

Shaping Spaces: Mega-trends Influencing the Future of Real Estate

Sabrina Unger

Managing Director, Head of Research and Strategy
American Realty Advisors
New York, NY



What impacts the real estate market?

✓ GDP growth

✓ Inflation

✓ Interest rates

✓ Policy

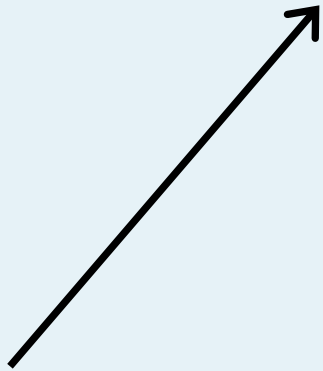
✓ People

✓ Technology

Growth vs. Change

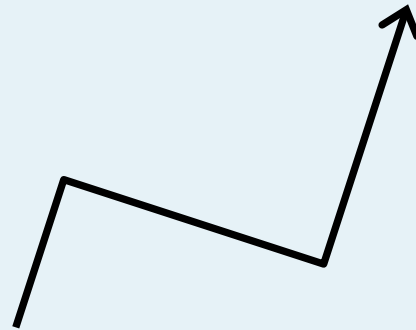
Growth

Growth keeps us on a predictable path.



Change

Change creates disruption and opens opportunities for something new.



ARA Identified Change Agents

Sociodemographic

Aging Population

Labor Force Shift

Income Inequality

Migration /
Immigration

Technology

E-Commerce

Work from Home

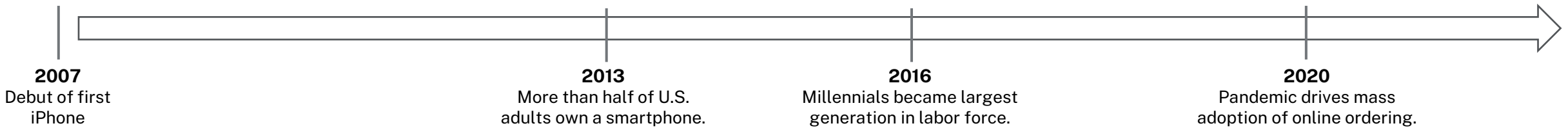
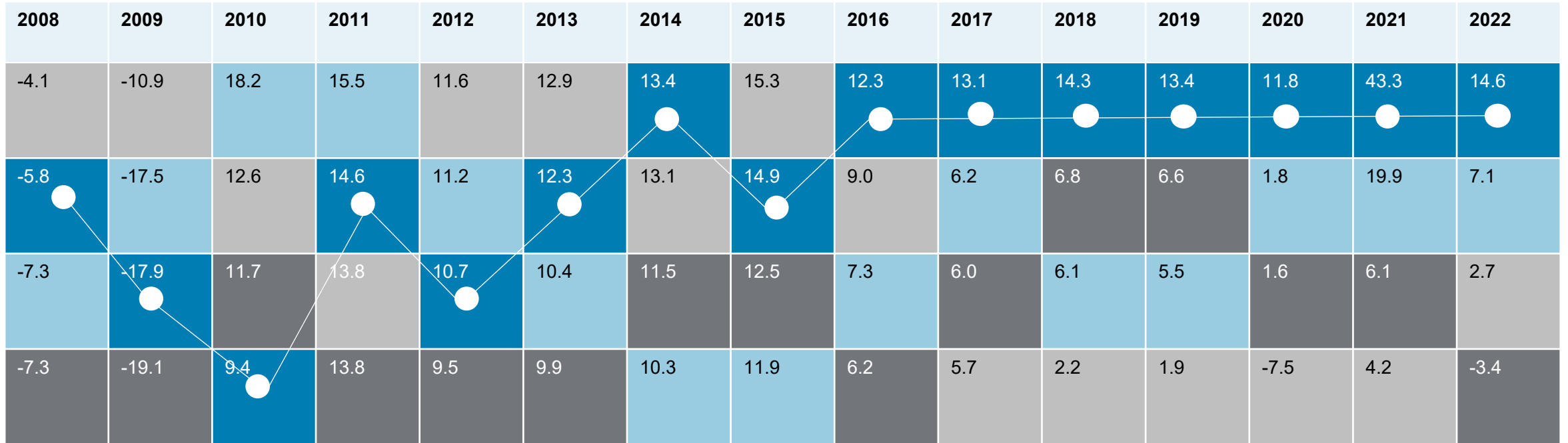
Big Data / AI

Machines/Robotics

Changes in Technology + Shift in Demographics Ushered in the “Era of Industrial”...

NCREIF Property Index Total Returns by Sector, 2008 – 2022

■ Apartment
 ■ Industrial
 ■ Office
 ■ Retail



Source: American Realty Advisors based on data from NCREIF, Time Magazine and Pew Research Center as of August 2023. NCREIF Property Index Total Returns (“NPI”) by Sector represent the annual unleveraged returns before (gross) the deduction of investment management fees for each property type. The returns are compiled by the National Council of Real Estate Investment Fiduciaries (“NCREIF”) based on its membership and may not be reflective of the returns of any particular investor. NCREIF does not provide NPI net of investment management fees. Past performance is not a guarantee of future results, and it is important to understand that investments of the type reflected in NPI pose the potential for loss of capital over any time period. Many factors affect performance including changes in market conditions and interest rates in response to other economic, political, or financial developments.

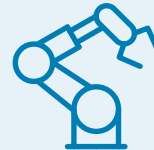
Remember the acronym



M



A



M



A

Remember the acronym

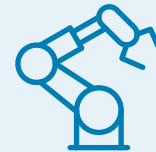


Movement

M



A



M



A

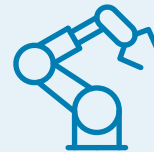
Remember the acronym



Movement
M



Aging
A



M



A

Remember the acronym



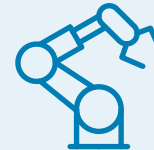
Movement

M



Aging

A



Machines

M



A

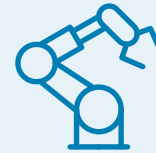
Remember the acronym



Movement



Aging



Machines



Automation

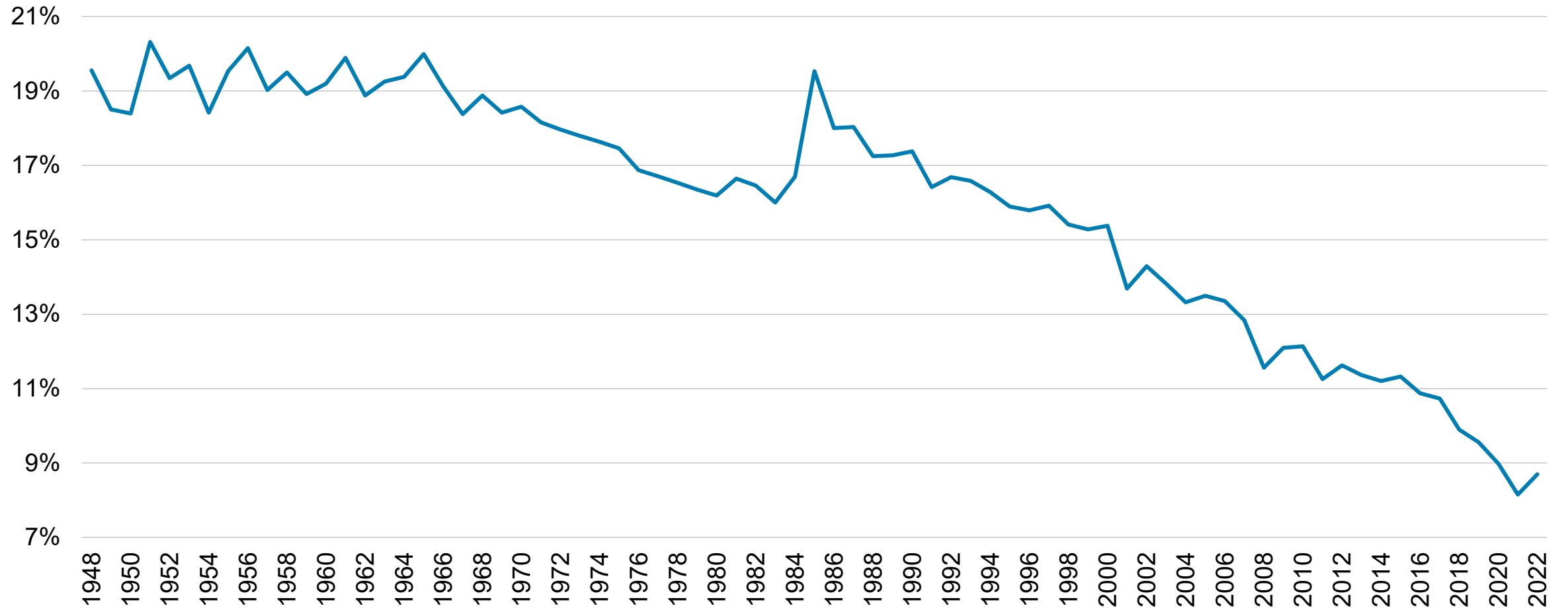
Movement



Impacts from migration
and immigration.

Long-Term Fall in U.S. Population Mobility

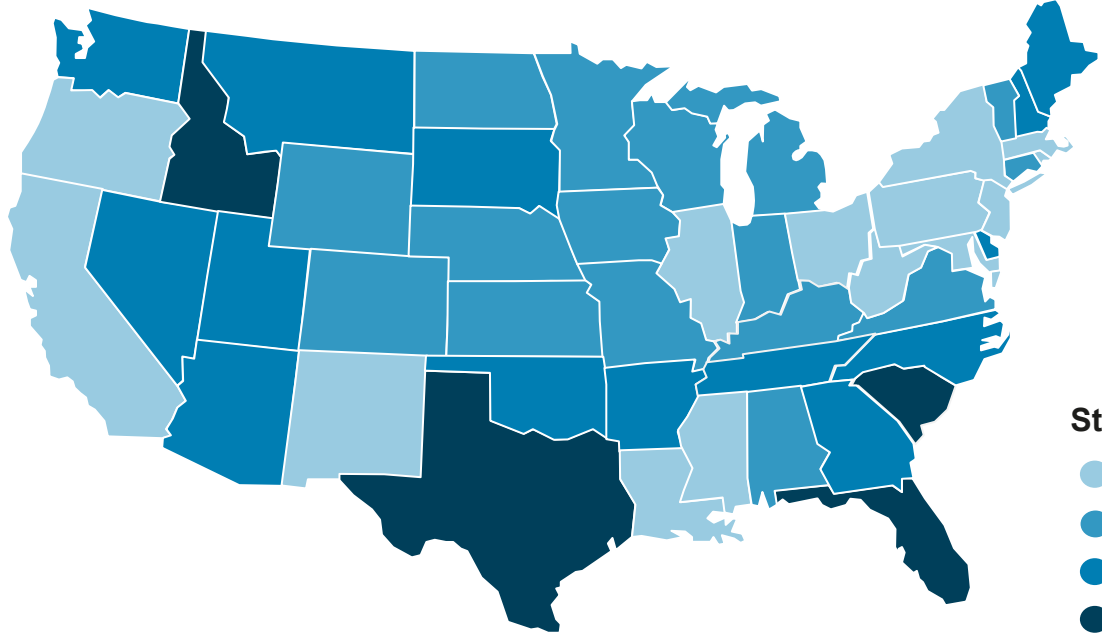
Annual Migration Rates, 1948 – 2022



Source: American Realty Advisors based on data from Macrobond and the U.S. Census Bureau Population Survey as of July 2023.

Where Are We Going (and Where Are We Coming From)?

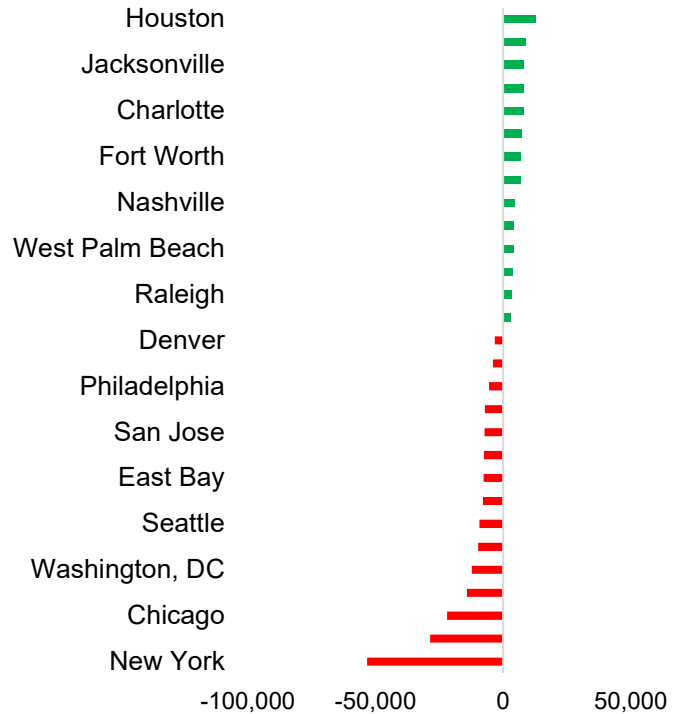
State Migration Patterns, 2022



State Population Change in 2022:

- < 0.0%
- 0.0% - 0.5%
- 0.6% - 1.5%
- > 1.5%

Total Net Moves, 2022



Source: American Realty Advisors based on data from Tax Foundation, the U.S. Census Bureau and John Burns Real Estate Consulting as of July 2023.

Why Do We Move?

1

Employment
Related



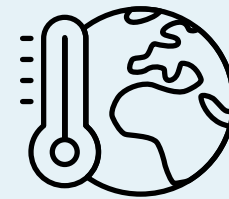
2

Housing or
Family Related



3

Climate Related



Real Estate Implications of Movement



Areas where housing affordability, job opportunities and good weather converge will benefit.



High-tax, high-cost metros will need to dramatically reinvent policy to survive.

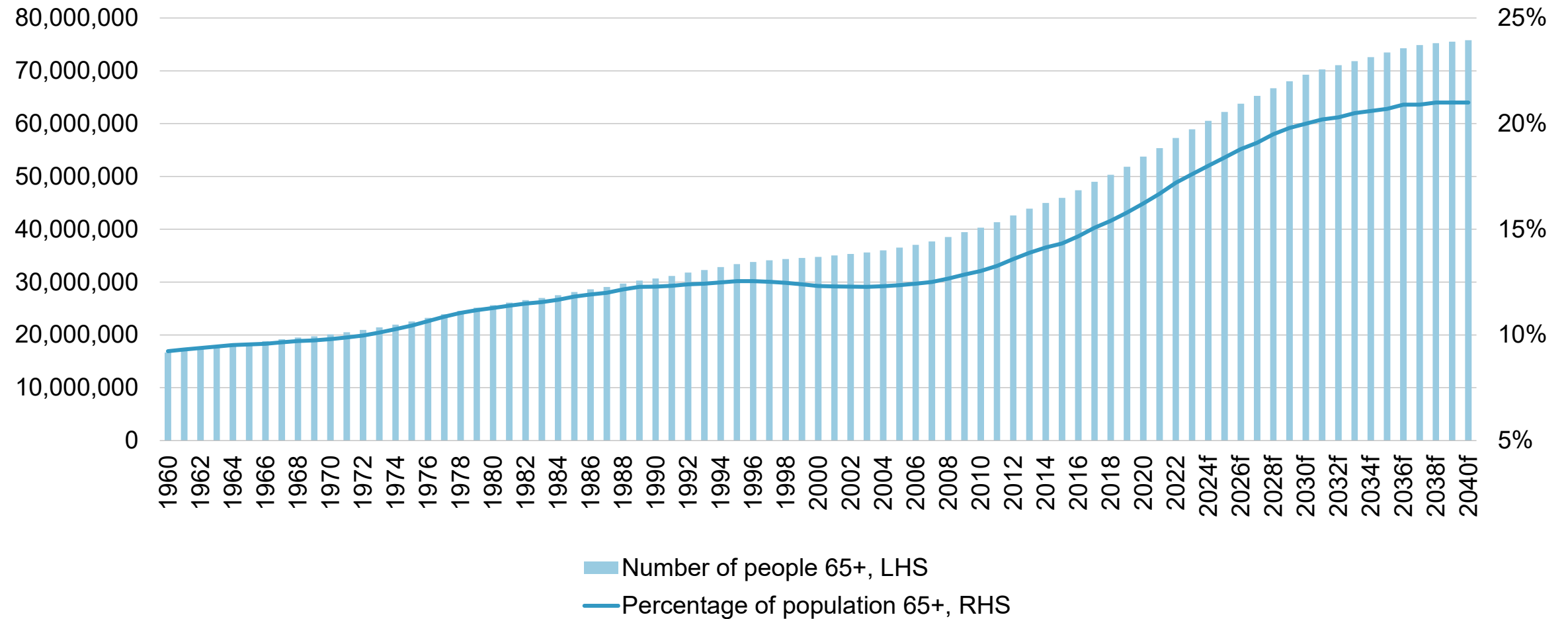
Aging



Impacts from an increasingly older society.

Silver Tsunami

Number and Percentage of US Population 65 & Older, 1980-2040f



Source: American Realty Advisors based on data from The World Bank and Oxford Economics as of July 2023. f=forecast

What Does An Aging Population Suggest About Potential For Economic Growth?

1

Labor force shrinks

2

Productivity growth slows

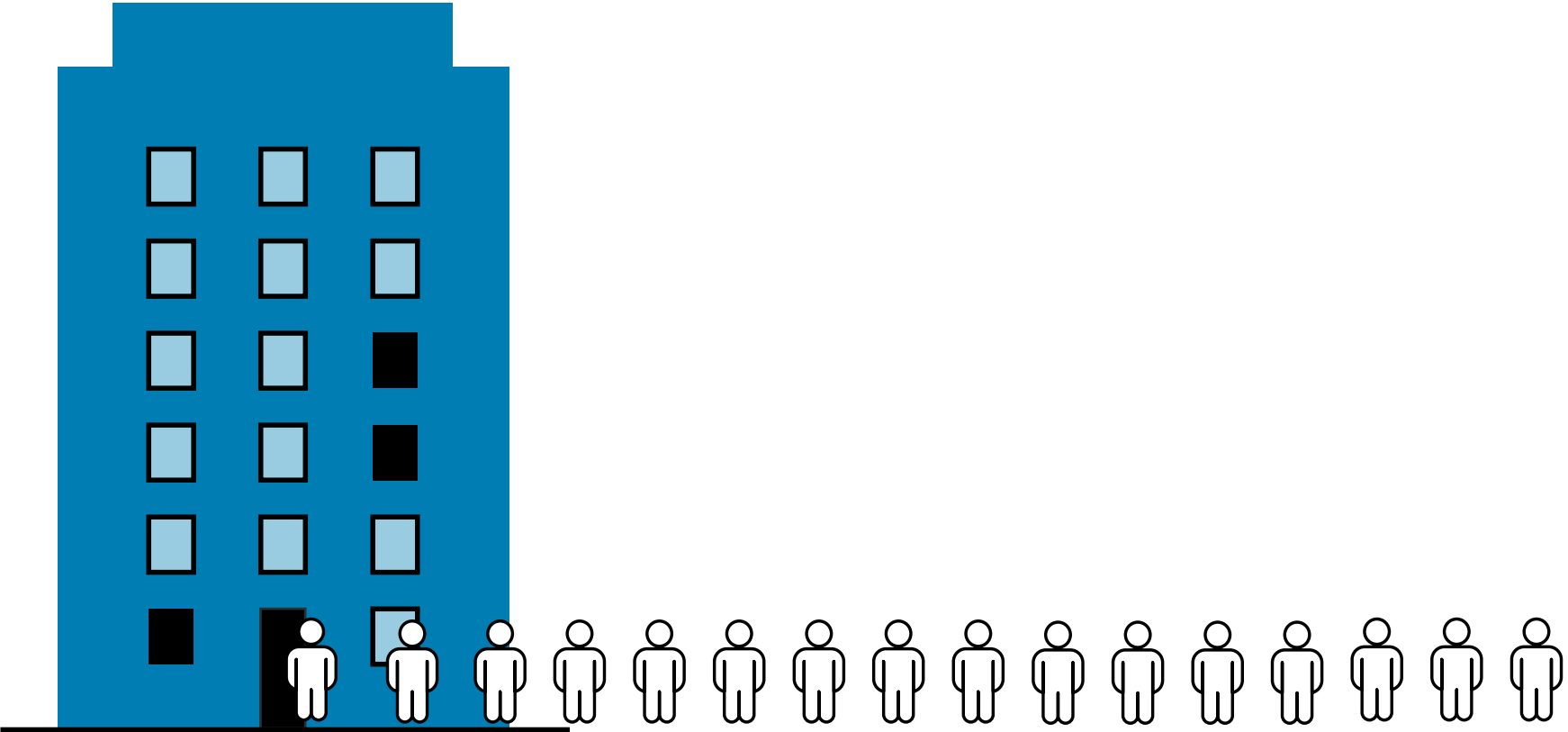
3

Greater demands on gov't spending but less overall consumption



Lower GDP Growth

Office Demand Impact Played Out



Office Demand Impact Played Out



Real Estate Implications of Aging

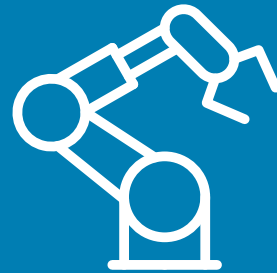


Fewer workers means fewer office users, perpetuating today's WFH headwinds.



Spaces that accommodate multi-generational living may become increasingly in demand.

Machines



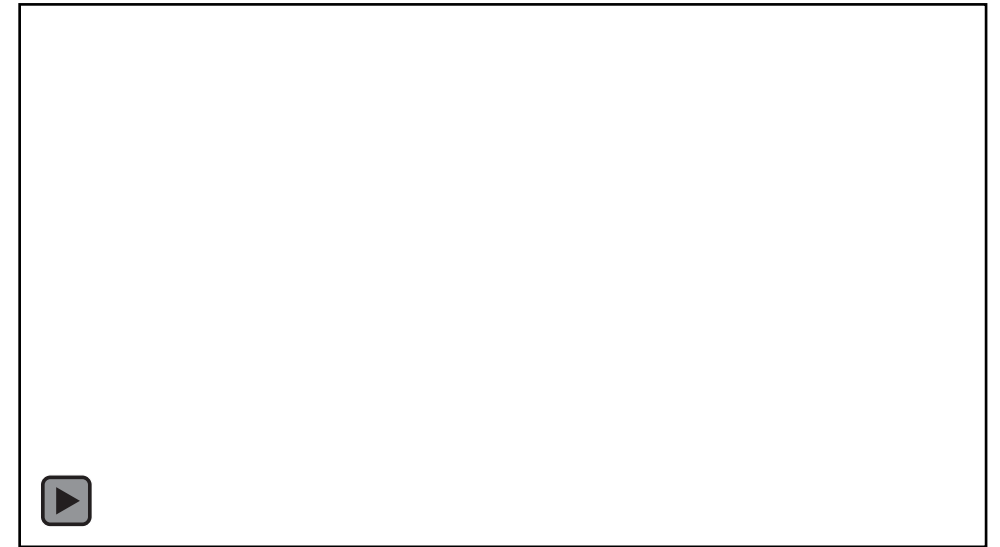
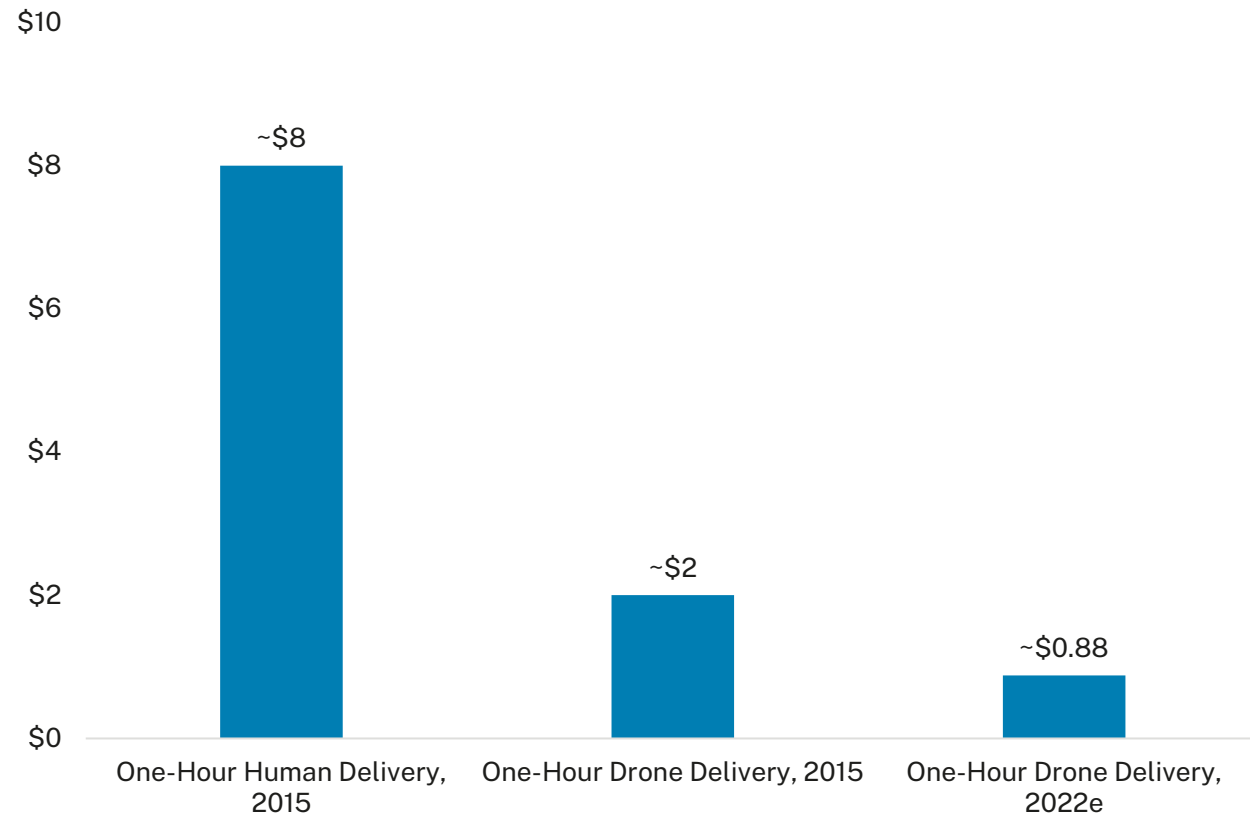
Impacts from technologies like robotics and drones.

My Friendly Robot



Drone Delivery Already Costs Less Than Humans 8 Years Ago...and Labor Isn't Getting Cheaper!

One-Hour Delivery Cost Per Package by Delivery Means 2015 and 2022e



Source: American Realty Advisors based on data from Bain Macro Trends Group analysis and Ark Invest. e=estimate

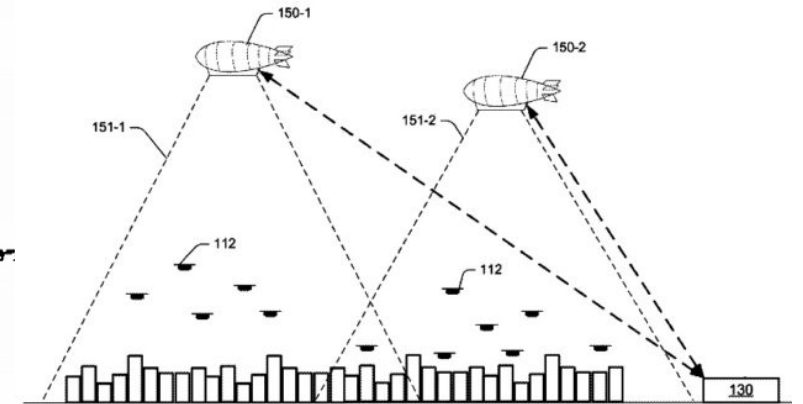
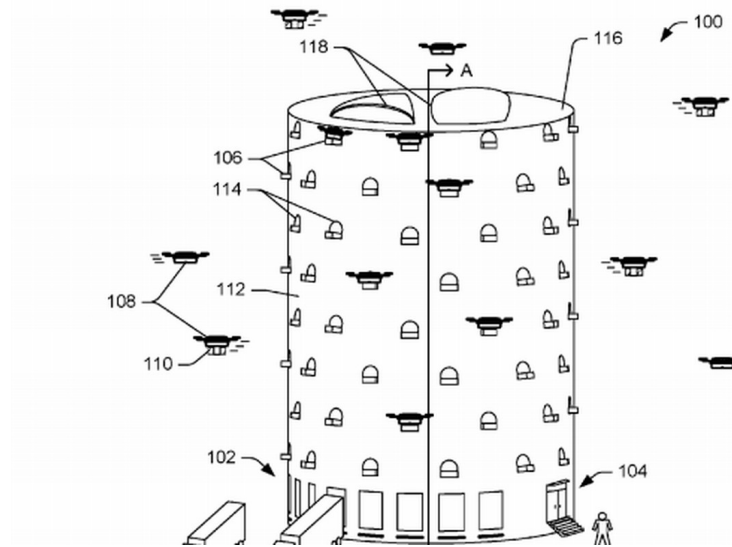
Changes in How We Transport Goods Changes Building Needs

Maybe less of this...



Changes in How We Transport Goods Changes Building Needs

...and more of this.



Move Over, Jetsons! Drone Delivery is Already Here in Florida



Source: FOX 13 Tampa Bay

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Your E-Commerce Order, Printed Onsite.

From this...



Your E-Commerce Order, Printed Onsite.

...to this.



Source: American Realty Advisors

Real Estate Implications of Machines

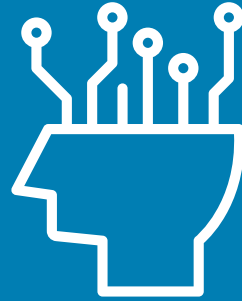


Ability to create products “on demand” may soften warehouse occupancy.



Delivery drones may make infill industrial even more critical to distributors.

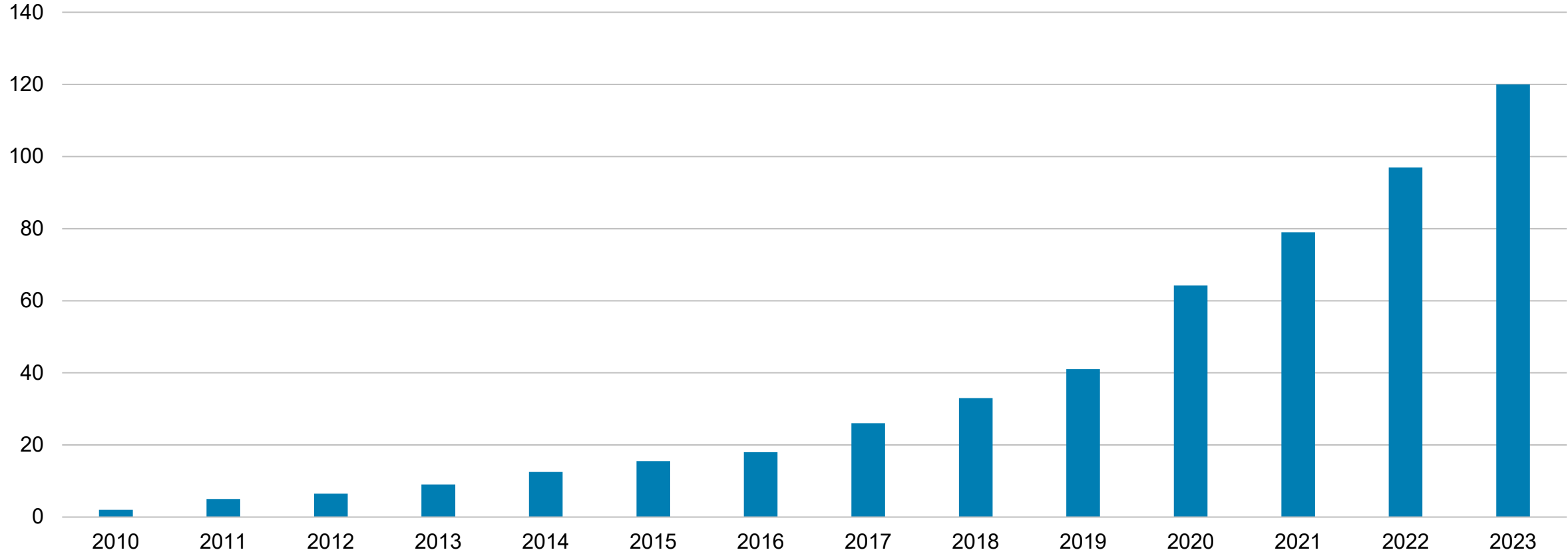
Automation



Impacts from
Artificial Intelligence (AI)
and machine learning.

The Sheer Amount of Data being Created Every Day is Growing Exponentially...

Zettabytes of Data Generated Each Year, 2010 – 2023



Source: American Realty Advisors based on data from Statista and Bernard Marr & Co. as of April 2023. Data for 2018 through 2023 is estimated.

...with Advances in Machine Learning and AI Providing An Additional Boost.



Machine Learning

Algorithms and models that allow computers to learn and improve from experience without being explicitly programmed.



AI

A computer system that can perform tasks like humans, such as data analytics, language processing, and solving complex problems.

AI is based on machine learning.



4EB

of data generated by video conferencing each month



500 million

posts sent every day



347.3 bn

emails are sent in one day



100x

5G networks can elevate data transmission speed by up to 100x; the average 5G customer uses more than twice the amount of data a typical 4G user consumes



10 EB

of data produced by a connected car per month



335 PB

of data generated from wearable devices per month



10 million

queries are posed to ChatGPT per day



13.1 EB

of data produced by smartphones worldwide per day



4PB

of data created by Facebook, including 350M photos & 100M hours of video watch time



87.5x

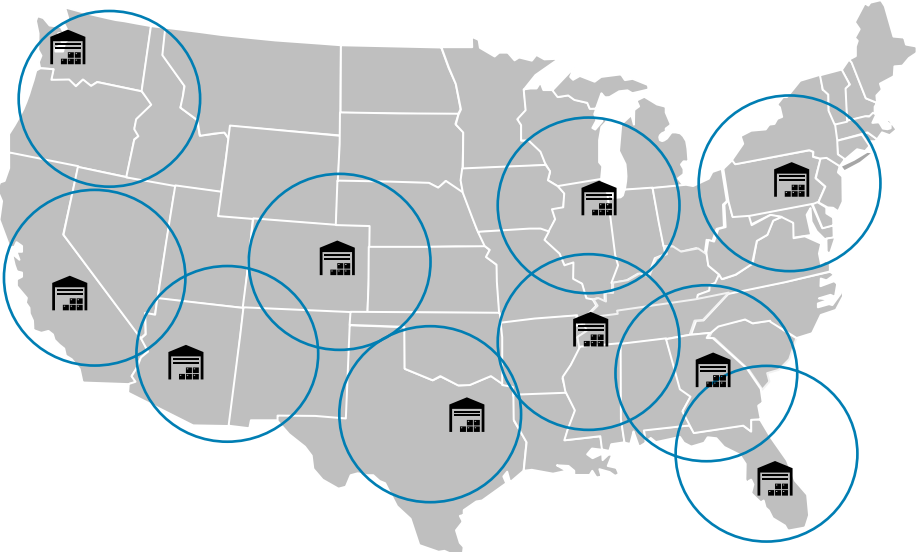
By 2025 it is expected that there will be 87.5 times more bytes in the digital universe than there are stars in the observable universe

**All this Connectivity is
Creating Huge Demand for
Data Centers**

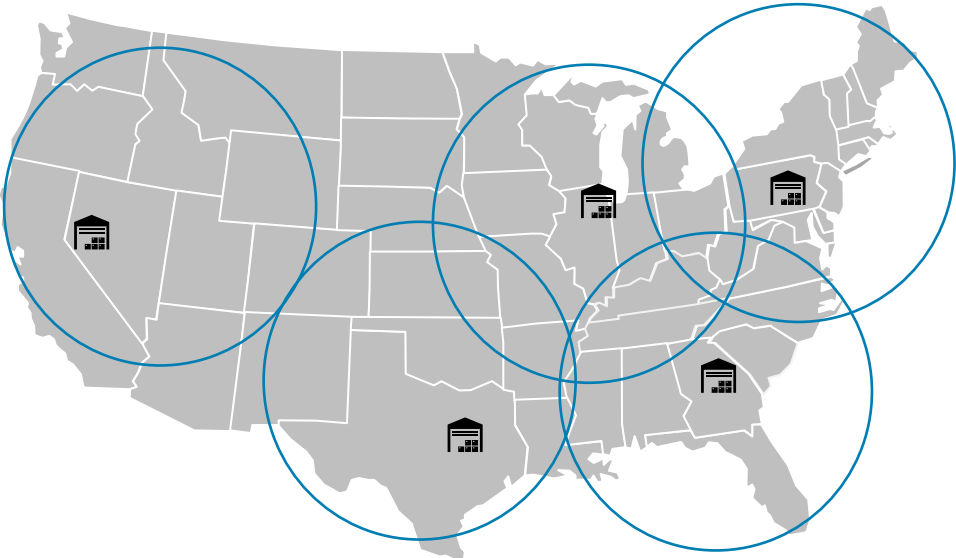
EB = exabyte, PB = petabyte. 1,024 petabytes make up one exabyte. It would take approximately 61,000 desktops with 16 gigabytes of RAM to add up to a single petabyte.

AI also a Critical Component to Advances in Autonomous Trucks and Cars

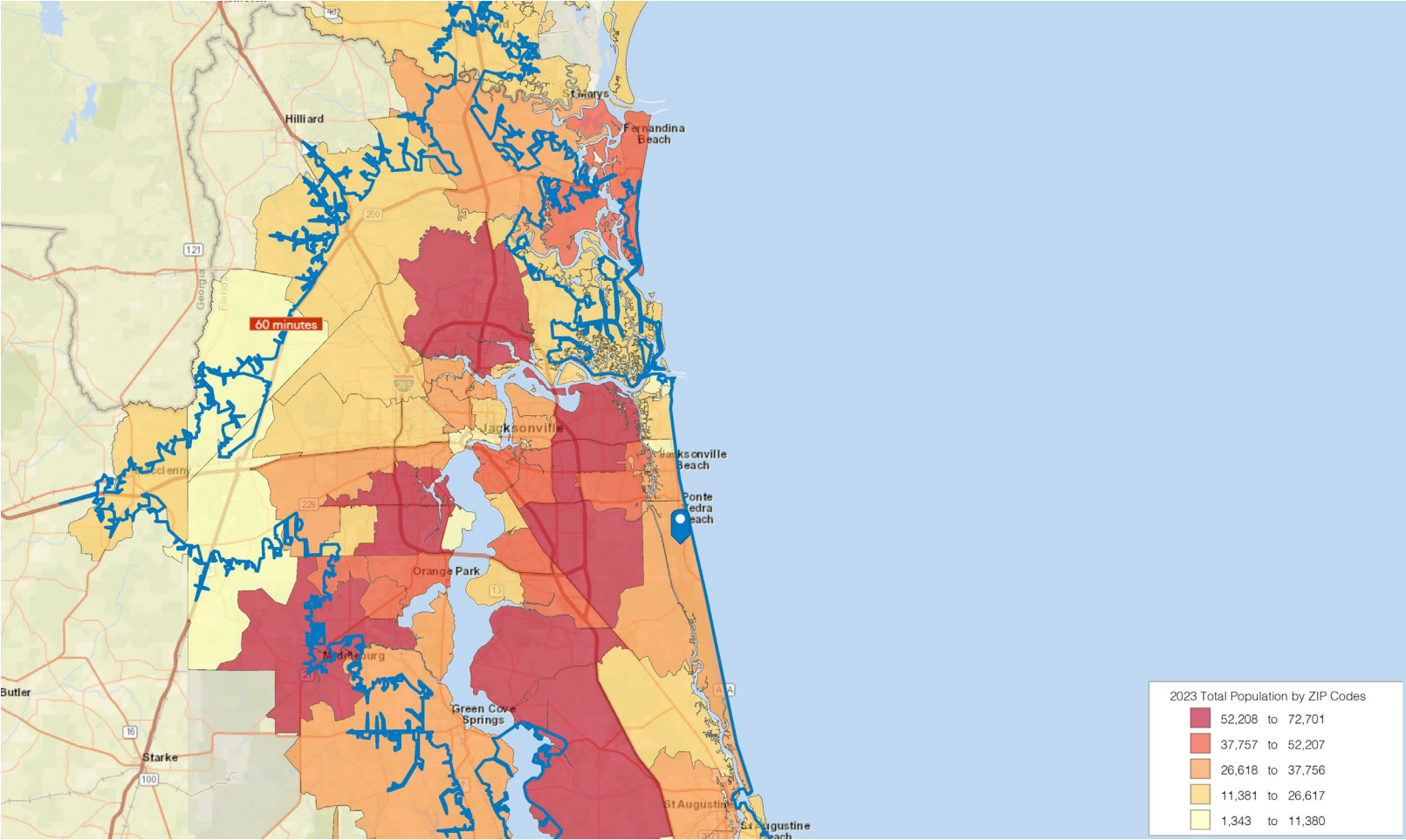
De-centralized Distribution Strategy



Re-Centralized Distribution Strategy



The New Commute?



Source: American Realty Advisors based on data from ESRI as of August 2023

Real Estate Implications of Automation



Amount of data being created and stored increasing exponentially.



Autonomous vehicles could change where we live and where we ship goods from.

How and Where Should We Invest Based on These Factors Today for Tomorrow's World?



Movement

- Markets that offer lower cost of living + ample job opportunities (like Florida!).
- Larger residential units that accommodate renters for longer and potential for multi-generational living (single-family rentals)



Aging

- Life sciences facilities that service high-growth medical research and treatment.
- Reduce exposure to office sector as WFH headwinds get exacerbated by fewer workers/lower growth.
- Active adult/55+ communities in warm-weather markets (Florida again!)



Machines

- Infill industrial that services critical last mile.
- Diversified warehouse exposure (not solely big-box facilities).



Automation

- Data centers in critical infrastructure hubs (Northern Virginia).
- Suburban residential assets in quality school districts where commute time may become less of a factor.

Key Takeaways

Sociodemographic and technological changes are poised to create structural shifts in occupier demand (risk and opportunity).

Being on the right side of mega-trends requires a view on

- The likelihood of and potential deterrents of adoption and
- The timeline to critical mass (Amara's Law – "We tend to overestimate the effect of technology in the short run and underestimate the effect in the long run.")

Institutional real estate is a long-term investment: Think decades, not days.

These future forces may not impact the asset today, but they may be a factor for the next buyer.

Ask your managers

- "What is our portfolio exposure to industries most vulnerable to disruption from AI?"
- "What investments, if any, should we be making to capture demand from an aging society?"
- "How are you mitigating against value erosion for assets in markets with a shrinking population?"
- "How are we positioning our strategy to take advantage of the technological disruptions occurring today?"

Disclosures

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213.233.5700

515 Flower St
49th Floor
Los Angeles, CA 90071

aracapital.com

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