

# Leading Communities in the Second Machine Age

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**Leading Communities  
in the Second Machine Age**





# INNOVATION BRINGS UNFORSEEN CHANGES

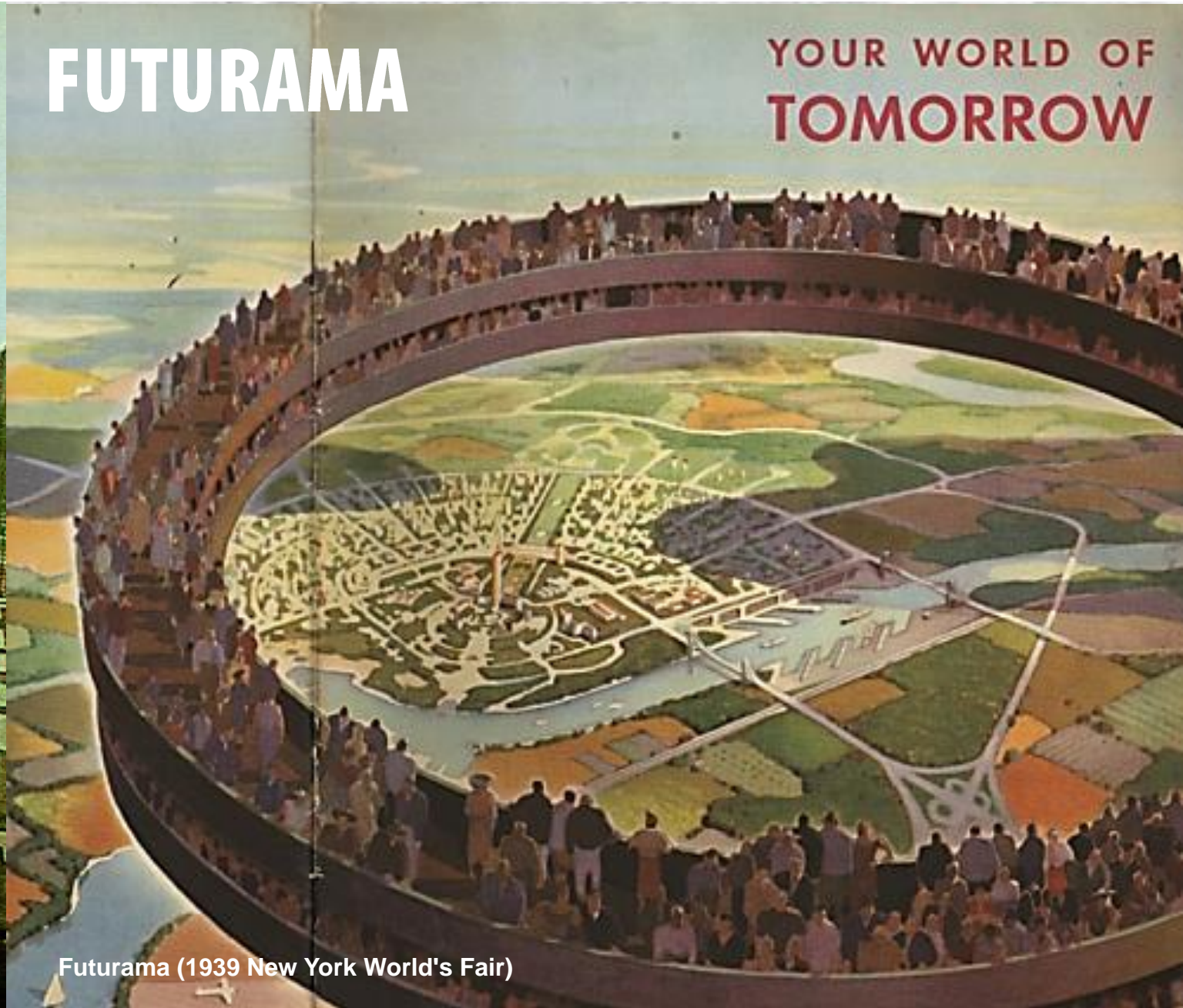
ALONG WITH DAZZLING INNOVATIONS – *NEW TECHNOLOGIES* CAN BRING *NEW PROBLEMS* WITH THEM

## VILLE RADIEUSE



Ville radieuse, *Radiant City*) - designed by the French-Swiss architect Le Corbusier

## FUTURAMA



Futurama (1939 New York World's Fair)



# CABRINI-GREEN: PUBLIC HOUSING AND POVERTY CONCENTRATION



Cabrini-Green, were adjacent Chicago Housing Authority (CHA) public housing projects

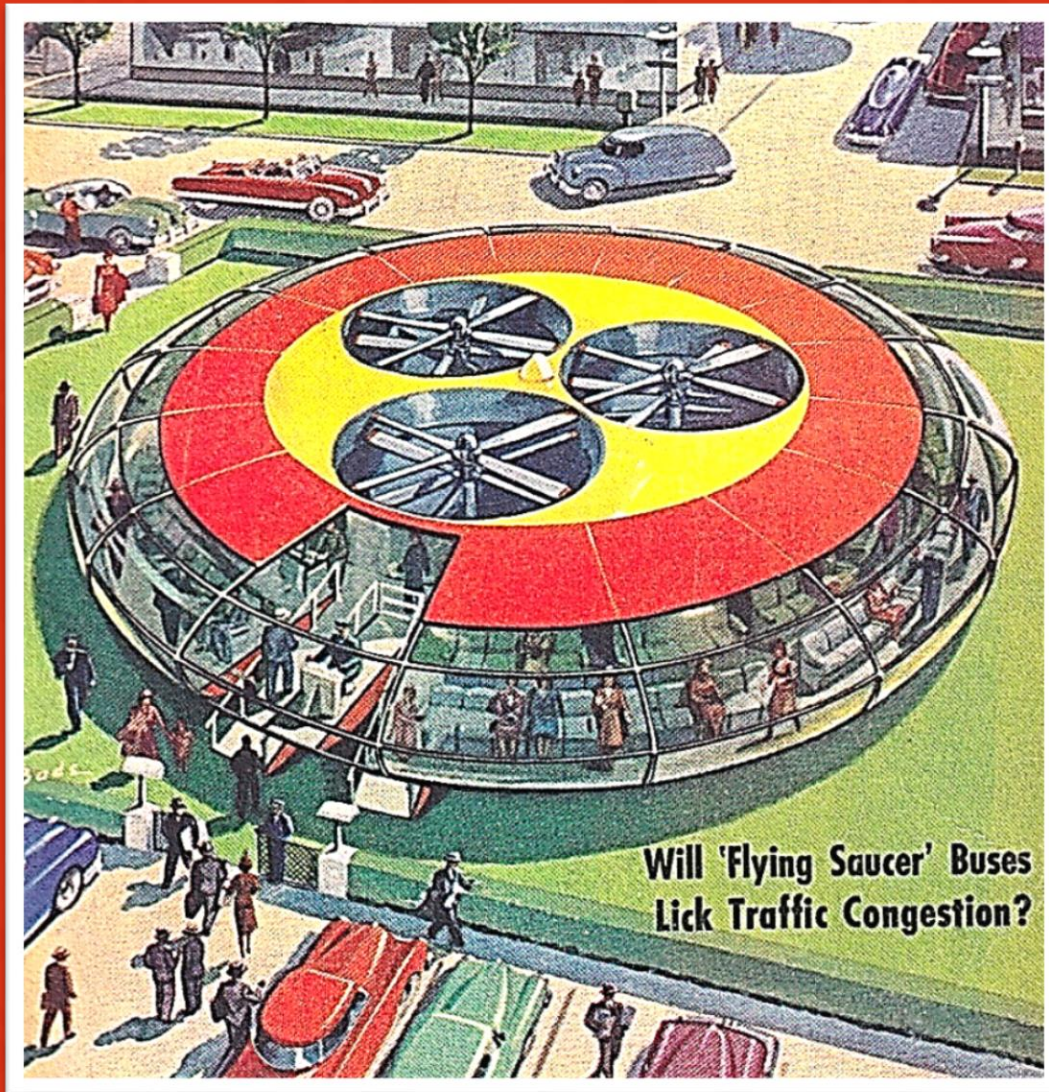
# “URBAN SPRAWL”: NEGATIVE IMPACTS TO PUBLIC HEALTH



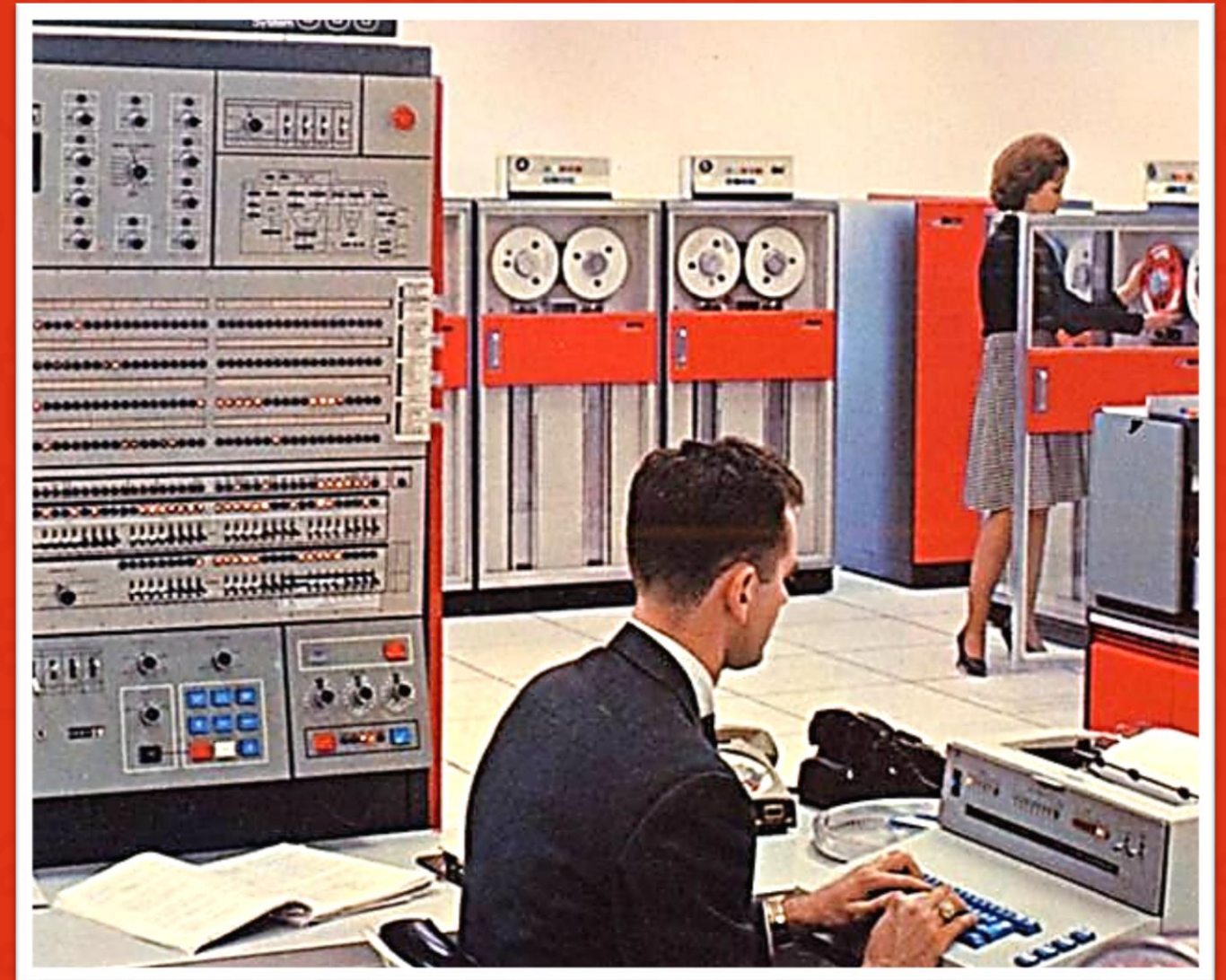
Modern “urban sprawl” in the United States  
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1497432/pdf/12432132.pdf>



# TWO CATEGORIES OF TECHNOLOGIES DRIVING CHANGE...



**1.** Transportation & Physical  
"Hardware" Innovations



**2.** Labor Automation: Software &  
Artificial Intelligence



# CURRENT & FUTURE TECHNOLOGICAL INNOVATIONS

1.

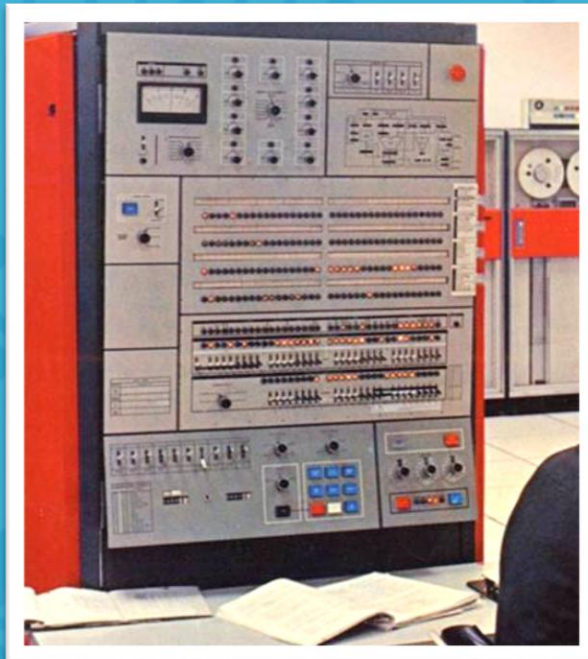


## Transportation & Hardware Innovations:

- Autonomous vehicles
- Drones
- Robotics
- Augmented Reality/Virtual Reality
- 3D Printing

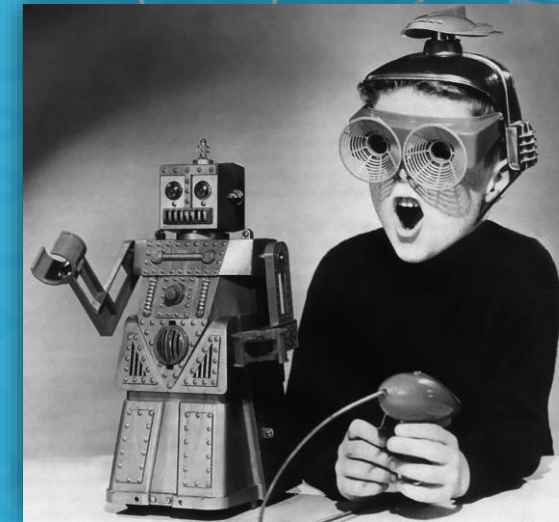


2.



## Human Labor Automation & Software Innovations:

- Machine learning
- Natural language processing
- Computer vision





# 1. HARDWARE INNOVATIONS:

IMPACTS ON COMMUNITY AND THE BUILT ENVIRONMENT

## Potential Changes:

- **Land use disruptions**
  - Changes to supply and demand of land
- **Impacts on pedestrian safety**
  - How do innovations affect the pedestrian realm?
- **Interactivity:** Potential for enhanced interaction with physical environments
- **“Smart Cities”** – improvements in urban efficiency, operations, energy savings...



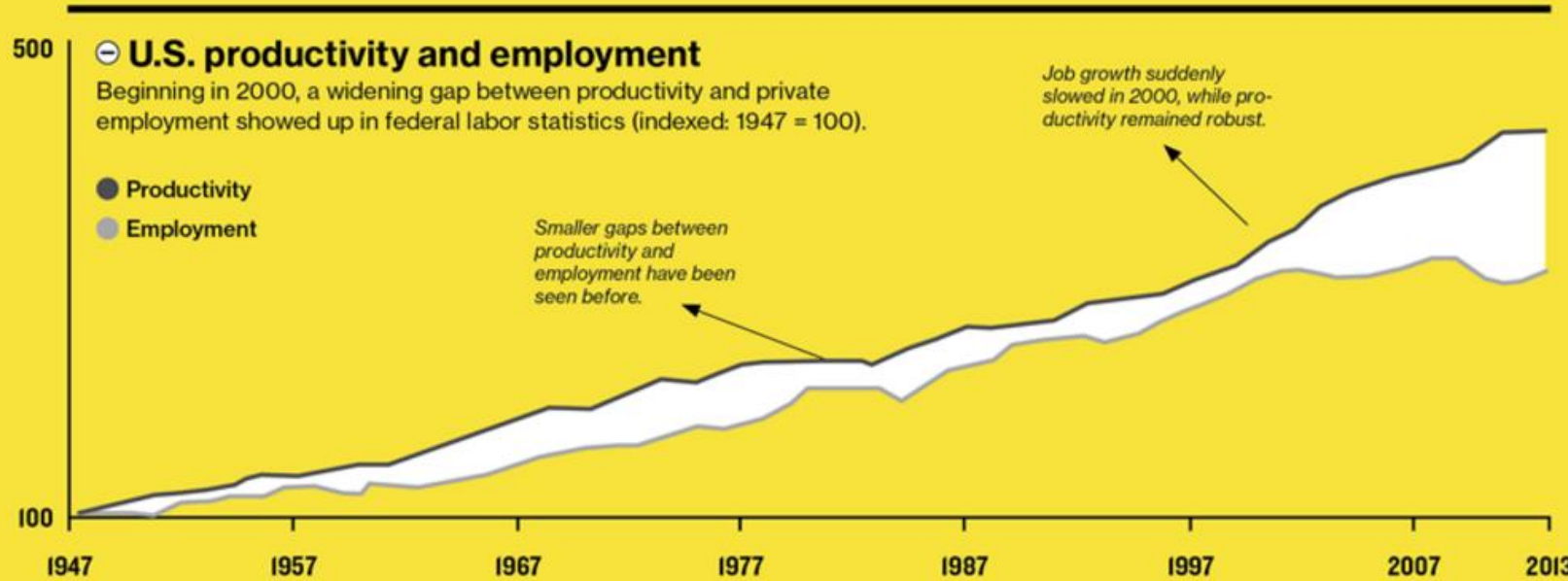


# 2. ARTIFICIAL INTELLIGENCE:

## IMPACTS ON COMMUNITY AND THE BUILT ENVIRONMENT

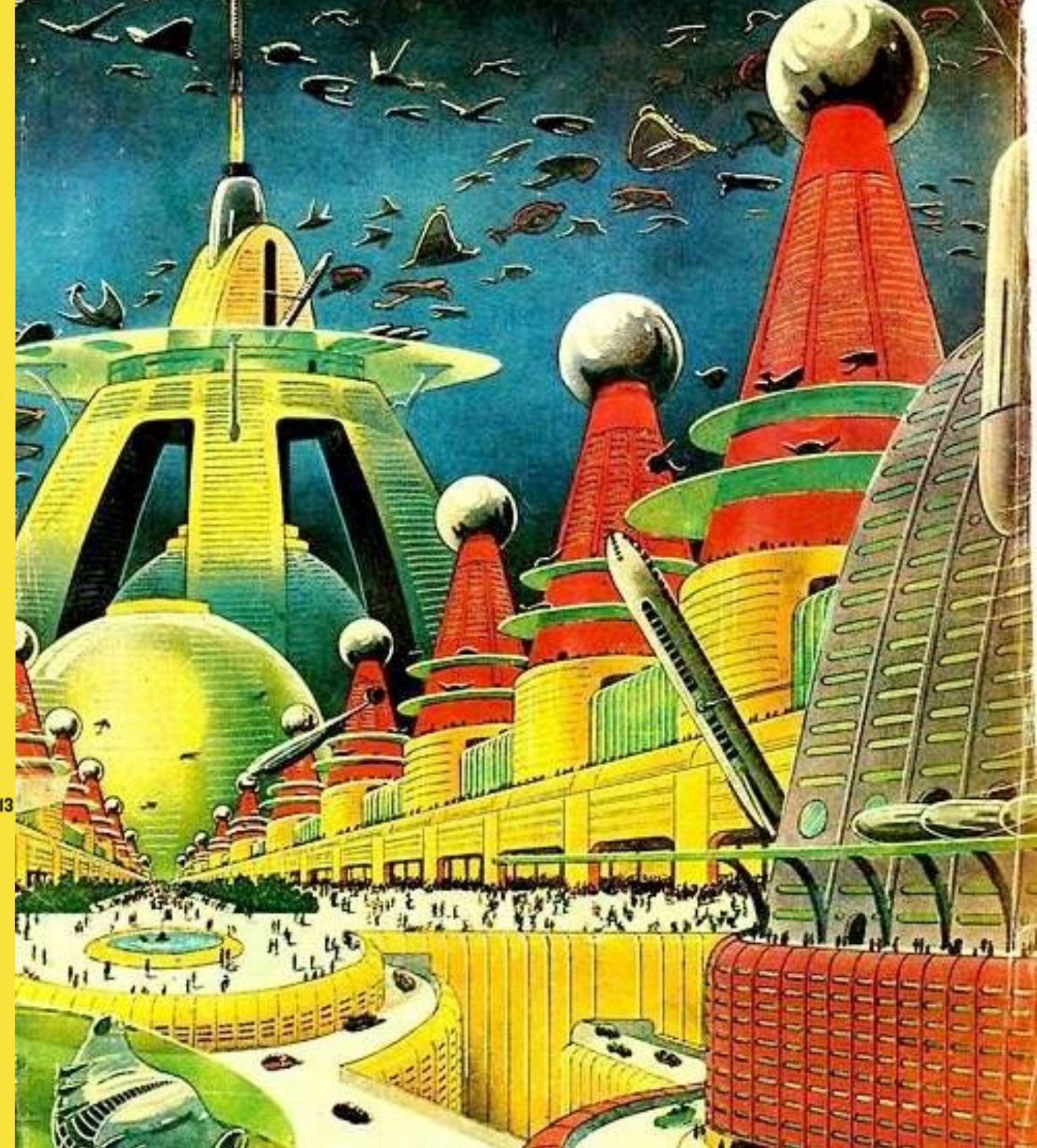
### Decoupling Productivity and Employment

Digital technologies have boosted productivity in the United States without also spurring the expected job growth, argue Erik Brynjolfsson and Andrew McAfee. A result of this decoupling is that while gross domestic product (GDP) has risen, median income has not, and inequality has grown.



### Economic Impacts of AI & Automation:

- Increasing income inequality
- Reducing demand for physical spaces – commercial office and retail real estate
- Changing traffic patterns – decentralization of CBDs
- General deflationary effect on the economy





# 2. ARTIFICIAL INTELLIGENCE:

## TECHNOLOGICAL CHANGE & INFLATION

### The Broad Deflationary Impact of Technological Change:

- [Vanguard's research on technology's deflationary effect on the economy](#)
- Full employment but low inflation
- Growing reach of "Moore's Law"



Figure 2. Moore's Law is a drag (on inflation)

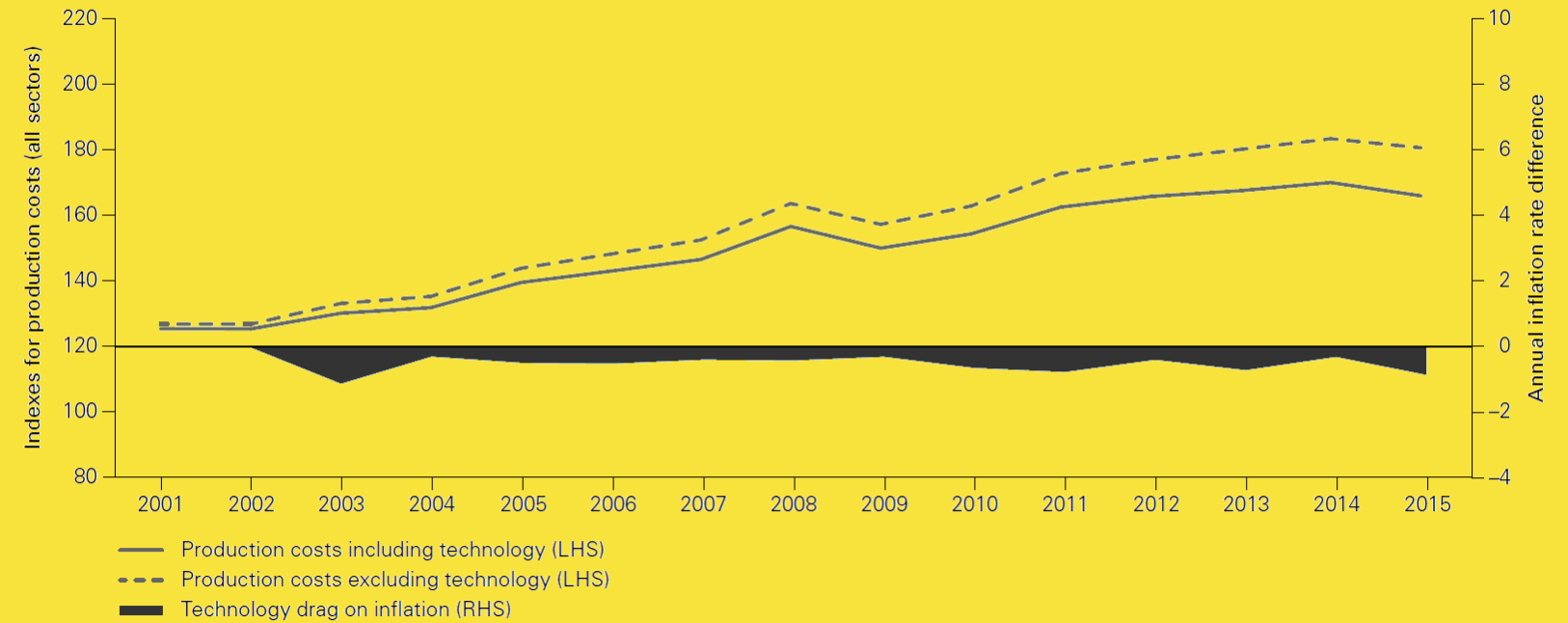
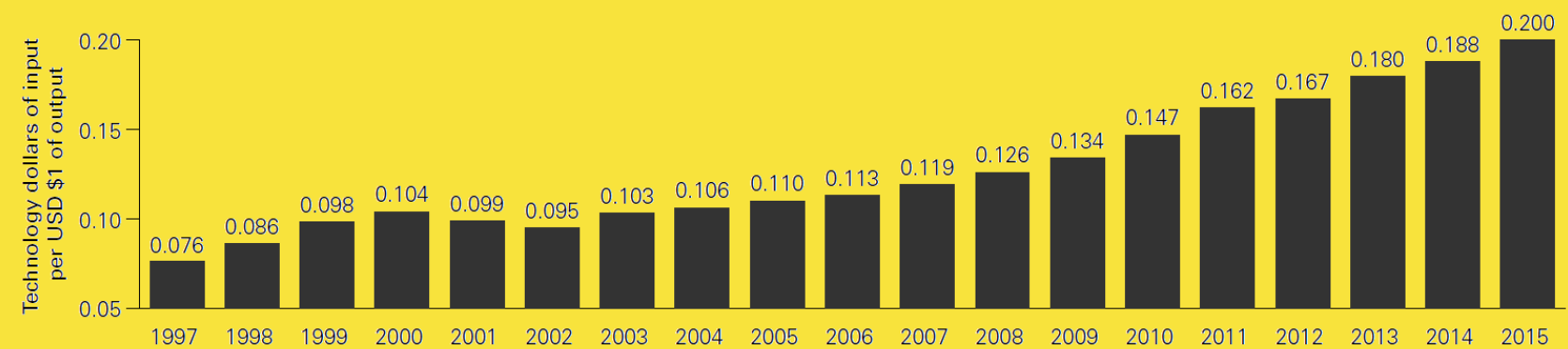


Figure 3. Technology's role increases as costs continue to fall



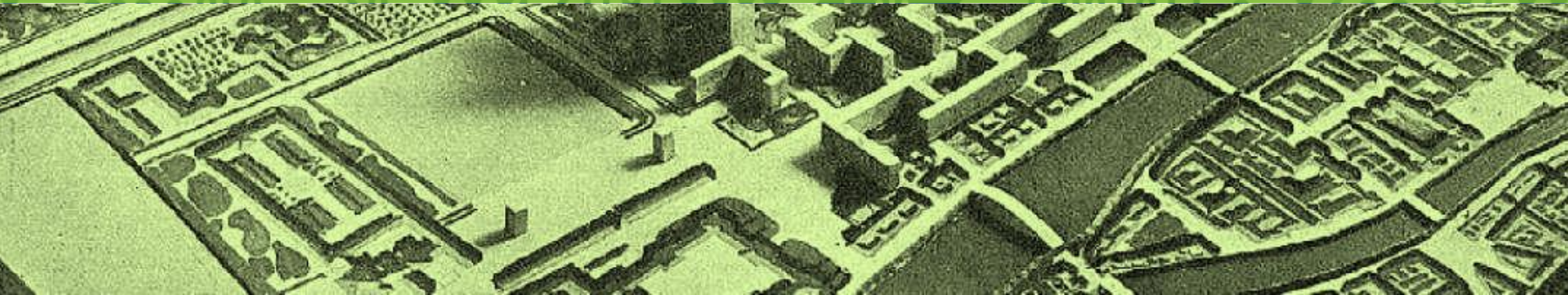
Notes: Data cover January 1997 through December 2015.

Sources: Vanguard calculations, based on BEA input-output tables and Thomson Reuters Datastream.





# The Path Forward for Cities?

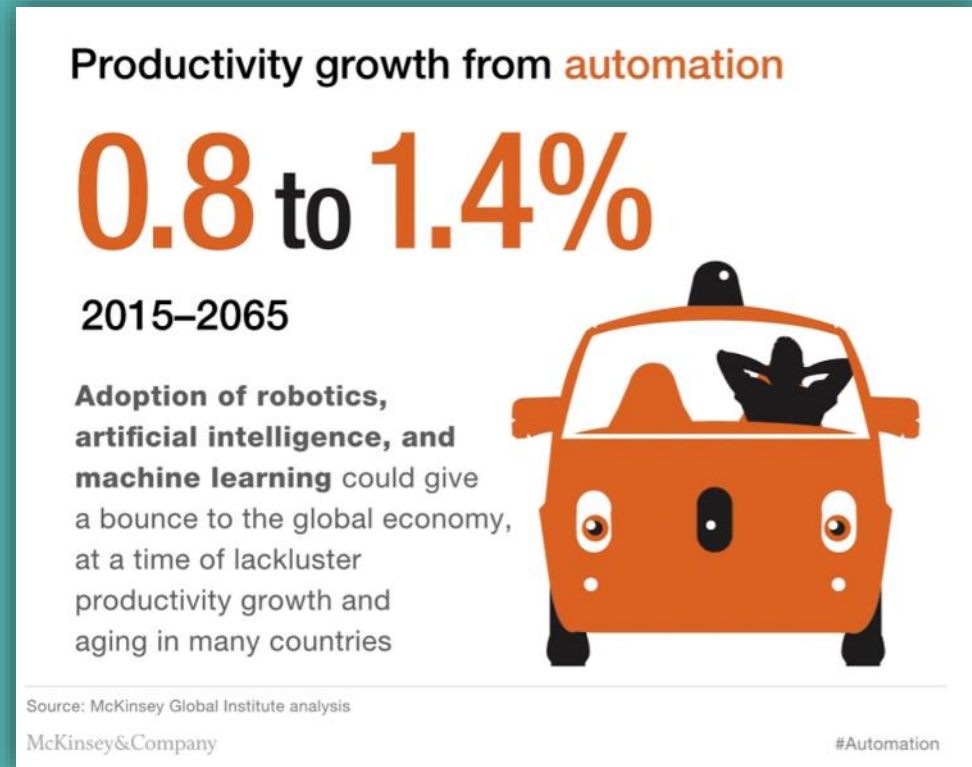




# THE FUTURE OF WORK?

## How Automation & Tech Affect Work

- Many activities that workers carry out today have the potential to be automated
- About 60 percent of all occupations have at least 30 percent of activities that are technically automatable,



Concept for redevelopment of DC's Union Market: An office building of the future that integrates co-working and active retail space to give a "neighborhood" vibe to the workplace







Urban Centers as Engines of Human Capital:  
Georgia State Law School in Atlanta, Georgia

# ECONOMIC & POLITICAL SOLUTIONS:

- Promoting lifelong learning – which is also supported by government and private enterprise ([The Economist](#))
- Shortening the work week (per Carlos Slim, [Bloomberg article](#))
- Providing “social dividends” that compensate citizens for jobs lost by technology ([Financial Times article](#))
- The World Economic Forum in Davos has been discussing “Universal Basic Income” ([The Institute for New Economic Thinking](#))
- Create incentives for private-sector investment to treat human capital like other capital ([McKinsey](#))



# URBAN DESIGN SOLUTIONS:

## Can City Design Promote Equality?

- **Walkable environments** & pedestrian safety: pedestrian-only zones – sanctuaries from vehicular traffic
- **Mix of uses** supporting pedestrian activity – adaptive reuse of buildings with outdated uses
- **Affordable housing**; micro units & tiny houses
- **Accessible public spaces** that are open to all people
- **Tactical urbanism**: empowering citizens to create public spaces
- **Sustainable development**: designed around solar & renewables

...and more





# City Design & Autonomous Vehicles

- [LoopNYC](#): one lane in each direction dedicated to self-driving cars on the highways that outline Manhattan and also turn several major cross streets into expressways for autonomous vehicles, adding pedestrian overpasses to keep people off streets
- “Public Square,” by FXFOWLE, provides New York City a way to rethink its streets and reclaim space for pedestrians - winner of [The Driverless Future Challenge](#)



LoopNYC: New York City Reimagined through Autonomous Vehicles



Turning Broadway into Open Space



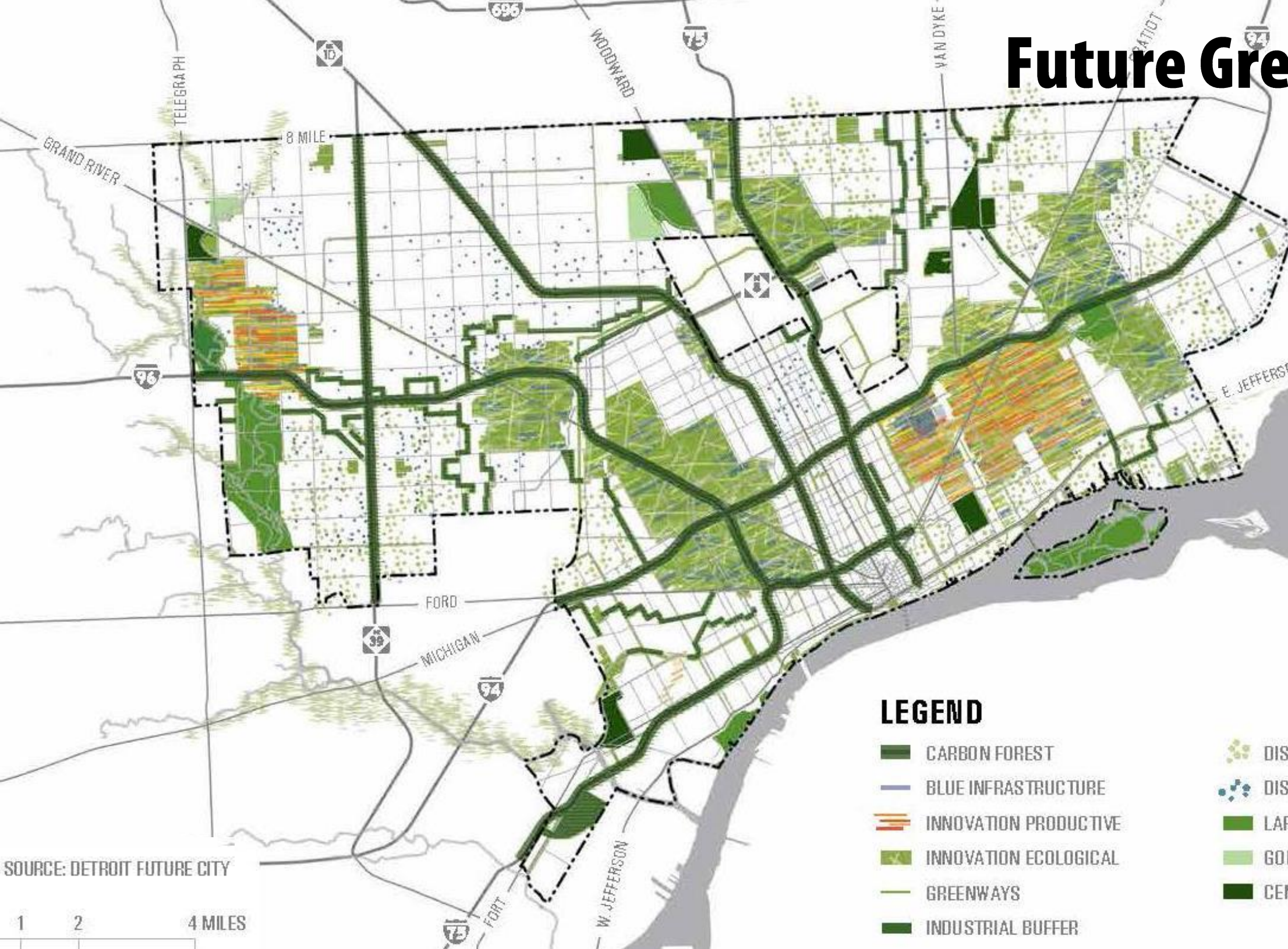
The Driverless Future Challenge



# Future Green Infrastructure

Increasing the amount of green infrastructure can connect people to

- natural resources
- cultural destinations
- employment
- healthy food options



## LEGEND

- |                       |                               |
|-----------------------|-------------------------------|
| CARBON FOREST         | DISPERSED GREEN LANDSCAPE     |
| BLUE INFRASTRUCTURE   | DISPERSED BLUE INFRASTRUCTURE |
| INNOVATION PRODUCTIVE | LARGE PARK                    |
| INNOVATION ECOLOGICAL | GOLF COURSE                   |
| GREENWAYS             | CEMETERY                      |
| INDUSTRIAL BUFFER     |                               |

SOURCE: DETROIT FUTURE CITY

1 2 4 MILES



The background of the image is a solid blue color with a repeating pattern of white lines and small circles, resembling a printed circuit board (PCB) or a network diagram. The pattern consists of interconnected lines and nodes, creating a complex, maze-like structure. The word "Discussion" is centered in the middle of the image in a white, bold, sans-serif font.

# Discussion