FLINT HILLS
REGION

Flint Hills Region - Future Think-Tank
PART 1

Think-Tank Part 1

FLINT HILLS REGION

Flint Hills Regional Council
Sustainability Plan

PHASE 1
Discover Perceptions

- REVIEW STATUS
- LISTENING SESSIONS
- COMMUNICATIONS

November – December

PHASE 2
Define Strategic Proposition
(Region and FHRC)

- FUTURE THINK TANK (Part 1 & 2)
- REGIONAL SURVEYS
- FOCUS GROUPS
- STAKEHOLDER INTERVIEWS
- BOARD DISCUSSIONS

December - March

PHASE 3
Develop and Communicate

- FHRC SUSTAINABILITY PLAN
- FUTURE SUMMIT

February – April

Flint Hills Region – Future Think-Tank

FLINT HILLS REGION

Part 1 – Forces of change

- Macro trends shaping the future
- Key drives shaping the future
- Rating future impact of drivers

Part 2 – Strategic proposition

- Develop plausible scenarios of the future
- Identify expected and preferred futures
- Build strategic pillars

Dec 2
2022

Jan 20
2023

FLINT HILLS REGION

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Key Emerging Trends Shaping the future of the Midwest and the Flint Hills Region

The Importance of Future Thinking

The key to effective future thinking…

- Explore and anticipate a range of plausible futures.
- Consider both **trajectory** (direction of change) and **velocity** (speed of change).
- Explore the combined impacts of multiple potential trends.

Explore potential ‘shape and contours’ of the future.

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The challenge for the Think-Tank

- Explore the future -
- Ask the hard questions -
- Think creatively -

The outcome may be a new view of the future.

In a time of change and uncertainty….

- Which trends are being amplified and accelerated?
- What changes might be more elastic?
- Where are the potential tipping points?

Forces impacting the world, regions and people

What are the emerging macro drivers…

Macro Trends and Forces of Change Related to . . .

- Demographics, population and mass urbanization
- Energy, food, water & climate change
- Technology driving change

Demographics, population and mass urbanization

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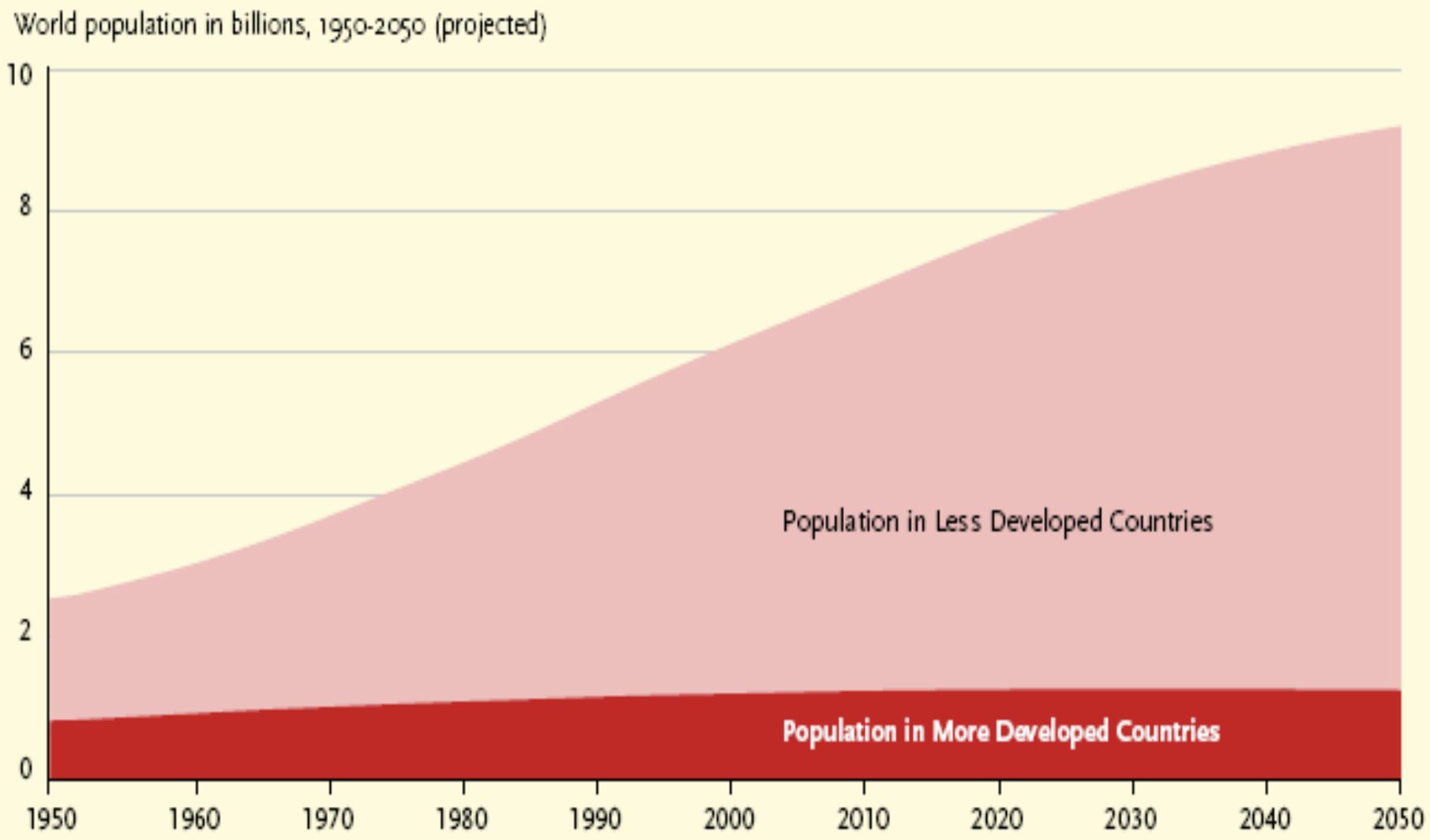
Global Population Growth Is Driven By Developing Countries.

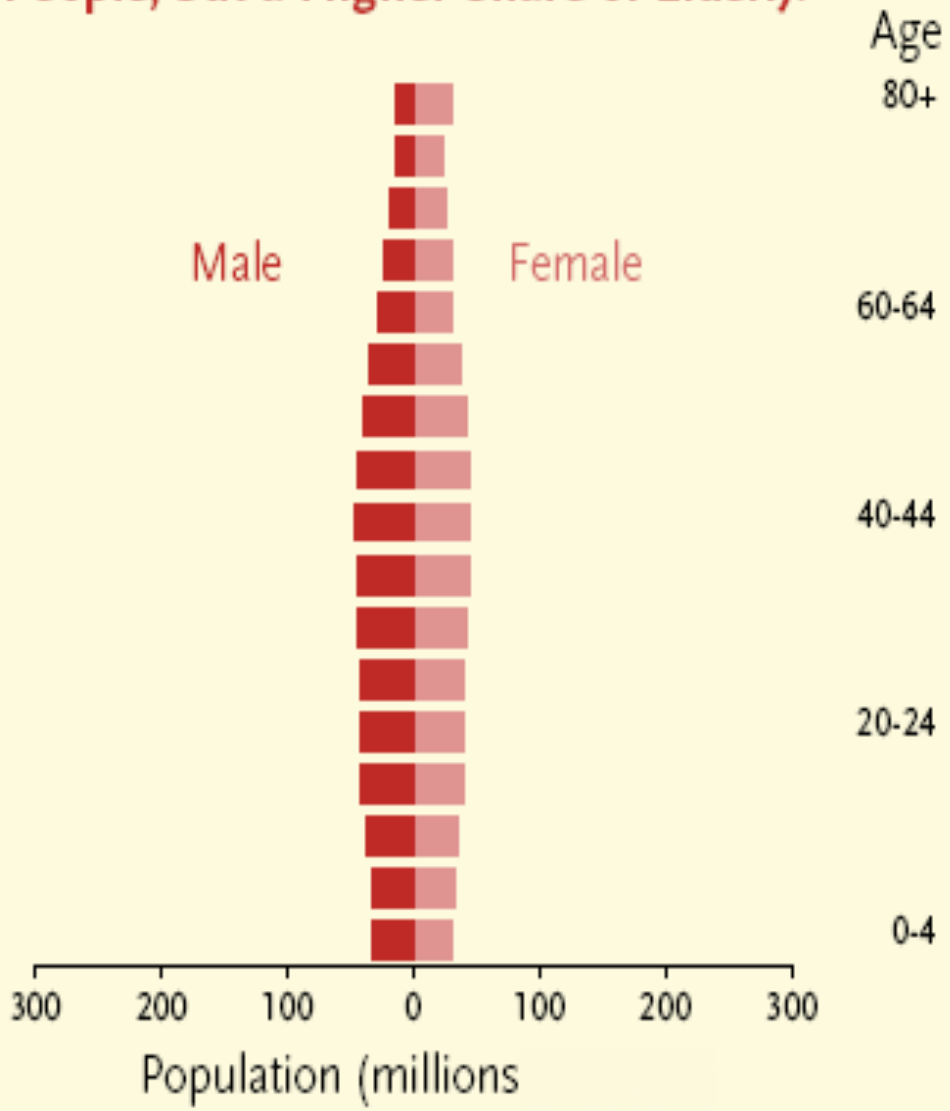


SOURCE: United Nations, *World Population Prospects:*

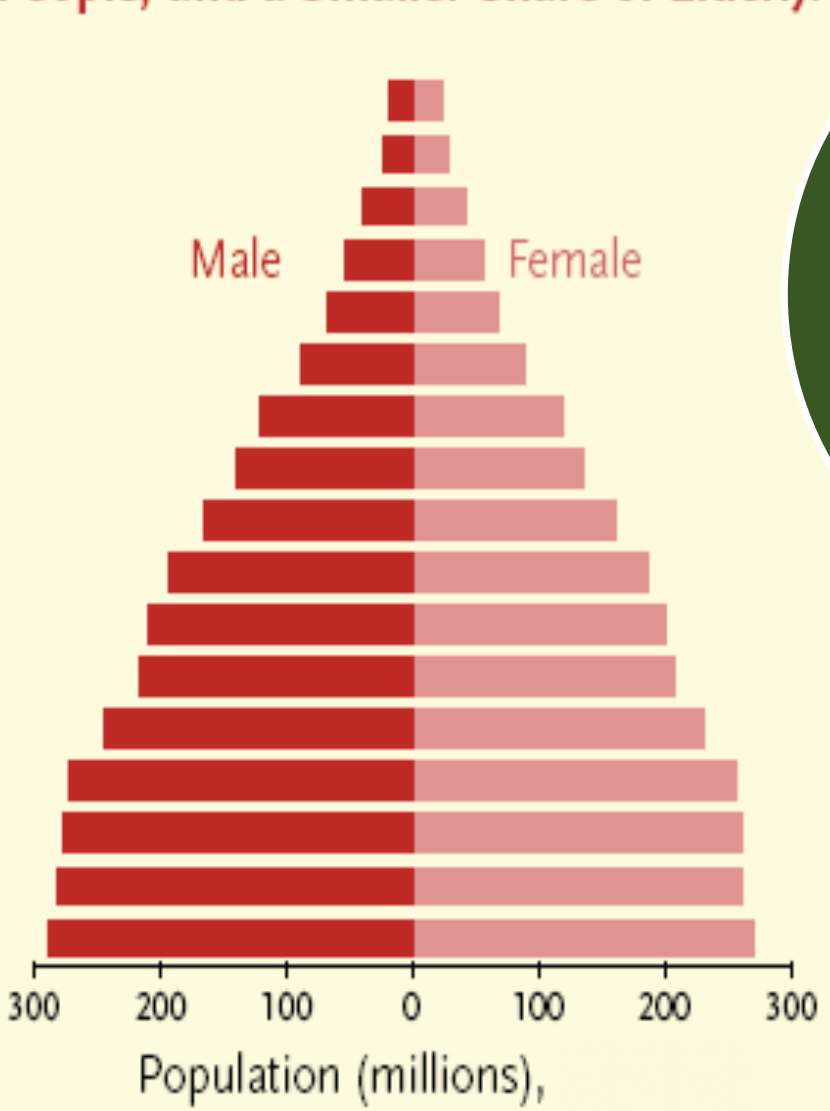
Global population

Global population age profiles

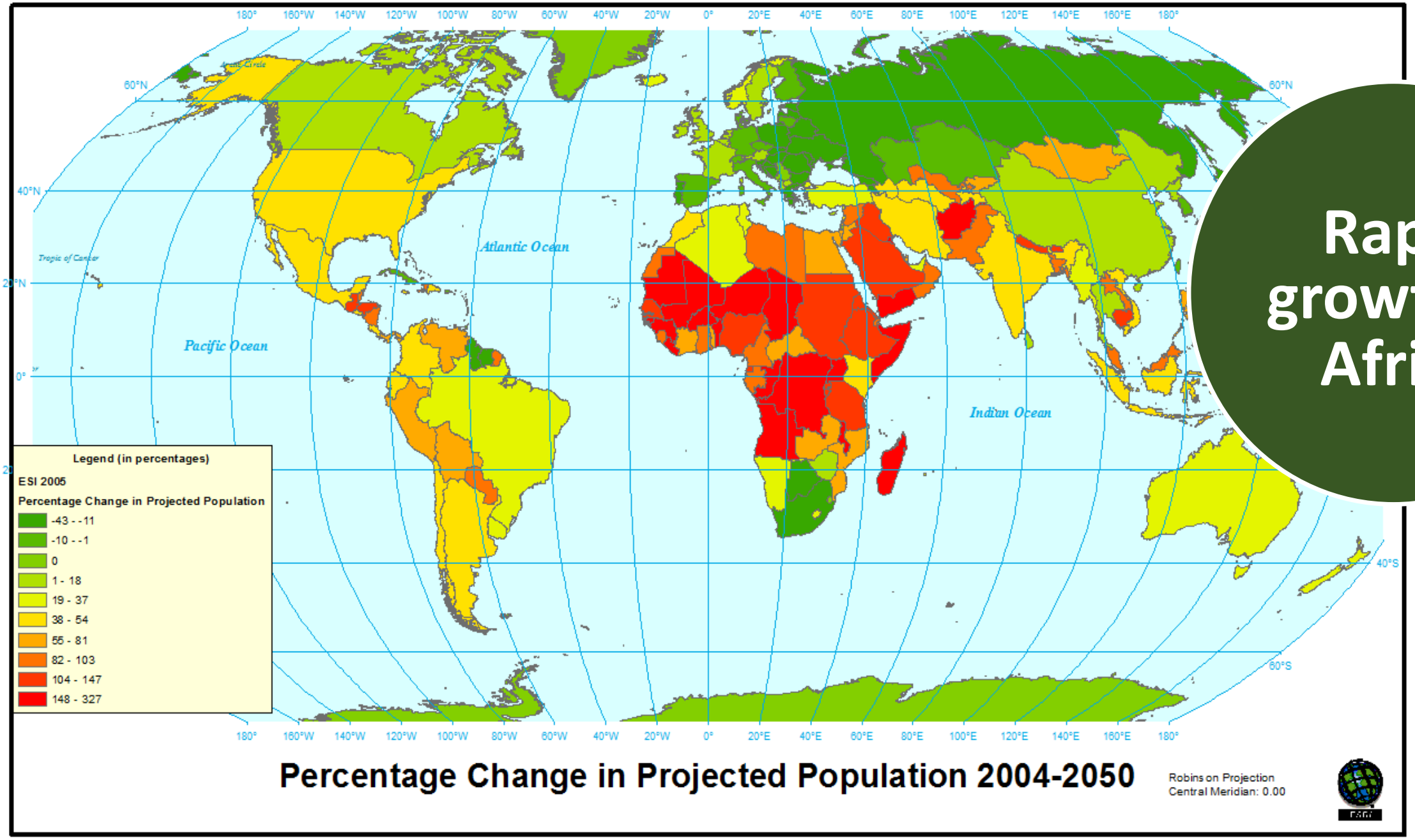
Developed Countries Have Fewer Young People, but a Higher Share of Elderly.



Developing Countries Have More Young People, and a Smaller Share of Elderly.



SOURCE: United Nations, *World Population Prospects:*


Rapid growth in Africa
Legend (in percentages)
ESI 2005
Percentage Change in Projected Population
-43 - -11
-10 - -1
0
1 - 18
19 - 37
38 - 54
55 - 81
82 - 103
104 - 147
148 - 327
Atlantic Ocean
Pacific Ocean
Indian Ocean
Tropic of Cancer
60°N
40°N
0°
40°S
60°S
180° 160°W 140°W 120°W 100°W 80°W 60°W 40°W 20°W 0° 20°E 40°E 60°E 80°E 100°E 120°E 140°E 160°E 180°
Percentage Change in Projected Population 2004-2050
Robinson Projection
Central Meridian: 0.00

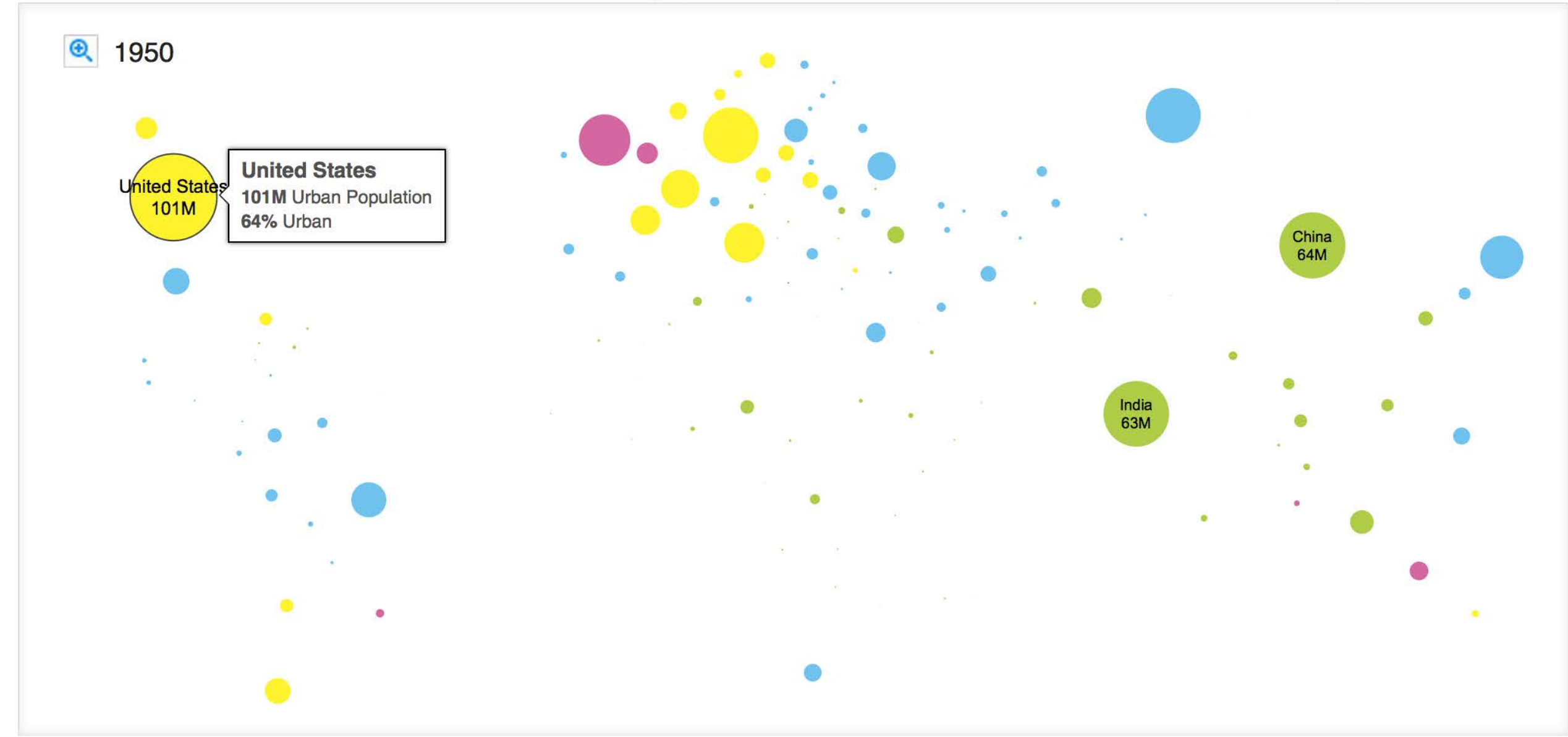
unicef

AN URBAN WORLD

This graphic depicts countries and territories with 2050 urban populations exceeding 100,000. Circles are scaled in proportion to urban population size. Hover over a country to see how urban it is (percentage of people living in cities and towns) and the size of its urban population (in millions).

Urban Population
- Greater than 75%
- 50% - 75%
- 25% - 50%
- Less than 25%

1950



unicef

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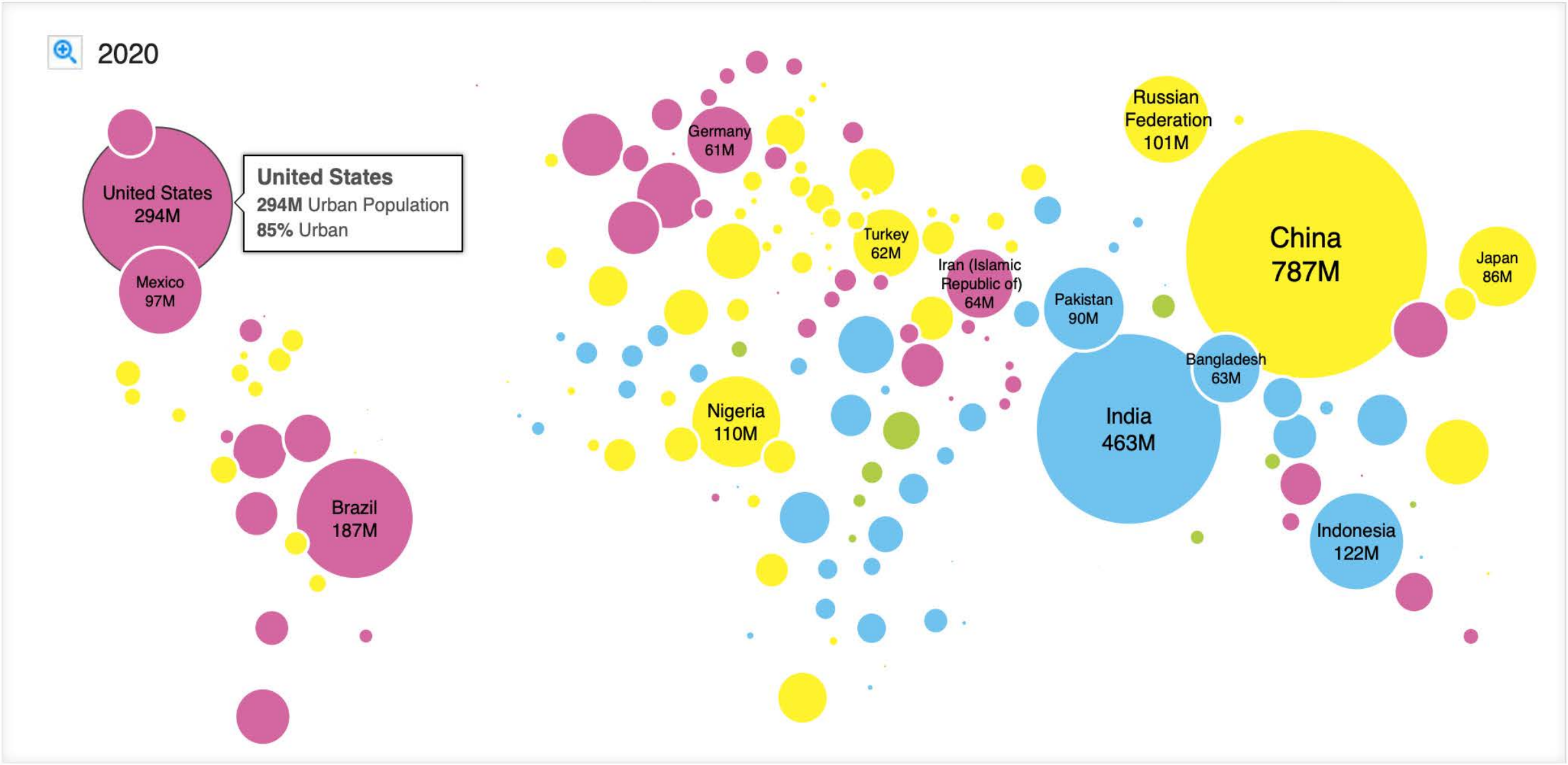

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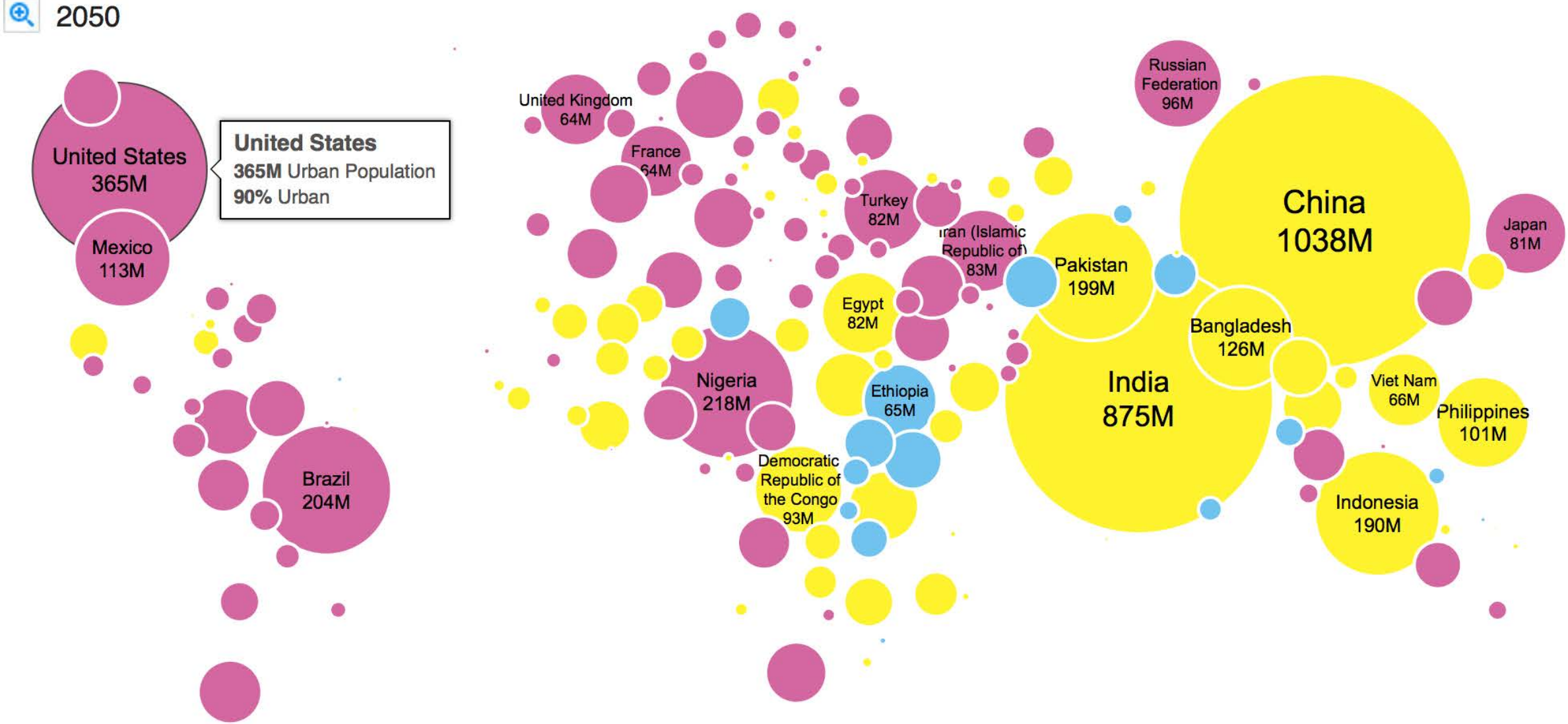
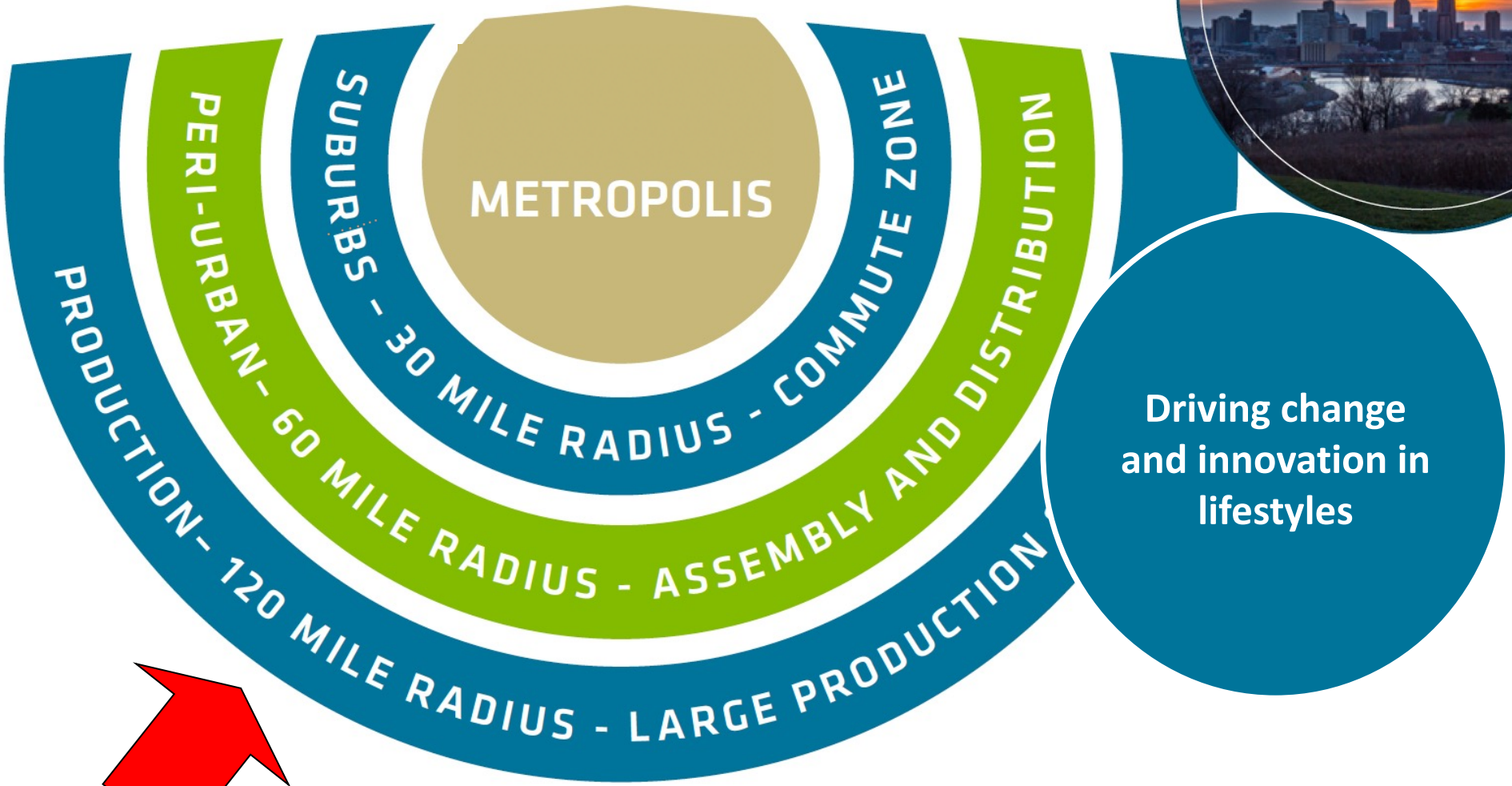
2050



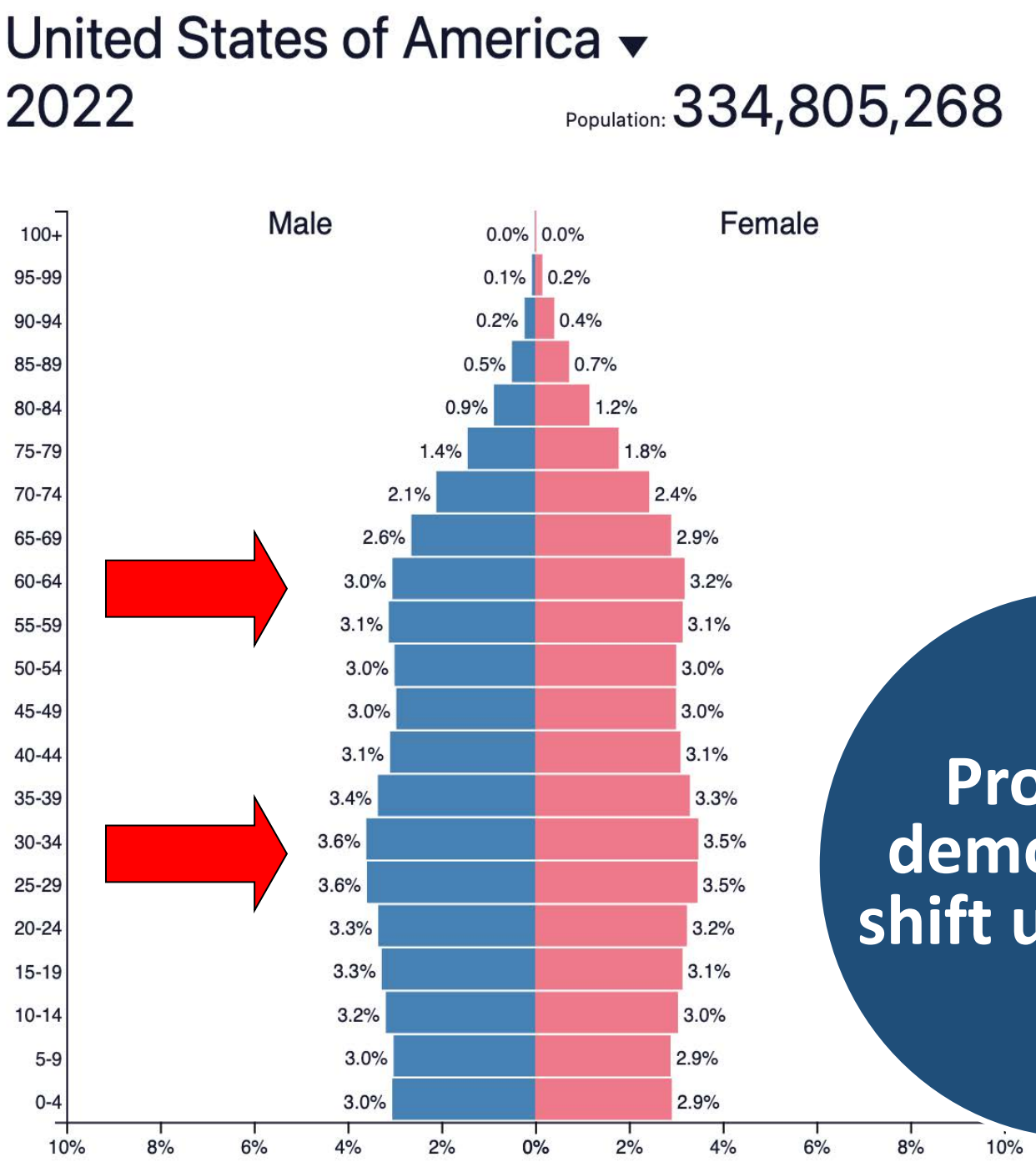
Arc of Innovation

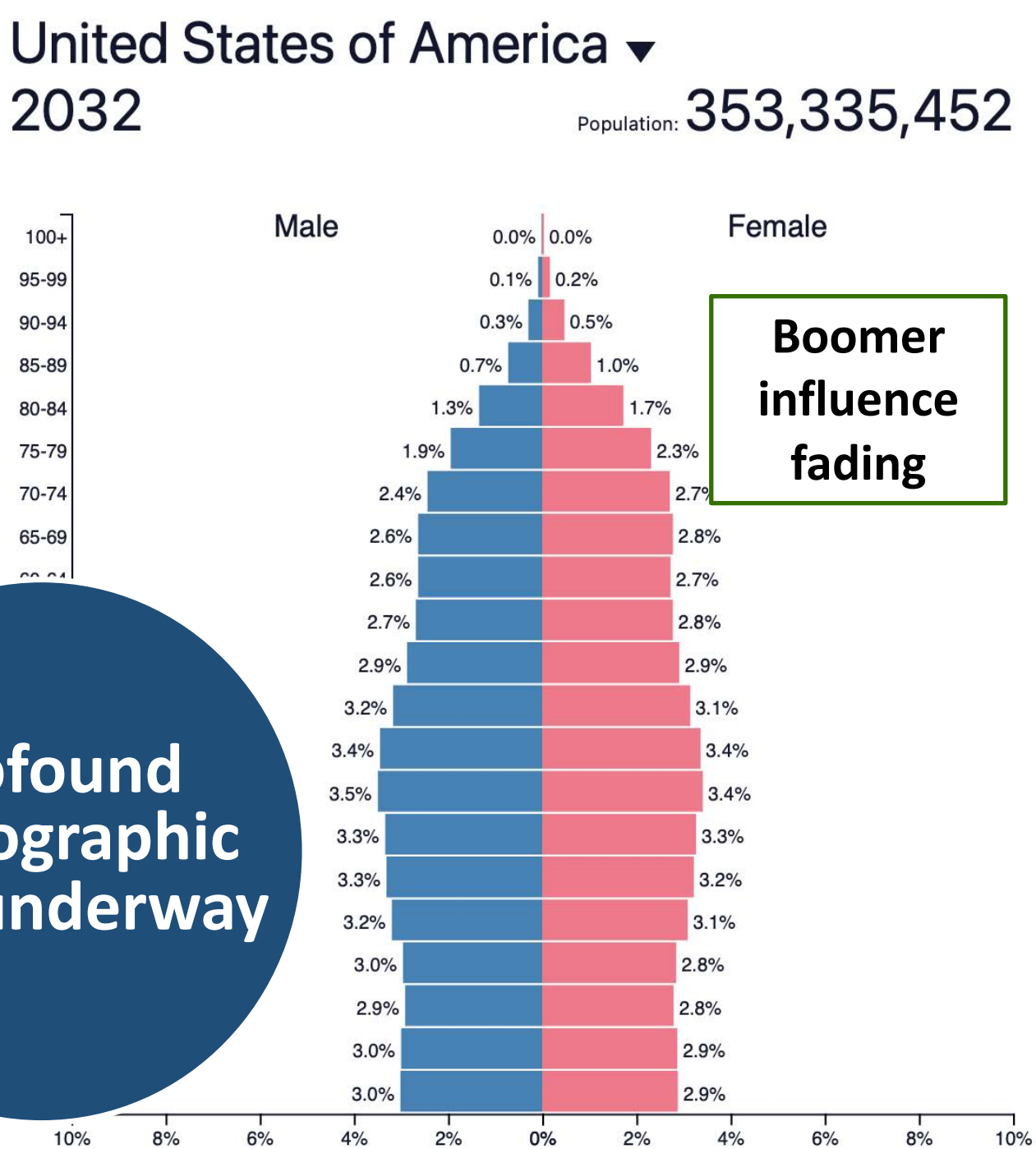
Future-Splitting Questions™



Driving change and innovation in lifestyles

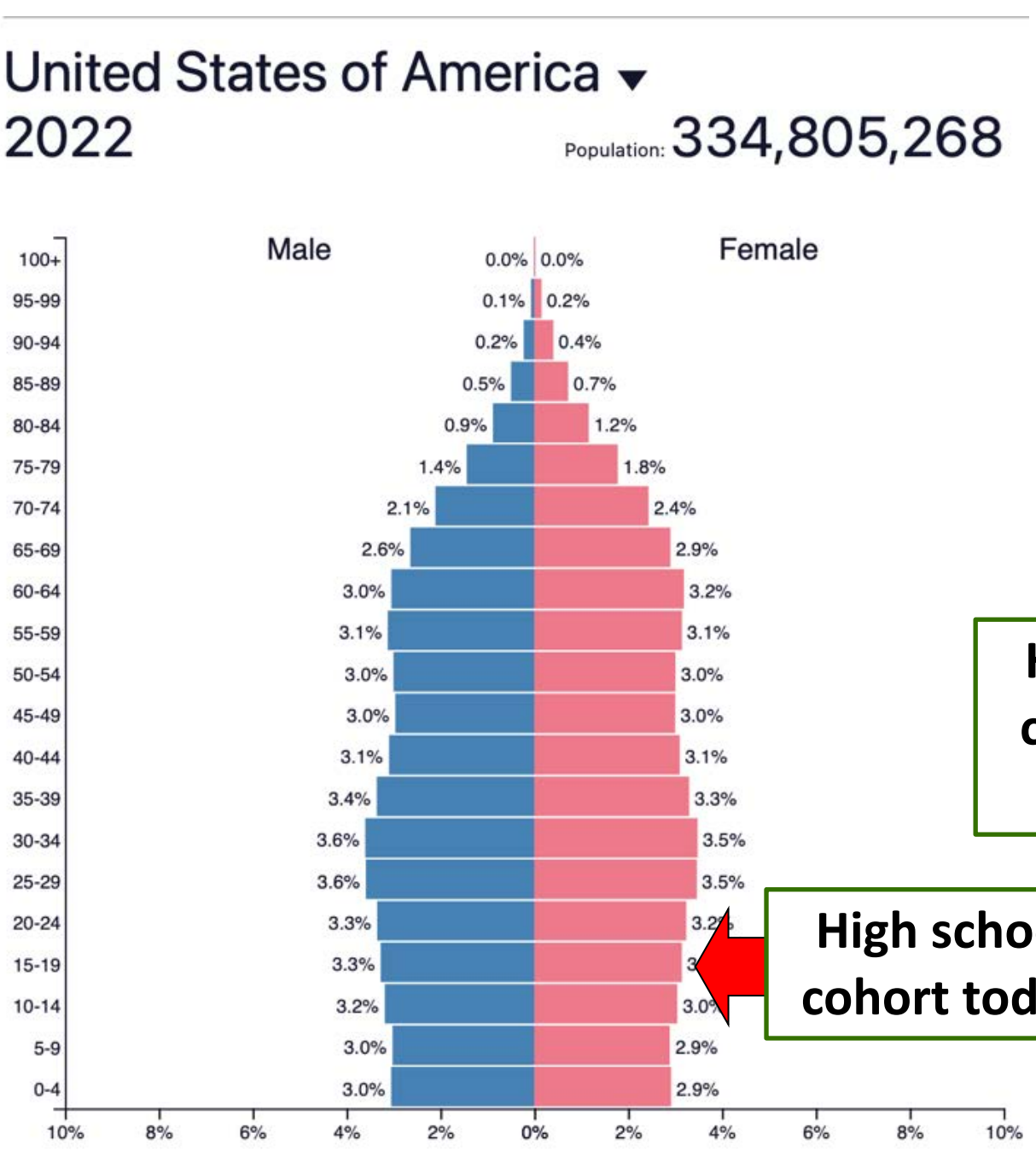
Society is re-distributing into and around mega-cities





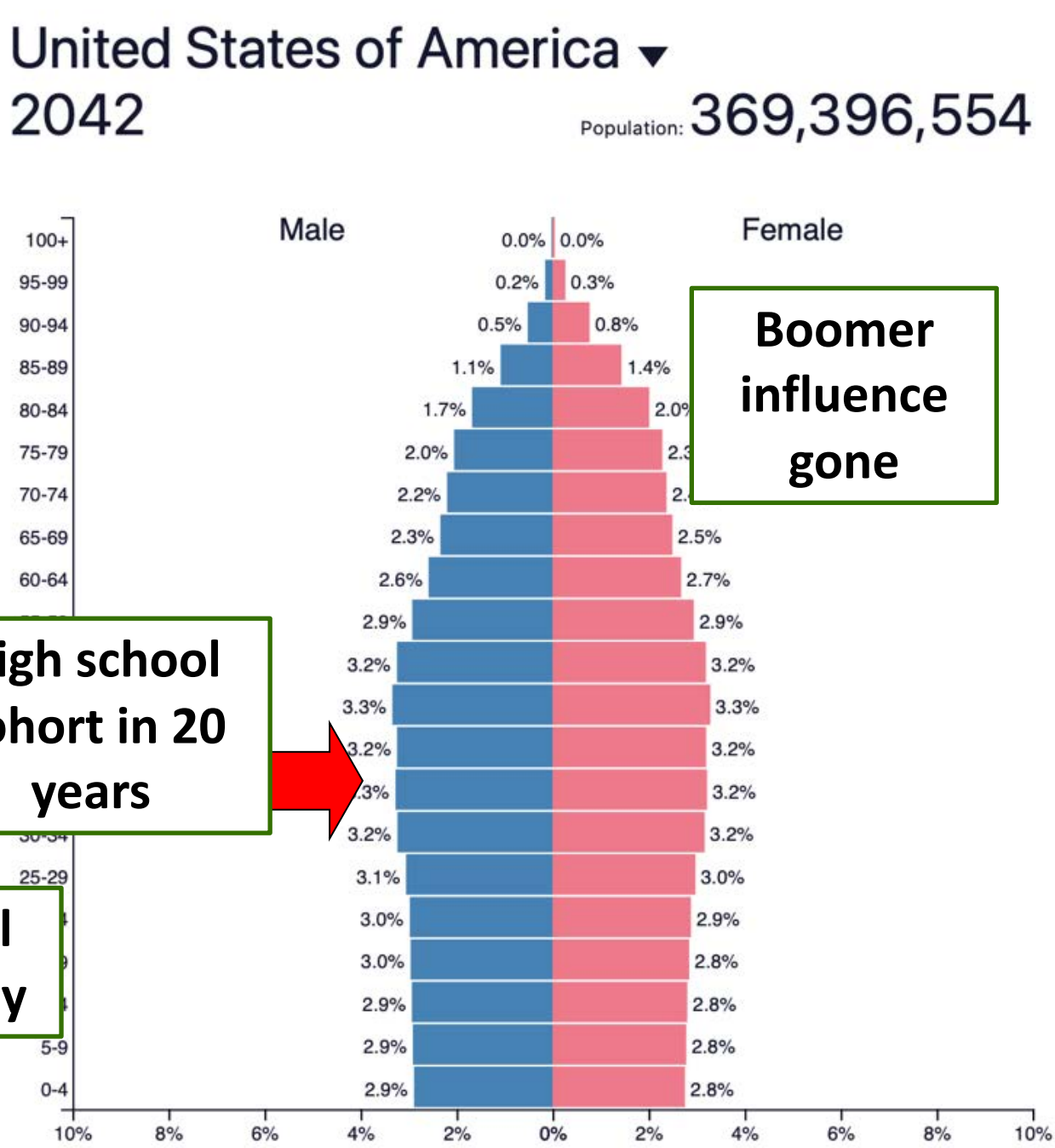
Boomer influence fading

Profound demographic shift underway



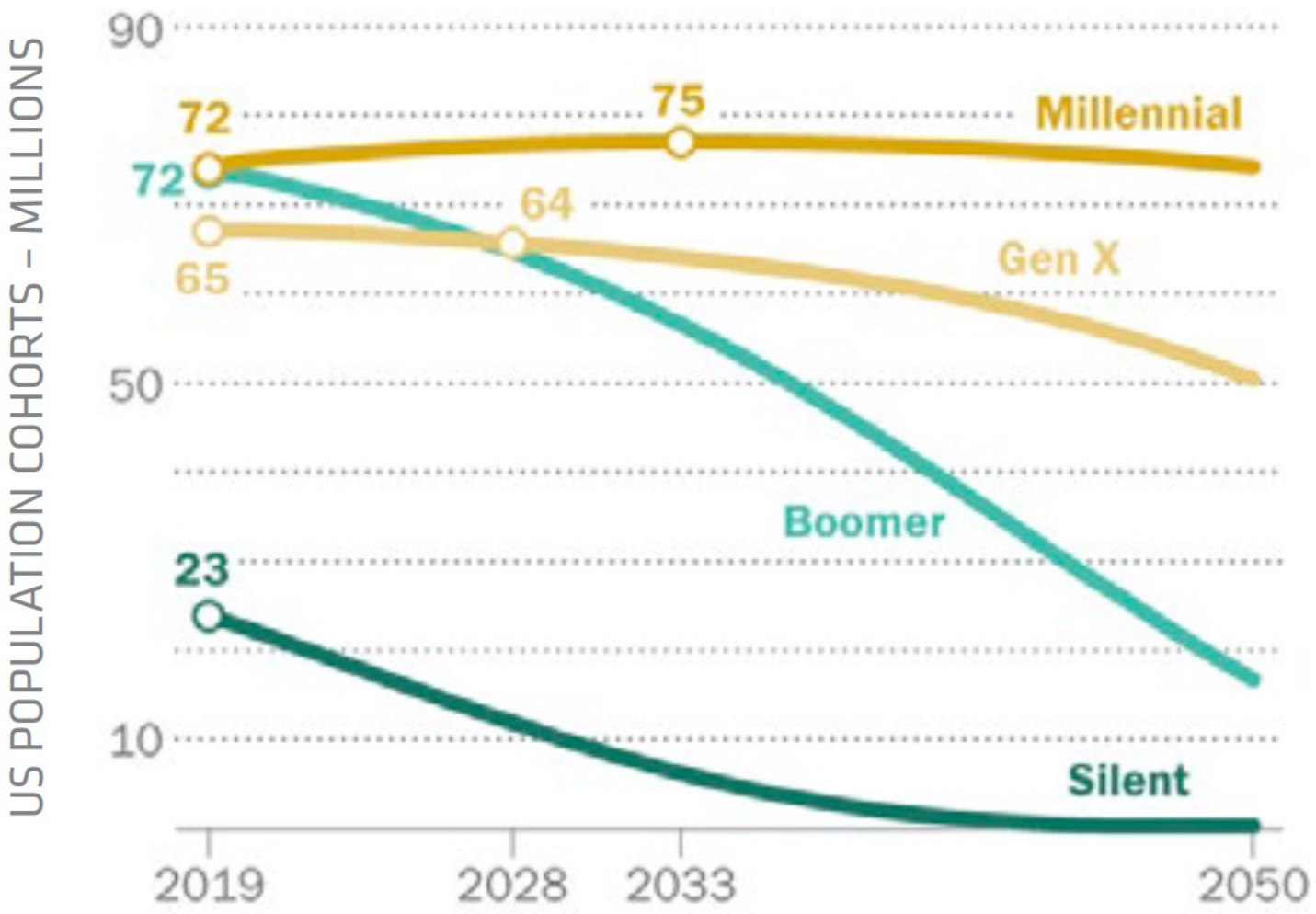
High school cohort today

High school cohort in 20 years



Boomer influence gone

US Projected population by generation (millions)



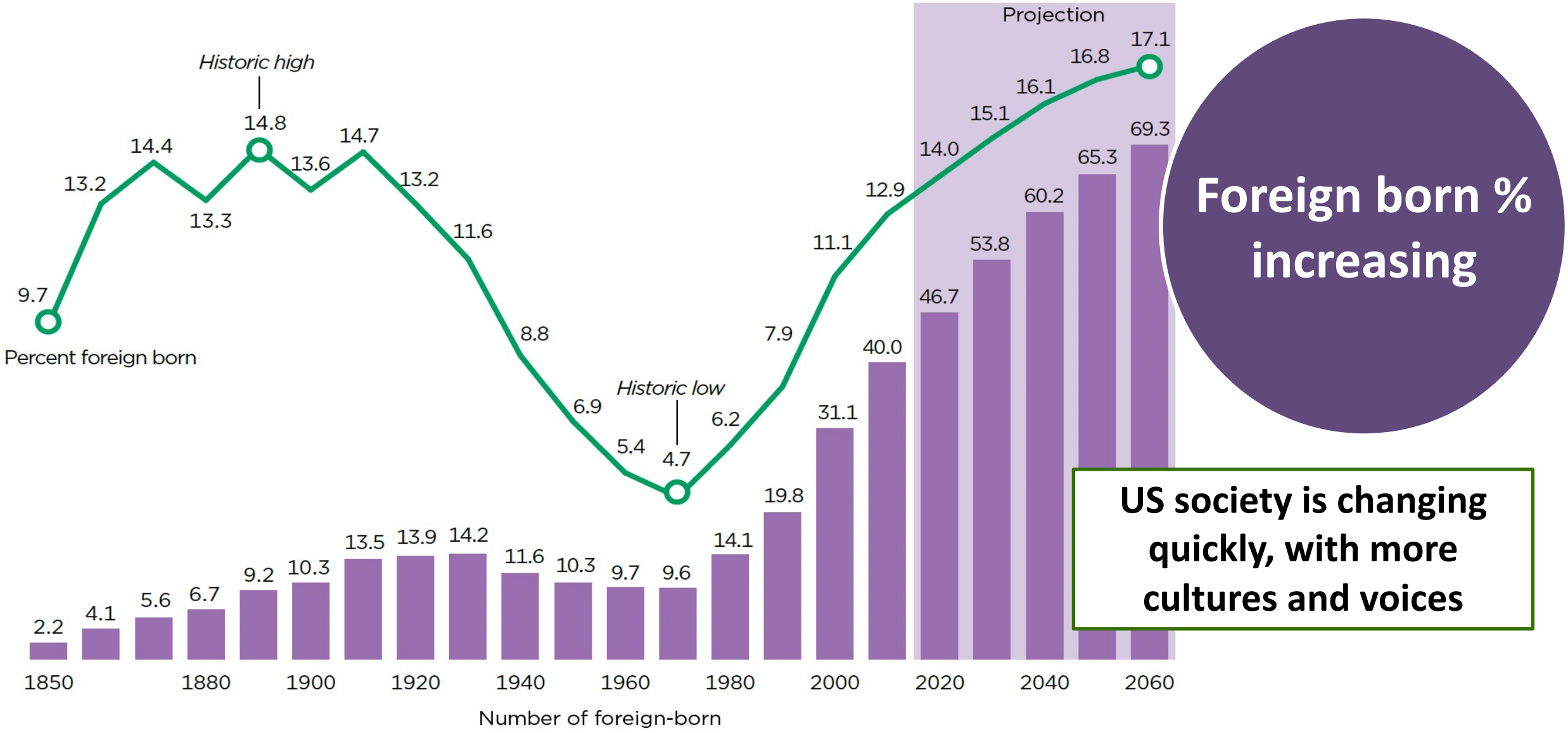
Millennial cohort will dominate for the next 30 years

The decade of the 2020's will see rapid shift in generational influence – Workforce and Workplaces will transform

Source: PEW Research Center – tabulations based on U.S. Census Bureau population estimates released April 2020 and population projections released December 2017. (Millennials refers to the population ages of 23 to 28, as of 2019).

Foreign-Born People Living in the United States: 1850 to 2010, Projected 202 to 2060

By 2028, the foreign-born share of the U.S. population is projected to be higher than at any time since 1850.



Foreign born % increasing

US society is changing quickly, with more cultures and voices

Source: U.S. Census Bureau, 1850-2000 Decennial Censuses, American Community Survey 2010, 2017 National Population Projections for 2020-2060.

Shifting societal values

Predictions and observations

- Generational change is coming which will trigger widespread upheaval of norms.
- People and industries will continue to cluster around mega-cities, in specialized cities and regional centers.

Demographic + Population + Mass Urbanization

What does this mean for the
the future of the Flint Hills region?

FLINT HILLS
REGION

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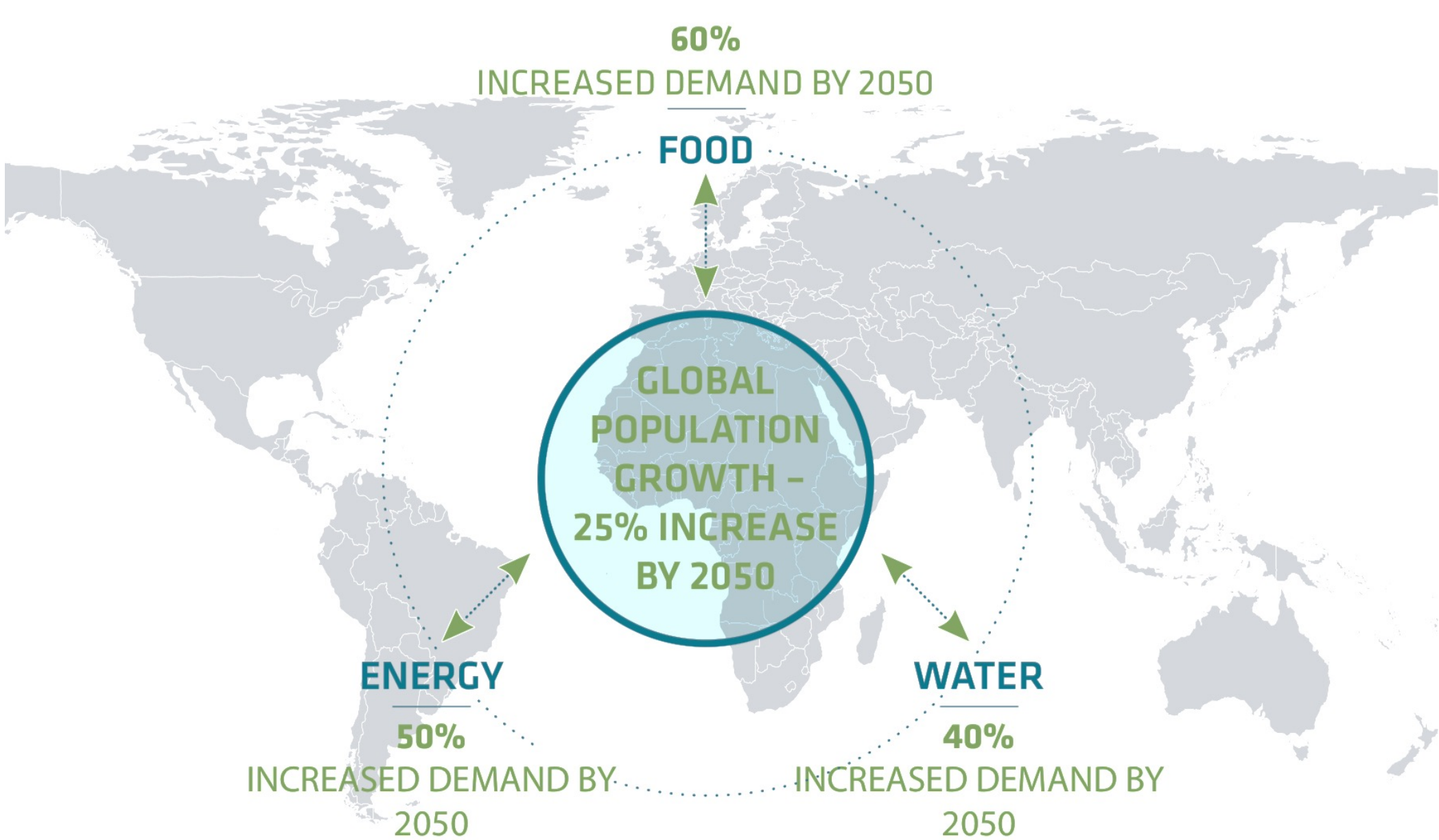
Energy + Water + Food + Climate Change



Adapted from work by Prof. Nicholas Jordan, University of Minnesota (2015)

Renewable Energy

Potential for unlimited cheap energy

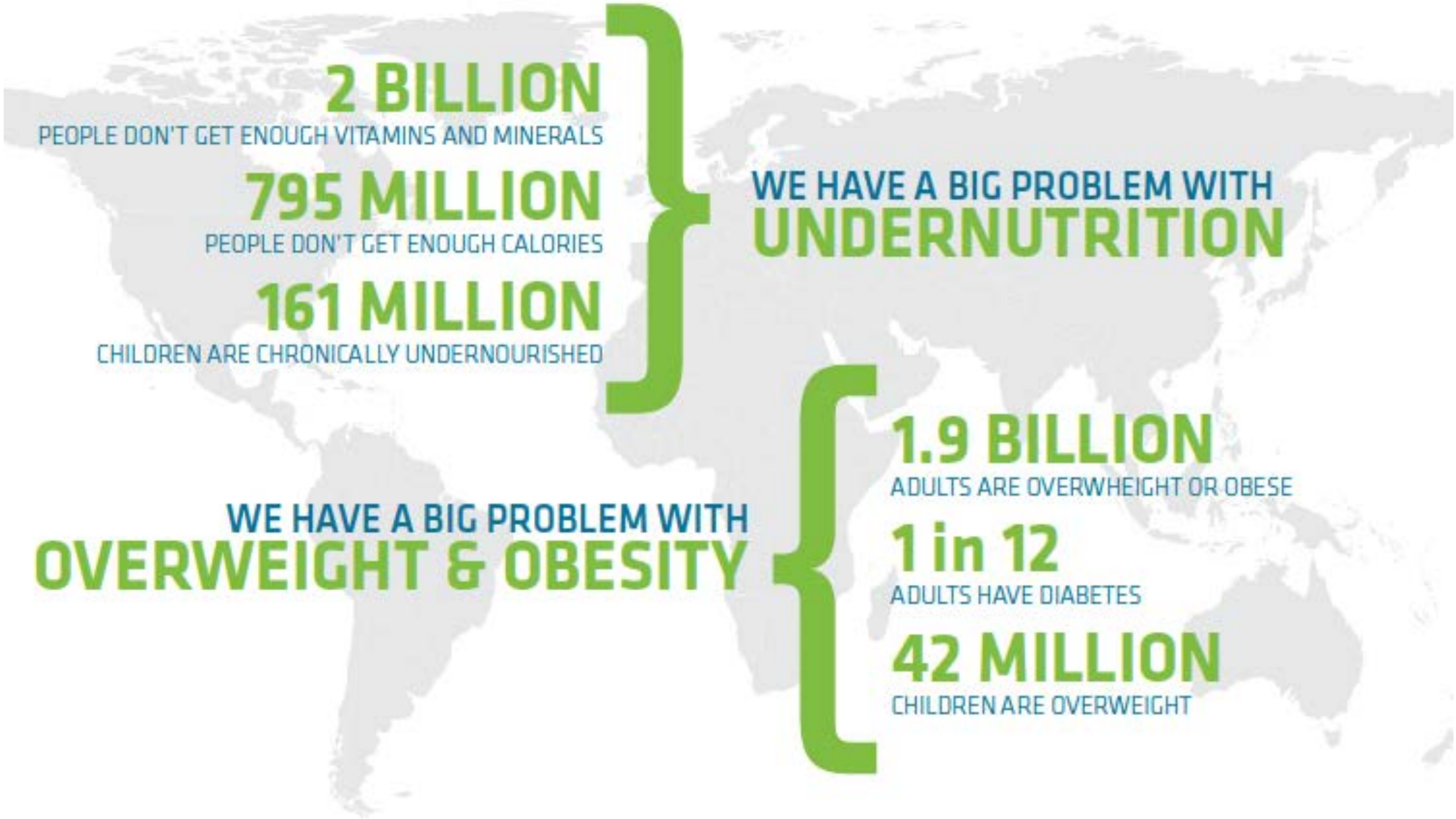
Electrification of the world is accelerating, driven by renewable energy

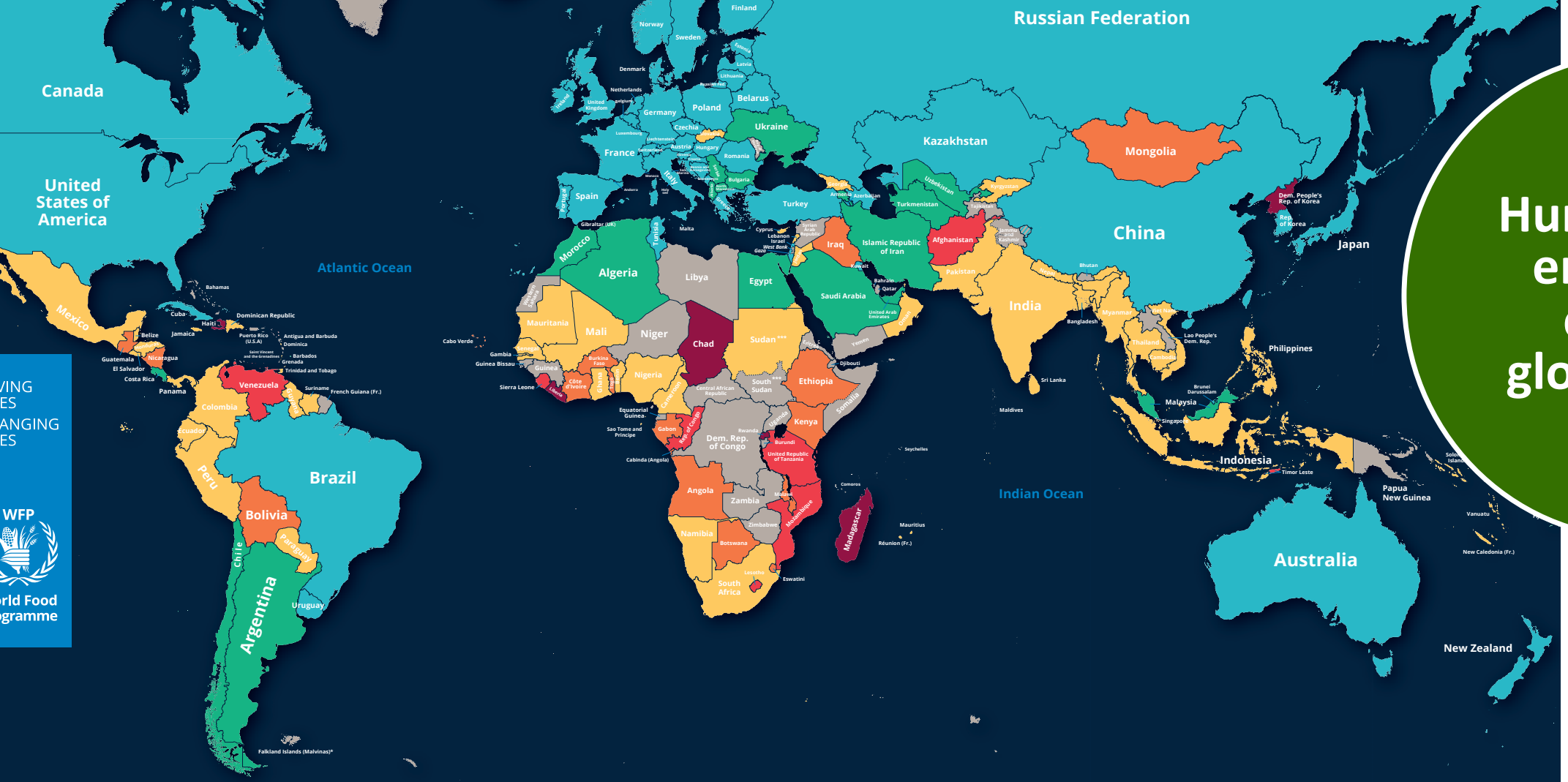
FRESH WATER

- Nearly 450 million people in 29 countries now face severe water shortages
- As much as 2/3 of the world population could be water-stressed by 2025
- Half the world's rivers and lakes are seriously polluted

- Irrigation uses 70% of the world's fresh water
- Water scarcity will be the chief constraint to increased food production
- The threat to water resources stands as one of the major crises facing the planet

Upper-middle and northeast USA has 20% of global surface freshwater resources


2 BILLION
PEOPLE DON'T GET ENOUGH VITAMINS AND MINERALS
795 MILLION
PEOPLE DON'T GET ENOUGH CALORIES
161 MILLION
CHILDREN ARE CHRONICALLY UNDERNOURISHED
WE HAVE A BIG PROBLEM WITH
UNDERNUTRITION
WE HAVE A BIG PROBLEM WITH
OVERWEIGHT & OBESITY
1.9 BILLION
ADULTS ARE OVERWHEIGHT OR OBESE
1 in 12
ADULTS HAVE DIABETES
42 MILLION
CHILDREN ARE OVERWEIGHT



Hunger is an emerging critical global issue

Hunger Map 2020

CHRONIC HUNGER

If current trends continue, the number of hungry people will reach 840 million by 2030

<2,5% | <5% | 5-14,9% | 15-24,9% | 25-34,9% | >35% | DATA NOT AVAILABLE

Prevalence of undernourishment in the total population (percent) in 2017-19

Undernourishment is defined as the condition in which an individual's habitual food consumption is insufficient to provide the amount of dietary energy required to maintain a normal, active, healthy life. The indicator is reported as the prevalence of undernourishment (PoU), which is an estimate of the percentage of individuals in the total population that are in a condition of undernourishment. To reduce the influence of possible estimation errors in some of the underlying parameters, national estimates are reported as a three-year moving average. **Source:** FAO, IFAD, UNICEF, WFP and WHO. 2020. The State of Food Security and Nutrition in the World 2020. Transforming food systems for affordable healthy diets. Rome, FAO. Further information is available at https://www.wfp.org/publications/state-food-security-and-nutrition-world-sofi-report-2020

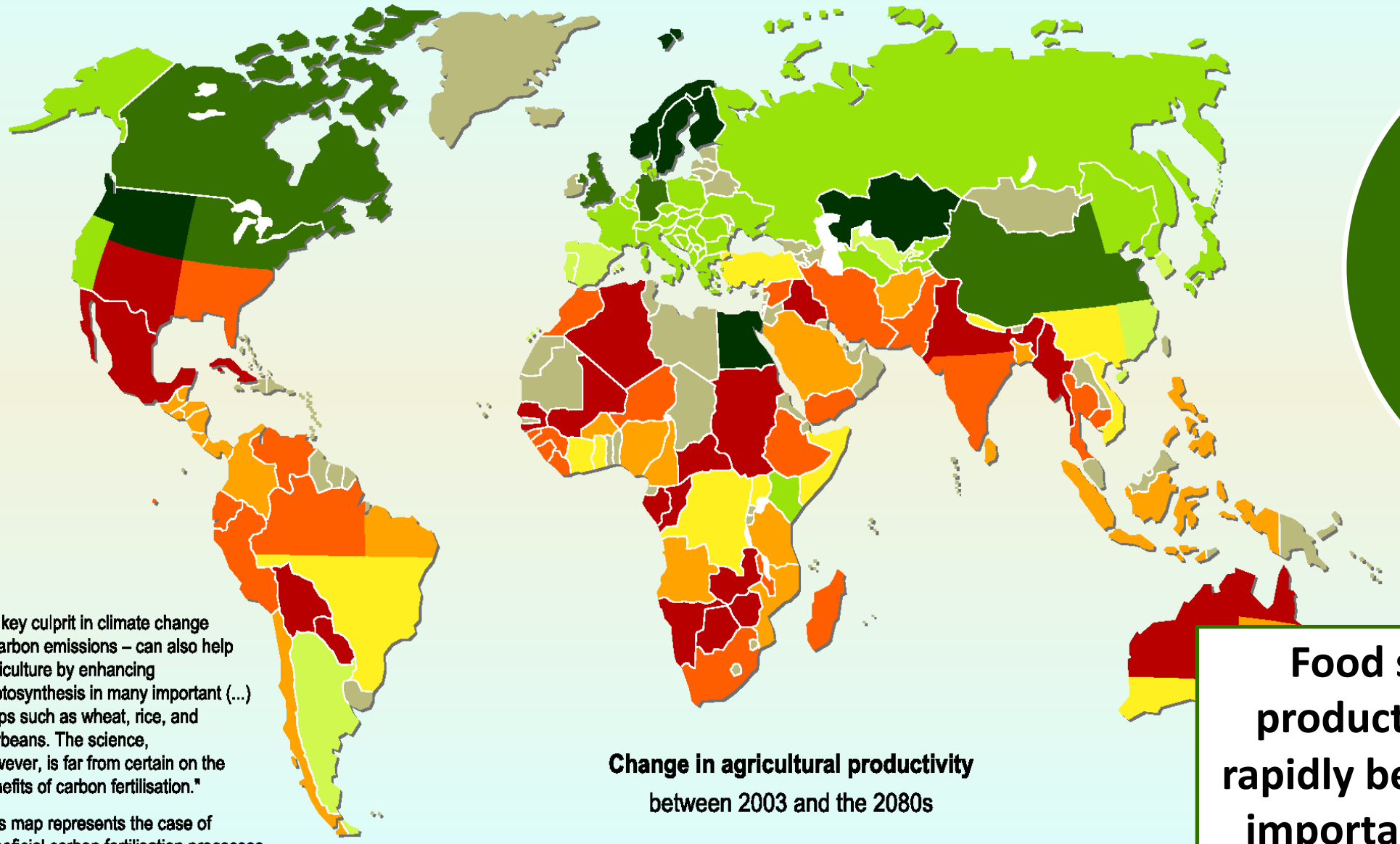
© World Food Programme 2020

The designations employed and the presentation of material in this map does not imply the expression of any opinion whatsoever on the part of WFP concerning the legal or constitutional status of any country, territory or sea area, or concerning the delimitation of frontiers.
* A dispute exists between the Governments of Argentina and the United Kingdom of Great Britain and Northern Ireland concerning sovereignty over the Falkland Islands (Malvinas).
** Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties.
*** Final boundary between the Republic of Sudan and the Republic of South Sudan has not yet been determined.

International Boundary | Armistice or International Administrative Line | Other Line of Separation | Special boundary line

2 September 2020

Projected impact of climate change on agricultural yields



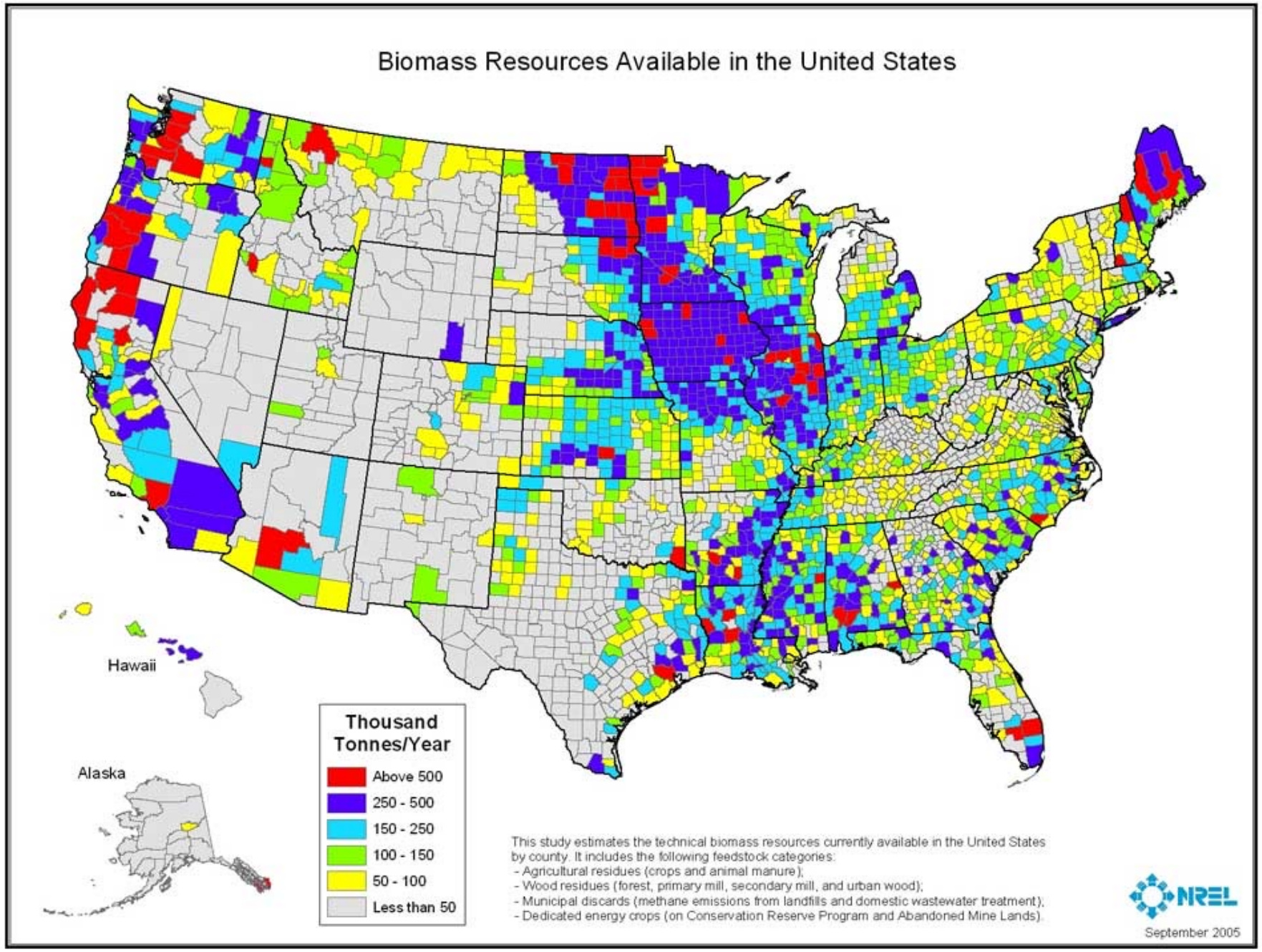
" A key culprit in climate change – carbon emissions – can also help agriculture by enhancing photosynthesis in many important (...) crops such as wheat, rice, and soybeans. The science, however, is far from certain on the benefits of carbon fertilisation."

This map represents the case of beneficial carbon fertilisation processes.

Source: Cline W., 2007, *Global Warming and Agriculture*.

Increases and decreases

Food security and production capability rapidly becoming a more important global issue



Unique biomass capability

Upper Midwest bioeconomy likely to be more globally significant over coming decades

New Climate Maps Show a Transformed United States

by Al Shaw, Abrahm Lustgarten, ProPublica, and Jeremy W. Goldsmith, Special to ProPublica, September 15, 2020.

In the United States, that niche today blankets the heart of the country, from the Atlantic seaboard through northern Texas and Nebraska, and the California coast.

In a paper published in the Proceedings of the National Academy of Sciences, a team of researchers modeled the human climate "niche": the regions where temperature and precipitation have been most suitable for humans to live in over the past 6,000 years.

More suitable →

According to new data from the Rhodium Group analyzed by ProPublica and The New York Times Magazine, warming temperatures and changing rainfall will drive agriculture and temperate climates northward, while sea level rise will consume coastlines and dangerous levels of humidity will swamp the Mississippi River valley.

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New Climate Maps Show a Transformed United States

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as
ld
de
ssions scenario (known as RCP
, by 2070 much of the Southeast
omes less suitable and the niche
ts toward the Midwest.

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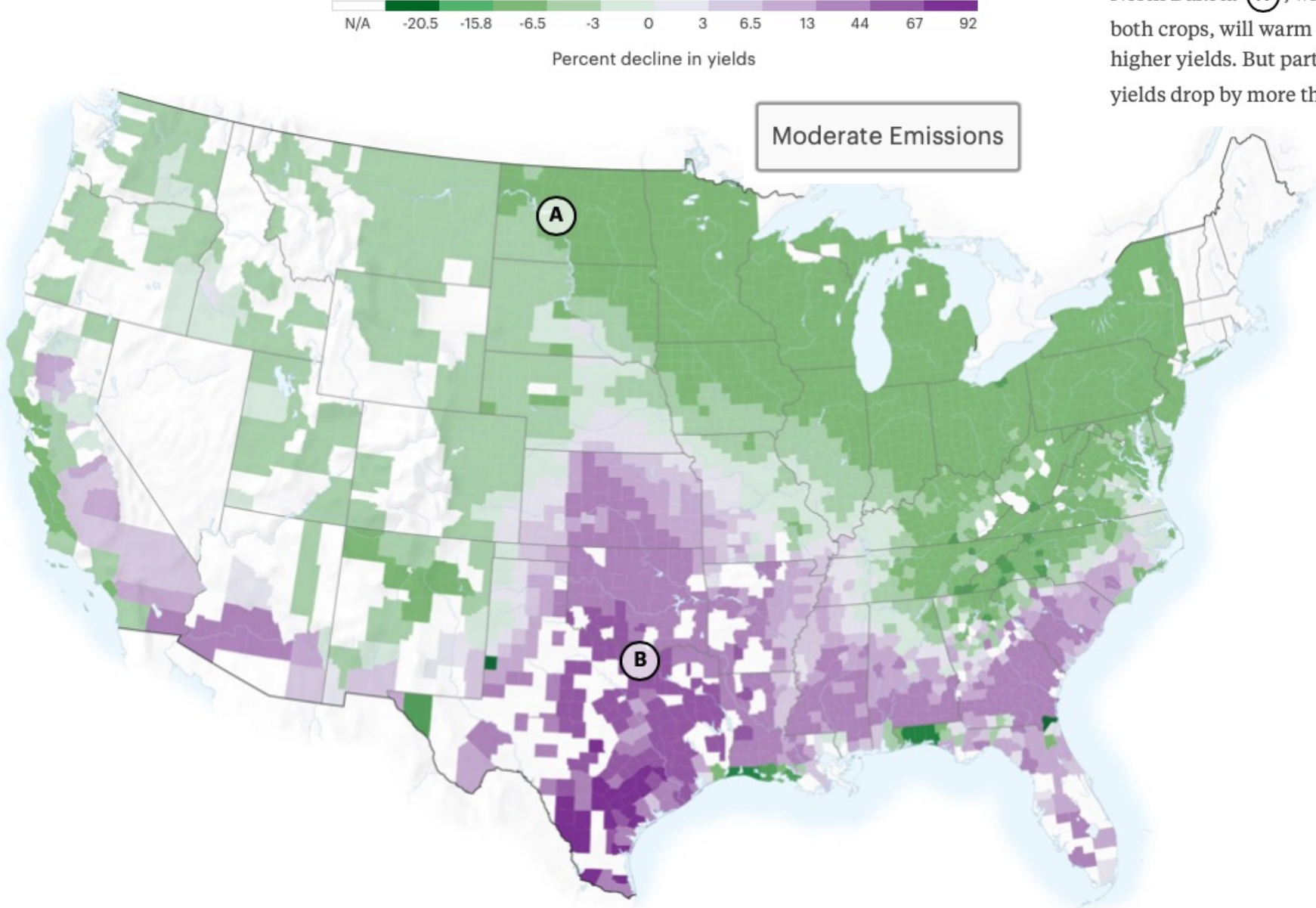
https://projects.propublica.org/climate-migration/

Farm Crop Yields: 2040-2060



Corn and soy production is more sensitive to heat than drought, and it will decrease for every degree of warming. By midcentury, North Dakota (A), which already harvests millions of acres of both crops, will warm enough to allow for more growing days and higher yields. But parts of Texas and Oklahoma (B) may see yields drop by more than 70%.

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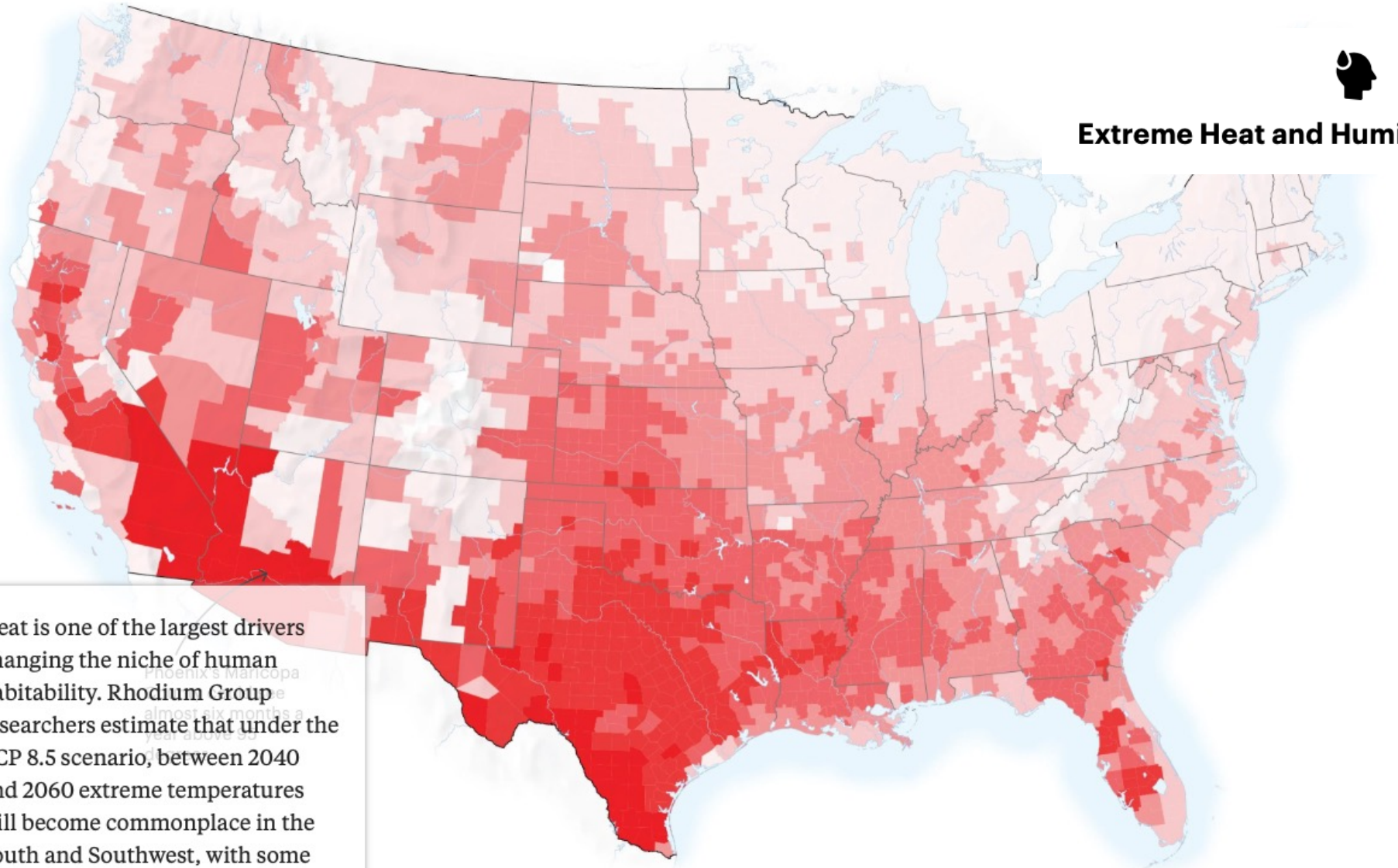

Extreme Heat and Humidity: 2040-2060

Heat is one of the largest drivers changing the niche of human habitability. Rhodium Group researchers estimate that under the RCP 8.5 scenario, between 2040 and 2060 extreme temperatures will become commonplace in the South and Southwest, with some counties in Arizona experiencing temperatures above 95 degrees for half the year.

0 2 5 8 11 17 26
weeks per year above 95 degrees F

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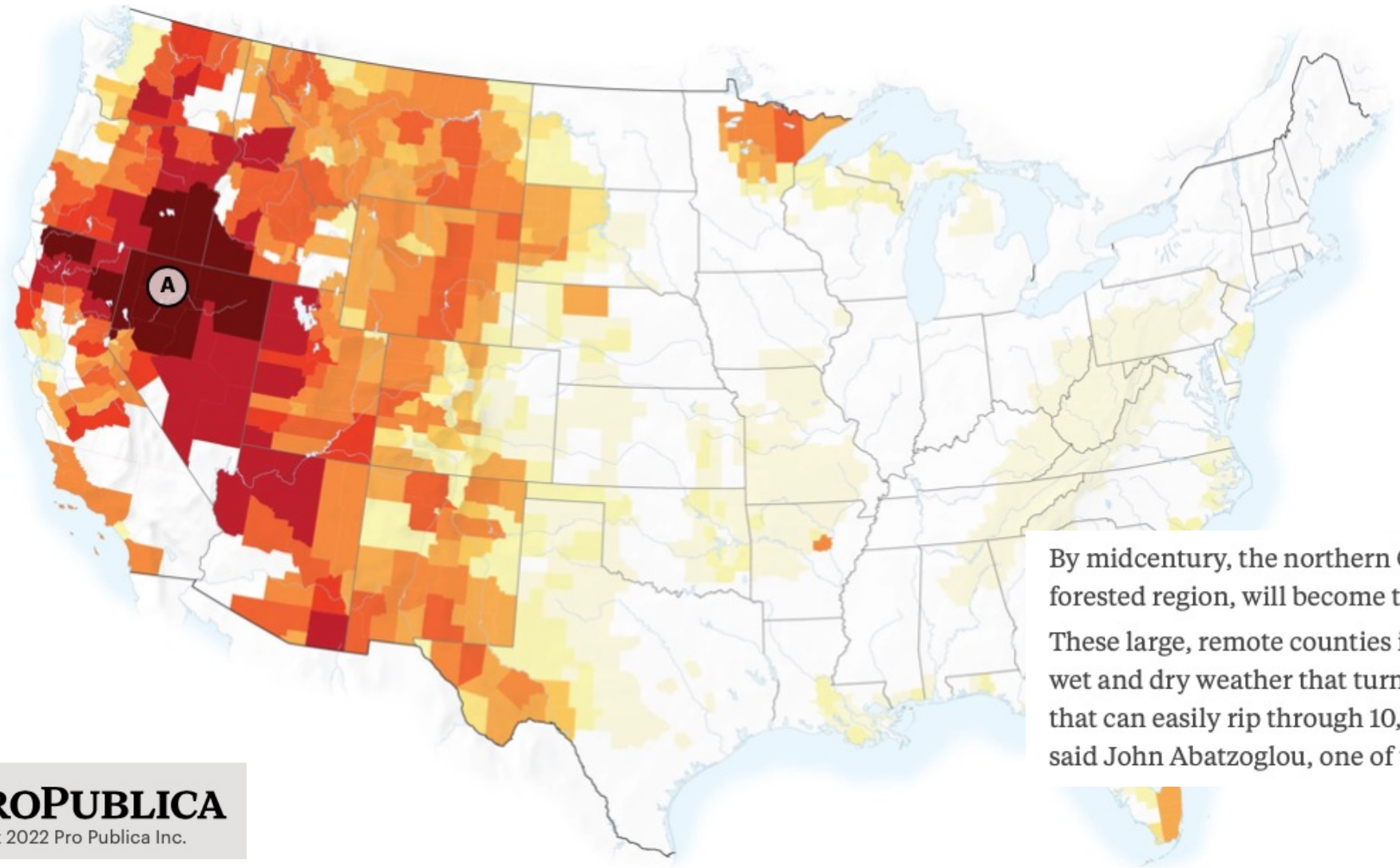
High Emissions

Large Wildfires: 2040-2071



By midcentury, the northern Great Basin, though not a densely forested region, will become the epicenter of large wildfires (A). These large, remote counties in Nevada and Oregon see cycles of wet and dry weather that turn the grassland into the fuel for fires that can easily rip through 10,000 acres a day with strong winds, said John Abatzoglou, one of the authors of the study.

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High Emissions | Moderate Emissions

0 0.05 2 5 10 15 25

Percentage of property below high tide

Sea Level Rise: 2040-2060

Some 50 million Americans live in eight of the largest U.S. metro areas — Miami (A), New York (B) and Boston (C) among them — which all lie in some of the most affected counties in the U.S.

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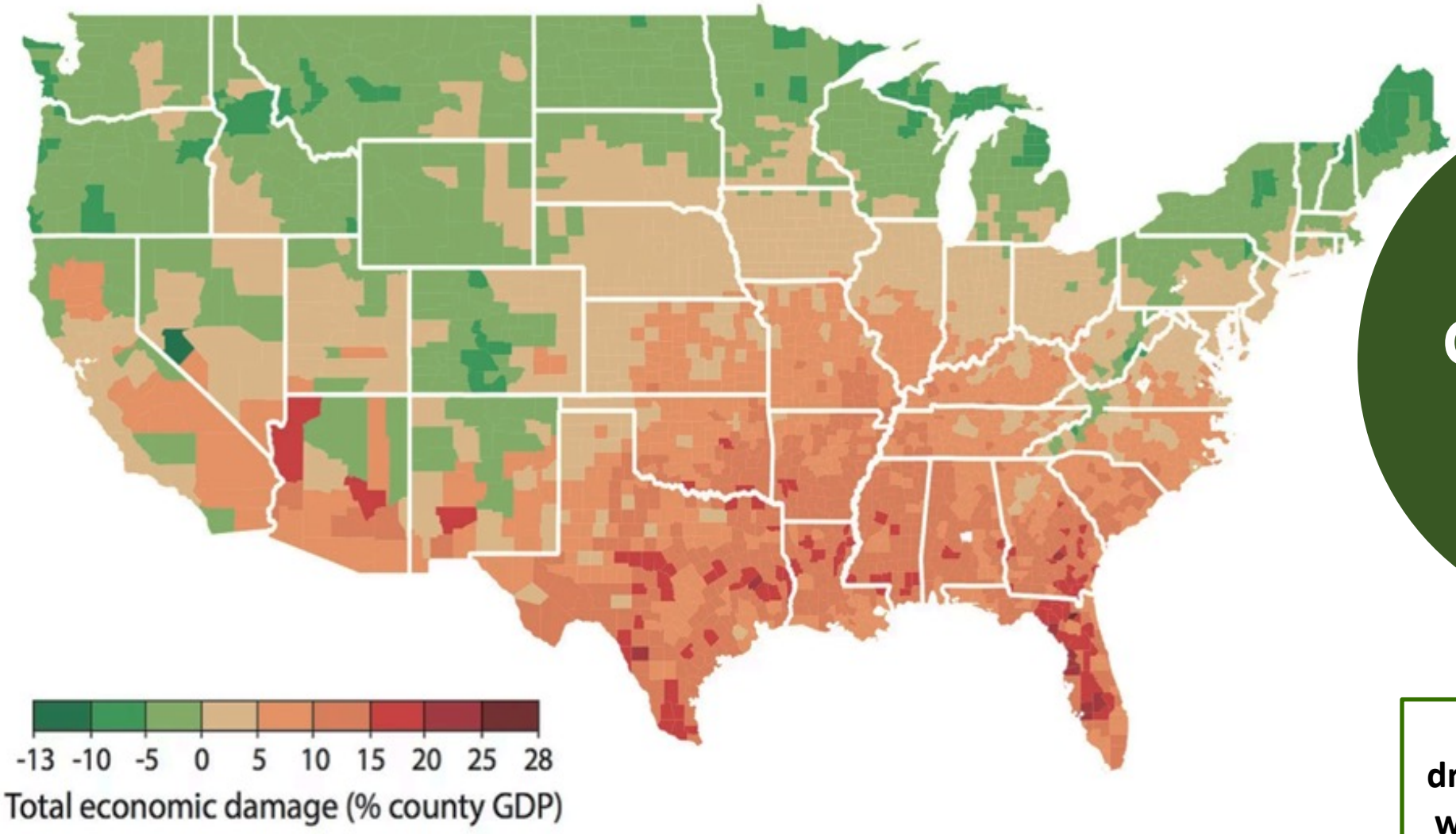

Potential economic damages are shown at the county level in a scenario in which emissions of greenhouse gases continue at current rates. Green indicates areas that could see economic benefits. To see an interactive version of this map, click here.

Hsiang, Kopp, Jina, Rising, et al./Science

Source: *Christopher Joyce, MPR News, June 29, 2017.*

Long term GDP impact positive in north

Climate change may drive migration patterns within US may move to 'north', and from 'west to center'

Predictions and observations

- Growing disconnect between where food will be consumed, and where it can be grown.
- Midwest poised to capitalize on intersect of water, energy and biomass / food production capability.
- New migration patterns are emerging

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Food, Energy, Water and Climate Change

What do these trends mean for the the future of the Flint Hills region?

FLINT HILLS REGION

Technology and the speed of change

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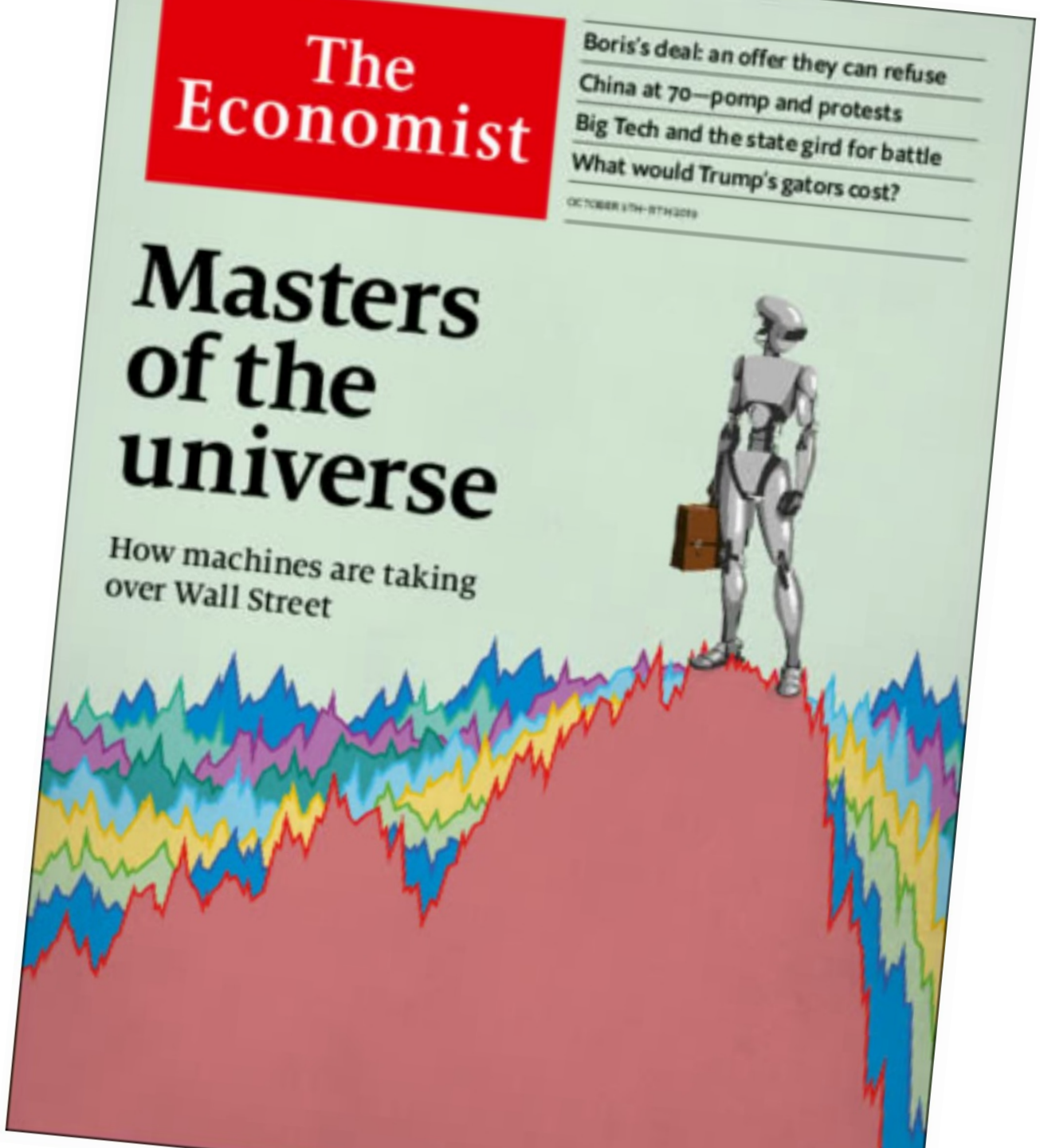


What makes this industrial revolution different?

- Machine learning / Artificial Intelligence
- Converging technologies
- Exponential impacts

1.0 — **1780 – Mechanisation**
Industrial production based on machines powered by water and steam

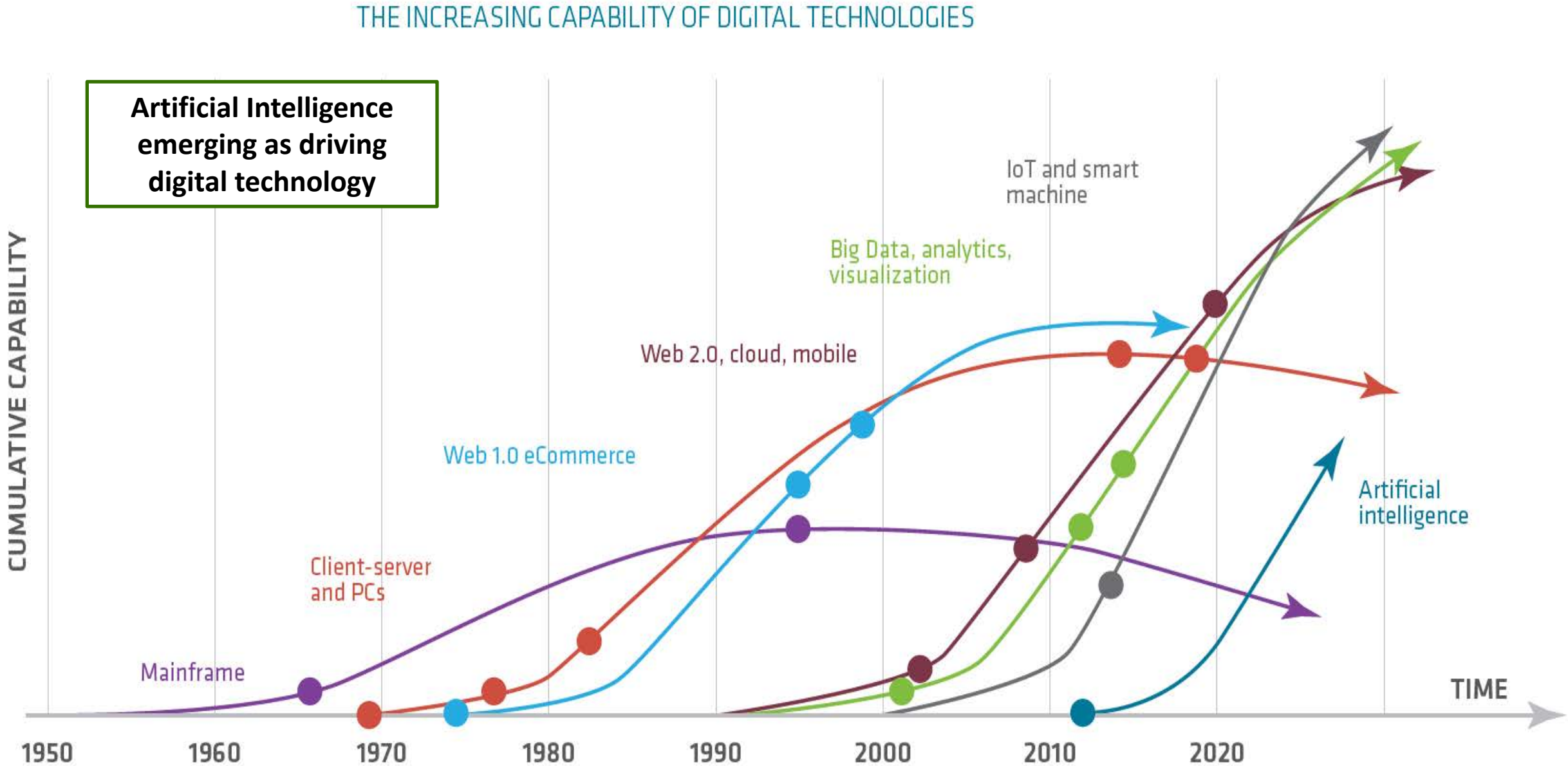
2.0 — **1870 – Electrification**
Mass-production using assembly lines

3.0 — **1970 – Automation**
Automation using electronics and computers

3.5 — **1980 – Globalisation**
Offshoring of production to low-cost economies

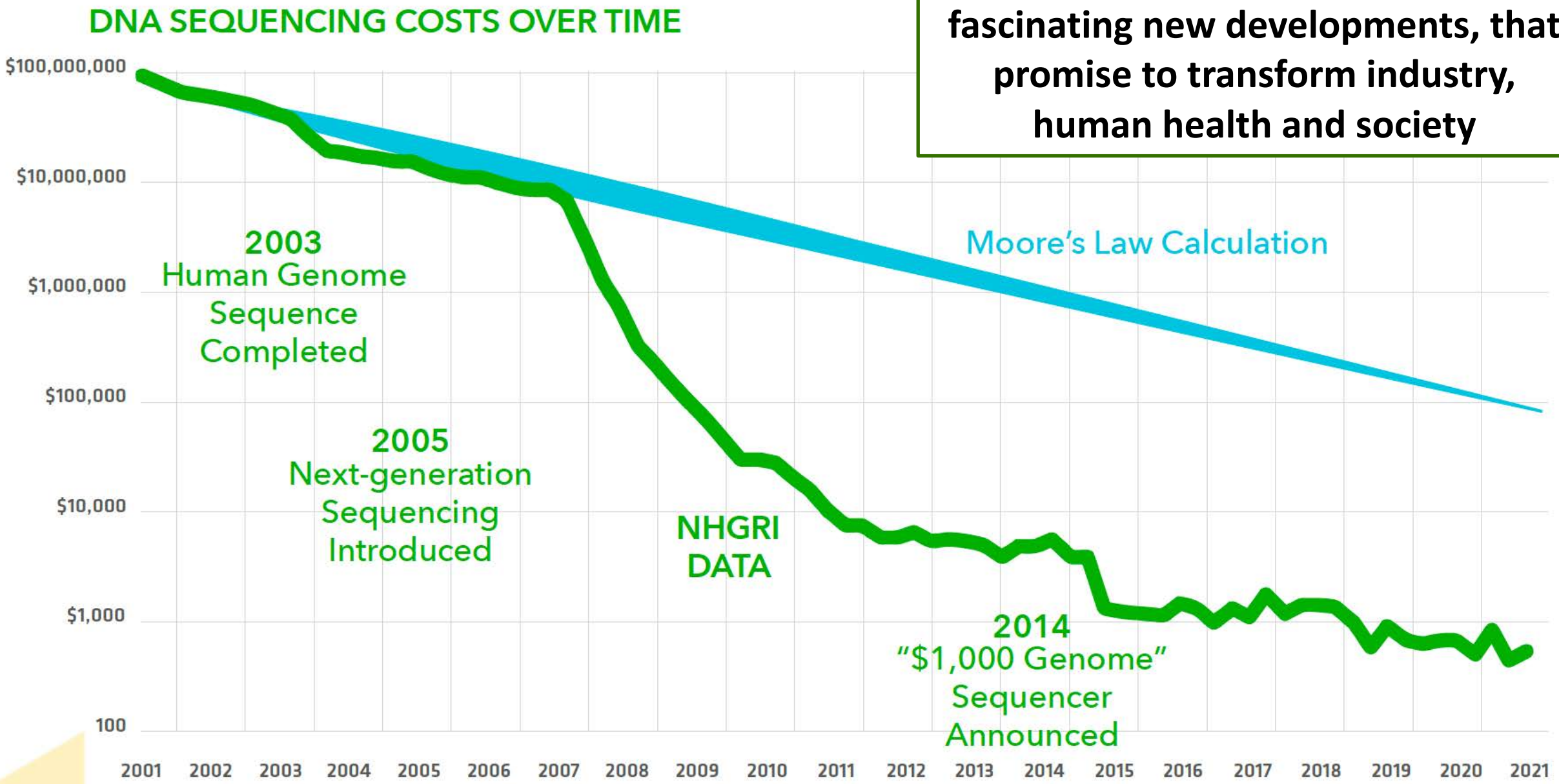
4.0 — **Today – Digitalisation**
Introduction of connected devices, data analytics and artificial intelligence technologies to automate processes further

BY BEN ROSSI – MARCH 7, 2018



Digital Transformation Initiative Mining and Metals Industry, White Paper, World Economic Forum / Accenture analysis, January 2017

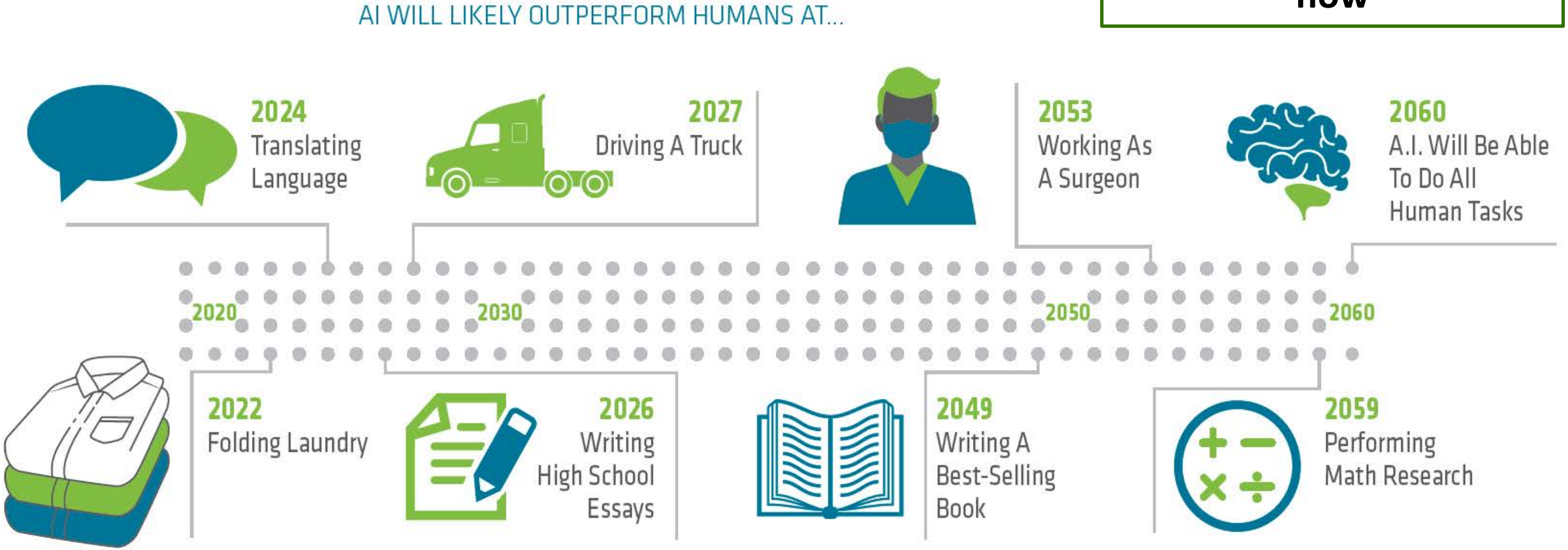
Technology is driving down cost of fascinating new developments, that promise to transform industry, human health and society



Source: https://www.genome.gov/about-genomics/fact-sheets/DNA-Sequencing-Costs-Data

When will AI outperform people?

AI is reshaping our lives and industries – right now

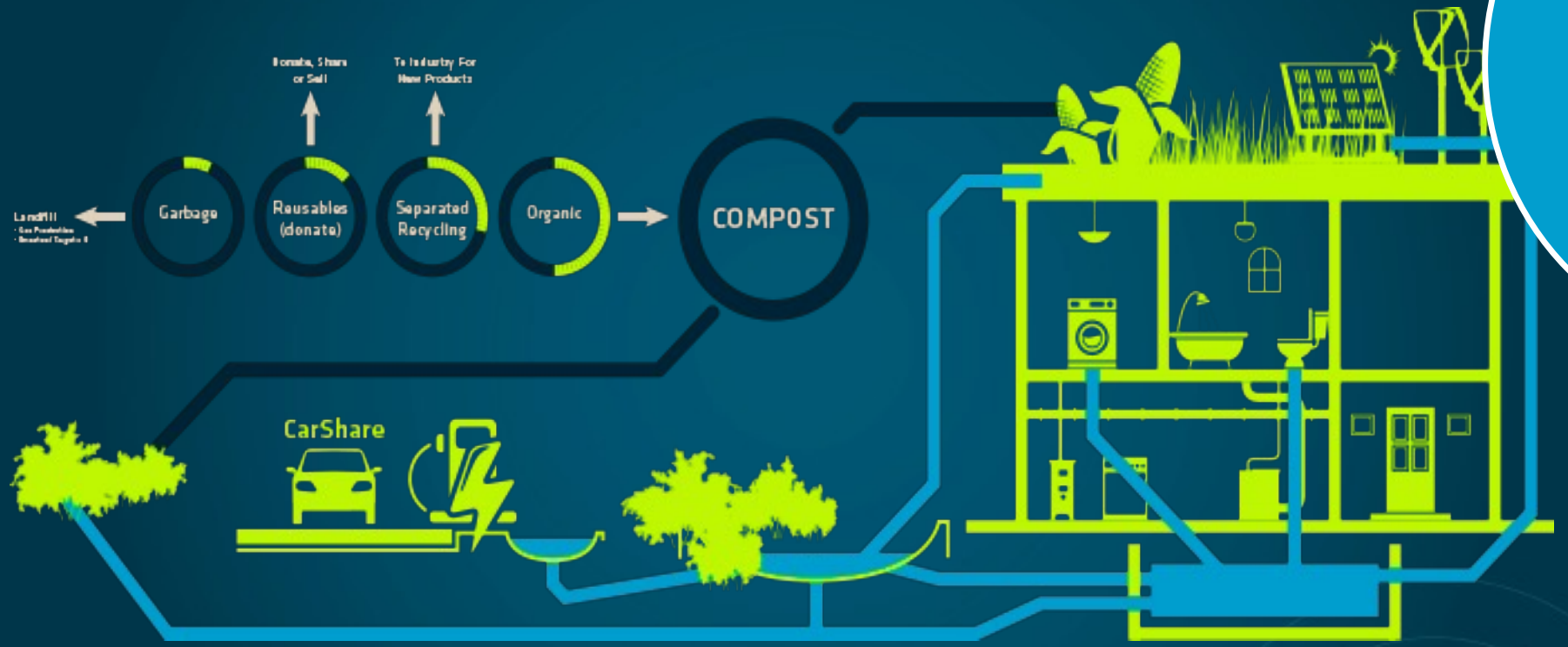


Source: 'You Will Lose Your Job to a Robot–and Sooner Than You Think'. Kevin Drum, Mother Jones, November / December Issue, 2017. (adapted from 'When will AI exceed human performance? Evidence from AI Experts', Oxford and Yale University 2017) [112]

Reproduced from Next Industrial Revolution, Future iQ, 2018

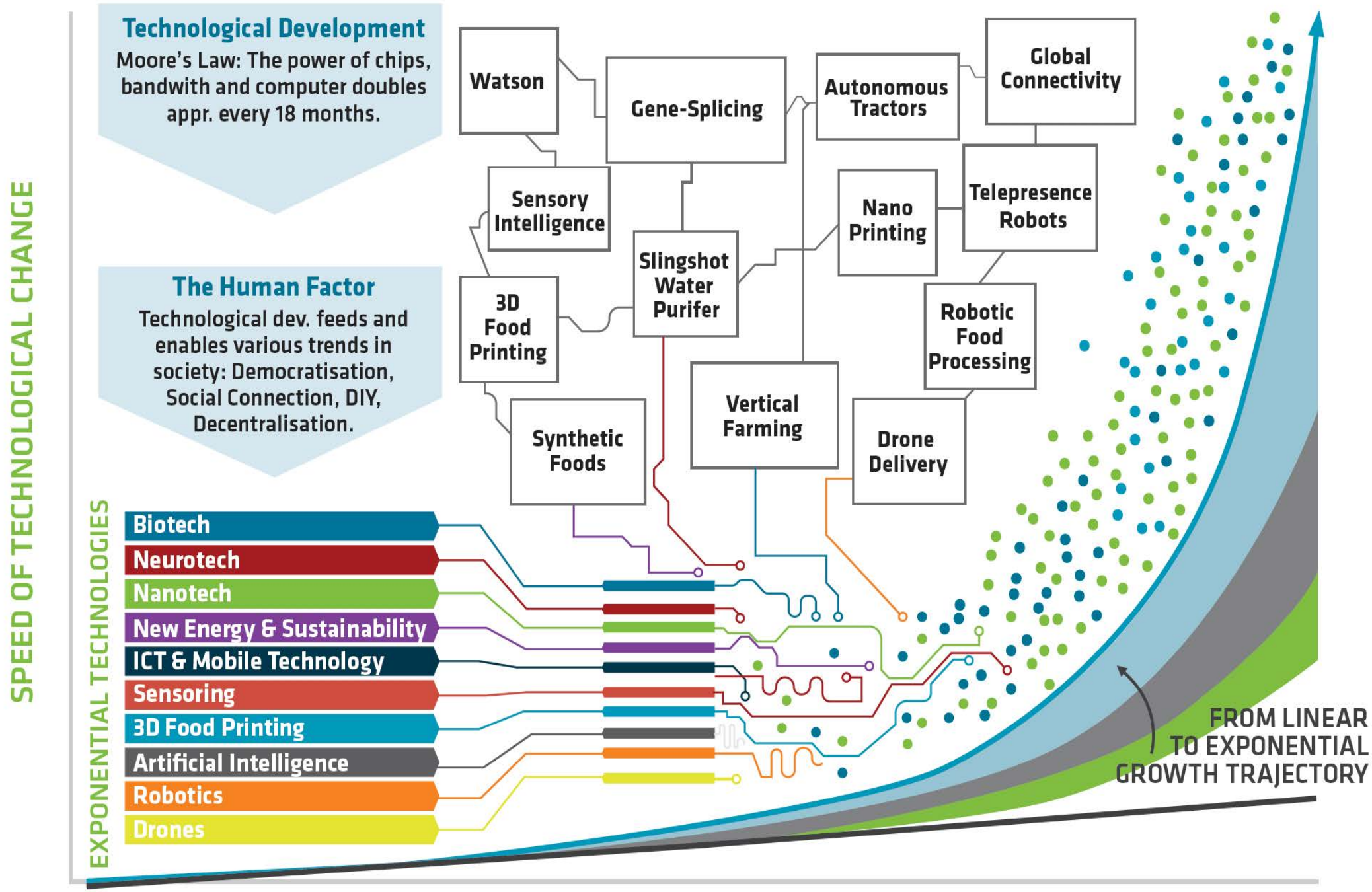
Source: New Yorker Oct 23, 2017, and Max Planck Research 2009

Closed loop and ‘Cradle to cradle’



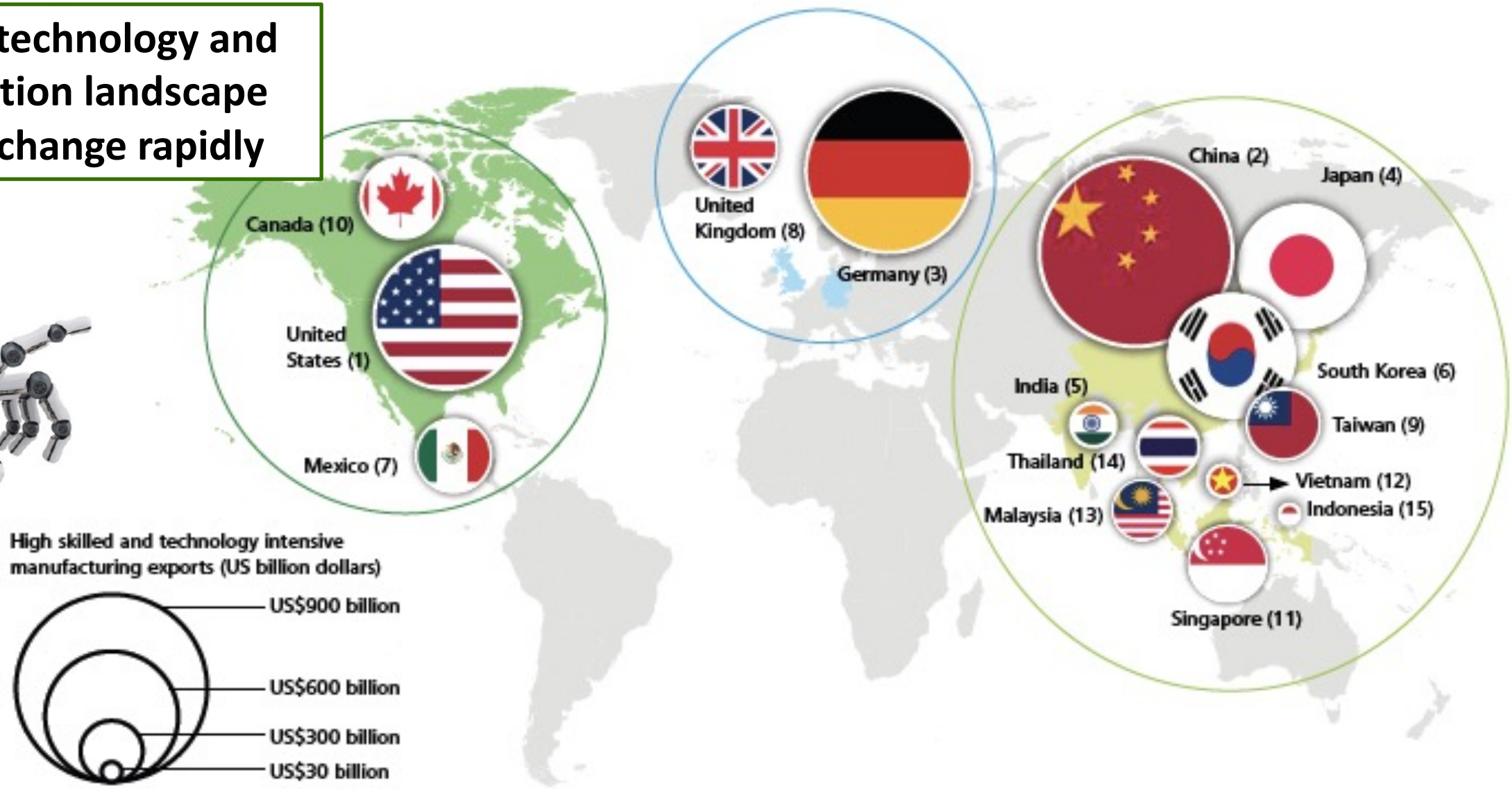
New ‘local systems’

Rapid systemic change and technology integration



Adapted from: Source: Deloitte. 2014. Industry 4.0 Challenges and solutions for the digital transformation and use of exponential technologies

Global technology and innovation landscape might change rapidly



Note: Figure in parenthesis represent the projected 2020 GMCI rank by CEOs

Source: Deloitte Touche Tohmatsu Limited and US Council on Competitiveness, 2016 Global Manufacturing Competitiveness Index, Deloitte analysis based on UNCTAD data[10]

Technology and speed of change

- Waves of disruption and technology are reshaping education, industries and manufacturing
- Speed of change is exponential

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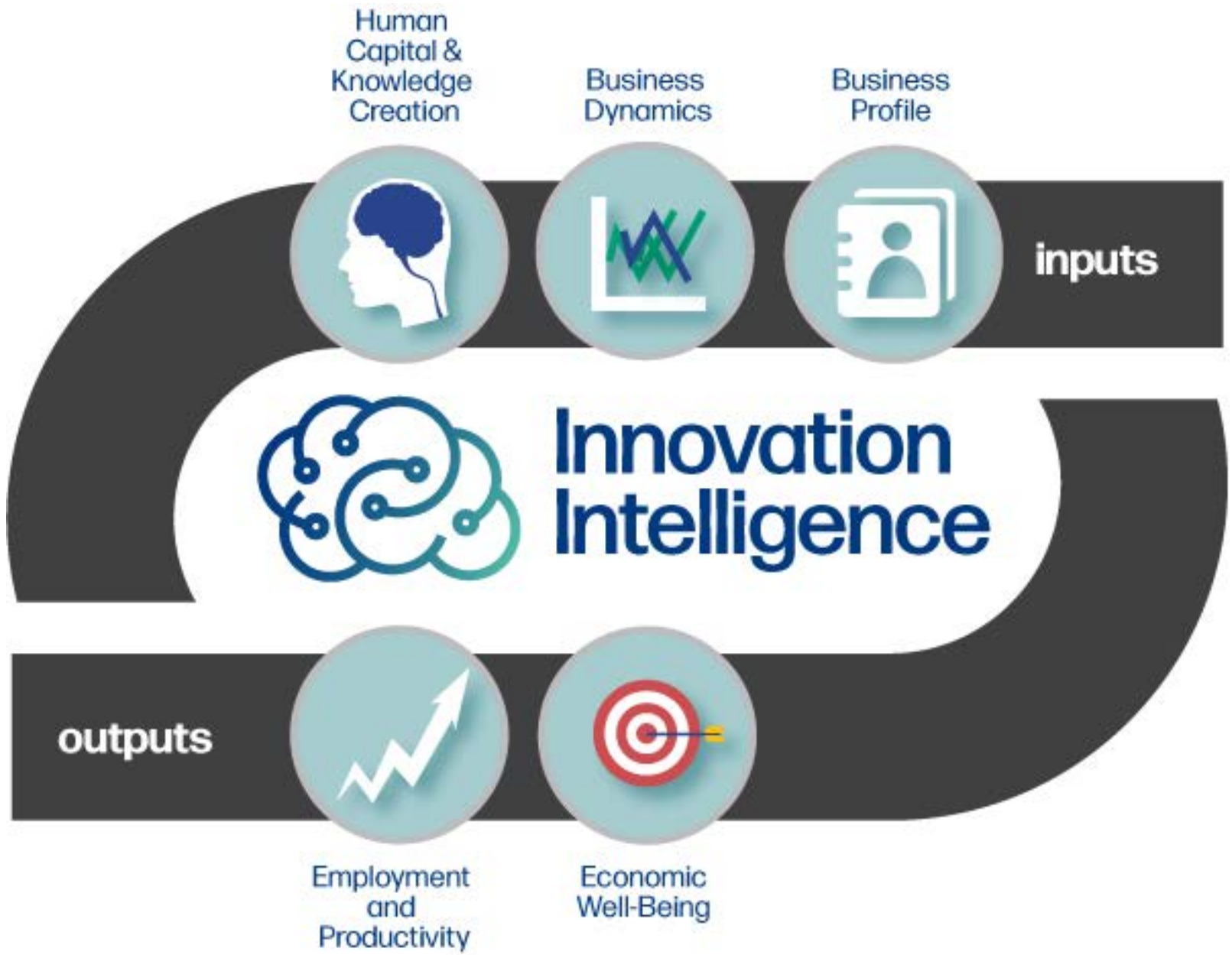
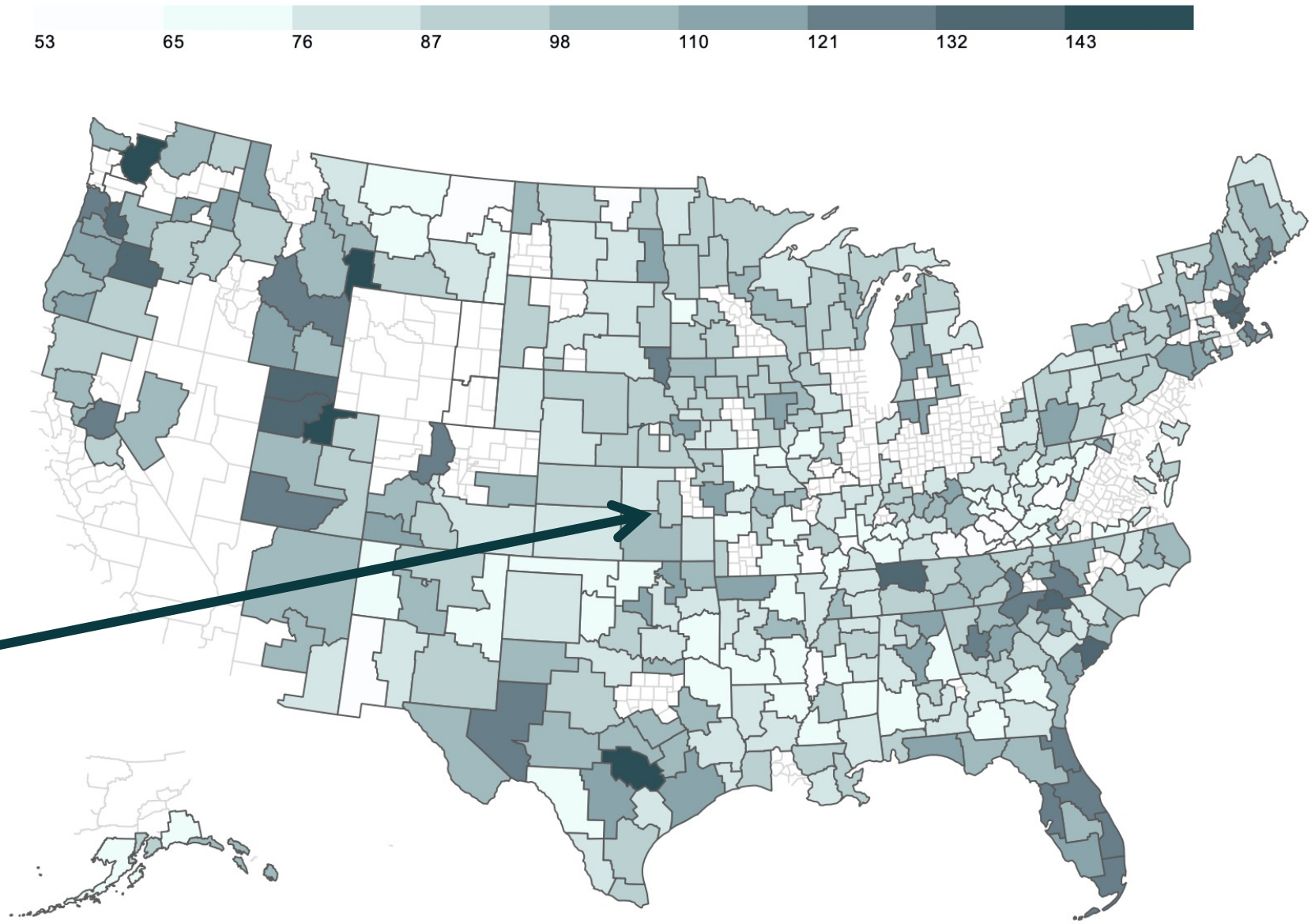
E·D·A
U.S. ECONOMIC DEVELOPMENT ADMINISTRATION



Headline Innovation Index

- Headline Innovation Index
- Human Capital and Knowledge Creation
- Business Dynamics
- Business Profile
- Employment and Productivity
- Economic Well-Being

The Innovation Index includes both innovation inputs and outputs in order to measure both innovation capacity and innovation outcomes.



FLINT HILLS
REGION

FLINT HILLS
REGION

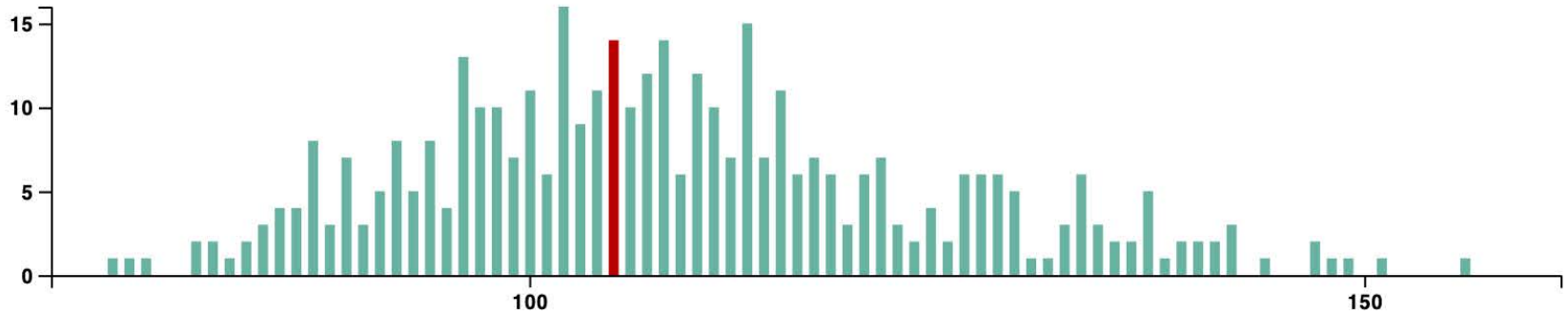
Flint Hills Regional Council

Population: **179,840** Per Capita Income: **$50,806** Largest City: **Manhattan**

Innovation Intelligence Index

105.4

Rank: **220**



The graph above, and the similar graphs below, show the distribution of index values for all counties. The value for Flint Hills Regional Council is highlighted in red.

This area has moderate relative Innovation Capacity. The innovation index incorporates statistical data from a wide variety of sources. Review the indexes below to learn more about how this number was determined.

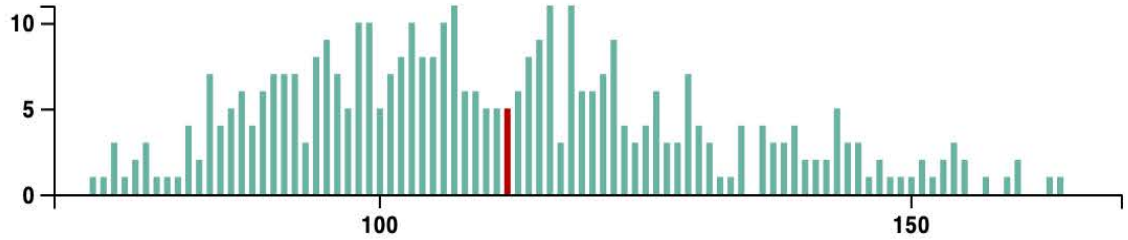
Total 393 Economic Development Districts

FLINT HILLS REGION

Human Capital and Knowledge Creation Index 112.9 (rank: 173)

Key Takeaways

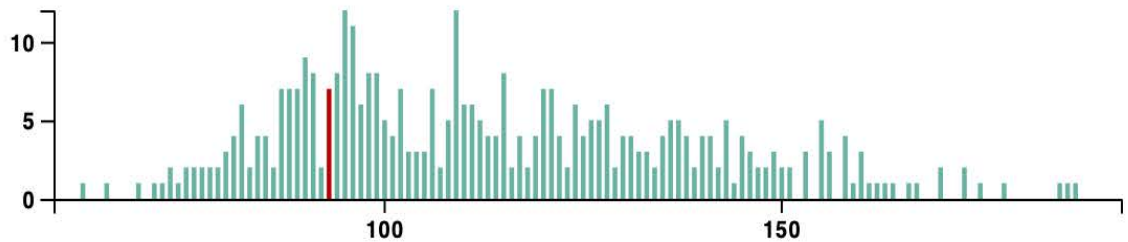
- Patterns of establishment formation and composition indicate a moderate level of business competitiveness.
- The top measures for this index are:
  1. High School Attainment (rank 3)
  2. Graduate Degree Attainment (rank 43)



Business Dynamics Index 93.2 (rank: 306)

Key Takeaways

- Patterns of establishment formation and composition indicate a moderate level of business competitiveness.
- The top measures for this index are:
  1. Jobs Attributed to Establishment Births to Total Employment Ratio (rank 127)
  2. Traded Sector Establishment Births to All Establishment Ratio (rank 219)



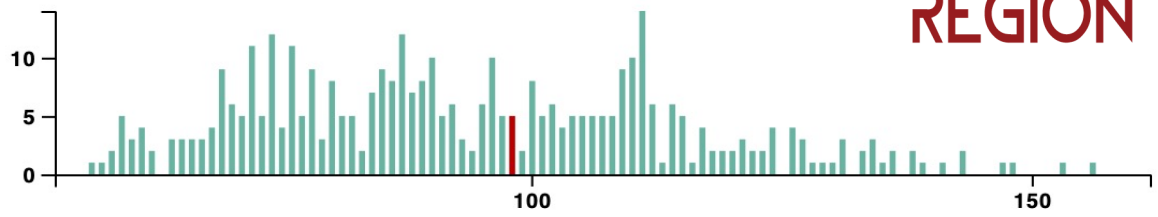
Total 393 Economic Development Districts

Business Profile Index 98.5 (rank: 155)

FLINT HILLS REGION

Key Takeaways

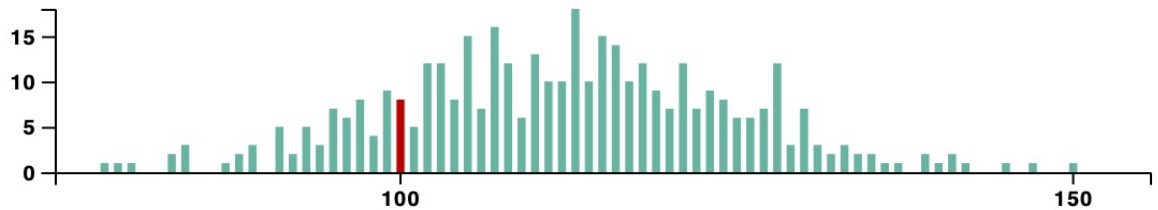
- The relative availability of resouces for entrepreneurs and businesses is moderate in this area.
- The top measures for this index are:
    1. Change in Average Venture Capital Deals (rank 36)
    2. Change in Average Venture Capital (rank 22)



Employment and Productivity Index 100.2 (rank: 324)

Key Takeaways

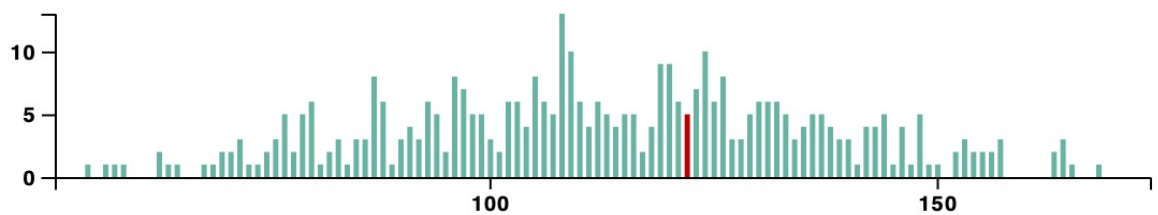
- Industry performance in Flint Hills Regional Council indicate a moderate level of positive outcomes from existing economic activity.
- The top measures for this index are:
    1. Patent Diversity (rank 251)
    2. Change in Share of High-Tech Industry Employment (rank 77)



Economic Well-Being Index 122.3 (rank: 141)

Key Takeaways

- As measured by residential internet connectivity and income, this area has a moderate standard of living.
- The top measures for this index are:
    1. Government Transfers to Total Personal Income Ratio (rank 43)
    2. Average Unemployment Rate (rank 77)



Total 393 Economic Development Districts

Demographics + Resources + Technology + Innovation

What do these trends mean for the future of the Flint Hills Region?

FLINT HILLS REGION

Key Drivers:

What key drivers do you think are most important for the future of Flint Hills Region?

(Key drivers are events, trends, developments, catalysts or forces that actively influence or cause change.)

Table brainstorm

FLINT HILLS REGION

Key Drivers Identification

1. Regional Broadband Network
2. Leveraging Fort Riley
3. Viability of KSU
4. Retaining and Returning Population
5. Changes in Agriculture
6. Over-Reliance on Public Sector
7. Lack of Housing Options, including affordability
8. Energy Transition
9. Building an Entrepreneurial Eco-system
10. Alignment of Education System
11. Ageing Infrastructure
12. Availability of Affordable Child Care
13. Narrative and Reputation of Region
14. Willingness for Collaboration
15. Leveraging Emerging Technological Cluster
16. Shovel Ready Industrial Land
17. Capturing New Talent
18. Future-Orientated Education and Vocation Training

DRIVER NAME:

FLINT HILLS REGION

Key emergent high-level trends associated with this driver

1.

2.

Potential impacts of these trends on the Flint Hills Region out to 2030:

1.

2.

Building an understanding of each driver

FLINT HILLS REGION

What is the big 'FUTURE-SPLITTING QUESTION' for this driver:

Future Predictions - how regional impacts will 'play out' for this driver - by 2030:

1.

2.

Building an understanding of each driver

Key Drivers – Future Impact Score

Rate each driver in terms of likely future impacts on the region in 2030

(SCALE: 1 = small impact; 10 = very large impact)

FLINT HILLS REGION

DRIVER	Regional economy	Regional Community
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		

Rating future impact of each driver – individual scoring

Thank you!

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