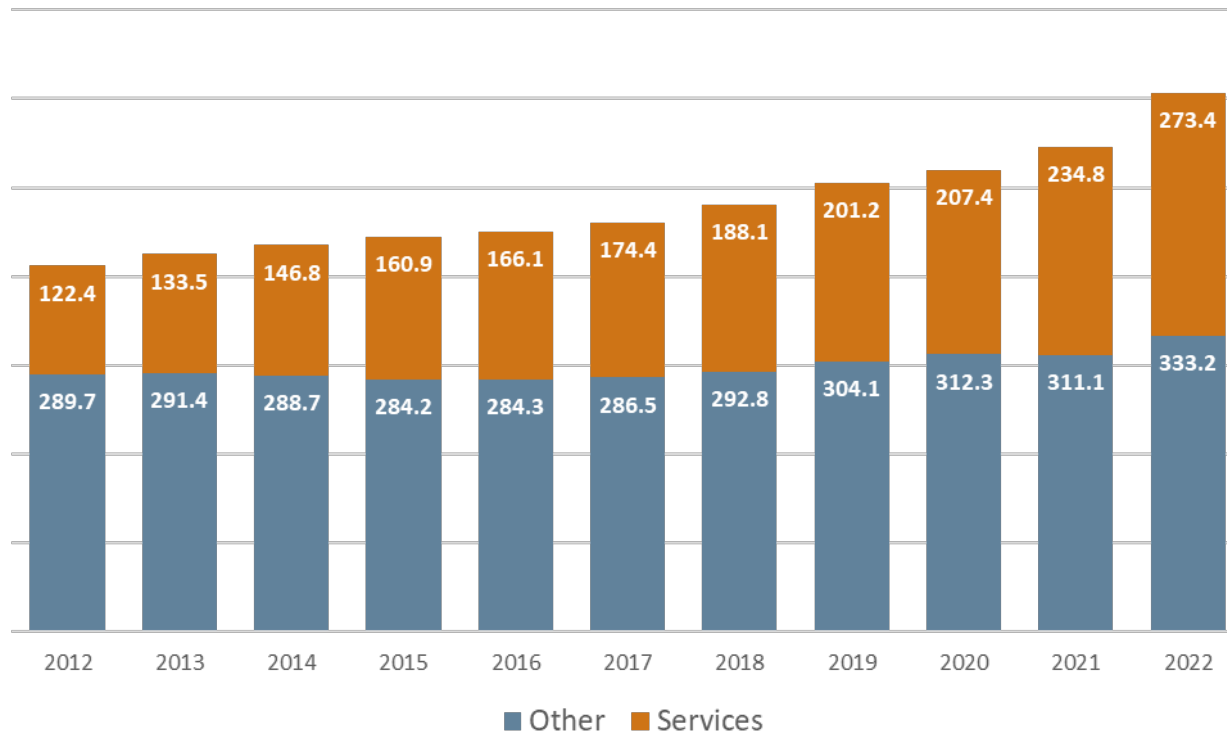
A Production Focus

- As mentioned, technology an increasing presence in every element of modern life
- To measure impact, use a “production” orientation – products and services that enable other activity – consistent with CompTIA
 - Software
 - Data processing, etc.
 - Some elements of
 - Mfg
 - Services
 - Education
 - Wholesale trade
- QCEW employment data on employment and wages by industry used as the basis – integrated with state/national ratios on output/value-added by worker/wage levels. Texas statewide RIMS model used to estimate the secondary (ripple) effects.

TXP Technology Impact Analysis

Historical Employment

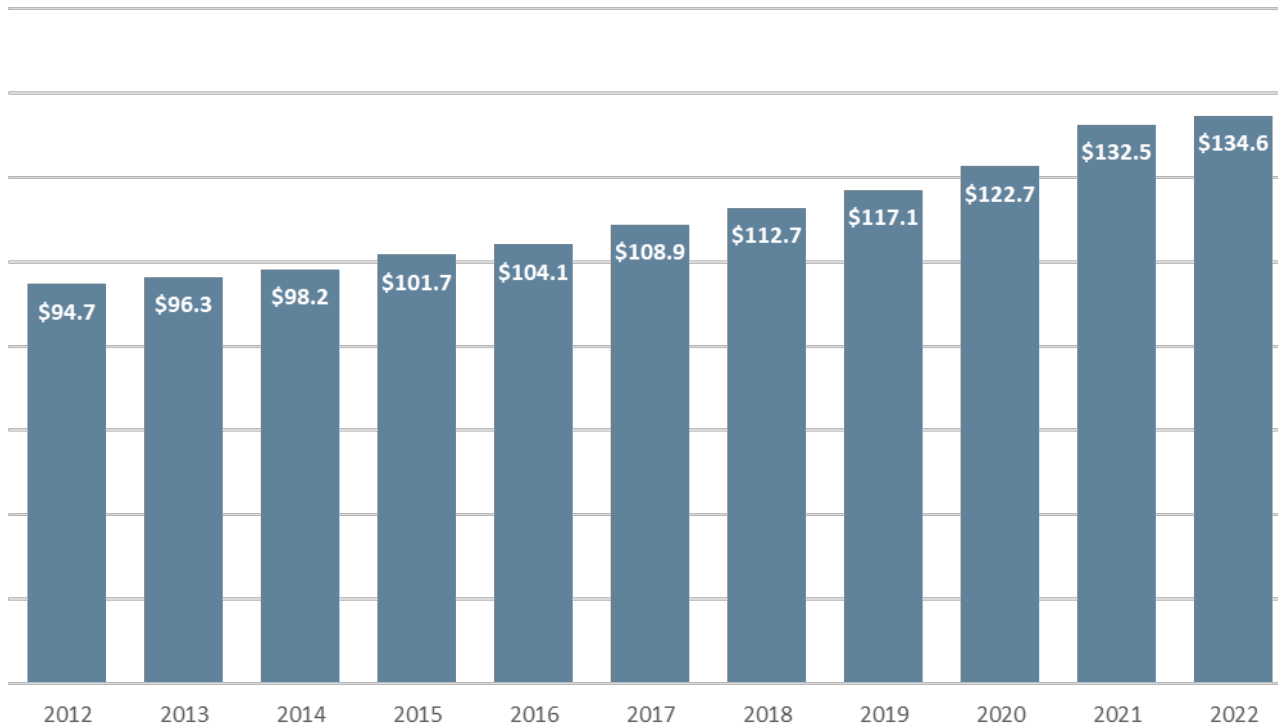
Technology Employment (000s) – Services vs Others



TXP Technology Impact Analysis

Historical Wages

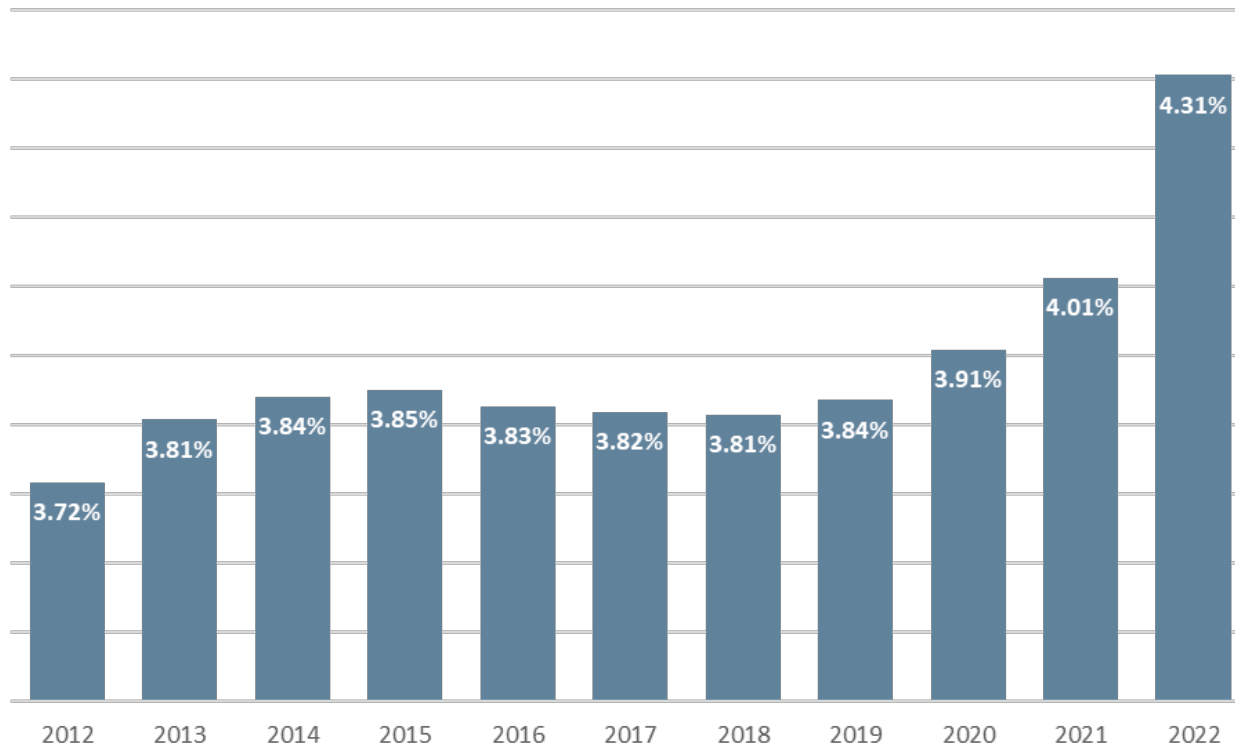
Technology Average Wage (\$000s)



TXP Technology Impact Analysis

Employment Share

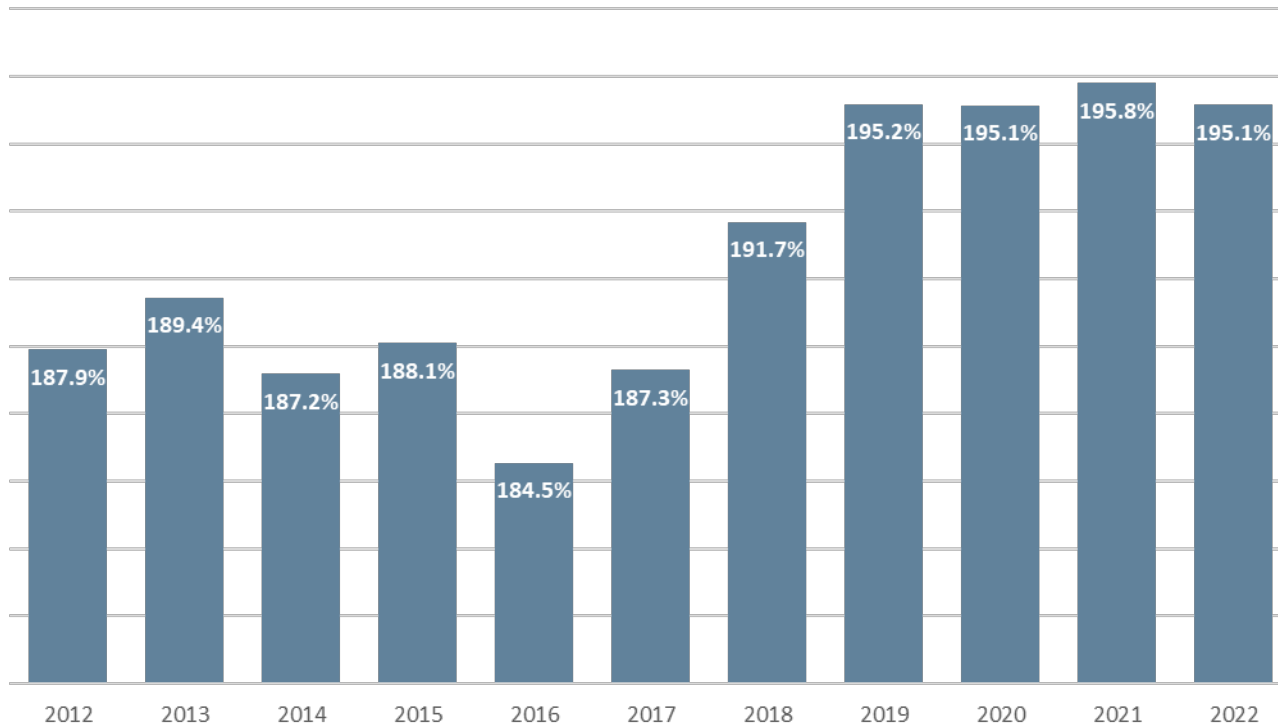
Technology Employment (000s) – Share of Overall



TXP Technology Impact Analysis

Wages Share

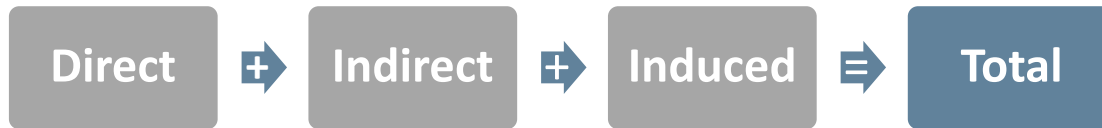
Technology Average Wage – Share of Overall



TXP Technology Impact Analysis

Results

Flow of Economic Impacts



Total 2022 Economic Impact

- Value-added (equivalent of GDP) \$469.75b (19.6%)
- Wages: \$185.62b (23.1%)
- Employment 1,996,639 (17.6%)

Distribution of Impact



The Future - TXP View

Wider and Deeper

- Texas economy clearly continues to move toward being based in applying knowledge/information – either directly through services, indirectly through technology, or oftentimes in some combination.
- Range of factors influence near-term direction, specifically related to demand – overall economic trends, inflation/interest rates, global political events/conflict, consumer confidence, weather/climate, etc.
 - In the wake of injecting almost \$7 trillion into a \$21 trillion dollar economy, inflation (and its causes/responses to it) are the dominant economic story on the immediate horizon.
- Over more extended period, supply assumes a more dominant role, as well as the capacity for innovation.
 - Industry clusters
 - Labor force/education
 - Business/regulatory environment
 - Infrastructure

General Business/Regulatory Environment

Texas Competes Well

STATE BUSINESS TAX CLIMATE INDEX²

1 = Best | 50 = Worst

State	Overall Rank	Corporate Tax Rank	Individual Tax Rank	Sales Tax Rank	Property Tax Rank
TX	14	47	7	36	37
CA	48	46	49	47	14
NY	49	24	50	42	47
FL	4	7	1	21	12
NC	11	4	16	20	13

Source: Site Selection Group

Other Factors Influencing Tech Development

I-35 Corridor Among Nation's Leaders

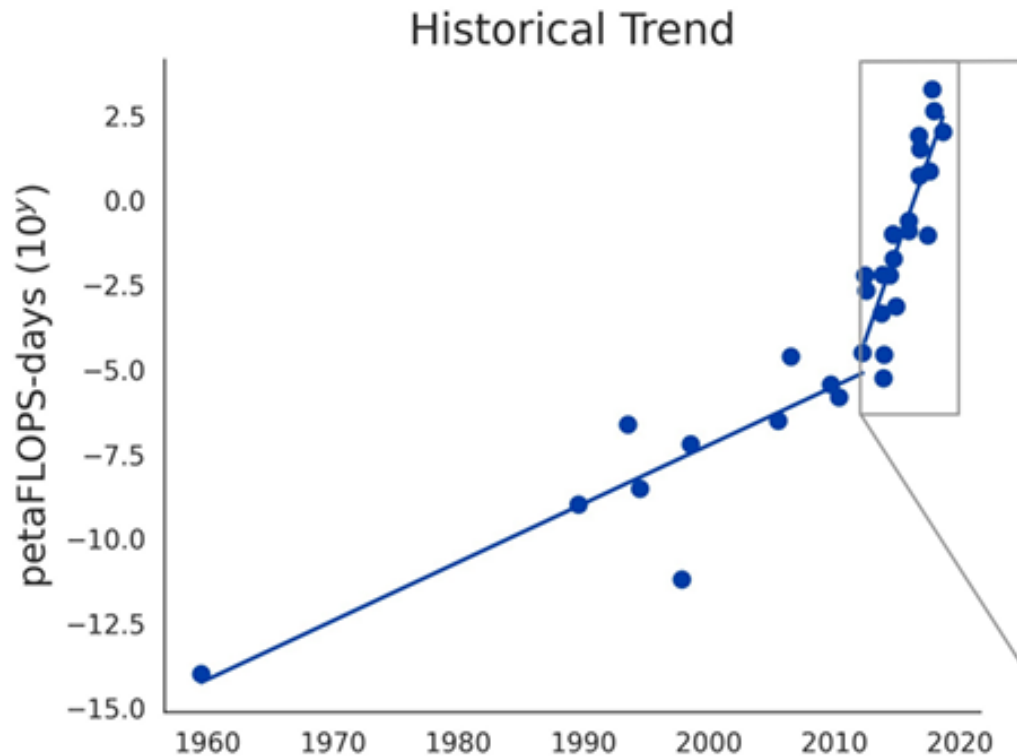
	Tech Presence	Labor Market	Labor Costs	Cost of Living
Atlanta	8	11	14	14
Austin	4	4	19	13
Boston	7	12	10	22
Charlotte	16	8	13	9
Dallas/Fort Worth	5	1	16	11
Denver	6	3	23	17
New York	14	18	21	23
Northern VA	13	13	20	21
Phoenix	9	6	4	6
Portland	17	10	6	15
Raleigh-Durham	11	7	12	5
Salt Lake City	10	9	15	10
San Francisco	1	15	25	25
San Jose	2	20	22	24
Seattle	3	2	24	19
	Education	Real Estate	Work/Home	Young Workers
Atlanta	15	3	3	18
Austin	13	20	7	10
Boston	1	23	9	7
Charlotte	23	21	13	24
Dallas/Fort Worth	18	7	14	15
Denver	11	8	5	8
New York	3	19	6	3
Northern VA	6	9	2	11
Phoenix	20	6	10	16
Portland	22	17	4	14
Raleigh-Durham	8	16	11	23
Salt Lake City	5	11	15	12
San Francisco	16	15	1	2
San Jose	9	18	12	4
Seattle	7	25	8	6



Source: Site Selection Group

Artificial Intelligence - Trends

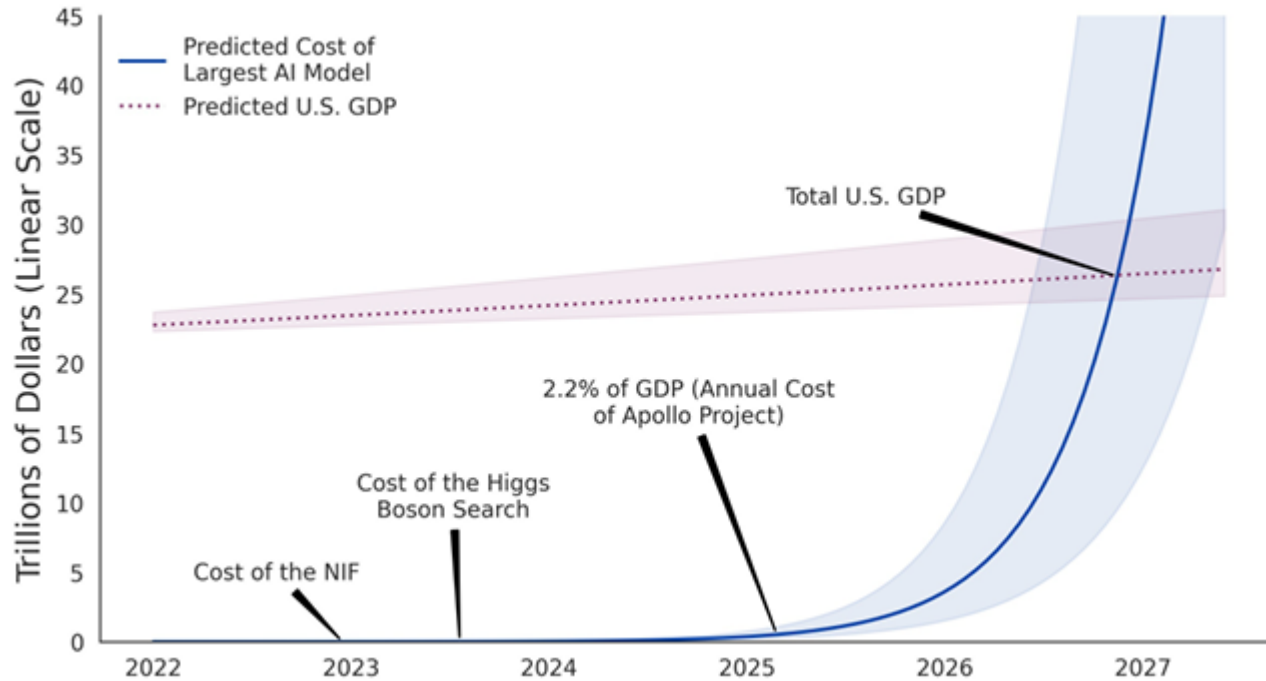
The Cost of Capacity to Run AI (Compute) is Skyrocketing



Source: Center for Security & Emerging Technology

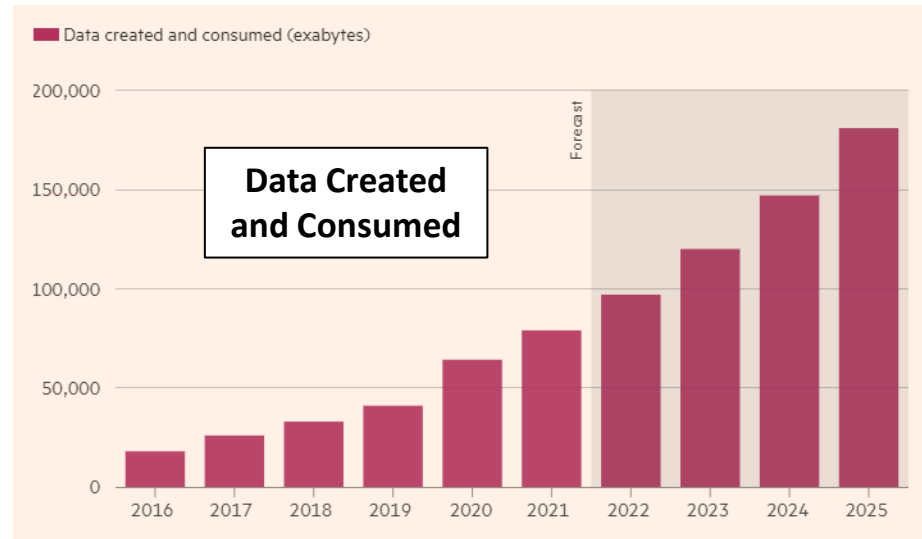
Artificial Intelligence - Trends

The Cost of Capacity to Run AI (Compute) is Skyrocketing



Modern Tech Depends on Digital Data

- By 2025, global data created/consumed expected to be 6x 2016 – and 3x 2021.



Data Center Indicators by Market

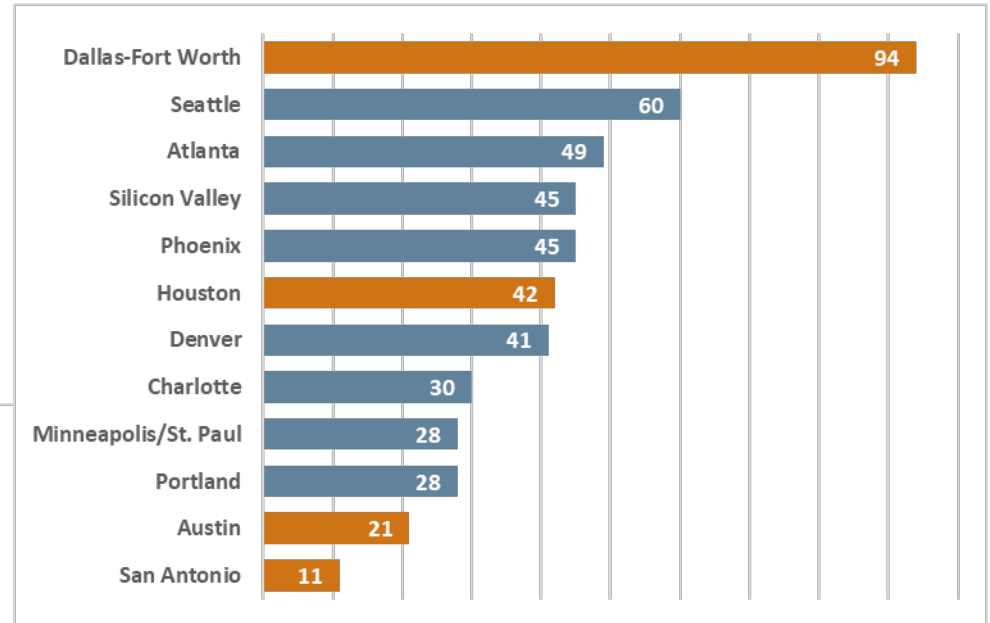
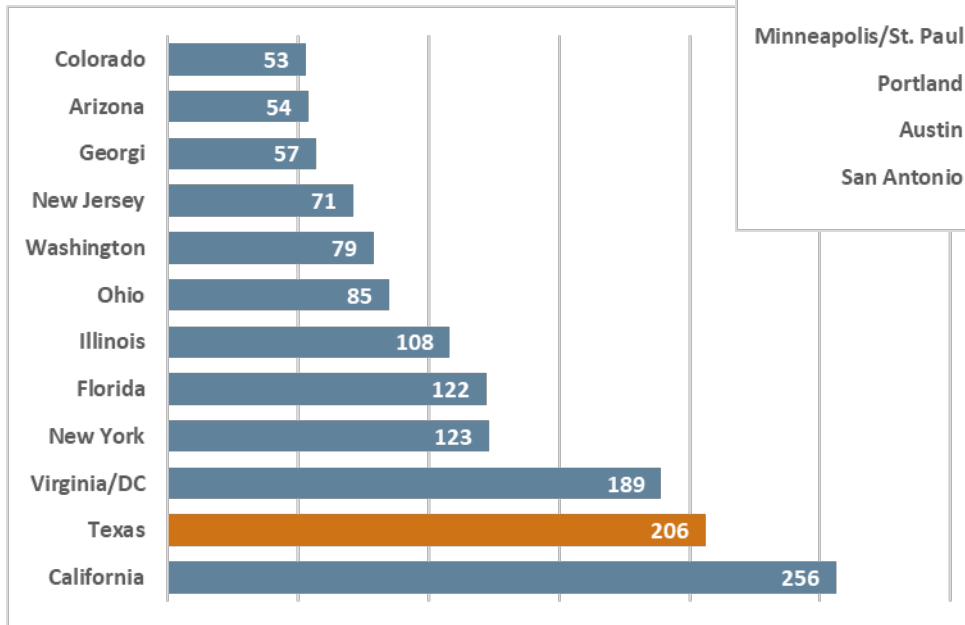
Market	Inventory (MW)	Y-o-Y Change (MW)	Available MW/Vacancy Rate	Y-o-Y Change* (bps)	H1 2023 Net Absorption (MW)	Y-o-Y Change (MW)	Rental Rates (kW/mo)**
Northern Virginia	2,254.1	▲ 346.0	21.3 / 0.94%	▼ -93	192.8	▼ -76.5	\$110-\$150
Dallas-Ft. Worth	499.4	▲ 123.6	20.4 / 4.1%	▼ -280	110.6	▲ 84.7	\$125-\$165
Silicon Valley	410.7	▲ 41.1	25.9 / 6.3%	▲ 500	13.8	▼ -42.4	\$155-\$250
Chicago	367.5	▲ 61.5	20.3 / 5.5%	▼ -200	26.0	▲ 16.3	\$115-\$125
Phoenix	360.0	▲ 35.5	19.2 / 5.3%	▼ -250	43.8	▼ -2.5	\$170-\$200
Atlanta	271.0	▲ 21.5	20.1 / 7.4%	▲ 380	7.5	▼ -22.5	\$110-\$125
Hillsboro	248.4	▲ 109.0	8.1 / 3.3%	▼ -370	77.7	▲ 46.3	\$125-\$150
New York Tri-State	177.5	▲ 0	17.3 / 9.8%	▲ 80	-3.4	▼ -19.4	\$130-\$140

Market	Inventory (MW)	Y-o-Y Change (MW)	Available MW/Vacancy Rate	Y-o-Y Change* (bps)	H1 2023 Net Absorption (MW)	Y-o-Y Change (MW)	Rental Rates (kW/mo)**
Central Washington	176.4	▲ 30.4	5.4 / 3.0%	▼ -500	5.9	▲ 1.6	\$115-\$130
Austin/San Antonio	162.2	▲ 8.6	2.8 / 1.7%	▲ 40	6.7	▲ 1.8	\$135-\$150
Southern California	148.9	▲ 9.8	26.6 / 17.9%	▼ -100	3.2	▼ -4.7	\$135-\$160
Seattle	137.9	▼ 2.2	13.9 / 10.1%	▼ -500	5.7	▲ 1.7	\$120-\$150
Houston	134.1	▲ 0.6	32.2 / 24.0%	▼ -440	13.5	▲ 13.5	\$125-\$145
Denver	88.6	▲ 2.3	15.4 / 17.4%	▼ -80	5.3	▲ 4.3	\$135-\$145
Minneapolis	59.6	▲ 1.0	14.7 / 24.7%	▼ -20	-3.2	▼ -5.1	\$115-\$170
Charlotte/Raleigh	52.1	▼ 6.4	11.2 / 21.6%	▲ 210	1.2	▼ -0.4	\$115-\$130

Modern Tech Depends on Digital Data

Number of Datacenters: Summer 2023

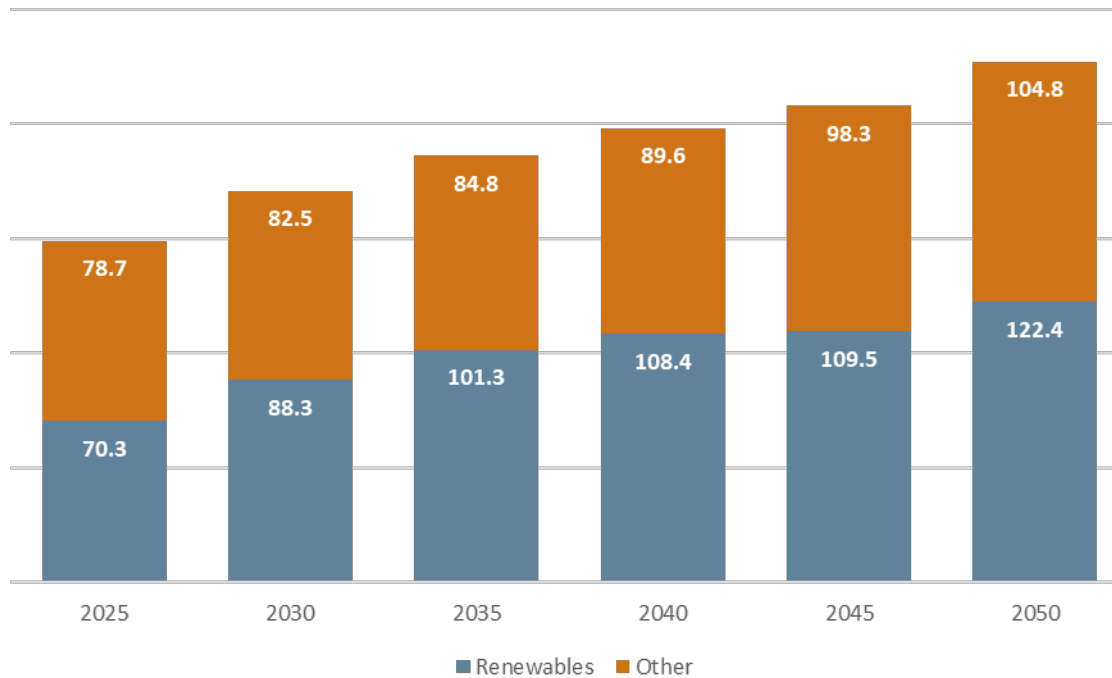
- TX well-positioned – power availability/cost often a limiting factors



Digital Data

Depends on Compute/Power

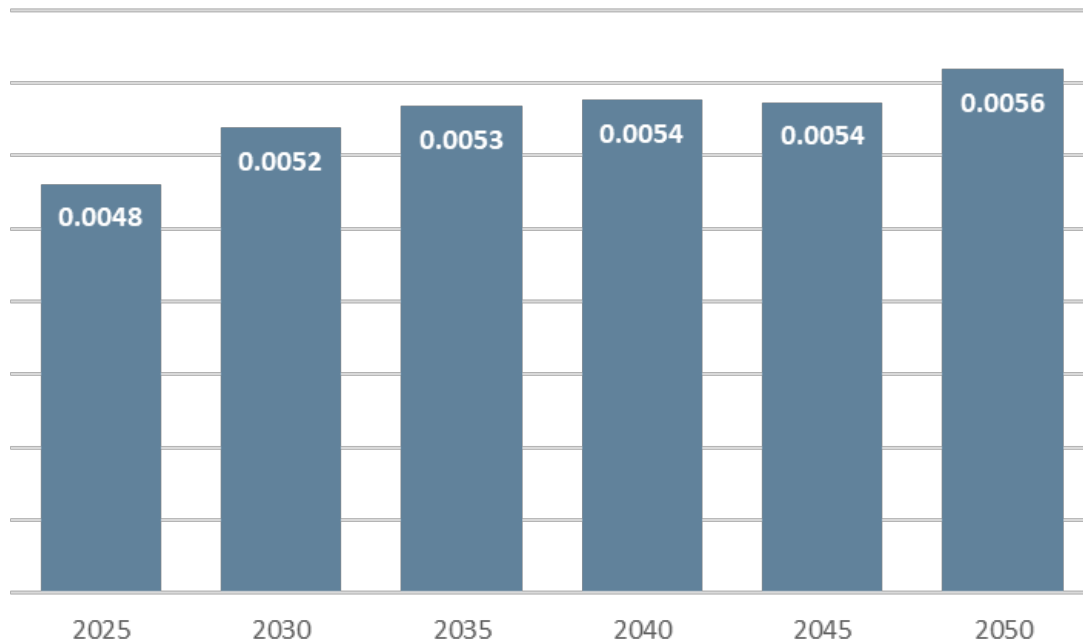
Total Texas Electricity Generating Capacity (gigawatts)



Digital Data

Depends on Compute/Power

Total Texas Electricity Generating Capacity (megawatt/capita)



The Future - TXP View

Conclusions

- Texas economy clearly continues to move toward being based in applying knowledge/information – either directly through services, indirectly through technology, or oftentimes in some combination.
- Range of factors influence near-term direction, specifically related to demand – overall economic trends, inflation/interest rates, global political events/conflict, consumer confidence, weather/climate, etc.
 - Texas is relatively well-positioned, but competition fierce – ranked 3rd in \$ value of incentives, 13th in # of transactions, and 10th in jobs created on ED deals in 2022
- Over more extended period, supply assumes a more dominant role, as well as the capacity for innovation.
 - Industry clusters
 - Labor force/education
 - Business/regulatory environment
 - Infrastructure
 - **Digital backbone (compute, data, electricity, focused talent, security)**

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