Littleton Comprehensive Economic Development Strategy (CEDS) Think-Tank PART 1

Littleton CEDS Think-Tank

Part 1 – Explore Future Trends

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

Part 2 – Build ED scenarios

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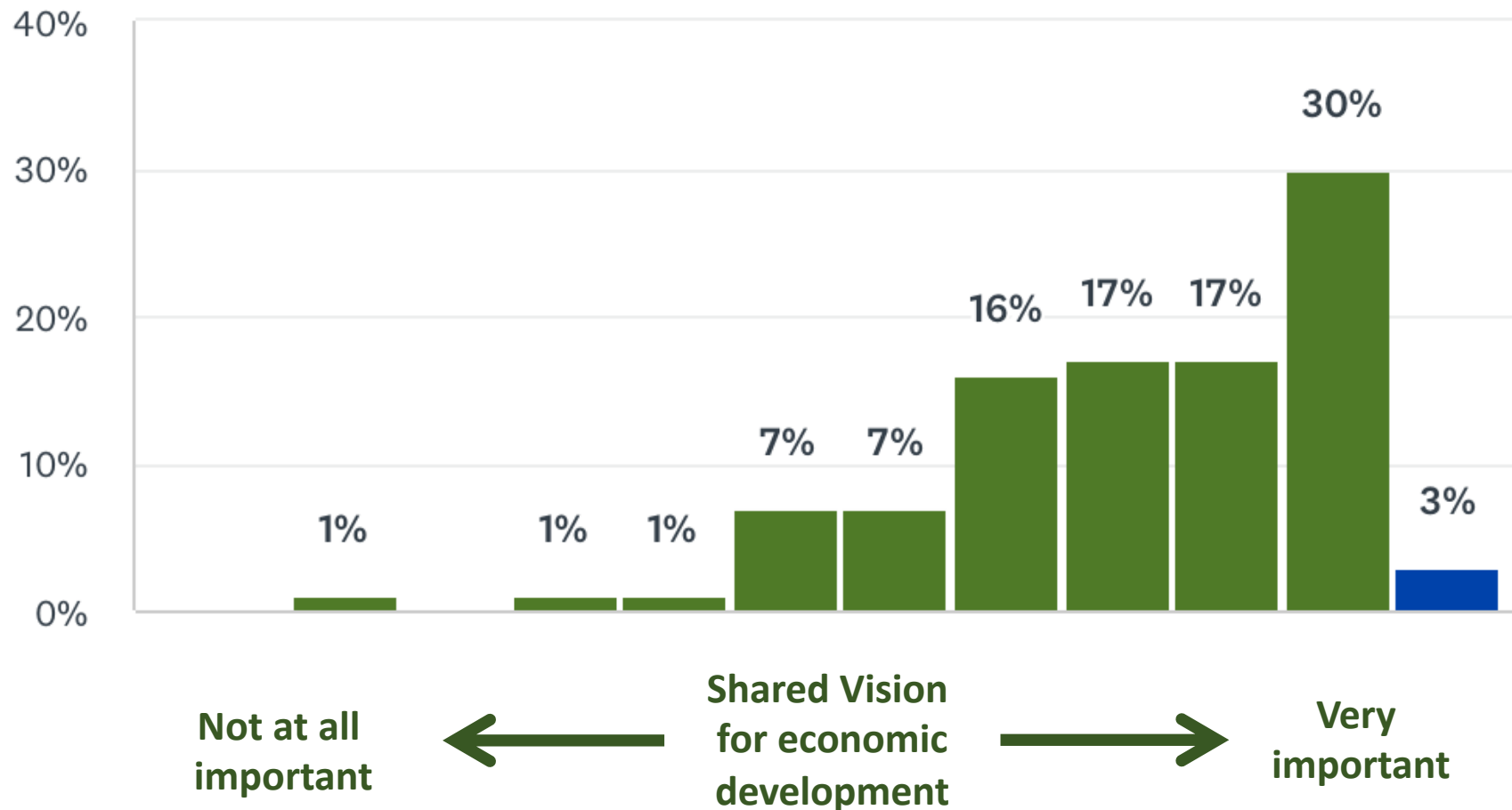- Build strategic pillars

July 17

July 18

How important do you think it is to have a **SHARED VISION** for
economic development in Littleton?
(i.e. a vision or perspective on the future that is shared community-wide)
Scale: 1 = Not at all important; 10 = Very important

How important do you think it is to have a **PLAN** for economic development in Littleton?
(Scale: 1 = Not at all important; 10 = Very important)
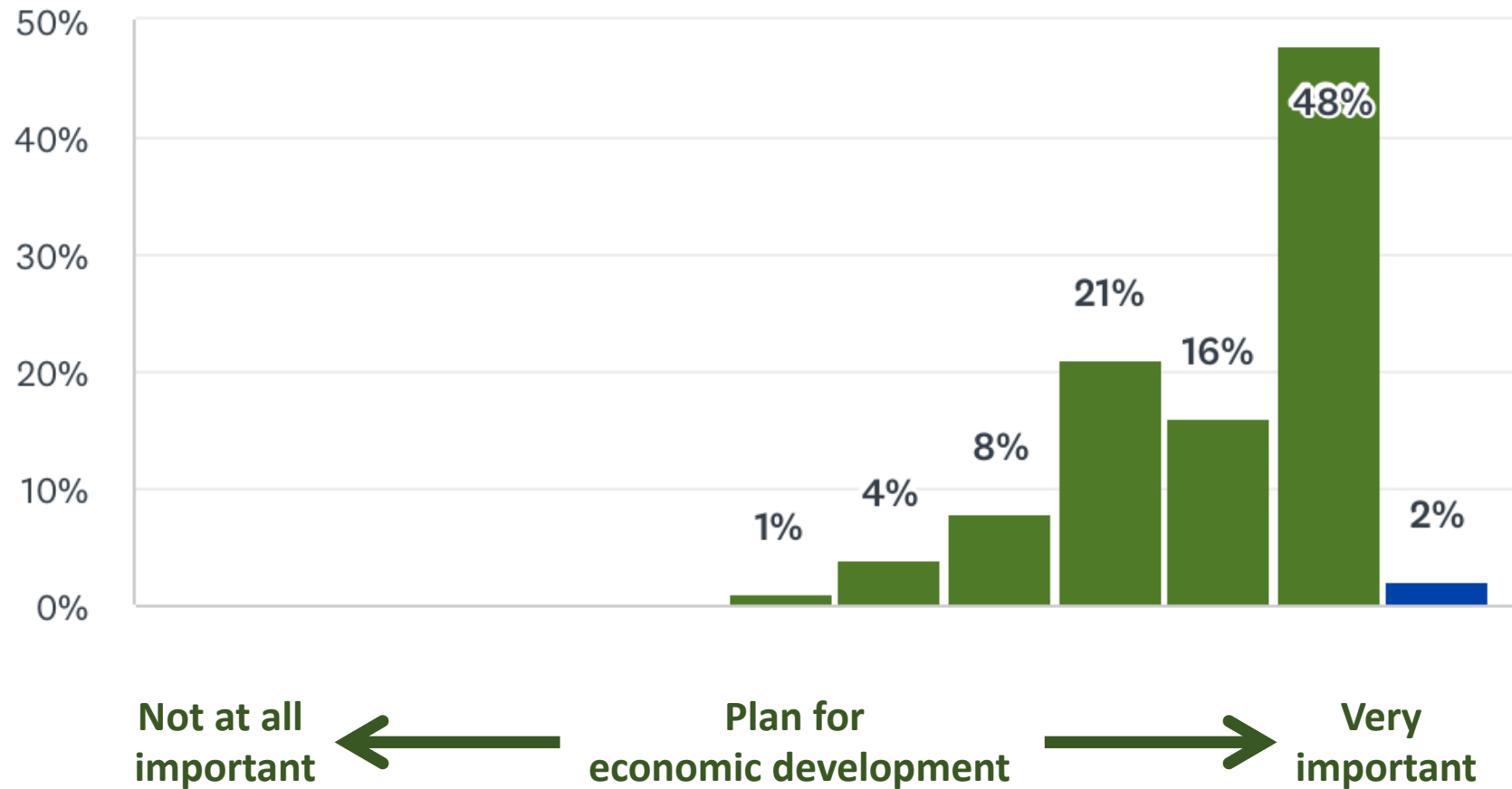
WELCOME TO THE
LITTLETON, COLORADO
COMPREHENSIVE ECONOMIC DEVELOPMENT
STRATEGIC PLAN PROJECT

The Importance of Future Thinking

The key to effective future thinking…

Consider both **trajectory** (direction of change) and **velocity** (speed of change).

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.

Key emerging trends shaping the future of economic development in Littleton

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

future→iQ

Global Population Growth Is Driven By Developing Countries.

World population in billions, 1950-2050 (projected)

Population in Less Developed Countries

Population in More Developed Countries
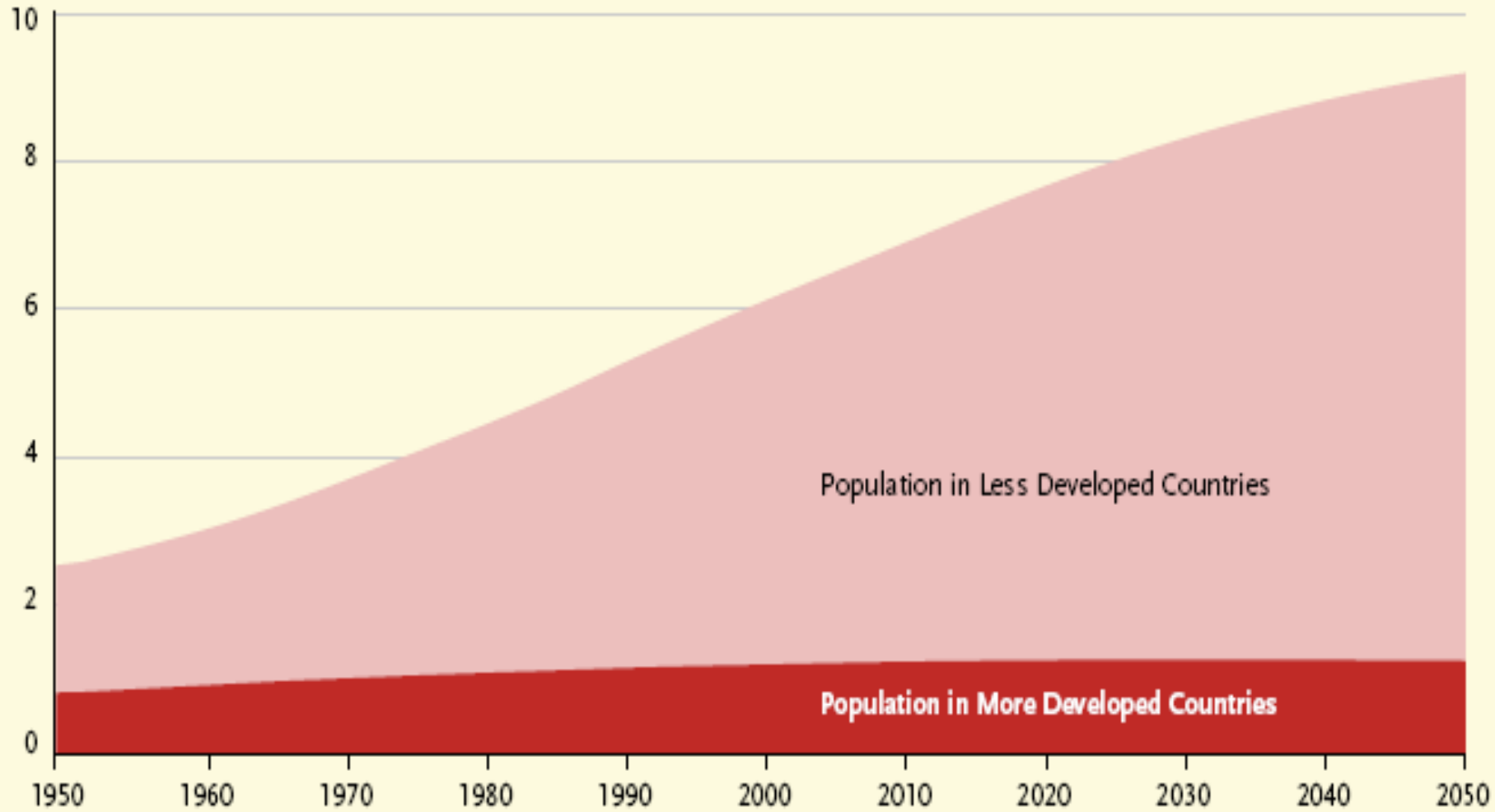
SOURCE: United Nations, *World Population Prospects:*

Global population

Developed Countries Have Fewer Young People, but a Higher Share of Elderly.
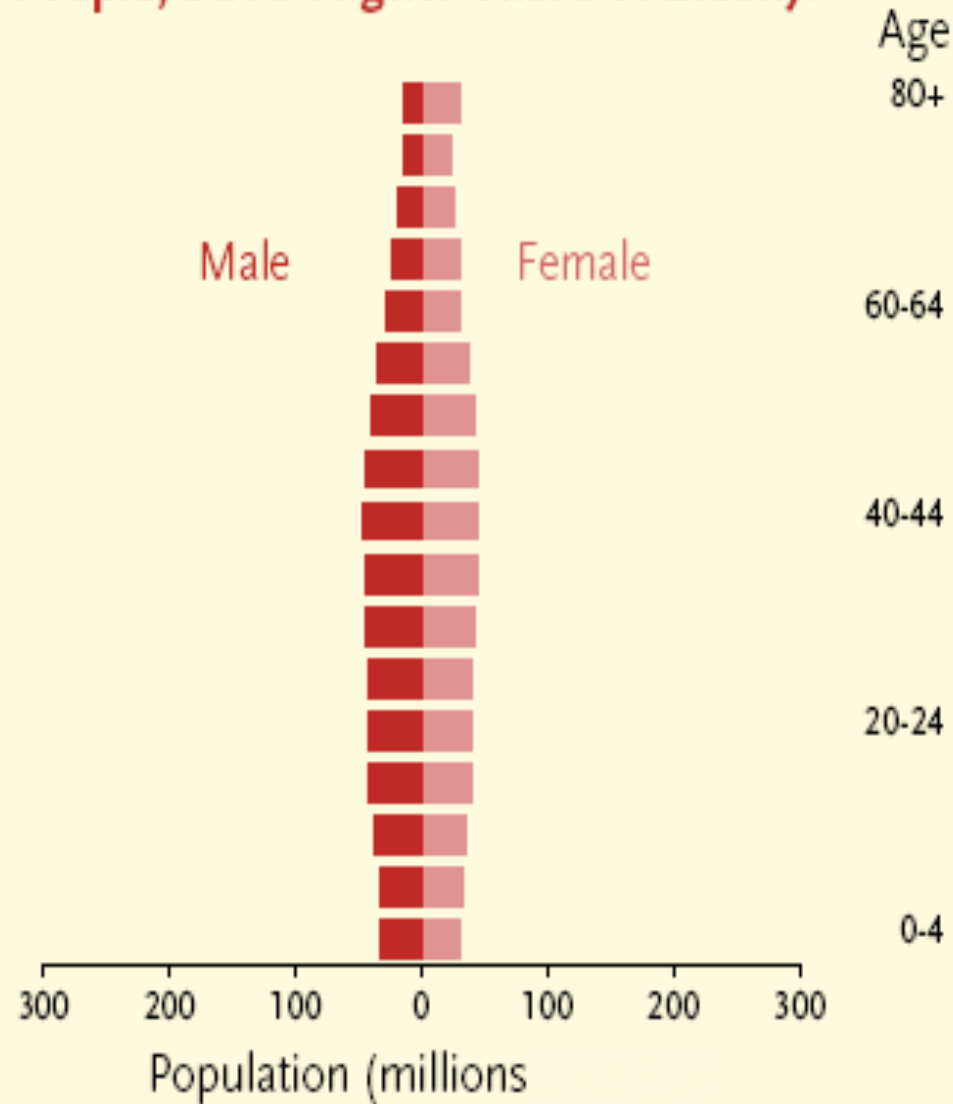
Developing Countries Have More Young People, and a Smaller Share of Elderly.

Age

Male   Female

80+

60-64

40-44

20-24

0-4

Population (millions)

300 200 100 0 100 200 300
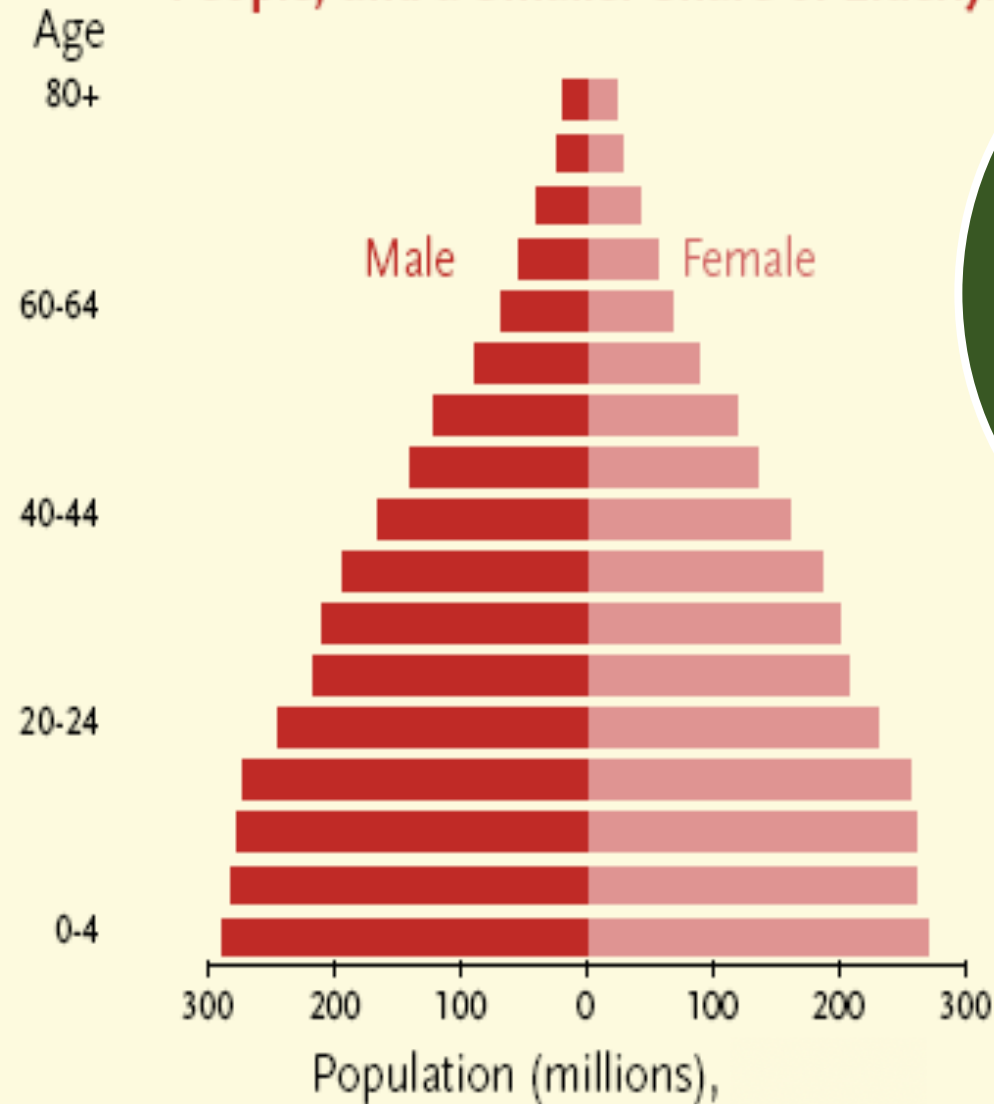
Global population age profiles

SOURCE: United Nations, *World Population Prospects:*

Percentage Change in Projected Population 2004-2050

AN URBAN WORLD

unicef

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

United States
101M

United States
101M Urban Population
64% Urban

China
64M

India
63M

AN URBAN WORLD

unicef

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%

2020

United States
294M Urban Population
85% Urban

United States 294M

Mexico 97M

Brazil 187M

Germany 61M

Turkey 62M

Iran (Islamic Republic of) 64M

Nigeria 110M

Russian Federation 101M

China 787M

Japan 86M

Pakistan 90M

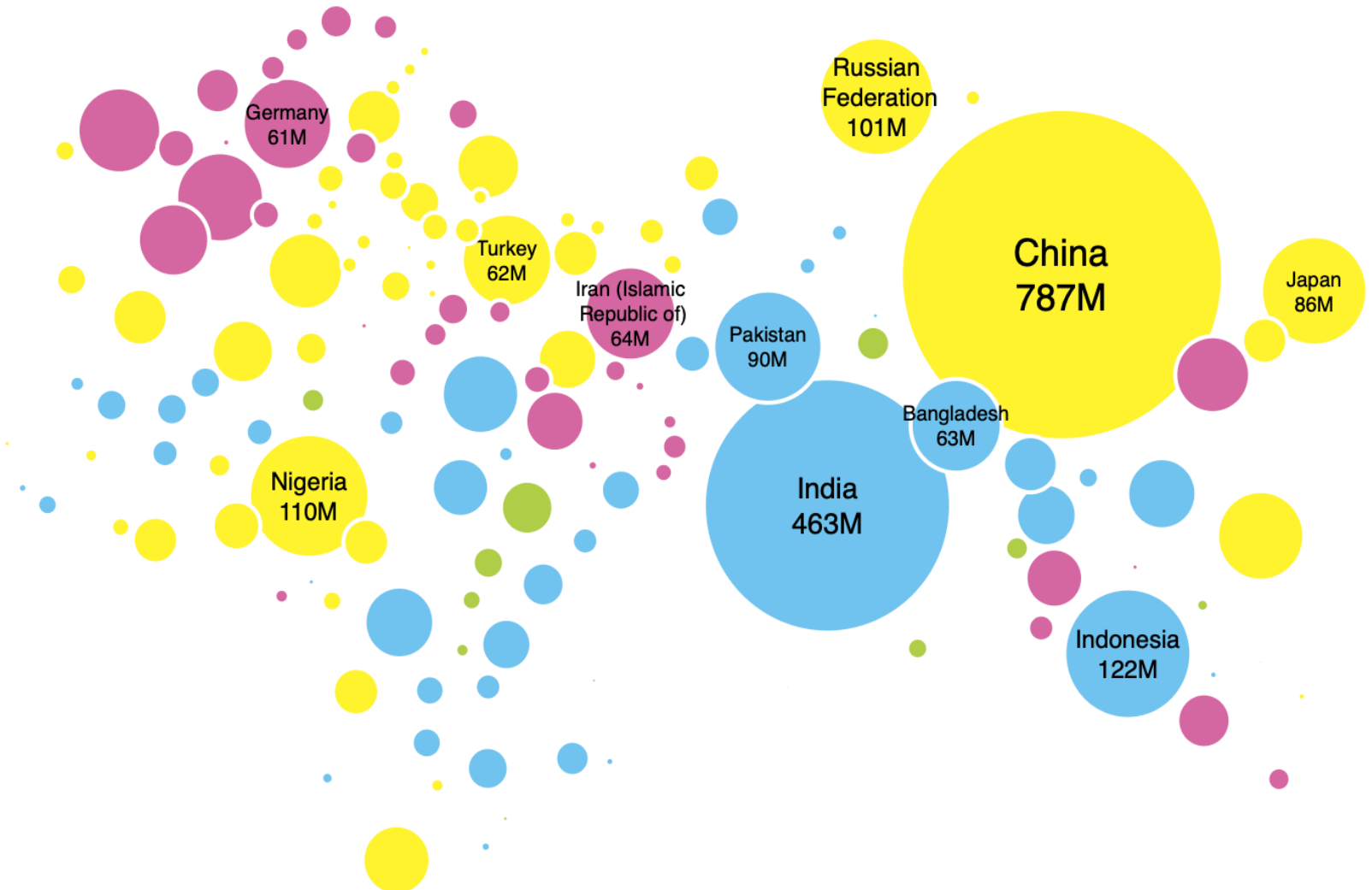Bangladesh 63M

India 463M

Indonesia 122M

AN URBAN WORLD

unicef

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).

2050

United States
365M Urban Population
90% Urban

United States 365M

Mexico 113M

Brazil 204M

United Kingdom 64M

France 64M

Turkey 82M

Iran (Islamic Republic of) 83M

Egypt 82M

Nigeria 218M

Ethiopia 65M

Democratic Republic of the Congo 93M

Russian Federation 96M

China 1038M

Japan 81M

Pakistan 199M

Bangladesh 126M

India 875M

Viet Nam 66M

Philippines 101M

Indonesia 190M

Arc of Innovation

Future-Splitting Questions™

METROPOLIS

SUBURBS - 30 MILE RADIUS - COMMUTE ZONE

PERI-URBAN - 60 MILE RADIUS - ASSEMBLY AND DISTRIBUTION

PRODUCTION - 120 MILE RADIUS - LARGE PRODUCTION
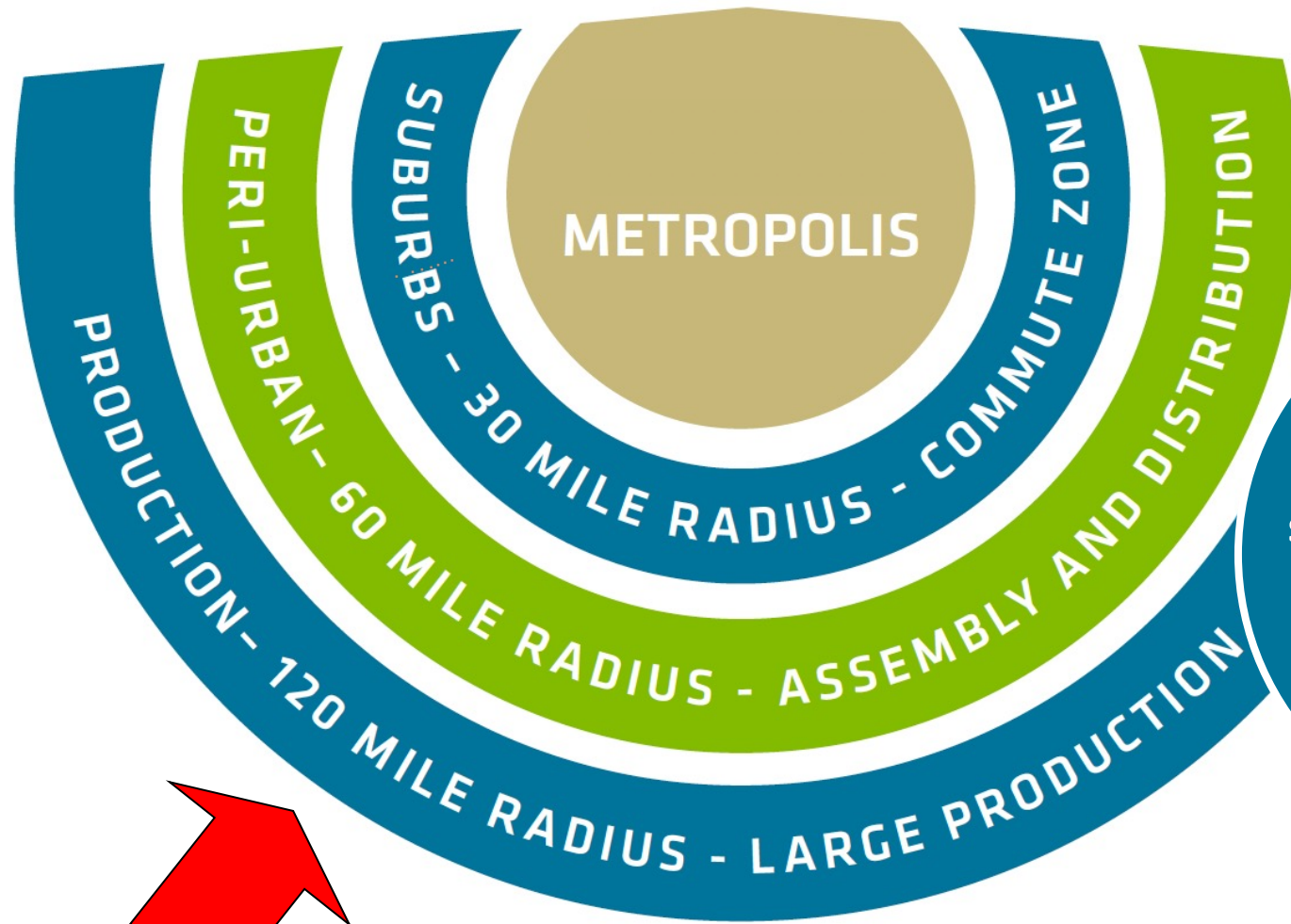
How does this strengthen the strategic proposition for a 'first-ring' city?

Society is re-distributing into and around mega-cities

United States of America ▾
2022
Population: 334,805,268

Male / Female

Age	Male	Female
100+	0.0%	0.0%
95-99	0.1%	0.2%
90-94	0.2%	0.4%
85-89	0.5%	0.7%
80-84	0.9%	1.2%
75-79	1.4%	1.8%
70-74	2.1%	2.4%
65-69	2.6%	2.9%
60-64	3.0%	3.2%
55-59	3.1%	3.1%
50-54	3.0%	3.0%
45-49	3.0%	3.0%
40-44	3.1%	3.1%
35-39	3.4%	3.3%
30-34	3.6%	3.5%
25-29	3.6%	3.5%
20-24	3.3%	3.2%
15-19	3.3%	3.0%
10-14	3.2%	3.0%
5-9	3.0%	2.9%
0-4	3.0%	2.9%

High school cohort today
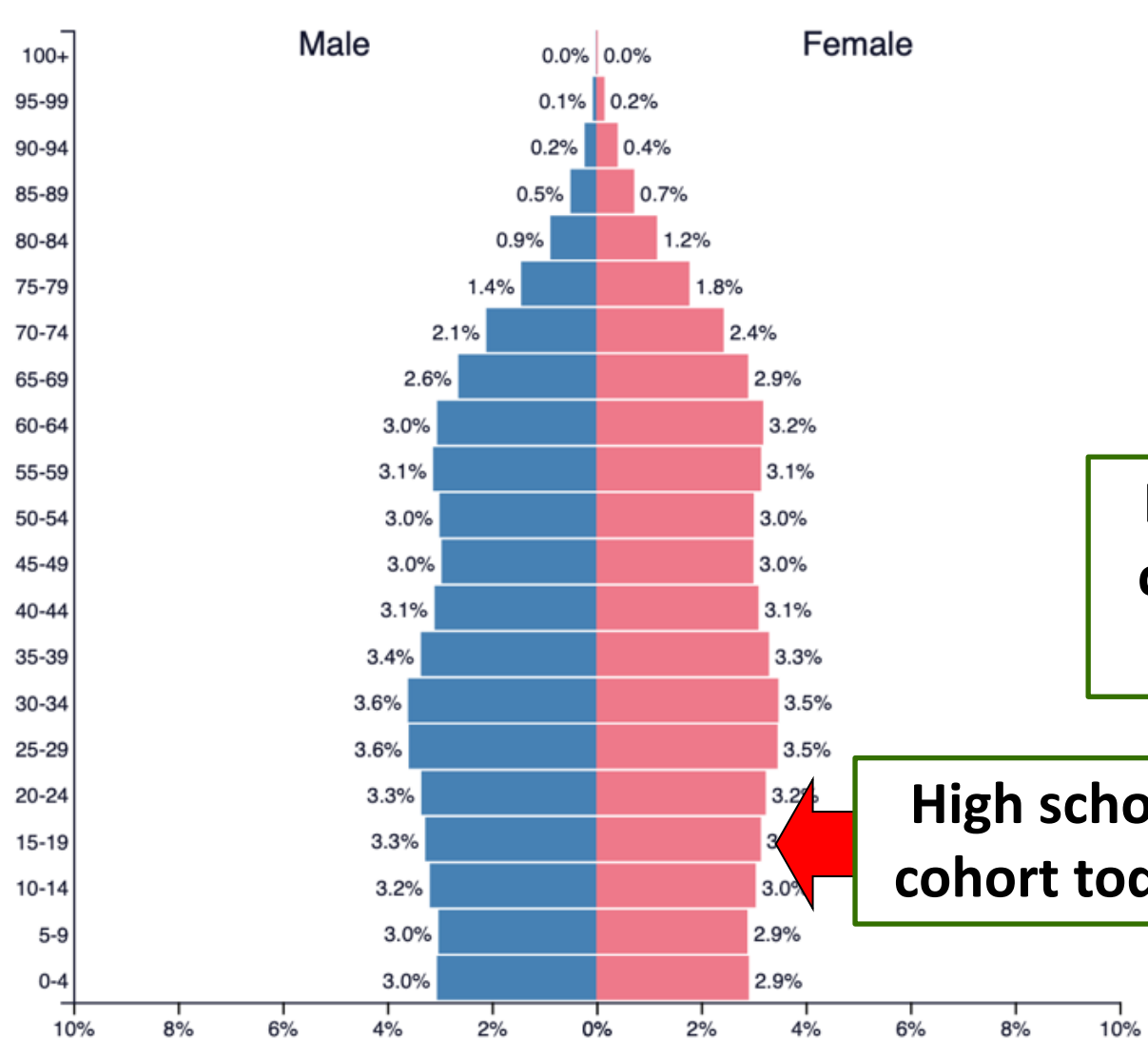
United States of America ▾
2042
Population: 369,396,554

Male / Female

Age	Male	Female
100+	0.0%	0.0%
95-99	0.2%	0.3%
90-94	0.5%	0.8%
85-89	1.1%	1.4%
80-84	1.7%	2.0%
75-79	2.0%	2.3%
70-74	2.2%	2.?
65-69	2.3%	2.5%
60-64	2.6%	2.7%
	2.9%	2.9%
	3.2%	3.2%
	3.3%	3.3%
	3.2%	3.2%
	.3%	3.2%
30-34	3.2%	3.2%
25-29	3.1%	3.0%
	3.0%	2.9%
15-19	3.0%	2.8%
	2.9%	2.8%
5-9	2.9%	2.8%
0-4	2.9%	2.8%
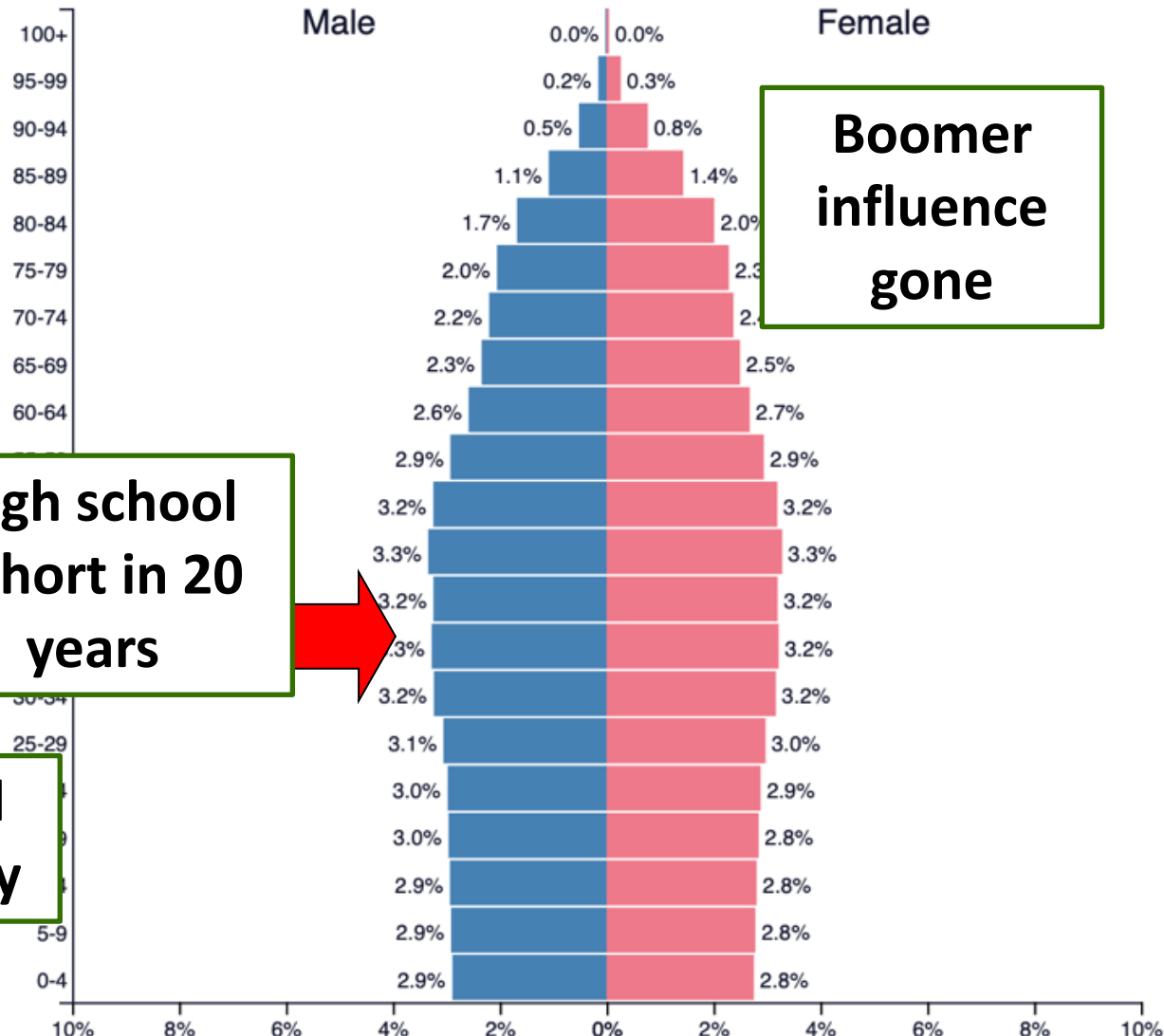
Boomer influence gone

High school cohort in 20 years

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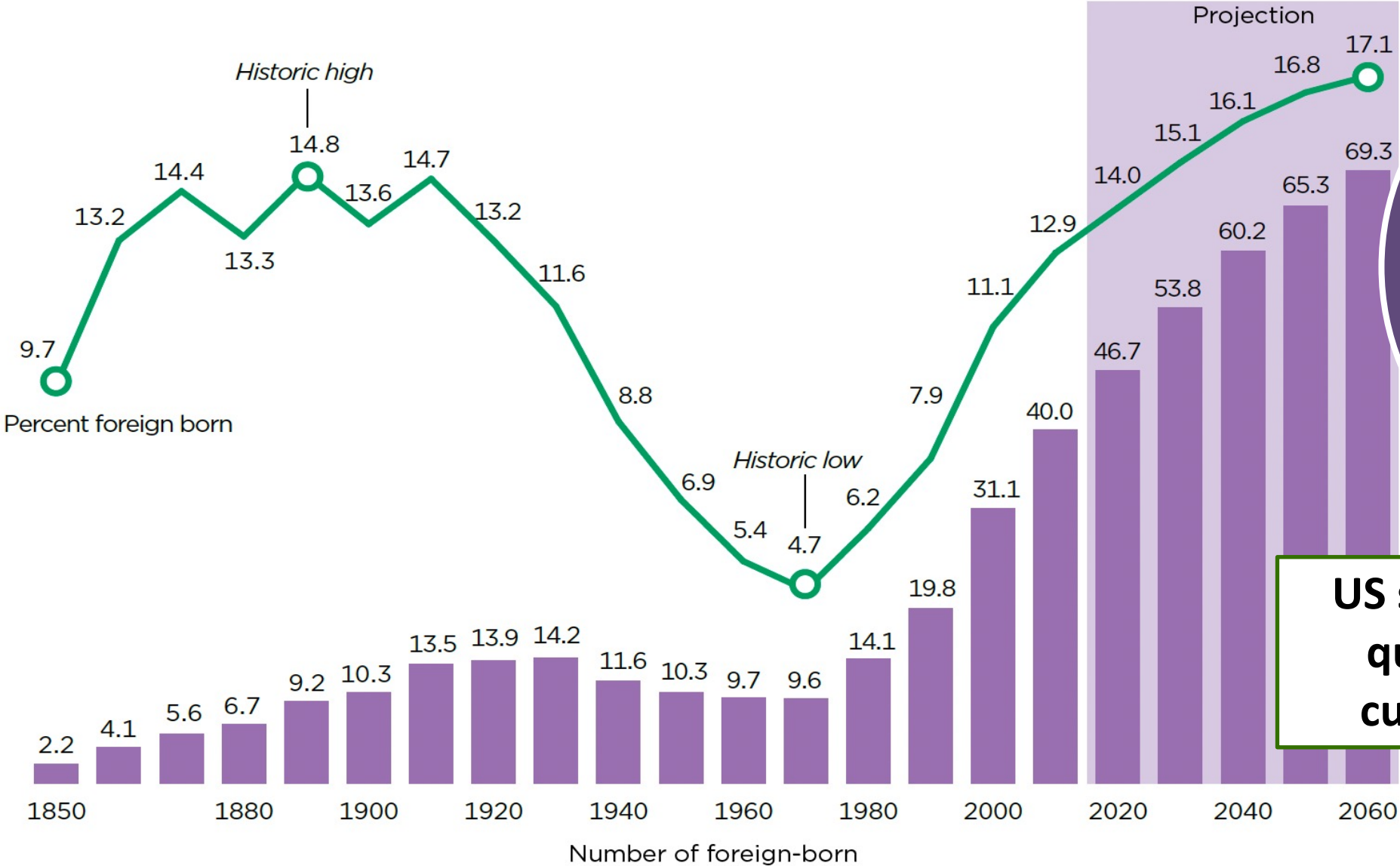
Projection

Foreign born % increasing

US society is changing quickly, with more cultures and voices

Historic high

14.8

14.4

13.2

13.3

13.6

14.7

13.2

9.7

Percent foreign born

11.6

8.8

6.9

5.4

Historic low

4.7

6.2

7.9

11.1

12.9

14.0

15.1

16.1

16.8

17.1

69.3

65.3

60.2

53.8

46.7

40.0

31.1

19.8

14.1

9.6

9.7

10.3

11.6

14.2

13.9

13.5

10.3

9.2

6.7

5.6

4.1

2.2

1850   1880   1900   1920   1940   1960   1980   2000   2020   2040   2060

Number of foreign-born

Blow in her face and she'll follow you anywhere

Hit her with tangy Tipalet Cherry. Or rich, grape-y Tipalet Burgundy. Or luscious Tipalet Blueberry. It's Wild! Tipalet. It's new. Different. Delicious in taste and in aroma. A puff in her direction and she'll follow you, anywhere. Oh yes...you get smoking satisfaction without inhaling smoke.

Smokers of America, do yourself a flavor. Make your next cigarette a Tipalet

New from Muriel.   About 5 for 25¢.

For a better start in life
start COLA earlier!

How soon is too soon?

- Promotes Active Lifestyle!
- Boosts Personality!
- Gives body essential sugars!

Not soon enough. Laboratory tests over the last few years have proven that babies who start drinking soda during that early formative period have a much higher chance of gaining acceptance and "fitting in" during those awkward pre-teen and teen years. So, do yourself a favor. Do your child a favor. Start them on a strict regimen of sodas and other sugary carbonated beverages right now, for a lifetime of guaranteed happiness.

The Soda Pop Board of America
1515 W. Hart Ave. - Chicago - ILL.

Shifting societal values

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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
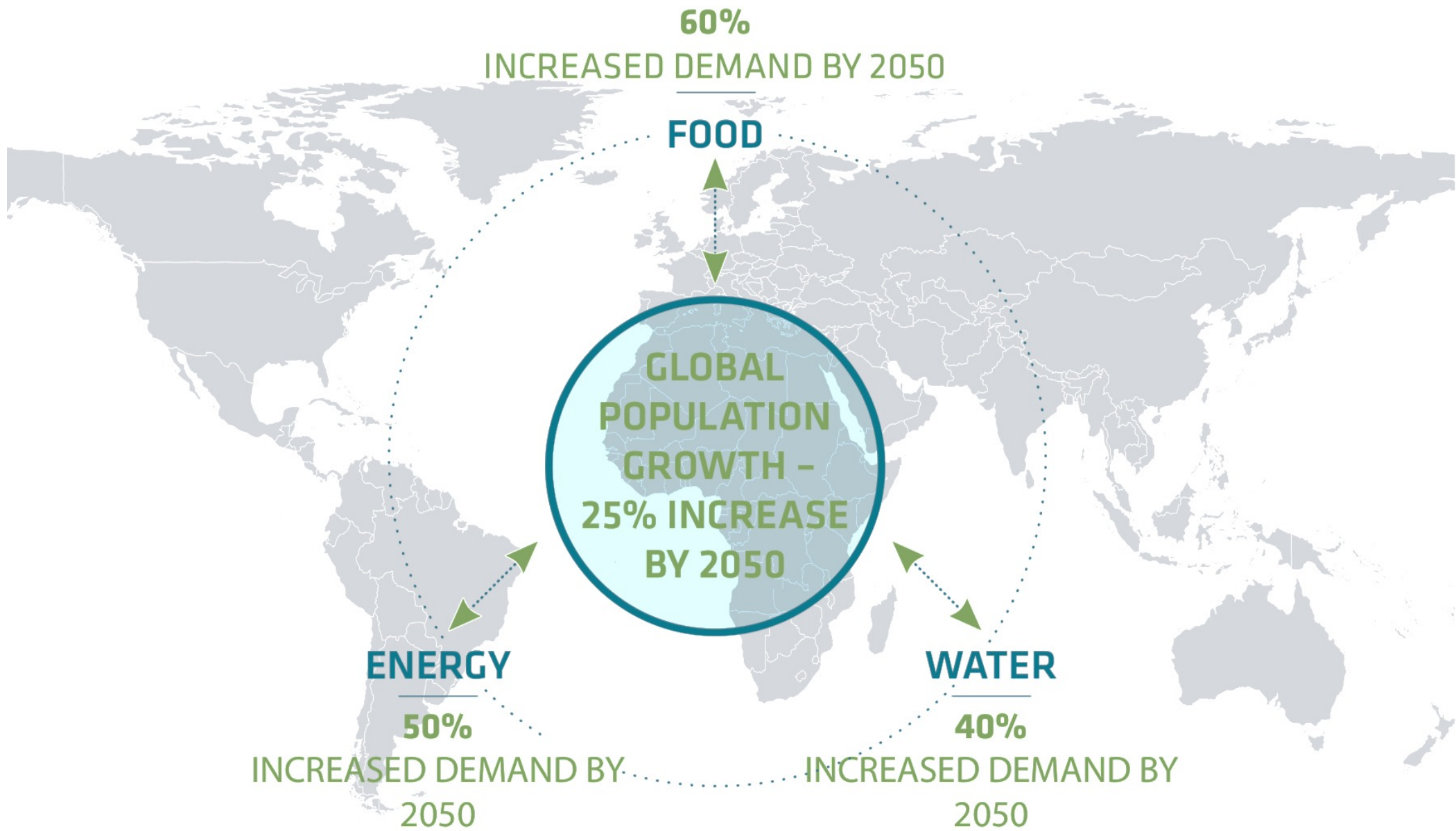the future of economic development in
Littleton?

Energy + Water + Food + Climate Change

60%
INCREASED DEMAND BY 2050

FOOD

GLOBAL POPULATION GROWTH – 25% INCREASE BY 2050

ENERGY
50%
INCREASED DEMAND BY 2050

WATER
40%
INCREASED DEMAND BY 2050

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**

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

1.9 BILLION
ADULTS ARE OVERWHEIGHT OR OBESE

1 in 12
ADULTS HAVE DIABETES

42 MILLION
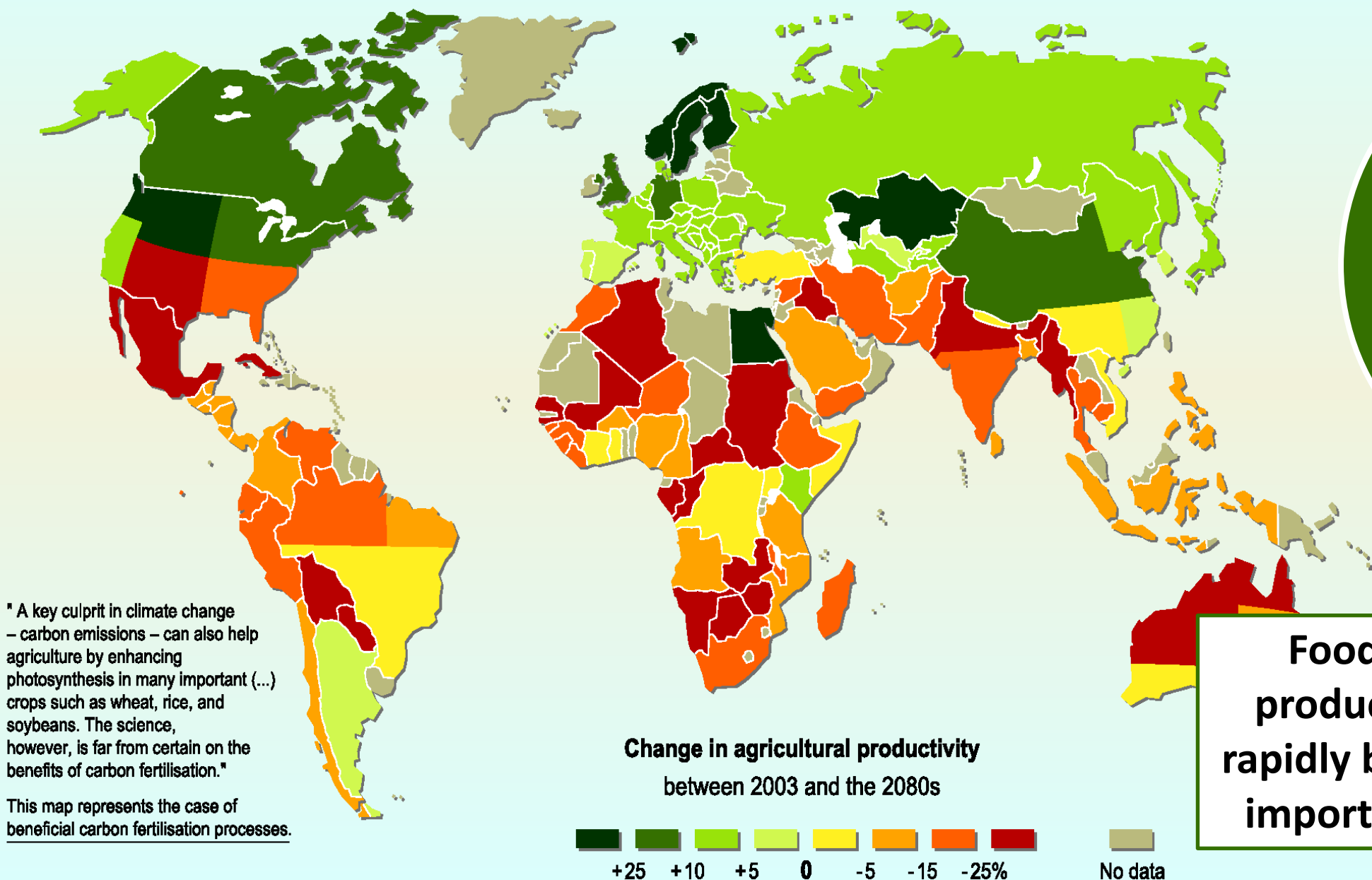CHILDREN ARE OVERWEIGHT

WE HAVE A BIG PROBLEM WITH
OVERWEIGHT & OBESITY

Hunger is an emerging critical global issue

Hunger Map 2021 — CHRONIC HUNGER

Up to 811 million people – 1 in 10 of the global population – do not get enough to eat

Prevalence of undernourishment in the total population (percent) in 2018-20

<2,5%   2.5-4.9%   5-14,9%   15-24,9%   25-34,9%   >35%   DATA NOT AVAILABLE

WFP — World Food Programme
SAVING LIVES
CHANGING LIVES

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Projected impact of climate change on agricultural yields

Increases and decreases

" 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*.

Change in agricultural productivity

between 2003 and the 2080s

+25 +10 +5 **0** -5 -15 -25%   No data

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

Farm Crop Yields: 2040-2060

N/A -20.5 -15.8 -6.5 -3 0 3 6.5 13 44 67 92

Percent decline in yields

Moderate Emissions
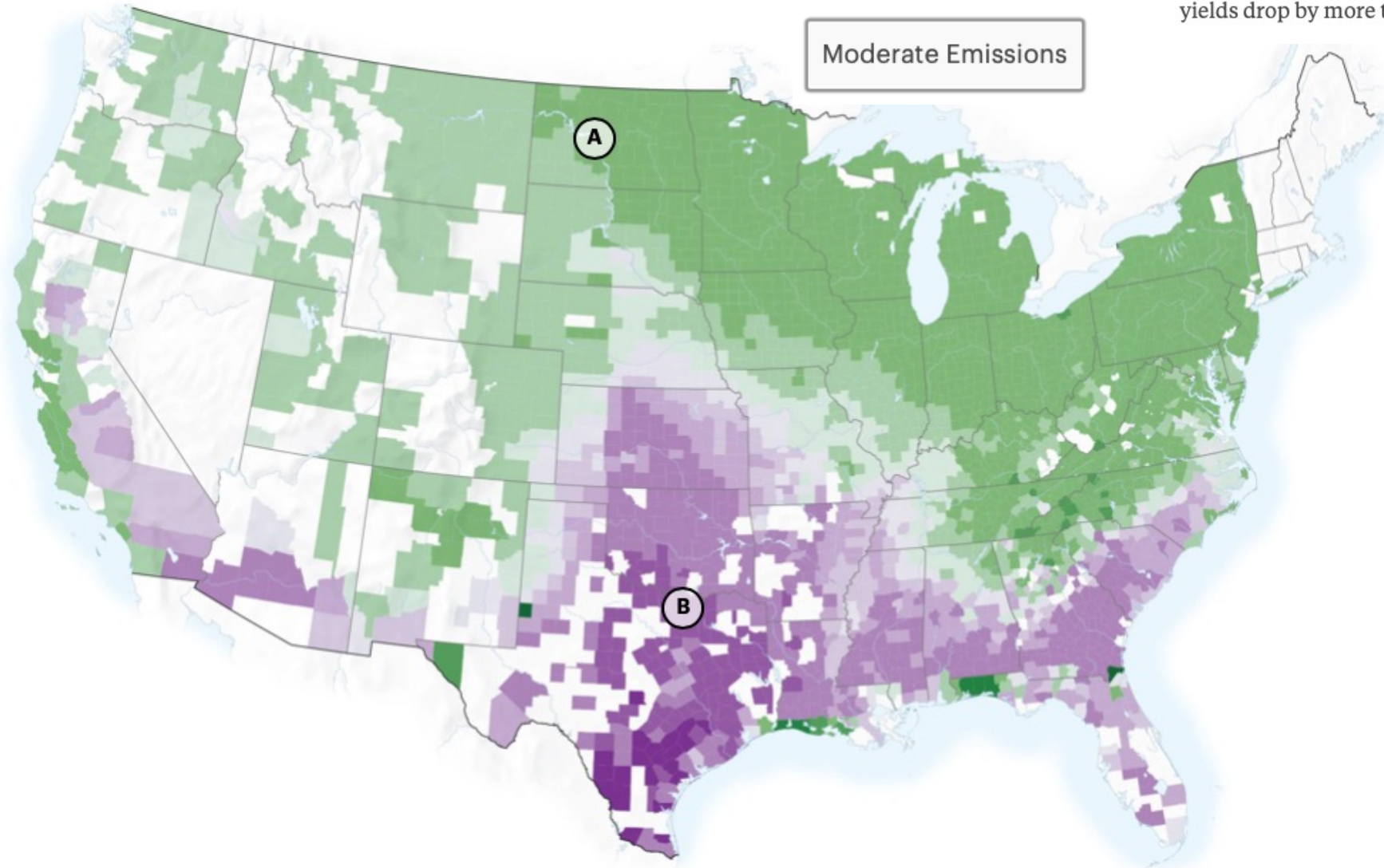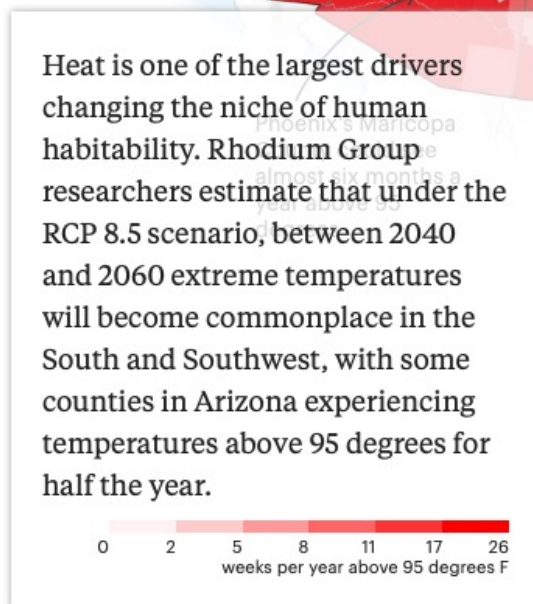
Corn and soy production is more sensitive to heat than drought, and it will decrease for every degree of warming. By midcentury, North Dakota (A), which already harvests millions of acres of both crops, will warm enough to allow for more growing days and higher yields. But parts of Texas and Oklahoma (B) may see yields drop by more than 70%.
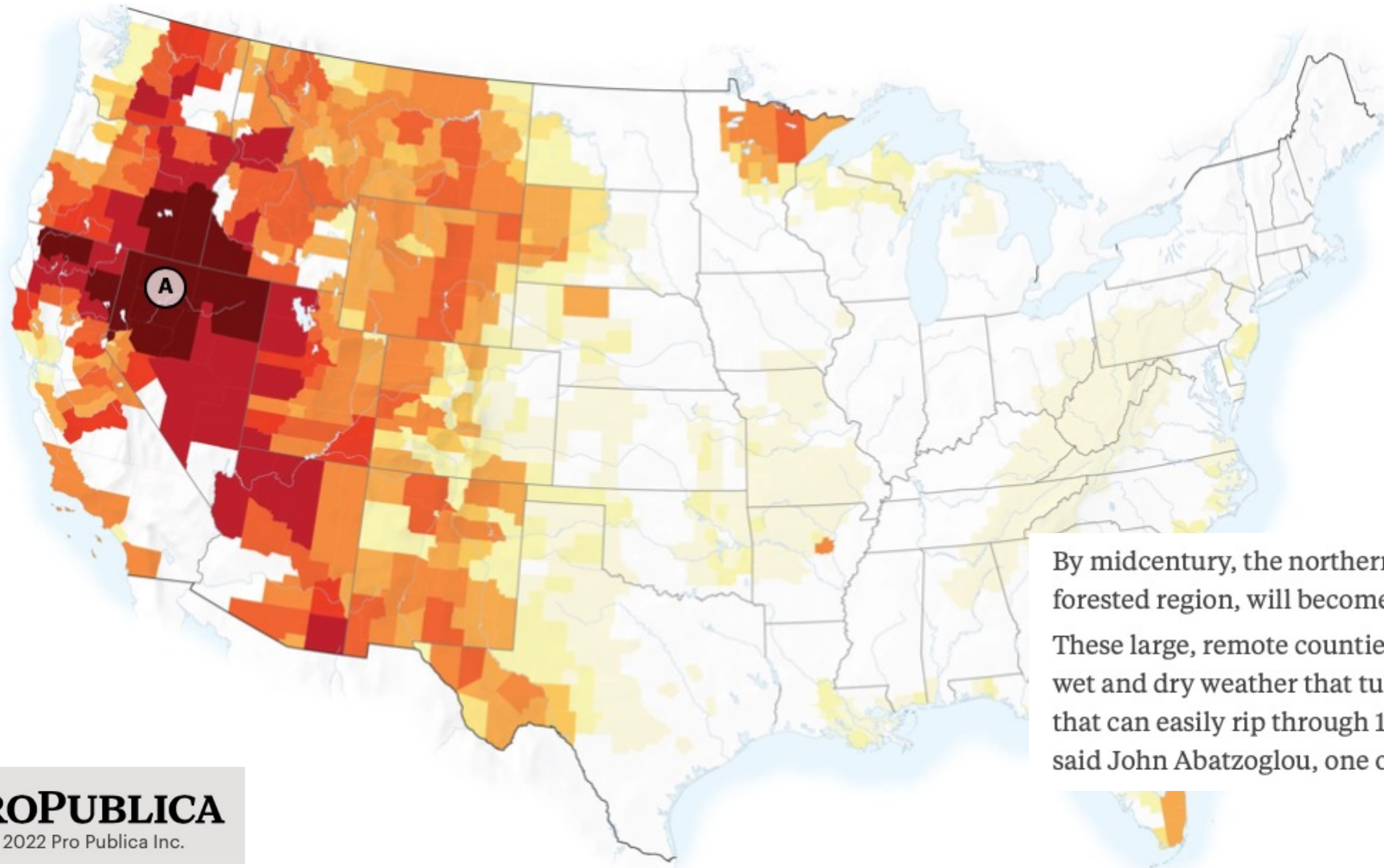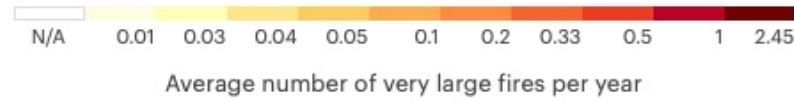
Extreme Heat and Humidity: 2040-2060

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.

Phoenix's Maricopa ~~~~ ~~ almost six months a year above 95 ~~~~~~~

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

High Emissions

Large Wildfires: 2040-2071

N/A 0.01 0.03 0.04 0.05 0.1 0.2 0.33 0.5 1 2.45

Average number of very large fires per year

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.

High Emissions   Moderate Emissions

0   0.05   2   5   10   15   25
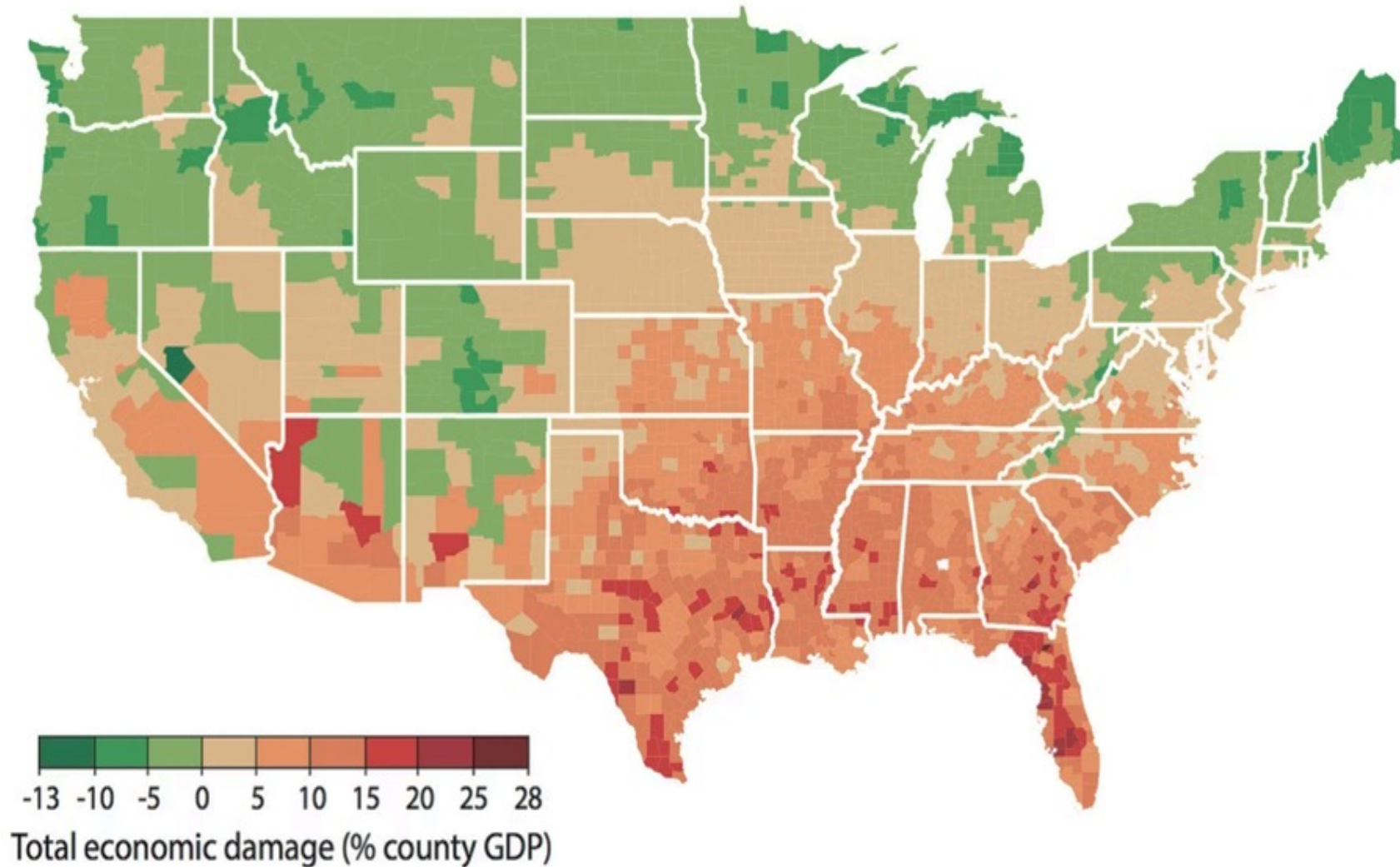
Percentage of property below high tide

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.

Total economic damage (% county GDP)

-13 -10 -5 0 5 10 15 20 25 28

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

Long term GDP impact positive in north

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

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 →

Most suitable zone by temperature and precipitation

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.

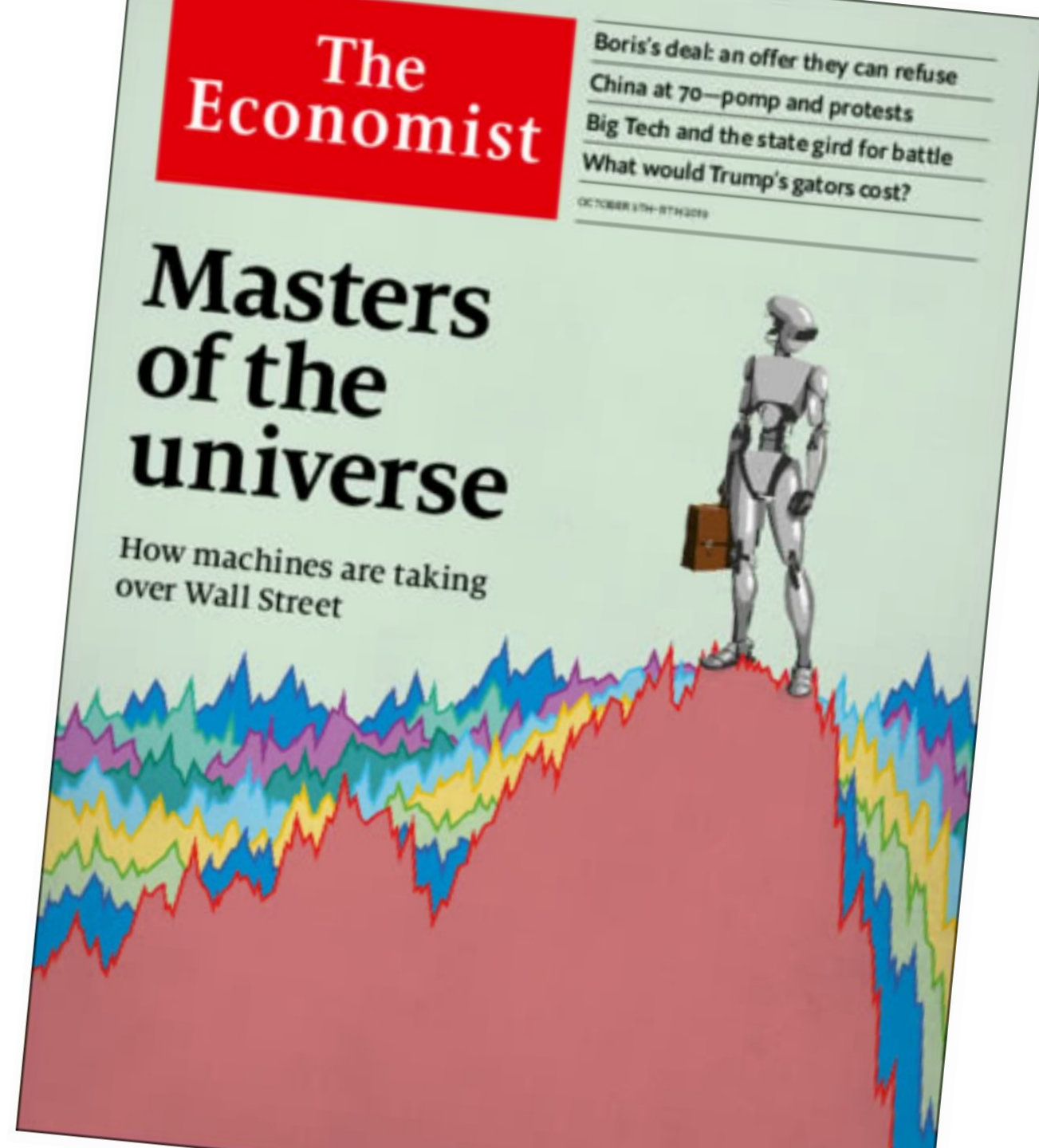# Predictions and observations

- Growing disconnect between where food will be consumed, and where it can be grown.
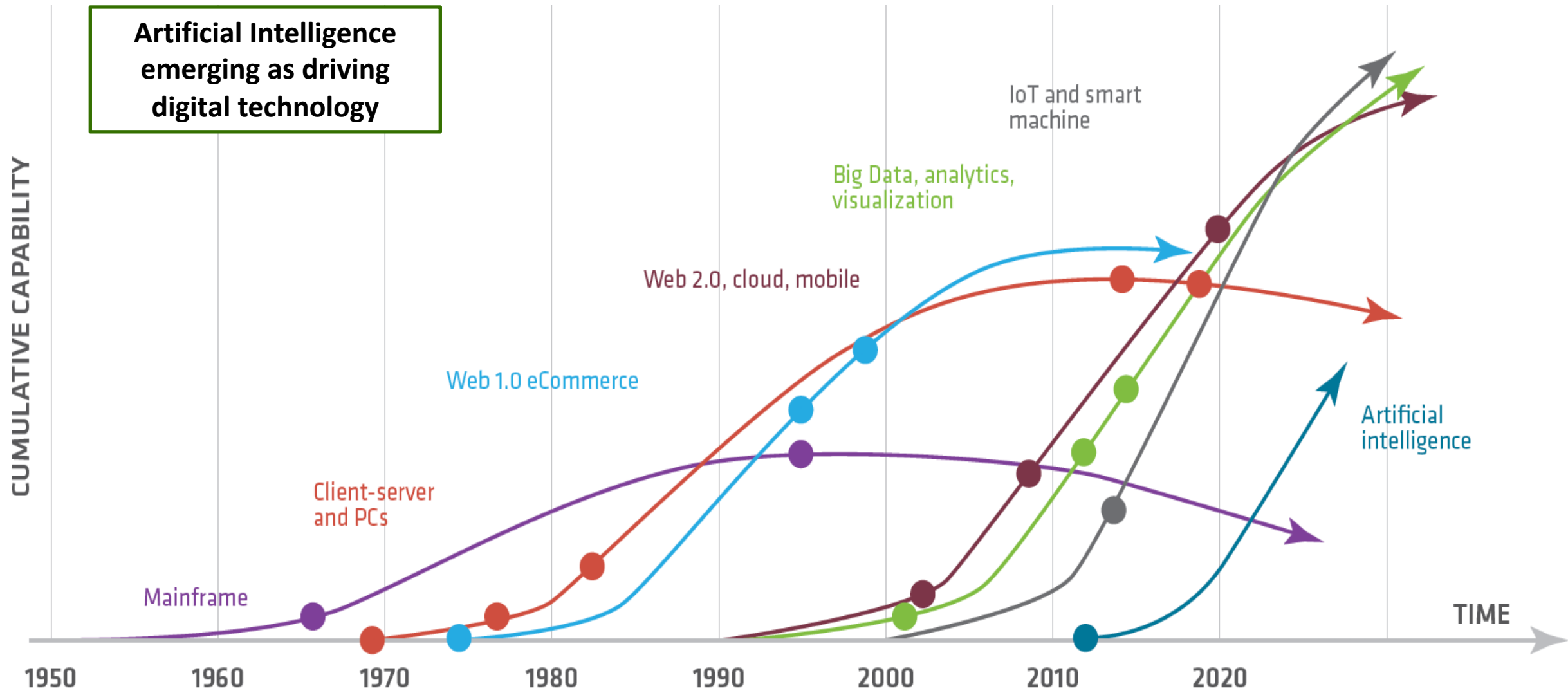- New migration patterns are emerging

Technology and the speed of change
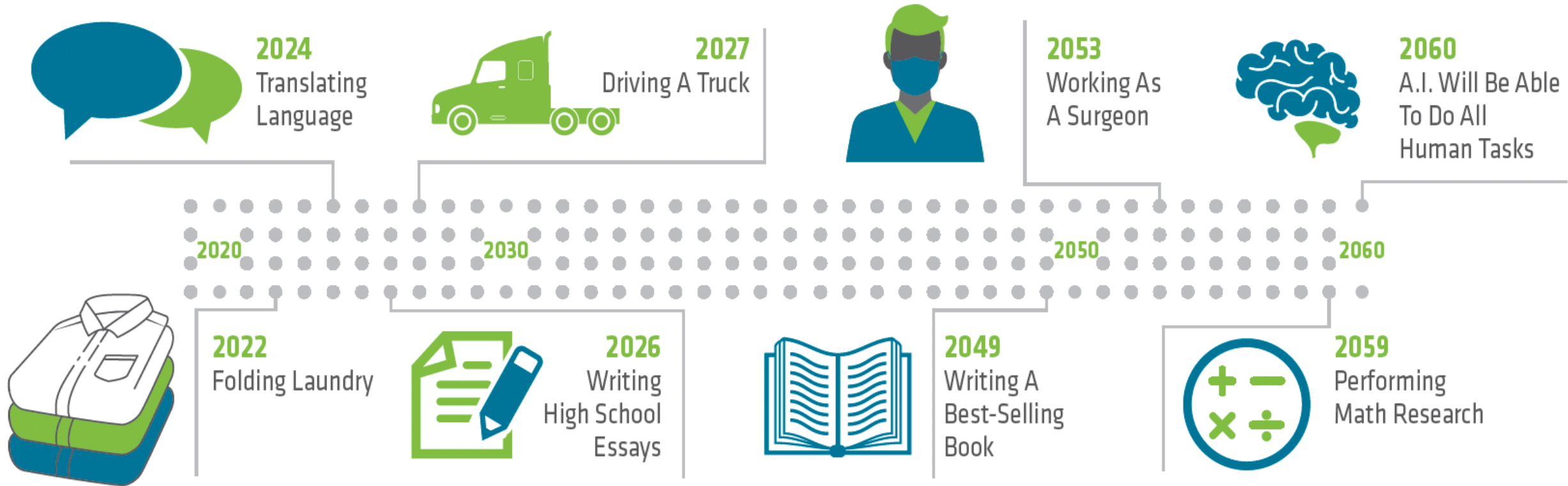
THE INCREASING CAPABILITY OF DIGITAL TECHNOLOGIES

Artificial Intelligence emerging as driving digital technology

CUMULATIVE CAPABILITY

TIME

Mainframe
Client-server and PCs
Web 1.0 eCommerce
Web 2.0, cloud, mobile
Big Data, analytics, visualization
IoT and smart machine
Artificial intelligence

1950 1960 1970 1980 1990 2000 2010 2020

When will AI outperform people?

AI WILL LIKELY OUTPERFORM HUMANS AT...

2024 Translating Language

2027 Driving A Truck

2053 Working As A Surgeon

2060 A.I. Will Be Able To Do All Human Tasks

2020

2030

2050

2060

2022 Folding Laundry

2026 Writing High School Essays

2049 Writing A Best-Selling Book

2059 Performing Math Research

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

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


SPEED OF TECHNOLOGICAL CHANGE

EXPONENTIAL TECHNOLOGIES

Technological Development
Moore's Law: The power of chips, bandwith and computer doubles appr. every 18 months.

The Human Factor
Technological dev. feeds and enables various trends in society: Democratisation, Social Connection, DIY, Decentralisation.

Watson

Gene-Splicing

Autonomous Tractors

Global Connectivity

Sensory Intelligence

Nano Printing

Telepresence Robots

3D Food Printing

Slingshot Water Purifer

Robotic Food Processing

Synthetic Foods

Vertical Farming

Drone Delivery

- Biotech
- Neurotech
- Nanotech
- New Energy & Sustainability
- ICT & Mobile Technology
- Sensoring
- 3D Food Printing
- Artificial Intelligence
- Robotics
- Drones

FROM LINEAR TO EXPONENTIAL GROWTH TRAJECTORY
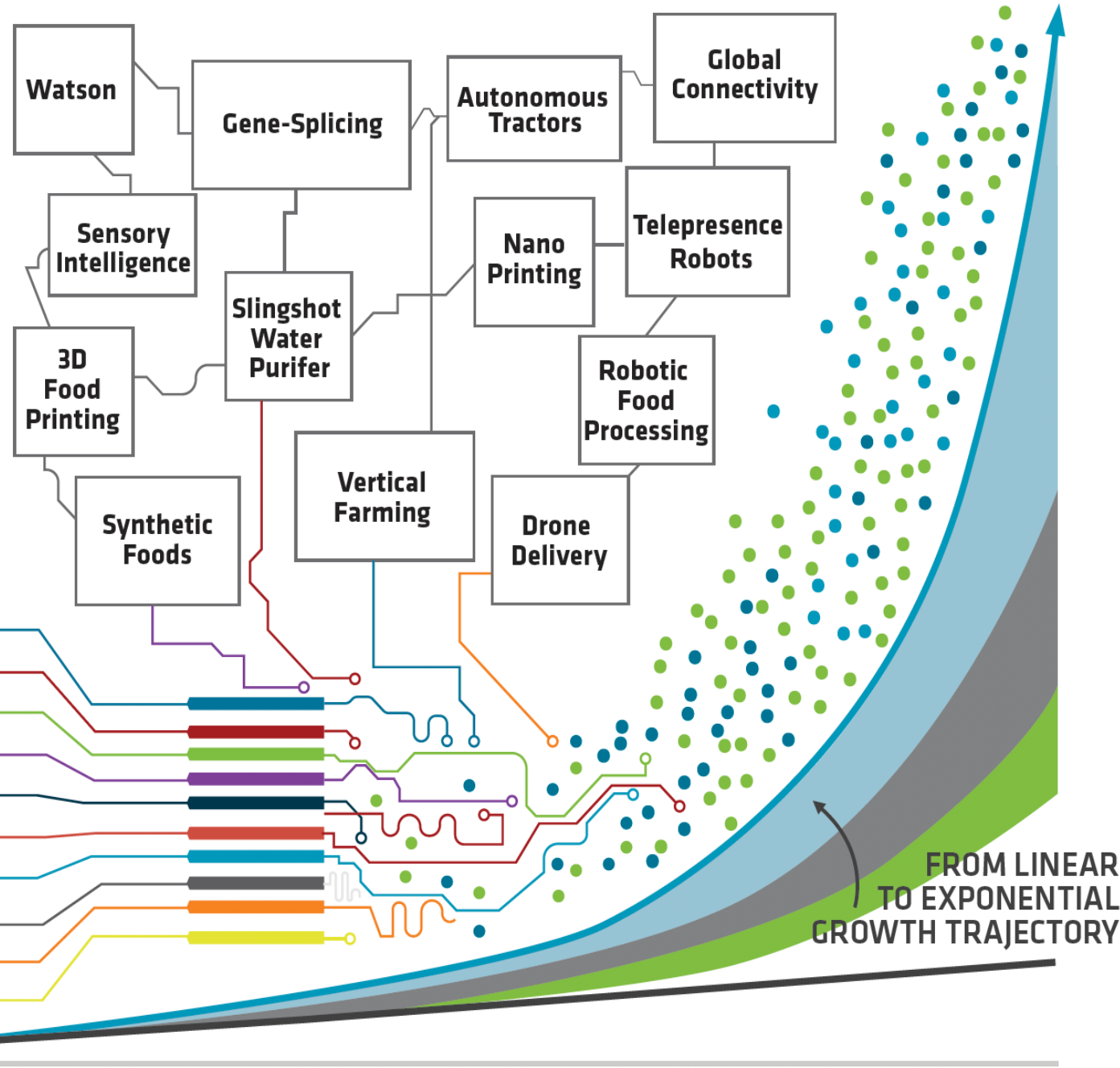
Technology and speed of change

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

Demographics + Resources + Technology

What do all these future trends mean for the future of economic development in Littleton?

City of Littleton
Economic Benchmark Report

Littleton Comprehensive Economic Development Strategy

June 2023

Littleton Comprehensive Economic Development Strategy (CEDS)

IDENTIFYING KEY DRIVERS

Key Drivers:

What key drivers do you think are most important for the future of economic development in Littleton?

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

Table brainstorm

Key Drivers Handout

What are the most important key drivers shaping the future of economic development in Littleton?

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

1.

2.

3.

Table brainstorm – key drivers

Key Drivers – [list developed in Think-Tank]

1. Transportation, Connectivity and Traffic
2. Housing Affordability-Full Range
3. Natural Resources
4. Primary Jobs and Talent
5. Infrastructure – electrical/grid/fiber
6. Aging population
7. Building location and zoning
8. Small business/entrepreneur
9. Diversity of population
10. Future community needs and desires
11. Supporting businesses / adaptation
12. Sales tax revenue
13. Cultural fluency
14. External Legislation
15. Technology trends
16. Redevelopment trajectory
17. Mental health
18. Mass urbanization
19. Recreation, entertainment
20. Future of work

Key Driver Details

Building an understanding of each driver

DRIVER NAME: _____

1. Key emergent high-level trends associated with this driver:

2. Potential impacts on economic development in Littleton over the next decade:

3. What is the big 'FUTURE-SPLITTING QUESTION' for this driver?

4. Future predictions – How impacts may 'play out' for this driver over the next decade:

Building an understanding of each driver

Littleton Comprehensive Economic Development Strategy (CEDS)

RANKING KEY DRIVERS

Key Drivers – Future Impact Score

Rate each driver on a 1 – 10 scale of future impact (1 = small impact; 10 = very large impact)

DRIVER	DRIVER NAME	Community Fabric	Economic Development
1			
2			
3			
4			
5			
6			
7			

Rating the importance of each driver – individual scoring

Littleton Comprehensive Economic Development Strategy (CEDS)

THINK-TANK WORKSHOPS

Monday, July 17
3:00pm – 6:00pm

Tuesday, July 18
9:00am – 12:00pm

AGENDA

Session 1: Explore Future Trends

Date: Monday, July 17, 2023

Time: 3:00pm – 6:00pm

Location: Bemis Public Library

6014 S. Datura Street
Littleton, CO 80120

Session 2: Build Scenarios

Date: Tuesday, July 18, 2023

Time: 9:00am – 12:00pm

Location: Bemis Public Library

6014 S. Datura Street
Littleton, CO 80120