



AI in Real Estate: *Reshaping how we develop,
operate, and invest*

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Recap

- 1956 Dartmouth College
- Earlier AI **analyzes** – algorithms, machine learning, NLP, computer vision
- Generative AI **generates** new material – text, images, music/sound
- Power of Generative AI comes from ability to ingest immense quantities of data, identify patterns, iterate, summarize, and repackage it


What “just” happened?

- Significant increasing in computing power: NVIDIA Pascal chip 2016
- Release of advanced LLM tools: ChatGPT-1 in 2018
- Cleaner data refining methods
- LLMs analyze complex datasets, discern subtle patterns, and generate accurate predictions

What it means

- Scarce expertise more abundant – David Autor, MIT
- GenAI lifts performance of lower-skilled employees; skill leveler – MIT
- AI does not merely provide information, it provides interpretation – KP Reddy
- GenAI shifts work from point-and-click to describe-and-done – Dror Proleg
- Complexity moves behind the scenes and simplicity comes to the forefront
- Those who best articulate their desired outcome will get the best results

Example



TAB

Technical Assistance to Brownfields

Development Opportunity Analysis
Five Corners Project
City of Amsterdam

February 15, 2024



BROWNFIELDS SITE SPECIFIC FACT SHEET JANUARY 2024

FIVE CORNERS SITE

170 CHURCH STREET, AMSTERDAM, NEW YORK

Site Location
170 Church Street, Amsterdam, New York
County: Montgomery
Parcel ID: 56 5-3-44, 56 5-3-70
Size: 1.60, 1.60; total of 3.40 acres

Introduction

Montgomery County was awarded a \$300,000 Brownfields Assessment Grant by the United States Environmental Protection Agency (EPA) to support the assessment of various sites throughout the County, including the Five Corners site in Amsterdam, New York. The Five Corners site is also a priority site in the City of Amsterdam's New York State designated Northern Neighborhoods Brownfield Opportunity Area (BOA).

Site Characteristics

The 3.40-acre Site was developed with one approximately 32,000 square feet (sq. ft.), one story, commercial block structure with slab-on-grade foundation. The Site building was in poor condition and abandoned. Portions of the roof caved in, and the concrete floor had buckled. The building was demolished under a separate grant in December 2023.

Site History

The Site is located in an area of Amsterdam developed for commercial, manufacturing and residential use prior to 1911. The Site was originally part of Kellogg Pond and filled in between approximately 1935 and 1965 with materials from unknown sources. A shopping plaza was constructed ca. 1965. The shopping plaza was in use until ca. 2010, at which point the Site became vacant.

Phase I Environmental Site Assessment

A Phase I Environmental Site Assessment (ESA) was completed by Weston & Sampson on behalf of Montgomery County in June 2022. The Phase I ESA identified the following Recognized Environmental Conditions (RECs):

- The presence of fill materials from unknown sources which may have impacted the Site.
- The potential presence of wastes dumped from a nearby petroleum distribution facility.

WHAT ARE BROWNFIELDS?

Brownfields are land and/or buildings that have, or may have, hazardous substances, pollutants, or contaminants. Expansion, re-development, and reuse of these properties can help spur revitalization in a community.

BENEFITS OF A BROWNFIELDS DEVELOPMENT PROGRAM

- increases property values and marketability
- boosts community pride
- enhances quality of life
- promote economic development, creates jobs or open space, and positively impact local community
- creates safer, healthier place for us to live, work, and play



- Historical uses of the adjoining and nearby properties as gas filling station, linseed oil and petroleum distribution facility, knitting mill and railroad
- Potential impacts from several nearby spills of petroleum products and transformer oil.

The Phase I ESA concluded that additional investigation of soil and groundwater at the Site is warranted based on the RECs identified above and to characterize the Site for redevelopment and reuse.



Phase II Environmental Site Assessment

Based on the recommendations of the Phase I ESA, a Phase II ESA was completed in 2023 while the building was still present. The Phase II included a Hazardous Building Material (HBM) assessment to identify the presence of Asbestos Containing Materials (ACMs), Polychlorinated Biphenyl (PCB) containing material, and lead based paint in building materials, as well as a subsurface investigation and analysis of soil and groundwater from the Site. Findings from this investigation are summarized below:

- ACMs and lead-based paint were identified in building materials, as well as roof cave-in and damaged floor tiles within the building.
- Fill material at the Site is approximately 13-18 ft thick, consisting of glass, bricks, ceramics, wood, and burnt garbage.
- Soil throughout the Site is impacted by various Volatile Organic Compounds (VOCs), Semi-volatile Organic Compounds (SVOCs), metals, pesticides, and PCBs exceeding regulatory criteria.
- Groundwater in portions of the Site is impacted by pesticides, VOCs, and SVOCs exceeding regulatory criteria.

Phase II Recommendations

- Additional subsurface investigation should be completed within the building footprint and along the Site perimeter to further define contamination.
- Areas where soil was found to be contaminated should be remediated.
- The building should be demolished, and materials properly disposed of in compliance with all applicable laws and regulations (the building has since been demolished under a separate grant).

Next Steps

- Continue to pursue grants/funding to cover cost of future site assessment, cleanup, and/or redevelopments needs.

Copies of the Phase I and Phase II ESA reports are available for the public to review at the Montgomery County Business Development Center at 113 Park Drive, Fultonville, NY.




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Example

- Please give me an updated highest and best use recommendation for this property. Consider the zoning restrictions, current construction costs, and current demand in the market. Be detailed and give me the development cost at an appropriate IRR for risk. The risk-free interest rate is 4.5%. We can borrow at a fixed rate of 6.25% with a 70% LTV. Exit after 10 years. Make your own market assumptions where needed but state them clearly.






Get Pro


Welcome, Steve


How can I help you today?




Sonnet 4.6  

 Learn

 Strategize

 Write

 Code

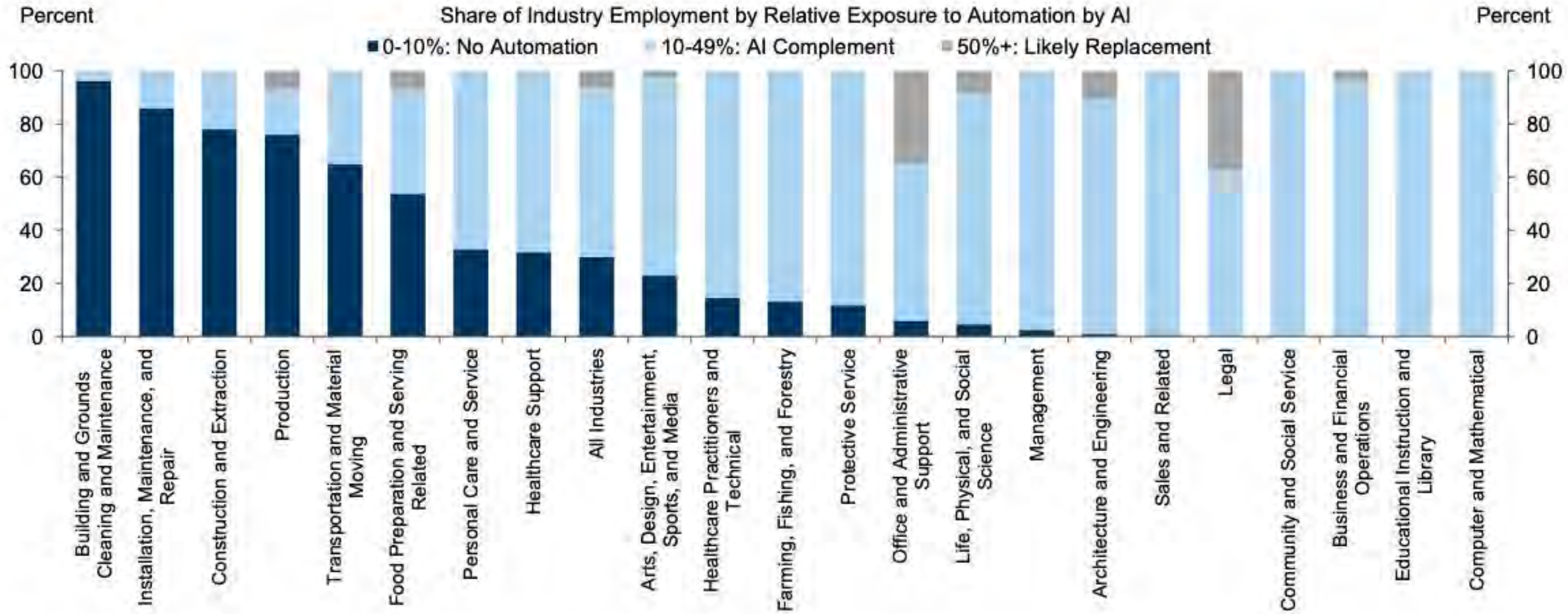
 Life stuff



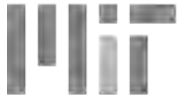
@Workforce

- 18% of global workforce could be automated; transition 300 million jobs – GS
- 170M new jobs created vs. 92M displaced by 2030 (net gain 78M) – WEF
- Only 5% of jobs will be replaced or heavily assisted by AI – MIT
- AI could eventually **increase** global GDP 15% by 2035 – PwC
- Brand and customer relationship become the competitive moat, not operational efficiency.
- Prof. Angus Fletcher’s 4 primal human powers: *Intuition, Imagination, Emotion, Common sense (i.e., “durable human skills”)*

Exhibit 8: Replacement in Legal and Administrative Fields, Little Effect in Manual and Outdoor Jobs, and Productivity-Enhancement Everywhere Else



Source: Goldman Sachs Global Investment Research



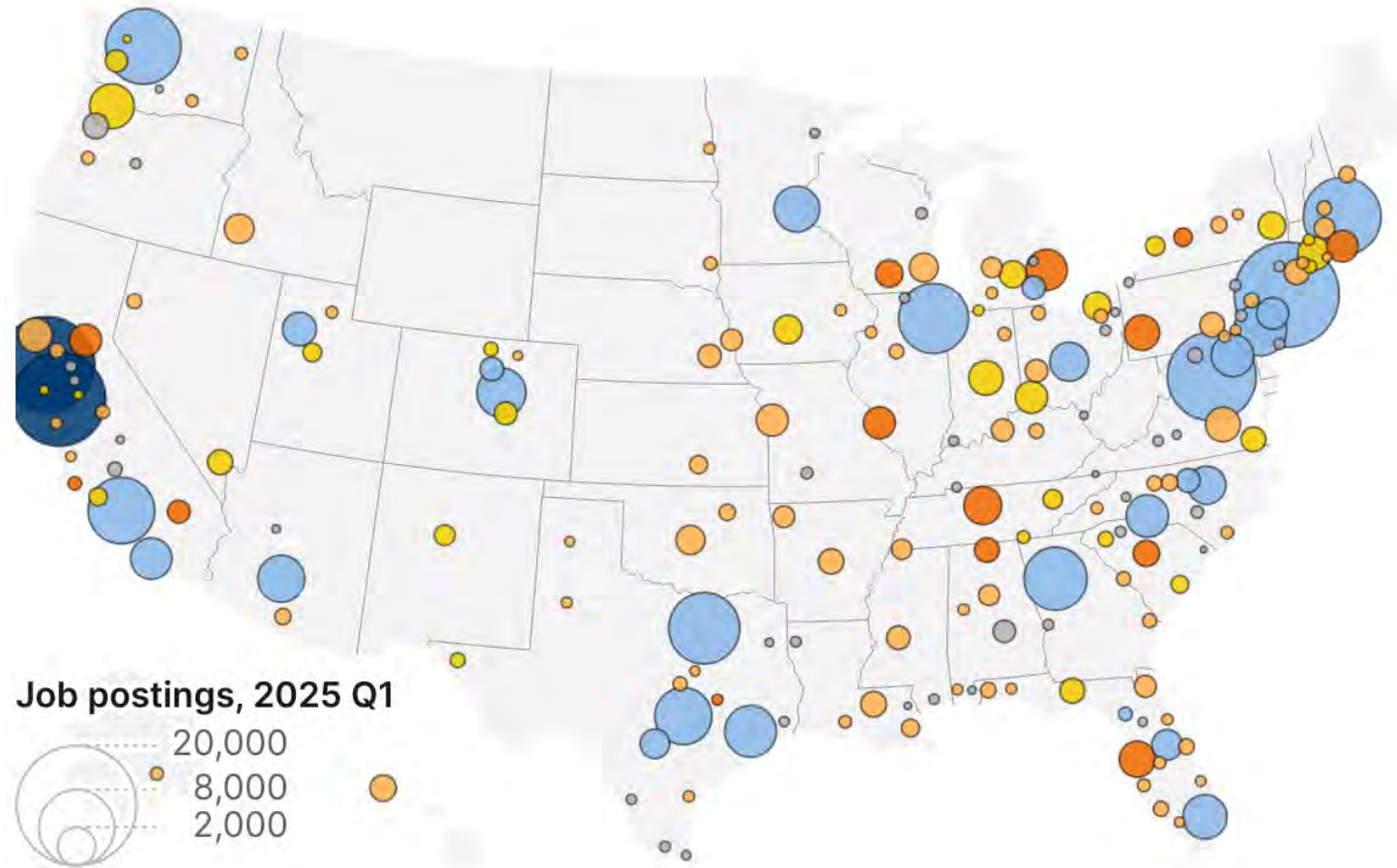
@Macro

- Abundant AI knowledge yields knowledge-nodes connected by networks
- Agglomeration under pressure? Non-linear Cities – Dror Proleg

Six different types of AI metro areas

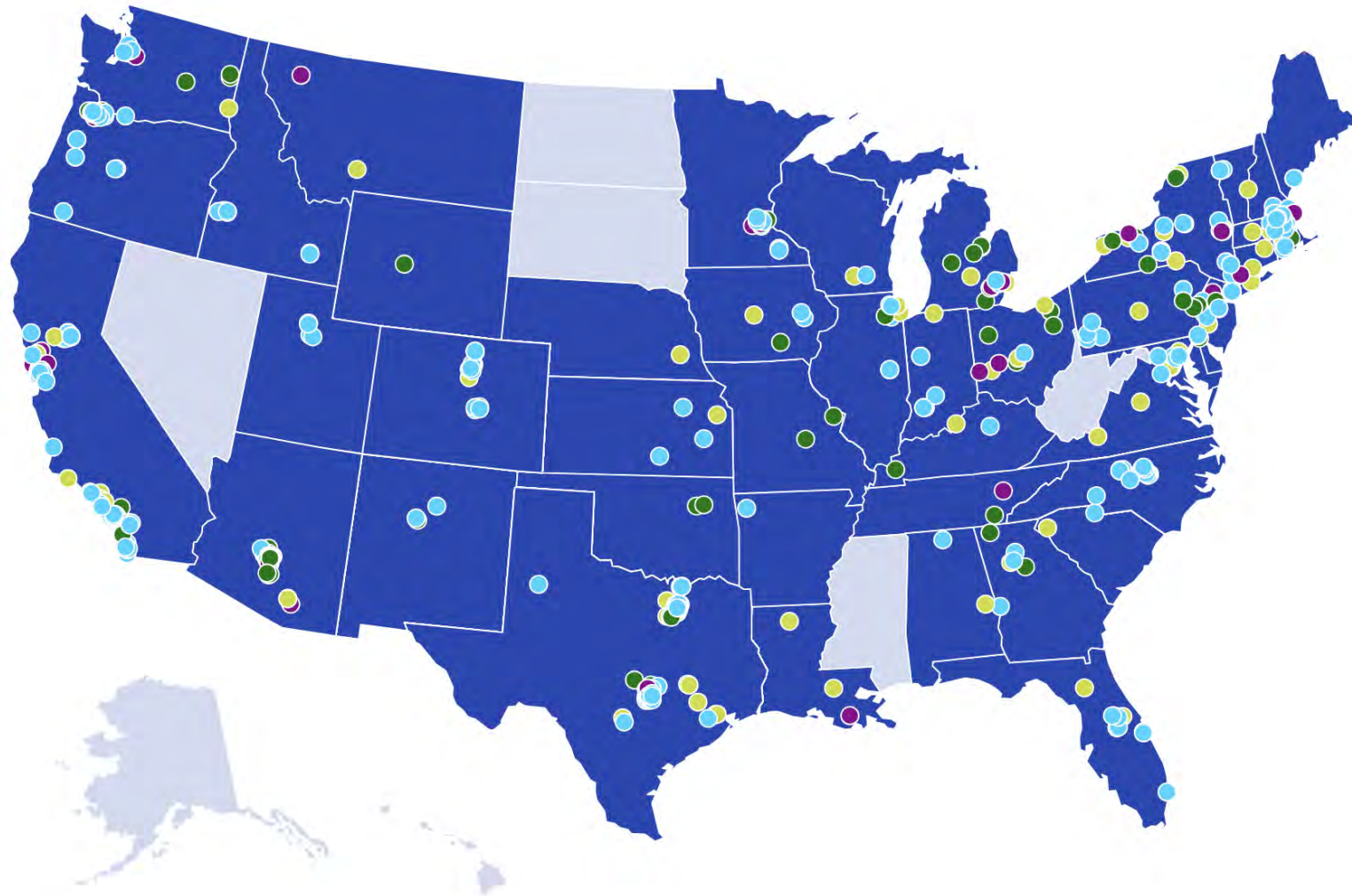
AI cluster type

■ Superstars ■ Star Hubs ■ Emerging Centers ■ Focused Movers ■ Nascent Adopters ■ Others



Source: Brookings' analysis of job posting data from Lightcast.

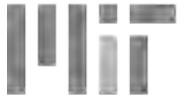
The U.S. Semiconductor Ecosystem Map



Titanium Economy companies are thriving across the US—often where job growth is otherwise limited.

Headquarter locations for companies profiled in *The Titanium Economy*





@Macro

- Abundant AI knowledge yields knowledge-nodes connected by networks
- Agglomeration under pressure? Non-linear Cities – Dror Proleg
- As the AI workforce grows, combined with remote work, placemaking becomes more important – Dominic Endicott, *Knowledge Towns*



Bagg's Square
Utica



Canal Place
Little Falls



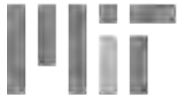
The Harborfront
Oswego

Why is AI ideally suited for real estate?

- Staggering amount of fragmented, proprietary, third-party data
- Many repetitive processes – contract generation, tour scheduling, maintenance request management, etc. often follow predictable patterns
- AI's ability to rapidly process + interpret voluminous, unstructured information
- AI will continue to impact ALL areas of real estate

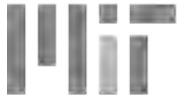


Assets



A stylish woman walks down a Tokyo street filled with warm glowing neon and animated city signage. She wears a black leather jacket, a long red dress, and black boots, and carries a black purse. She has on sunglasses and red lipstick. She walks confidently and casually. The street is damp and reflective, creating a mirror effect of the colorful lights. Many pedestrians walk about.





The logo for The Guardian, featuring the text 'The Guardian' in white serif font on a dark blue rectangular background.

Tyler Perry halts \$800m studio expansion after being shocked by AI

US film and TV mogul says he has paused his plans, having seen demonstrations of OpenAI video generator

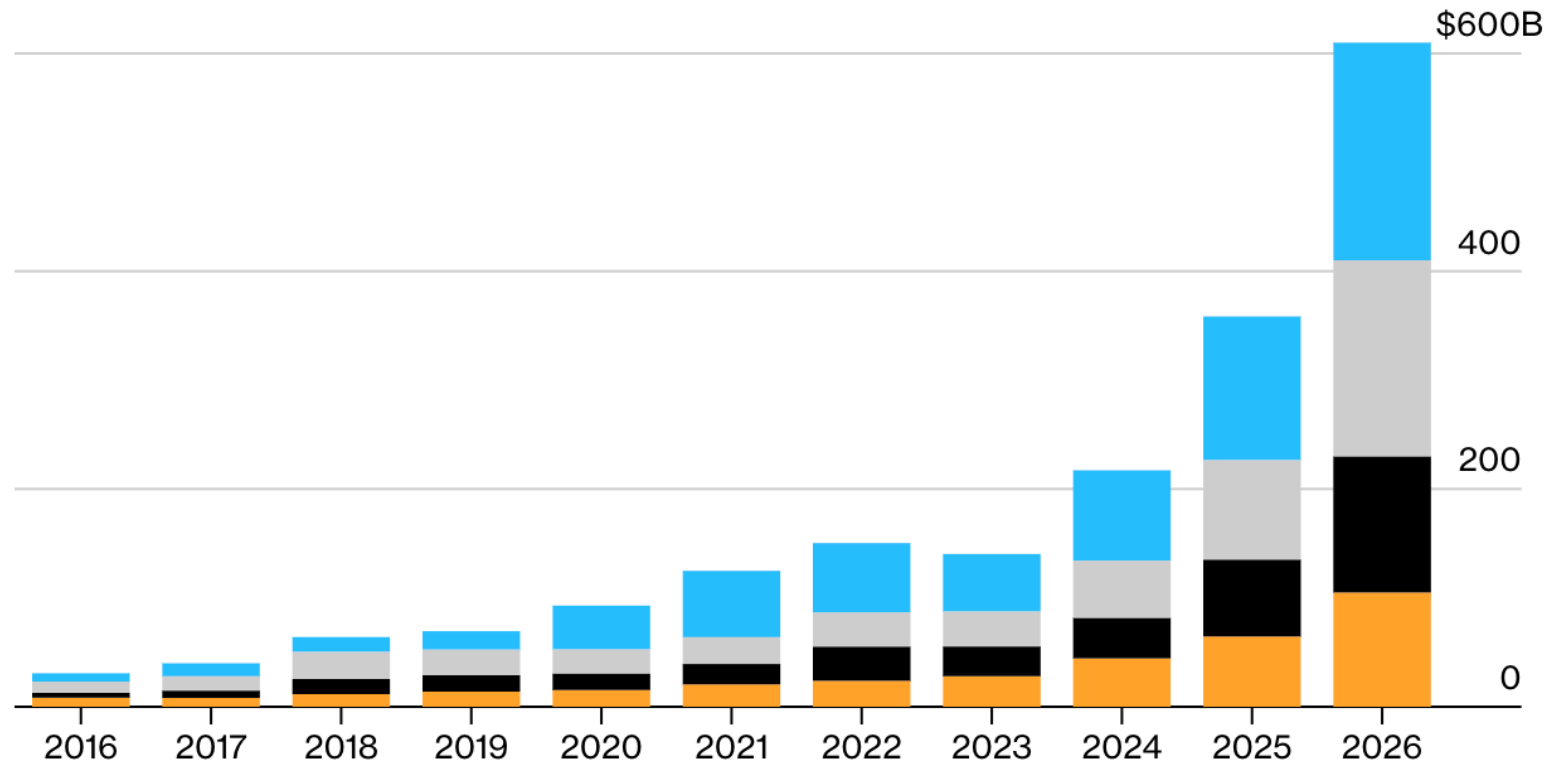
Data center

- Computing demand increasing faster than computing power of chips
(Moore's law is stalled)
- Global CapEx on data centers ~ \$1.7T by 2030 – McKinsey
- Code to concrete: Meta last year spent more on capital projects than on R&D

Hyperscaler Capex Explodes Higher

2026 estimates based on mid-point of guidance (META, GOOGL, AMZN), Bloomberg consensus (MSFT)

■ Microsoft
 ■ Meta
 ■ Alphabet
 ■ Amazon



Source: Bloomberg

Note: Capex based on fiscal year-ends, Dec. (AMZN, GOOGL, META), June (MSFT)

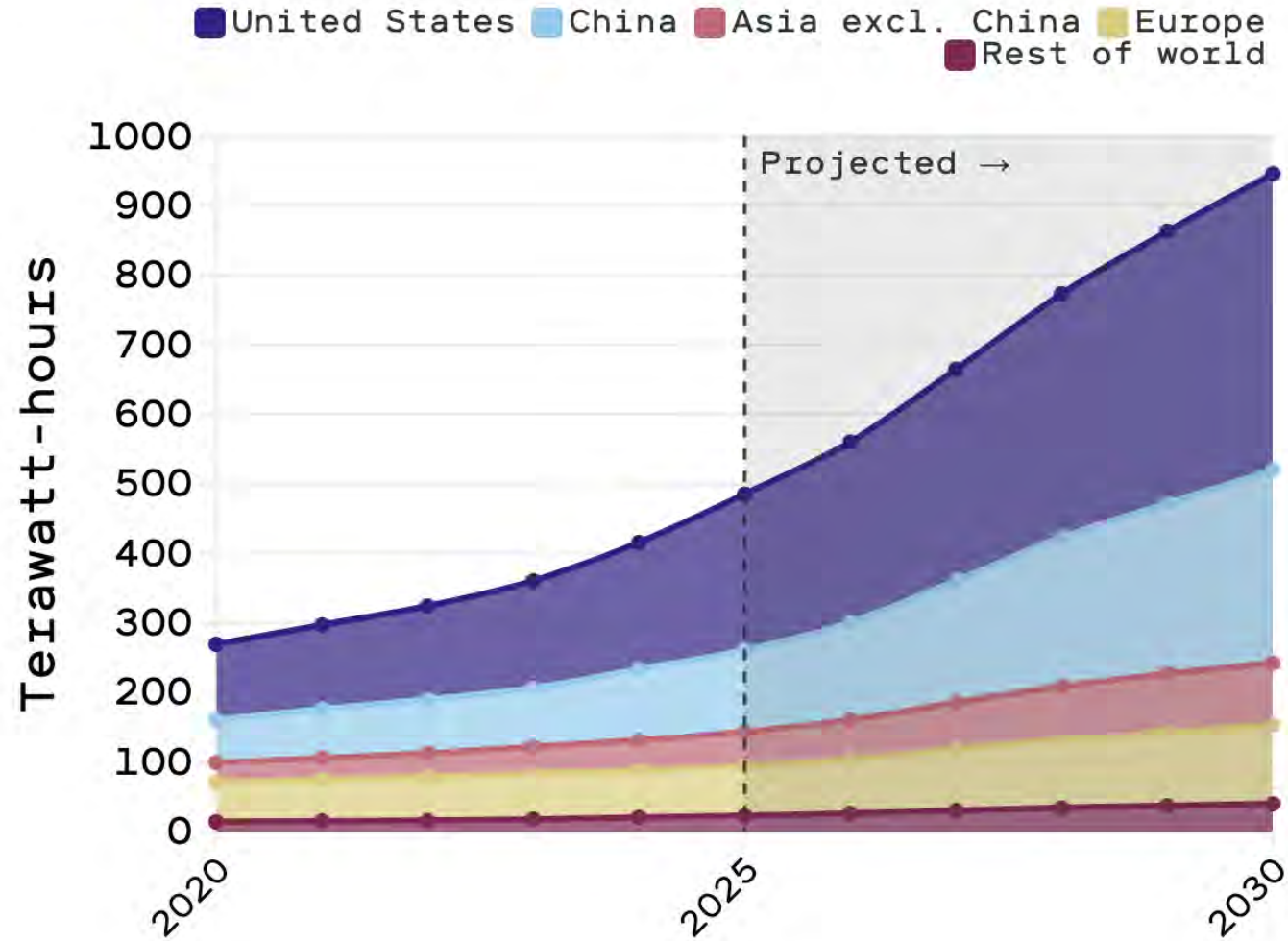
Data center

- VA, GA, MO, ME push back against data center projects. – Bisnow
- Data center projects drawing materials, labor, and capital away from other real estate sectors, potentially driving up costs and constraining development capacity. – Commercial Observer
- ~50% of planned projects are expected to be delayed or killed as developers can't secure electrical equipment. – Bisnow

Grid + infrastructure

- Global AI data center power demand will increase significantly
- Developers chase “powered land,” sites prepped with grid access and utility entitlements ready for data centers. – CNBC
- Encourages innovation in generation, grid hardware/design, storage

Data Center Energy Consumption



Source: [International Energy Agency](#)
 Chart by Casey Crownhart, MIT Technology Review

Innovation



IKEA Milan

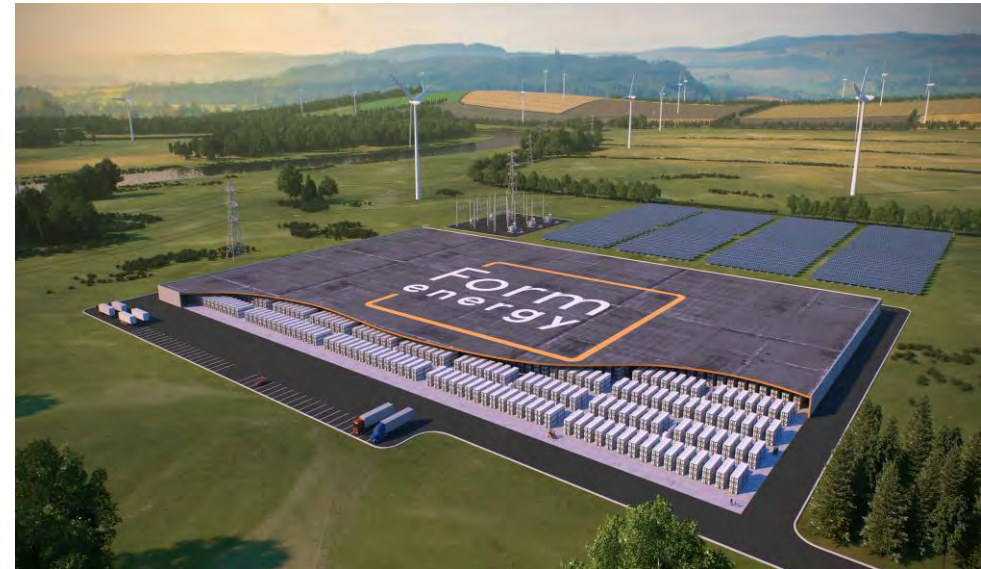
Bedrock
Energy



Innovation



Lakeside Energy Park
North Yorkshire, UK



Form Energy Battery Warehouses
MN + WV

Innovation



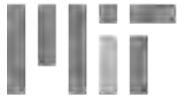
Jännersdorf “brightfield” solar park
Prignitz, Germany



GM Powertrain Solar Project
Danville, IL

Office demand

- Amazon has hired ~50,000; laid off ~30,000 since 2024 – WolfStreet, GeekWire
- *Manhattan Office Leasing Hits Decade High* – Savills
- OpenAI now has ~1.5M s.f. in the Bay Area – Bisnow
- Dow Chemical – replacing 4,500 positions with AI
- IBM – replacing 7,800 positions with AI
- IKEA – replaced call centers with AI chatbot named Billie
- US co-working spaces increased from 5800 to 8800 in 5 yrs – WSJ
- Continued “Real Estate Fracking”



Residential supply

- Better locational decisions
- Optimized design processes
- More efficient project delivery
- Smarter homes/IoT integration
- Improved customer interaction/engagement
- Better energy management/efficiency
- Automated property management

Retail supply

- Better locational decisions, market understanding
- Smart Stores – optimized layout, product placement, inventory control
- 24/7 virtual assistance
- Visual product curation – image recognition, hyper-personalization, interactive showrooms
- Enhanced security – biometrics, fraud detection

Industrial/warehouse

- Smart Warehousing – optimized layout, product placement, picking patterns, AV movement, inventory control, demand forecasting, logistics
- NVIDIA's partnership with BMW has led to a 30% improvement in manufacturing efficiency – Design News
- Possible reduction in demand for manufacturing space due to AI
- Rise of the robots

60
MINUTES





























Enterprise

Examples

	Location Analysis				
					
					
					
					
					

Examples

	Location Analysis				
	Environmental				
					
					
					
					

Examples

	<p>Location Analysis</p>				
	<p>Environmental</p>				
	<p>Permitting</p>				

Examples

	<p>Location Analysis</p>	
	<p>Environmental</p>	
	<p>Permitting</p>	
	<p>Development</p>	



Key Count	239
Parking	125
Budget	\$60M
Cap Rate	9.52%





Midjourney



Enter:

Futuristic towers

Utopian technology

Symbiotic w/nature

Bioluminescent material

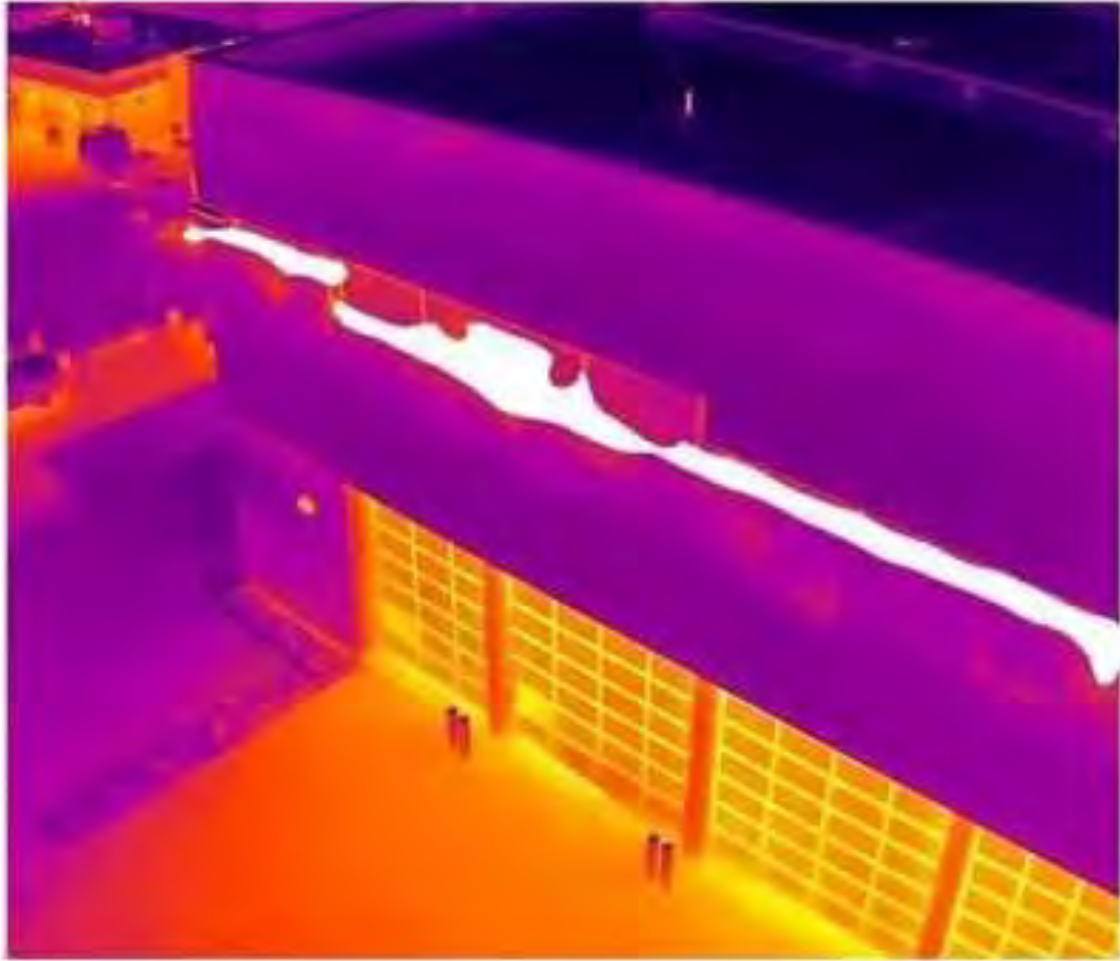


Heydar Aliyev Center | Baku, Azerbaijan

Zaha Hadid
Architects

Examples

	<p>Location Analysis</p>	
	<p>Environmental</p>	
	<p>Permitting</p>	
	<p>Development</p>	
	<p>Property Management</p>	





Examples

	<p>Location Analysis</p>	
	<p>Environmental</p>	
	<p>Permitting</p>	
	<p>Development</p>	
	<p>Property Management</p>	
	<p>Chatbots/AI Agents</p>	

 Click to listen

Elise^{AI} |  VoiceAI

Key takeaways

- AI will continue to impact ALL areas of real estate
- Real estate is ideally suited to AI
- Physical assets will evolve; new ones will emerge
- How humans engage with real estate will change
- Scarce expertise becomes more abundant
- Identify unused data pools; they may be valuable
- Beware the AI hype that AI solves everything



Case Study



- 2018
- Burlington, VT
- Vacant oven factory
- Now 150,000 s.f. coworking infrastructure
- Venture fund layered on top w/~100-investors
- Portfolio grew from \$400M in market cap to >\$9B
- Beta Technologies recent IPO \$7.5B
- Breaking ground on 1,400 residential units
- South End Innovation District, 19 parcels/69 acres



**Empire State Greenhouses/IGS
Gigafarm
SUNY Cobleskill**



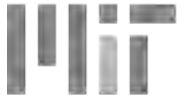
**The Makery
Oneanta**



theINCubator
Utica



Griffis Institute
Rome



Key elements

- Educational/institutional anchors
- Cultural and historic assets
- Outdoor recreational opportunities
- Affordable homeownership
- Skilled manufacturing workforce
- Power/water/land





Thank you!

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