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New York City's Al opportunity

New York City (NYC) is a leading global destination for industries and skilled labor, rich with opportunities as vibrant and diverse as the industries and people that call it home. Artificial intelligence (AI), especially with the explosion of innovation in generative AI technology, is set to fundamentally transform everything we do. The rapid pace of its development and scaling must be met with both thoughtful leadership and strategy.

MIT's research has found that leaders achieve better results with a more structured and focused approach to getting involved with their innovation ecosystems.¹

The challenge—and the top question leaders must ask—is how these technologies can provide real value to New York City's thriving ecosystem across business, people and public institutions. They also need to consider how The Empire AI Consortium will further position the region as a responsible and leading innovation destination.

Accenture collaborated with Tech: NYC to examine Al's potential across the major stakeholders that serve New York City. The research found that the economic benefit of generative AI adoption involves harnessing opportunities across three areas:

- 1. Accelerating economic growth and productivity
- 2. Attracting AI talent
- 3. Scaling AI responsibly in New York City

Aligned to these opportunity areas, we've identified six key actions that leaders, policy makers and stakeholders can consider to enhance NYC's position as a global Al destination.

About the Research²

Accenture conducted a cross-industry survey of 500 C-level executives in NYC across 20 industries. The survey was fielded from November 2023 through December 2023 across the five NYC boroughs. The company also leveraged data modeling to discover generative Al's impact on several aspects of NYC and New York State's economy. Topics included Al use, applications and outlook in the New York metropolitan area, generative AI, AI regulation and AI impact.



^{1.} Source: Philip Budden and Fiona Murray, "Strategically Engaging With Innovation Ecosystems," MIT-Sloan Management Review, July 20 2022 2. Unless otherwise noted, all data is from Accenture's survey and analysis.







Accelerating economic growth through peoplecentric approaches

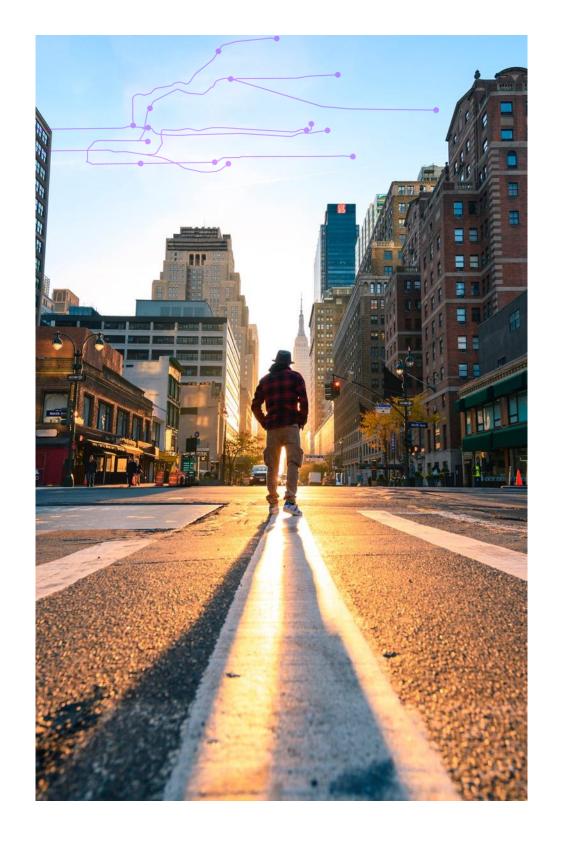
Accenture's modeling revealed three growth scenarios based on likely labor transitions, adoption and innovation pace: aggressive, cautious and people-centric³. The people-centric scenario was set up to reflect organizations focused on augmenting work with gen Al, while also leveraging automation use cases effectively.

As they adopt the technology fully within 10 years, talent displacement is ultimately low because effort is placed on creating people-centric, Net Better Off approaches and organizations to support both existing workers whose jobs are changing, and new workers displaced due to automation and moving into new roles.

Notably, "people-centric" adoption approaches could generate an additional \$320 billion in economic value in New York State by 2038. We found more aggressive approaches showed a greater short-term productivity boost at the cost of lower long-term benefits.

Today, the city is already home to over 40,000 AI professionals⁴ and, according to Accenture analysis, it is second in the nation for venture capital investment in Al. Since 2019, over 1,000 (1,035) Al-related companies in the city have raised \$27B in funding, tied with Beijing, and ahead of AI centers like Shanghai (\$15B), London (\$11B), Tel Aviv (\$7B) and Singapore (\$4B).⁵

When comparing the time spent on tasks in the next 15 years between the aggressive and people-centric scenario, the latter is expected to see a greater shift of time associated with creative thinking and solutioning, which could create more impactful outcomes specifically for NYC



^{5.} Accenture analysis of Pitchbook data, January 2024.





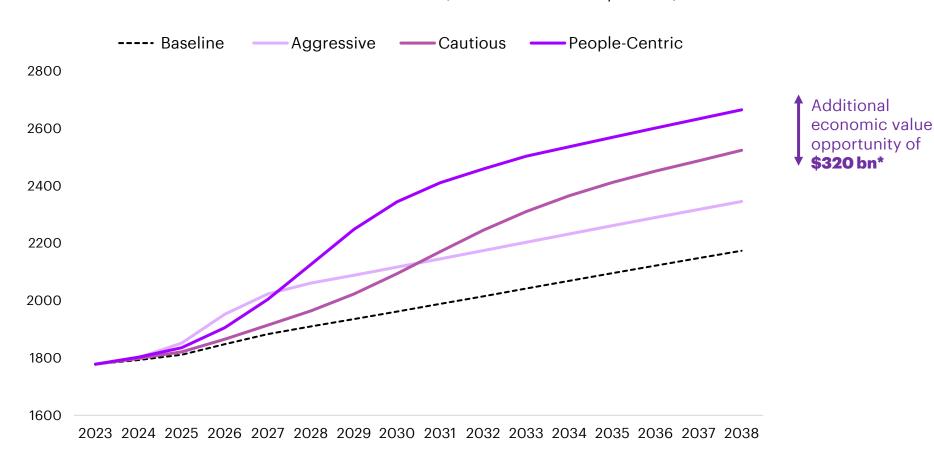
^{3.} See Appendix Exhibit A for descriptions of the three scenarios.

^{4.} Office of the Manhattan Borough President, "A Call to Action on Al in NYC," 2023.

An additional \$320 billion in economic value in NY State can be unlocked by adopting people-centric approaches to Generative Al

Economic growth simulation

State of New York, GDP in USD billions (2017 constant prices)



	GDP gain against baseline by 2038	GDP 2023-2038 CAGR premium over baseline of 1.35%
Aggressive	+ \$172 bn	+0.5pp
Cautious	+ \$350 bn	+1.0pp
People-Centric	+ \$491 bn	+1.4pp
Additional economic value opportunity	\$320 bn	

Source: Accenture Research.

Simulated NY State GDP growth under three scenarios as defined in the methodology section.

NY State GDP quarterly forecasts from Oxford Economics as the baseline.

Employment and wages data from the US Bureau of Labor Statistics.

*Additional economic value opportunity calculated as the difference between the People-Centric Scenario and the Aggressive Scenario. Values presented in this context may not sum precisely due to rounding.





Generative Al's Impact on NYC Job Hours

On average, generative AI can impact

63% of all hours worked by workers in NYC



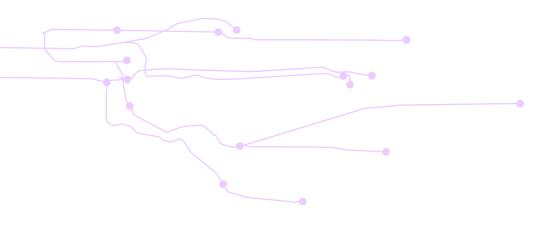
34% of the time is susceptible to higher automation and 29% is susceptible to higher augmentation



This ability to be augmented and automated has the potential to drastically improve worker performance, freeing them to focus on other tasks that require critical thinking and problem-solving



What this means: workers on average spend this amount of time on tasks that generative AI could significantly impact



Generative Al's potential for delivering economic value is based on its capacity to change how we work and drive productivity, while helping to ensure work is performed safely and responsibly. Building on Accenture's initial study that 44%⁶ of work hours across the US have the potential to be impacted by generative AI, the transformation potential is even higher in NYC due to the city's economic structure.

As implementation continues to spread throughout industries, Accenture determined that almost two-thirds of work hours in New York City—63%—could be automated or augmented by generative Al.

The Financial Services industry is especially relevant⁷: Banking (71%) and Capital Markets (68%) working hours have greatest potential for transformation, among the largest industries in NYC.8

^{7.} As emphasized by JPMC's Jamie Dimon in his 2024 CEO letter to shareholders - "While we do not know the full effect or the precise rate at which AI will change our business — or how it will affect society at large — we are completely convinced the consequences will be extraordinary and possibly as transformational as some of the major technological inventions of the past several hundred years: Think the printing press, the steam engine, electricity, computing and the Internet, among others." Source: https://reports.jpmorganchase.com/investor-relations/2023/ar-ceo-letters.htm 8. Accenture analysis of publicly available data sources.





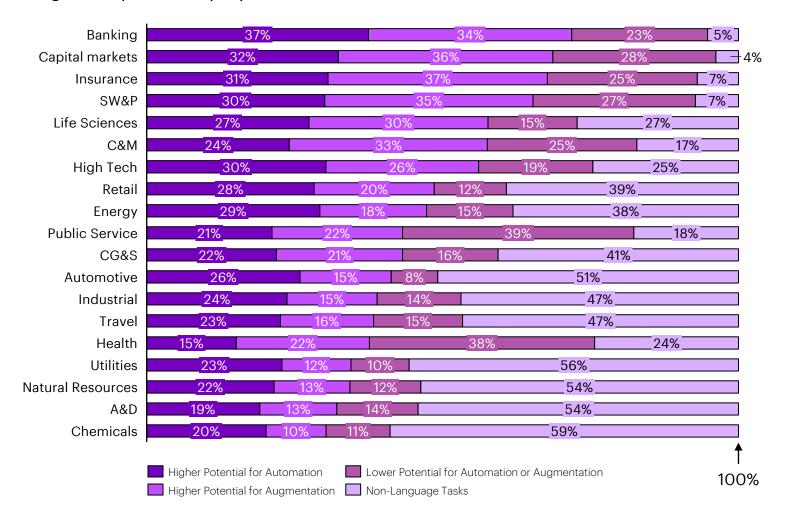
^{6. &}quot;Work, workforce, workers: Reinvented in the age of generative AI," Accenture, January 2024

GenAl's Impact on NYC Job Hours

63% of working hours in NYC can be transformed, cross-industry

LLMs impact on different industries

Weighted by their employment levels in NYC in 2022



Source: Accenture Research using multiple sources

This transformative potential not only reshapes the traditional nine-to-five schedule structure but also introduces a new era of flexibility and efficiency. Businesses powered by generative AI can streamline operations, reduce repetitive tasks and enhance overall productivity, leading to a significant reconfiguration of work hours and patterns.

Accenture's analysis both validates and amplifies the optimism of local executives. A full 97% of NYC executives firmly believe that AI will yield a net positive impact on society, underscoring the collective confidence in the transformative potential of these new technologies. Nearly all executives (99%) are already planning to augment their investments in Al. This commitment demonstrates that New York's business leaders are taking a proactive stance toward these technologies.







Attracting AI talent



With such a significant economic impact on the horizon, executives have already begun devising their recruitment strategies.

In 2023, New York City came out on top with the highest number of job postings for computer and mathematical occupations, edging out Chicago, Atlanta, Houston and DC among the top 5. Job postings data showcases the high demand for talent and suggests increased investment and business growth.

Accenture's survey found 92% of NYC executives are planning to recruit new AI talent in NYC in the next 3 years. Hiring expectations were most significant across Financial Services. Health & Public Services and Resources (which includes Chemicals, Energy, Natural Resources, Utilities).

This hiring intention adds to New York's history of significant growth in AI sector employment. Accenture's analysis found a 39% growth in AI-related job roles in NYC from January 2023 to January 2024—a rate exceeding traditional tech hotbed San Francisco (25%)9. A recent study by The Burning Glass Institute underscored the significance of assessing advanced technological skills for a city's economic competitiveness as a tech hub¹⁰. It found that metropolitan areas with larger populations tend to have more workers proficient in high-demand, high-wage skills.

For example, New York City Metro Area has a surplus of graduates in the Software Developer occupation compared to metropolitan areas, signaling to companies in the area more favorable opportunities to attract local talent.

The New York region has also benefited significantly from a talent migration initiated during the 2020 pandemic: NYC is growing fast and demonstrates a regional advantage in attracting talent to NYC from San Francisco. Accenture found NYC's "competitive effect" was higher than San Francisco. 11

NYC executives also struck another note of optimism for talent acquisition. Almost across the board, executives agreed that AI could help improve inclusion in hiring, most of all for young workers (94%), followed by women (77%) and racial/ethnic minorities (77%).

For younger workers in particular, the technology could lower barriers to skill-based hiring—as opposed to only educational pedigree or experience—to create pathways for those who may be otherwise overlooked in the recruitment process. Combined with NYC's Al Bias Law, conditions are ripe for improvement.

^{11.} Analysis of Lightcast data, January 2024. Industry refers to "custom computer programming industry." We define "competitive effect" as the discrepancy between industry jobs added compared to industry growth and the national growth effect.

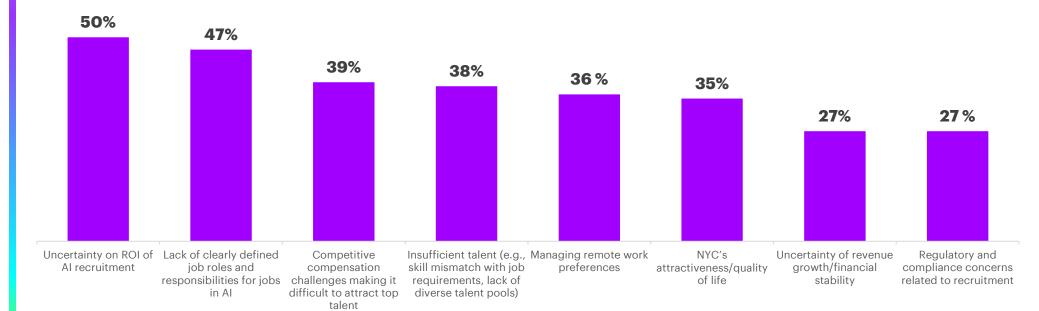




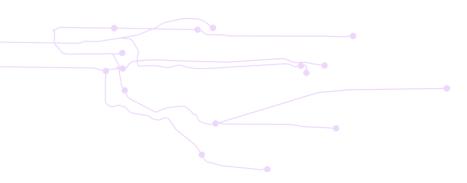
^{9.} Analysis using LinkedIn Sales Insights between January 2023 and January 2024. LinkedIn members with generative AI/ AI specific job titles, and includes job titles and related titles working on generative AI/ AI development 10. The Burning Glass Institute, "Cities on the Tech Frontier," October 2023

Uncertainty of ROI and a lack of defined job roles are top of mind challenges for recruiting; regulatory / compliance concerns are not a primary consideration

What are the key challenges and considerations that could prevent you from achieving your recruitment objectives in NYC over the next 3 years? Select the top three.



Source: 2023 Tech:NYC AI Executive Survey, n=500



Still, there is an opportunity for executives and hiring managers to be clear on the ROI of AI recruitment strategies and to clearly define AI job roles and responsibilities, as these were top of mind for surveyed executives.

These uncertainties are justified as generative Al shifts how people work and changes existing roles. Accenture analysis found, for example, that deskbased and computer-oriented roles (e.g., office clerks, secretaries, admin assistants, customer service) will be more affected, while more physical roles (e.g., doctors, mechanics, engineers, technicians) will see less of an impact.

Meanwhile, creative jobs—such as those in the arts, entertainment and media—will be augmented and bring new capabilities to their workstreams.

NYC is also a high-value educational center for fostering AI talent. It is home to 2 of the top 10 master's-conferring institutions of AI degrees in the US: New York University and Columbia University. 12

12. Accenture analysis of publicly available data sources



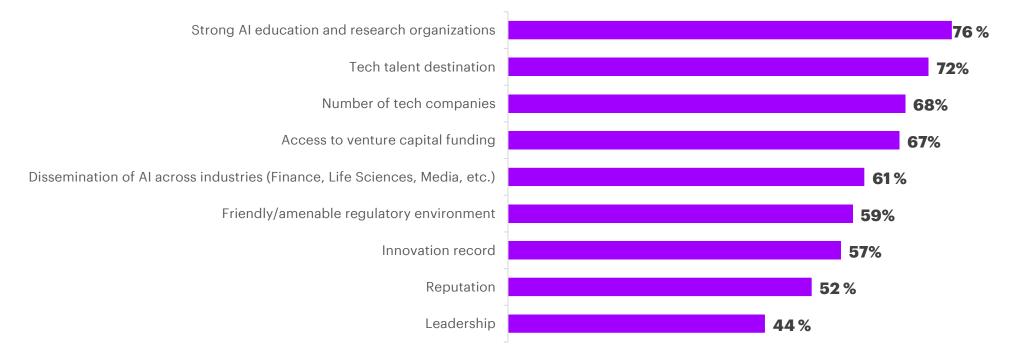


Significantly, 76% of NYC executives who see NYC as the world's leader in AI indicated strong AI education and research organization base as a key factor. Other significant drivers include being a destination for tech talent (72%), the number of tech companies (68%) and access to VC funding (67%).



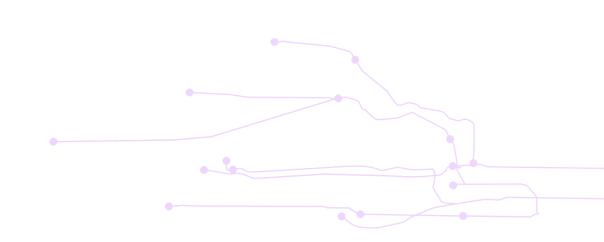
NYC executives point to a strong focus on education and being a destination for tech talent as key drivers in being a leader in Al

Why do you believe [New York City] is the world's leader in AI? Select all that apply.



NYC Base: Those who selected NYC as the world's leader in AI in previous question. n=399

Source: 2023 Tech:NYC AI Executive Survey, n=500

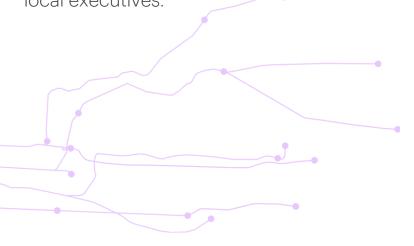




Accenture's research found that key industries, such as software development, financial services, IT services and consulting, media and higher education, are emerging as key concentrations for Al-related roles within NYC.¹³ The city's financial services industry, for example, is already using Al across a variety of applications, from fraud detection and prevention to improved customer service. 14

Meanwhile, Accenture's survey found that executives believe expanded opportunities in the arts and entertainment would be a top area in which Al could improve the lives of NYC residents.

NYC's uniquely capable talent pool supports these industries, providing a significant boom for local executives.

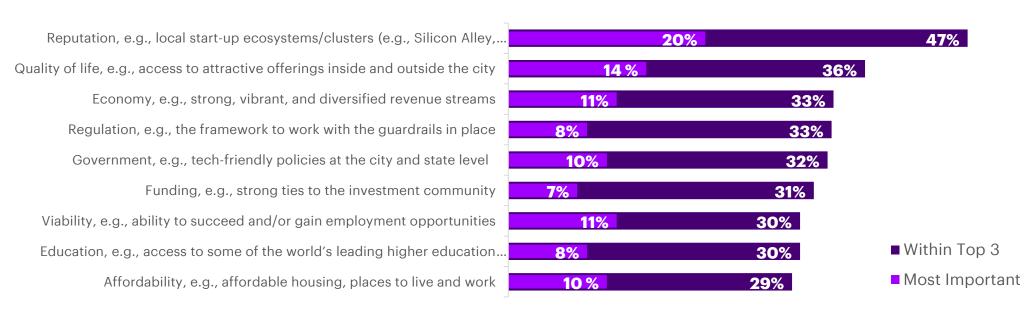


^{13.} Accenture analysis of publicly available data sources 14. Accenture analysis of publicly available data sources.

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NYC's reputation offers the greatest boost for AI recruitment efforts - followed by the city's quality of life and strong economy

What are the factors about NYC that are going to facilitate your company's AI recruitment efforts? Rank where 1 = most important.

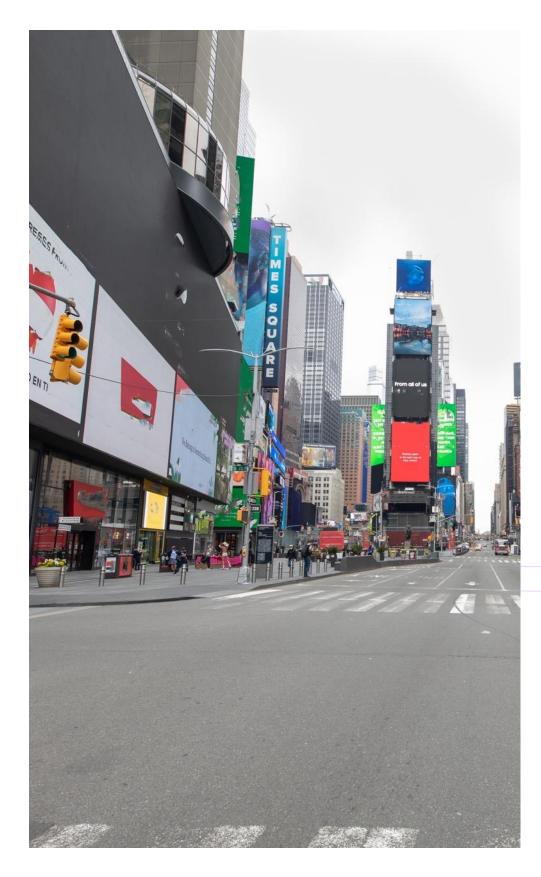


Source: 2023 Tech:NYC AI Executive Survey, n=500

Accenture's survey found that

89% of local executives were confident in their ability to secure needed AI tech skills from the city's talent pool—and they had near-unanimous agreement that the pool will grow larger over the next few years.

Executive confidence rests, in large part, on NYC's global standing: 47% cited the city's reputation (e.g., its global market status, institutions and history) as a basis for their confidence in the city's future hiring prospects.



Case Study: New York's AI Pandemic Response

During the COVID-19 pandemic, New York's workforce and residents experienced an unprecedented demand for information as labor and unemployment issues impacted state residents and workers. New York State's Department of Labor (DOL) experienced a staggering 15,900% increase in weekly call volumes. A The state acted quickly to build and deploy AI support to accommodate increased demand.

The DOL created Perkins, an AI chat channel assistant that provides support across 13 different languages. B Users are provided personalized assistance that can help them with re-certifications and unemployment insurance processes. In the unemployment benefit portal, Perkins helped in assisting with authenticated transactions, recertifications in unemployment status to ensure continuity of benefits, and enabled self-service and referral processes for information and agents.

A NY State Department of Labor, "NYSDOL and the COVID 19 Pandemic: Leading and Learning Through Crisis." Retrieved 2023. Figure based on Accenture analysis B "New York State Earns National Recognition for IT Innovation." Retrieved February, 2024







New York City's AI initiatives in action

Al can only be successful with government support across all levels—federal, state and local. 96% of executives surveyed agree that NYC's government has a strong role to play in AI being used responsibly.

Through March of this year, at least 40 states, Puerto Rico, the Virgin Islands and Washington, D.C., introduced Al bills while 6 states, Puerto Rico and the Virgin Islands adopted resolutions or enacted legislation. 15 These efforts largely address various aspects of the use and deployment of the technologies.

Based on Accenture's analysis, New York State had 49 bills pending as of January 2024. 16 The city, too, has shown an eagerness to lead: for example, introducing bills addressing the deployment of facial recognition technology in the private sector.¹⁷



Additionally, last year, NYC became the first city in the US to publish an AI strategy. NYC's AI Action Plan includes 37 key actions, 29 of which are set to be started or completed within the next year. 18

Gov. Kathy Hochul recently announced the creation of the Empire AI consortium, designed to advance New York's place at the forefront of the artificial intelligence transformation. The consortium will launch a new artificial intelligence computing center in New York to promote responsible research and development, create jobs and unlock AI opportunities focused on the public good.

Empire AI combines state leadership, a partnership of seven major universities, industry leaders and significant financial support.

According to our survey, executives said the most important government initiatives were financial incentives (49% in the top 3); city-funded scholarships (45%), and infrastructure resources (44%). This list is certainly not exhaustive; leaders could benefit from ongoing communication channels with local industries and institutions.

^{18. &}quot;The New York City Artificial Intelligence Action Plan," October 2023





^{15.} National Conference of State Legislatures, "Artificial Intelligence 2024 Legislation", January 2024

^{16.} National Conference of State Legislatures, "Artificial Intelligence 2024 Legislation", January 2024

^{17.} Tianmei Ann Huang, "NYC Introduces Bills to Limit Facial Recognition in Private Sector," The National Law Review, April 2023

Some of New York City's current government initiatives underway include¹⁹:



NYC's Department of Transportation is using Al to manage traffic signals and to develop new ways to route traffic around construction and accidents.



The Metropolitan Transportation Authority is using AI to improve the efficiency of its subway and bus systems.



The Port Authority of New York and New Jersey is using AI to develop a system to inspect bridges and tunnels for monitoring of congestion and incidents.



NYC's Department of Environmental Protection is using AI to predict water demand throughout the city and detect leaks in its water and sewer systems.

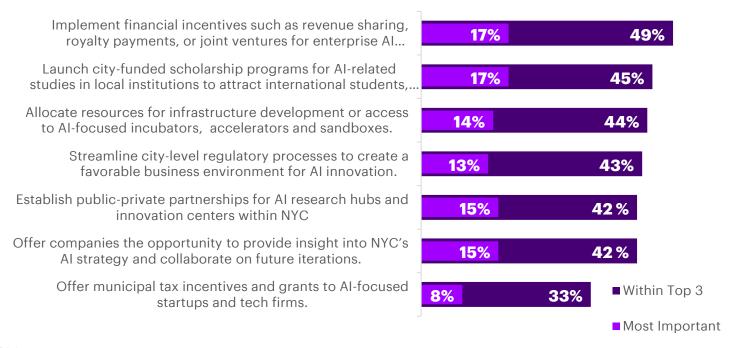


The NYC Mayor's Office of Sustainability is using Al to improve the operation of city buildings and to reduce energy waste, leveraging tools such as NY Energy Manager.

Most important government initiatives desired by executives vary including specific financial incentives, infrastructure resources and regulation

What targeted initiatives should NYC's government implement to foster talent cultivation and job creation in the emerging AI sector in the next 3 years? Rank all, where 1 = most important.

Executives believe the government should particularly focus on financial incentives, city-funded scholarships, infrastructure and streamlined regulatory policies



Source: 2023 Tech:NYC AI Executive Survey, n=500

By applying responsible standards in the development and scaling of AI, NYC can continue its charge to be a leading smart city in the United States.

NYC should focus on a cohesive integration of AI tools across all departments, particularly targeting those with minimal current AI usage, to guarantee a uniform and optimized approach to public services and infrastructure management.

^{19.} Accenture analysis of publicly available data sources









The winning ingredient: ecosystem collaboration

The collaboration across business, people and public service combine to unlock Al's true value across the New York City ecosystem.

This partnership is particularly important with nascent technologies like generative AI and the transformative shifts it brings. Early AI adopters such as General Electric and JPMorgan Chase; academic institutions like New York University and Columbia University; corporate innovation labs within Microsoft and Amazon; Al start-ups such as Ramp and Hugging Face—these are the types of stakeholders that work together to form a strong ecosystem.

When these key stakeholders collaborate, progress and growth follow. Consider some of the power collaborations between stakeholders in NYC.



Columbia University and Amazon partnered to form the Center of Al Technology.²⁰ The center has a Ph.D. fellowship program, awards for faculty research and hosts events for Al researchers.



NYU and Korean Advanced Institute of Science and Technology (KAIST) are partnering to collaborate on a major AI and digital technologies research effort and launch a "Digital Vision Forum" with leading thinkers on AI and digital governance from around the world.



The New School's Urban Systems Lab is partnering with NYC to test and validate its ClimatelQ model, an AI tool for climate risk evaluation. This effort is being funded by Google's Impact Challenge on Climate Innovation and highlights the businessgovernment-industry partnership in action.



The New York City Public Schools Al Policy Lab partnership with Microsoft is tackling the challenges AI technologies pose to the classroom.²¹





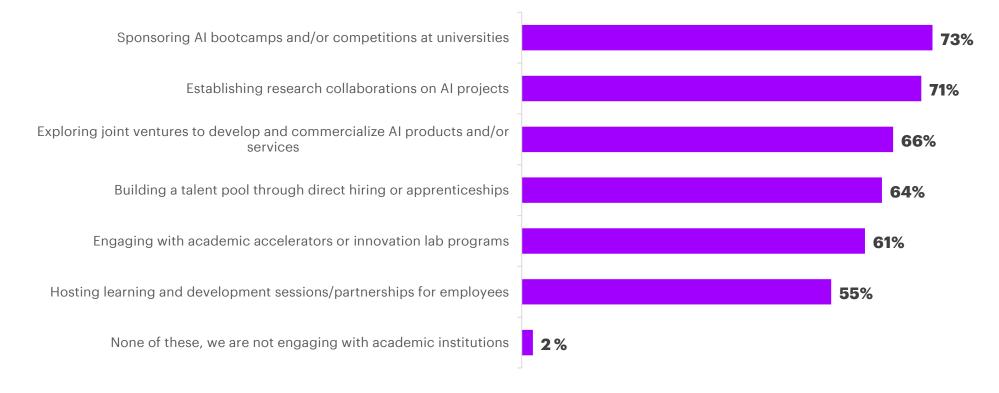
These are the types of collaborations that feed the talent pipeline and inspire confidence in executives. Accenture found that NYC executives believe "fostering collaboration between leading academic institutions, companies and talent" is the single most impactful action city leaders can take to solidify NYC as a global AI leader.

Additionally, apprenticeships, scholarships, publicprivate partnerships, technology-ready classrooms these are the types of activators that will strengthen the city's talent pipeline and create a future-ready talent pool. In early 2023, NYC announced a goal of connecting 30,000 New Yorkers to apprenticeships by 2030.²²

Accenture's survey also found that nearly all executives claim to be engaged with academic institutions in some way, most often through sponsoring boot camps and competitions (73%), research collaboration on Al projects (71%) and launching apprenticeship programs (64%).

Nearly all executives report engaging with academic institutions the top two are AI bootcamps and research collaborations

How are you engaging with academic institutions to develop AI capabilities? Select all that apply.



Source: 2023 Tech:NYC AI Executive Survey, n=500

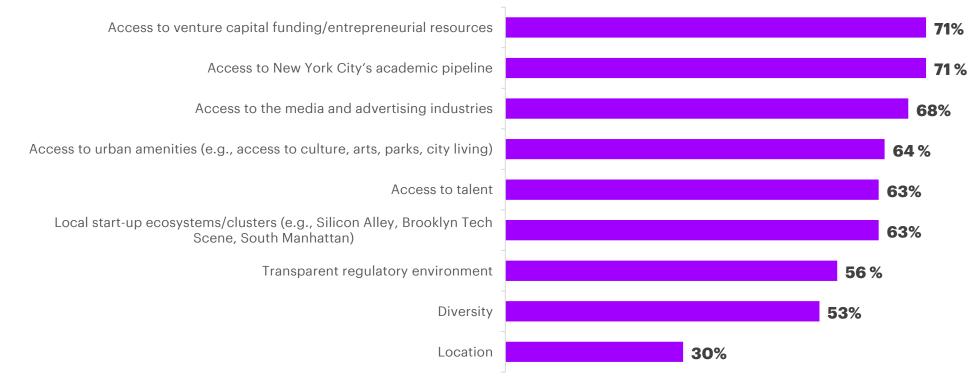
These connections make the city fertile ground for new enterprises as well. Accenture's survey found that 71% of executives say access to NYC's academic pipeline has a positive impact on AI-related startup investment.





Access to VC funding and New York's academic pipeline have positively impacted NYC's AI start-up investment

Which of the following factors are positively influencing investment in NYC's AI-related start-ups? Select all that apply.



Source: 2023 Tech:NYC AI Executive Survey, n=500

Collaboration across key local institutions and industries is core to NYC's success as a global Al leader. Leaders looking to solidify NYC as a long-term global leader in AI can succeed by making this collaboration as easy and fruitful as possible. That means listening to the needs and goals of local executives and finding ways of connecting them to the excellent talent that city institutions are developing.





Six key actions to enhance **New York City's Position as** a global AI destination



NYC is rich in major research universities, startup accelerators, start-ups, large corporations, financial institutions, entrepreneurial resources and venture capital funding. When nurtured and grown, these assets catalyze the continued attraction of companies and talent.

We see six key actions that can enhance NYC's success as a global AI leader.



Promote AI as a continuous reinvention cycle, not a one-off project: Al capabilities are rapidly changing and growing, meaning adoption cannot be a one-off effort. Continuous collaboration between NYC's base of government, employers, universities and talent will be key to realizing the technology's full potential over time.

Power NYC's digital core to transform functions, services and resident life: Investment in a strong digital core—the combination of cloud, AI, data and cybersecurity as an interoperable system—is necessary for the city's transformation of its legacy infrastructure and the continuous creation of new possibilities. It is critical to security, trust and transparency, ensuring the full potential of generative AI is realized across the economy, business and people.



Propel New York's AI infrastructure and reputation forward via Empire AI: Empire AI has the potential to secure New York's place at the forefront of the artificial intelligence transformation and democratize AI talent, tools and technology.

only drives economic growth but also enhances the quality of life for every New Yorker.



Prepare local talent to secure current and / or **new roles:** NYC's success depends on leaders listening for the types of programs needed to access and create talent and unlock their potential across institutions across local institutions.



Provide businesses and residents with safe and responsible AI (RAI): NYC's executives told us they see a strong role for the government in creating Al regulations. By building smart safeguards from the beginning, new technologies can be regarded as more trustworthy—and therefore more likely to be embraced by residents.



Moving forward, these six key actions can support New York City's thoughtful pioneering of generative AI while underscoring its

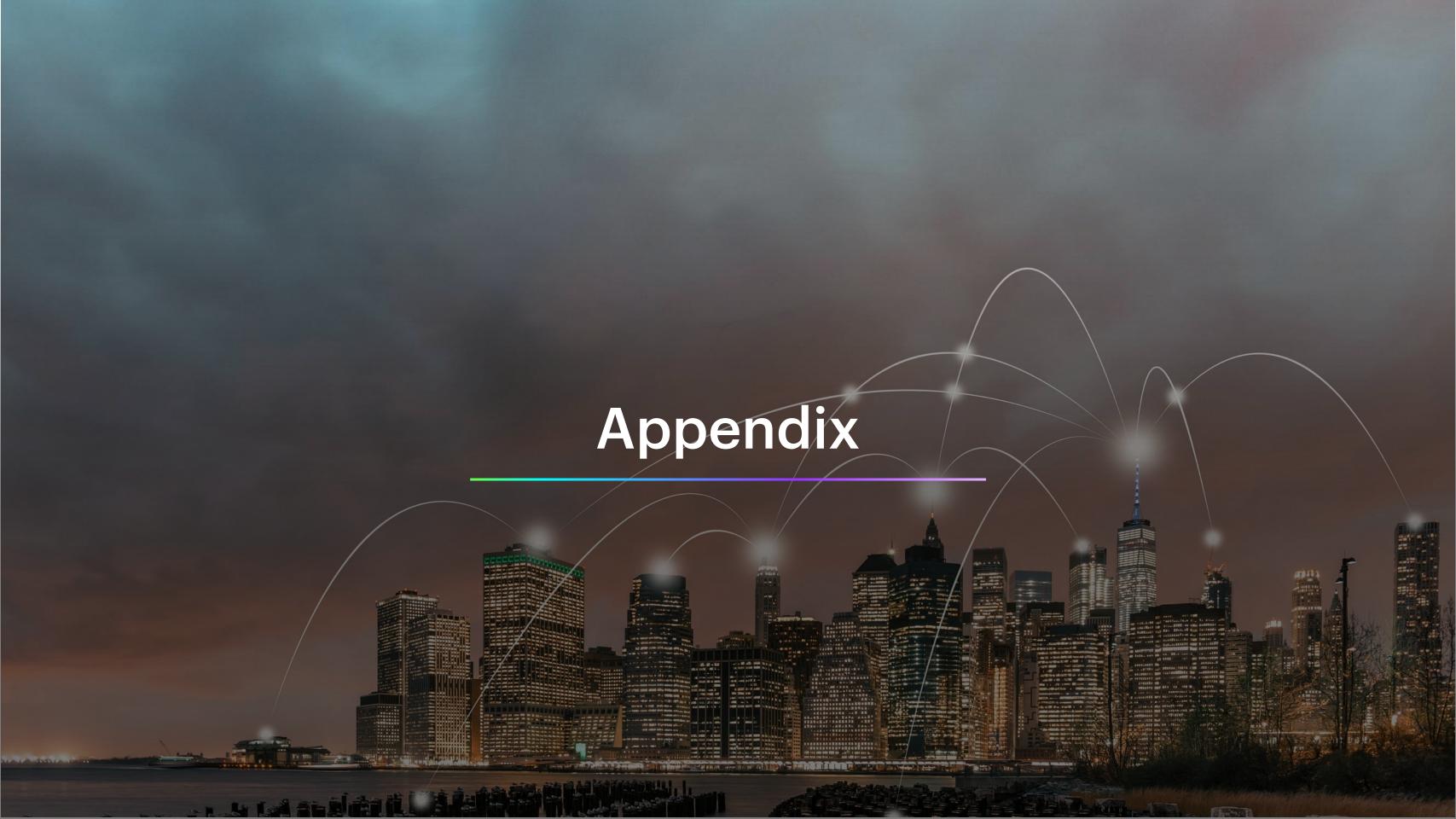
unique position at the nexus of technology, talent and growth. Through a balanced combination of visionary leadership and

responsible innovation amongst its robust ecosystem, New York City can build and embrace a future where generative AI not

Position leaders of all types as the catalyst for AI and generative AI enablement: Success with AI depends mostly on the people using it. Leaders who embed a culture of learning in their organizations—and are eager to learn new skills themselves—will have the best chance to succeed. The Al-powered economy requires a friendly hiring environment that encourages investment in both people and technology.







Appendix

Exhibit A: Economic value impact; State of New York, GDP in USD billions (2017 constant prices)

Scenario / Approach	Description	GDP gain against baseline by 2038	GDP 2023-2038 CAGR premium over baseline of 1.35%
Aggressive	Innovation focus is on saving costs high job displacement	+ \$ 172 bn	+0.5pp
Cautious	Innovation focus is on augmenting work moderate job displacement	+ \$ 350 bn	+1.0pp
People-Centric	Innovation focus is on augmenting work low job displacement and no unemployment	+ \$ 491 bn	+1.4pp

Source: Accenture Research simulated NY state GDP growth under three scenarios based on employment and wage data from the US Bureau of Labor Statistics. NY state GDP quarterly forecasts from Oxford Economics were used as the baseline.





Summary View of AI Regulation in New York, 2023

Level	Bill	Description	Status
New York City	Automated Employment Decision Tools	AEDT regulates the use of AI in hiring. It requires employers to notify candidates about the use of such tools, allows candidates to request what data is used, and requires an annual audit to evaluate the tool for bias.	Passed 2023
New York	Digital Fairness Act	This bill would require automated decision system impact assessments, prevent discriminatory practices with targeted advertising, and regulate the use of biometric data, among other provisions.	Proposed
New York	S5641 and A567	This bill would amend labor law to include criteria for automated decision-making tools. It would also require disparate impact analysis.	Proposed
New York	A7858	This bill would require employers to give notice to candidates if they use automated decision tools to make employment decisions.	Proposed
New York	AB843	This bill would prevent automobile insurers from using factors like age, sex, marital status, sexual orientation, income level, or employment and education status to determine insurance rates.	Proposed
New York	A5309	This bill would require state units purchased products that use automated decision making to adhere to responsible AI standards.	Proposed
New York	S6859 and A216A	This bill would require advertisers to disclosure their use of "synthetic media."	Proposed
New York	A7106 and S7592	This bill would require political communications to disclose the use of synthetic media.	Proposed
New York	A7634 and S7422	This bill would prevent film production companies receiving production credit from using AI to replace actors in their productions.	Proposed
New York	A4969 and S6402	This bill would create a commission to study AI, robotics, and automation.	Proposed
New York	A7501	This bill would create an office of algorithmic innovation, which would create policies and standards that ensure AI is fair.	Proposed
New York	A7838	This bill would require a long-term study on the impacts of AI on the state's workforce and would deter AI from replacing state employees' jobs.	Proposed

Source: Accenture Research analysis of data from "The State of State Al Laws: 2023", Retrieved October 2023.





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