



# *Navigating the Speed of Change with a Future Lens*

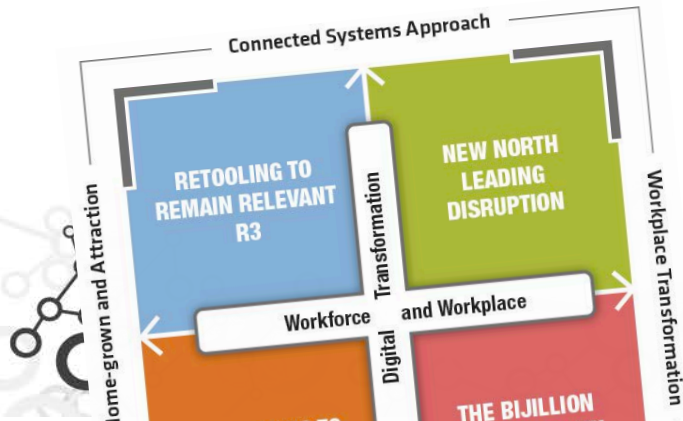
David Beurle,  
CEO, Future iQ

future→iQ

# Future planning work

## Exploring Macro themes:

- 'Digital Transformation'
- 'Workforce and workplace'





# Population driving manufacturing

future→iQ

# 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





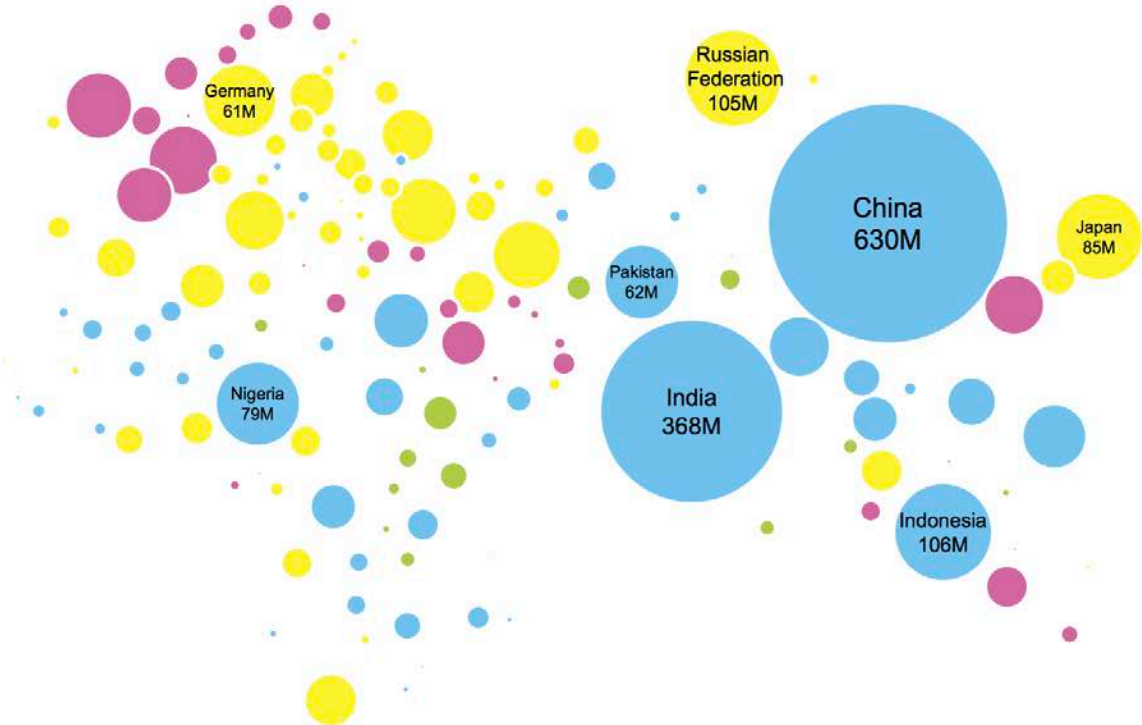
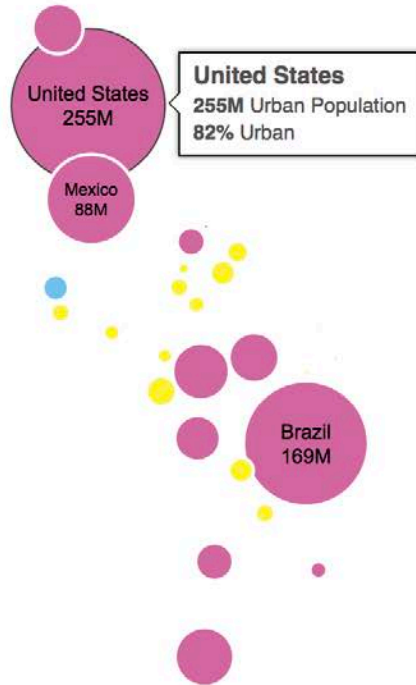
# AN URBAN WORLD

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%

2010



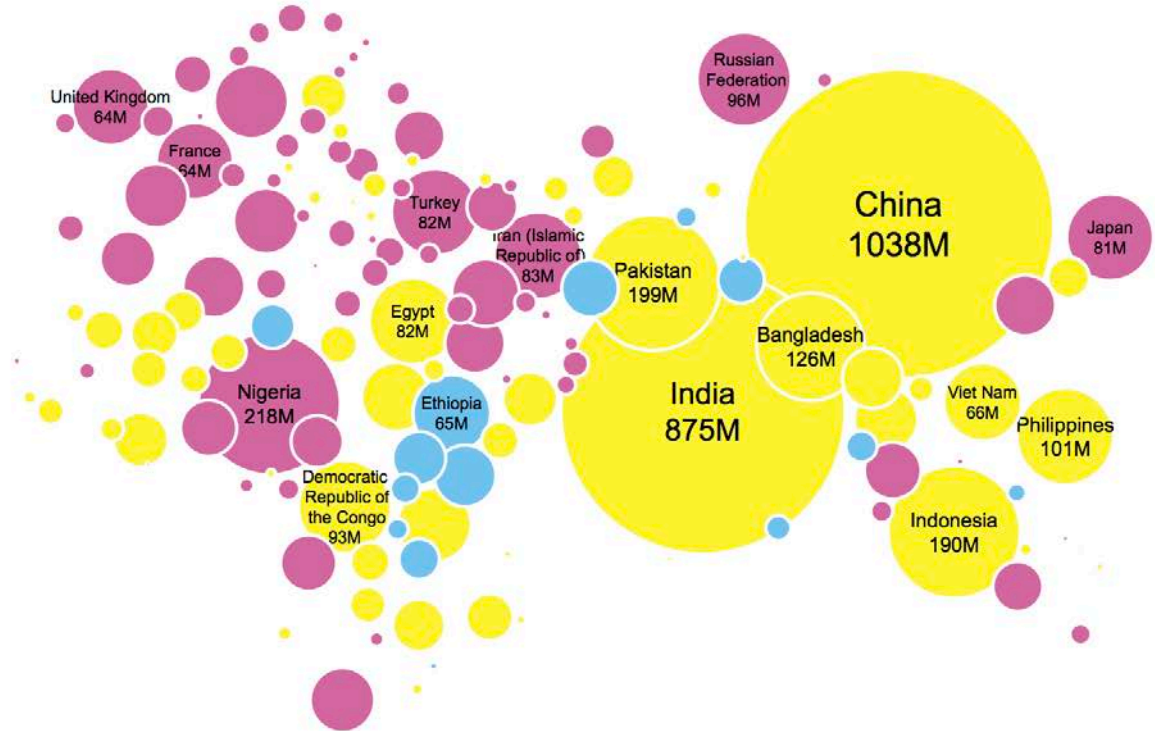
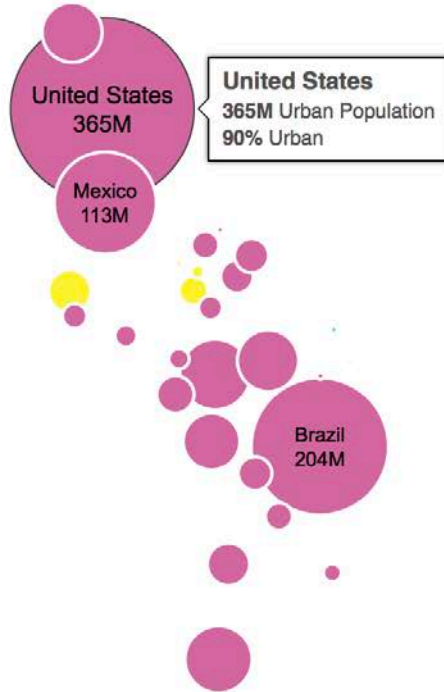
# AN URBAN WORLD

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%

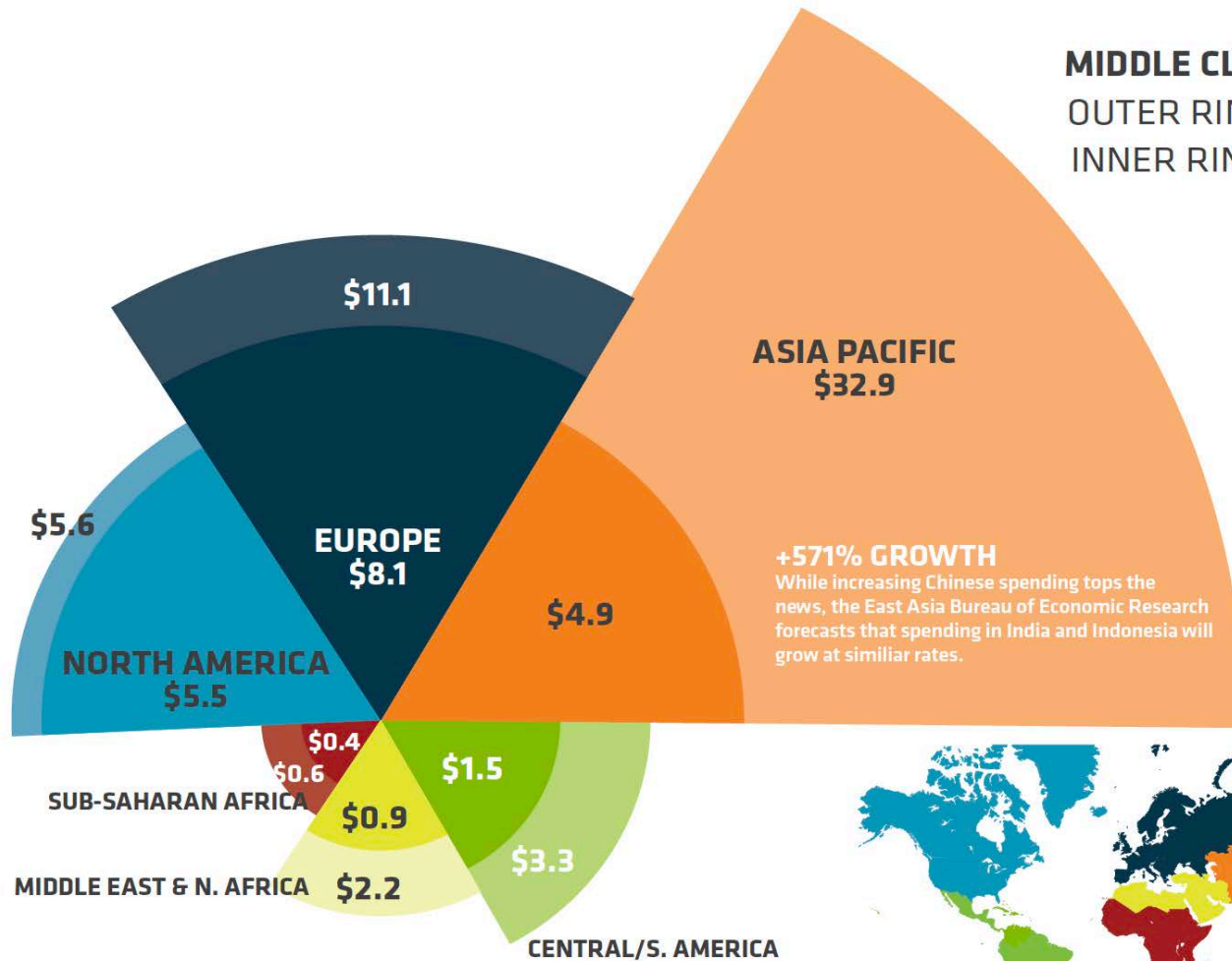
2050



## MIDDLE CLASS CONSUMER SPENDING

OUTER RING: 2030 IN TRILLIONS, USD

INNER RING: 2009 IN TRILLIONS, USD



Source: Kou, L. 2013. The world's middle class will number 5 billion by 2030. Quartz.  
Figures based on OECD, 2012. An emerging middle class.

# Built Environment is a Direct Reflection of the Underlying Economy



## Agriculture Economy

- 1<sup>st</sup> version of the American Dream
- “40 Acres and a Mule”



## Industrial Economy

- 2<sup>nd</sup> version of the American Dream
- Drivable Sub-urban... “See the USA in Your Chevrolet”



## Knowledge/Experience Economy

- Current/Future version of the American Dream
- **Option** of Walkable Urban and Drivable Sub-urban



# America is a mosaic of local economies on diverging trajectories

Automation could widen existing disparities

13 community segments have varying economic and demographic profiles

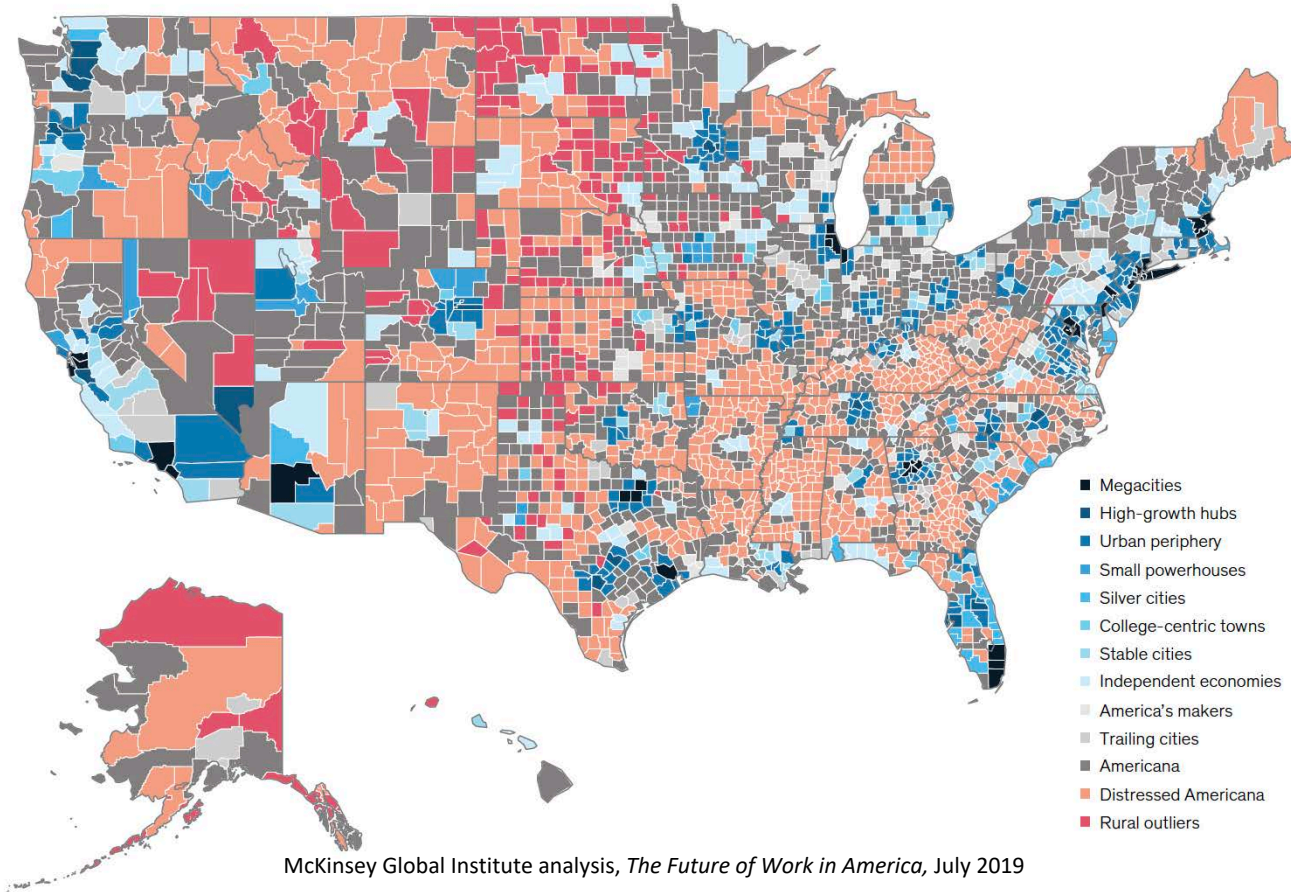


Employment change for select community segments, % of 2007 employment



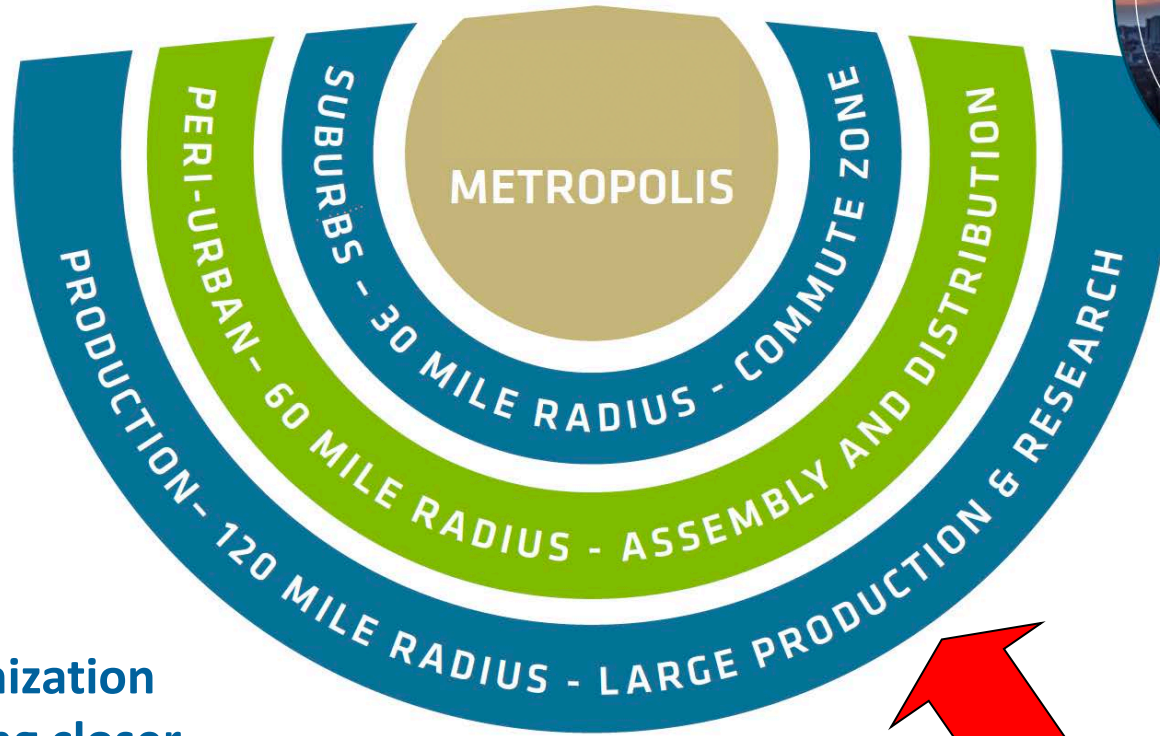
The United States is a complex mosaic of local economies, with 13 distinct community archetypes.

Map of county types (color-coded by segment)





Future-Splitting  
Questions™



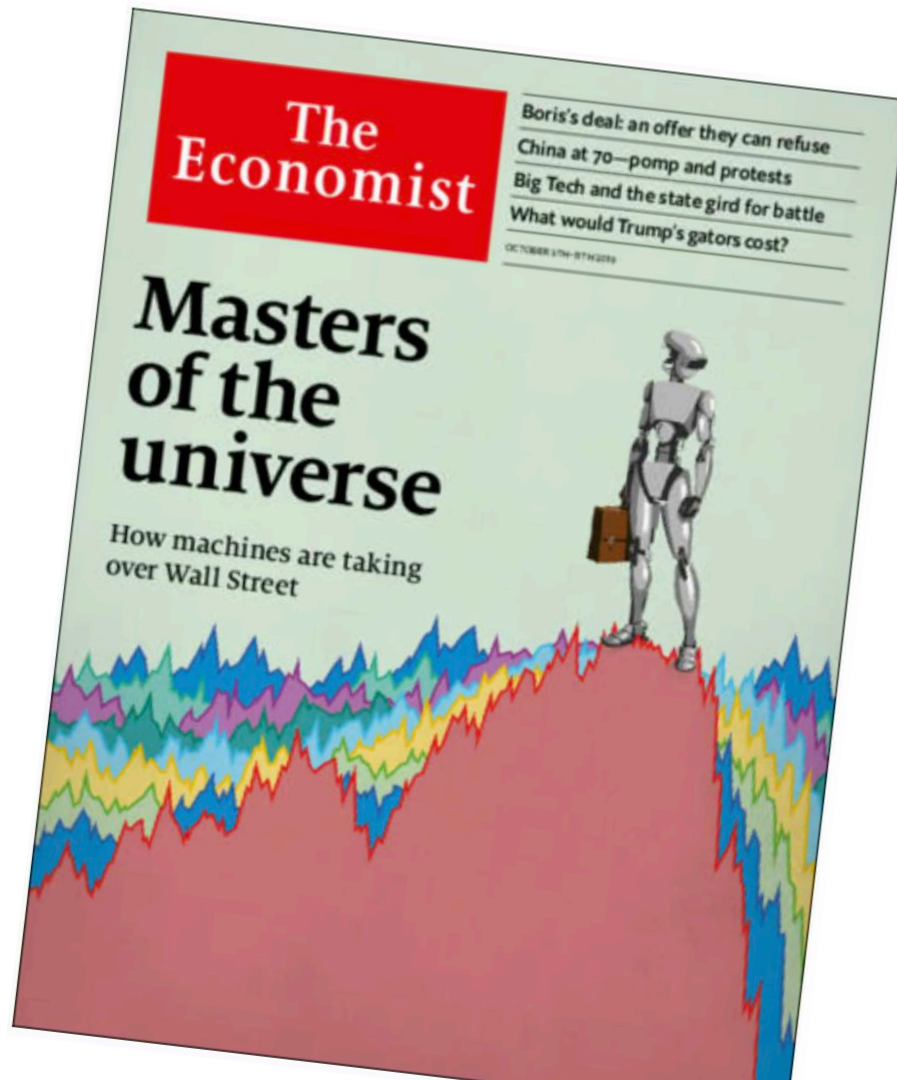
Does mass urbanization  
drag manufacturing closer  
to mega-cities, or push it  
into specialized cities?

Where is New North's  
future?

# The evolving workforce

future→iQ

Create Future Intelligence™





# Unemployment Dips To 3.7 Percent

## CIVILIAN UNEMPLOYMENT RATE

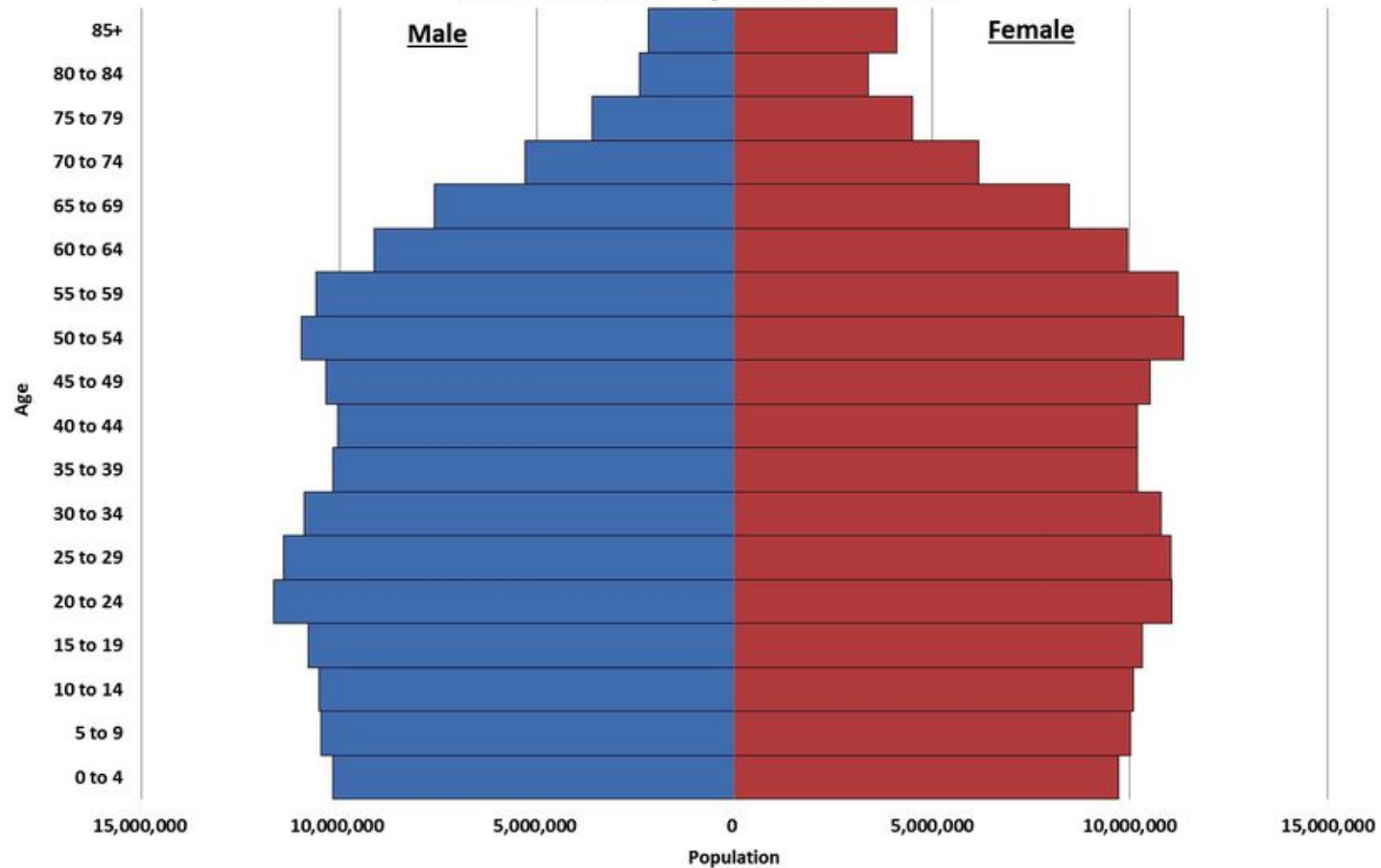


**Notes:** All values are seasonally adjusted. In the bar chart, figures for the two most recent months are preliminary and may be revised later.

Source: [Bureau of Labor Statistics](#), Federal Reserve Bank of St. Louis ([unemployment rate](#), [payrolls](#), [wages](#))

Credit: Alyson Hurt/NPR

**Chart 1: Population Pyramid of the U.S.  
Total Resident Population in 2015**



Source: U.S. Census Bureau, Vintage 2015 Population Estimates.

# The Future Workforce – impact of technology

## STAGE 1: Sharing Economy Platforms The Gig Economy

- Nonemployee freelance workers
- Temporary assignments



**40%**

of US workers independent contractors by 2020

## STAGE 2: Artificial Intelligence and Robotics The Machine Economy

- Massive labor disruption
- Human labor displaced and supplemented
- Jobs unbundled into tasks



**40%**

White collar and creative work not immune

**5.1 MILLION**

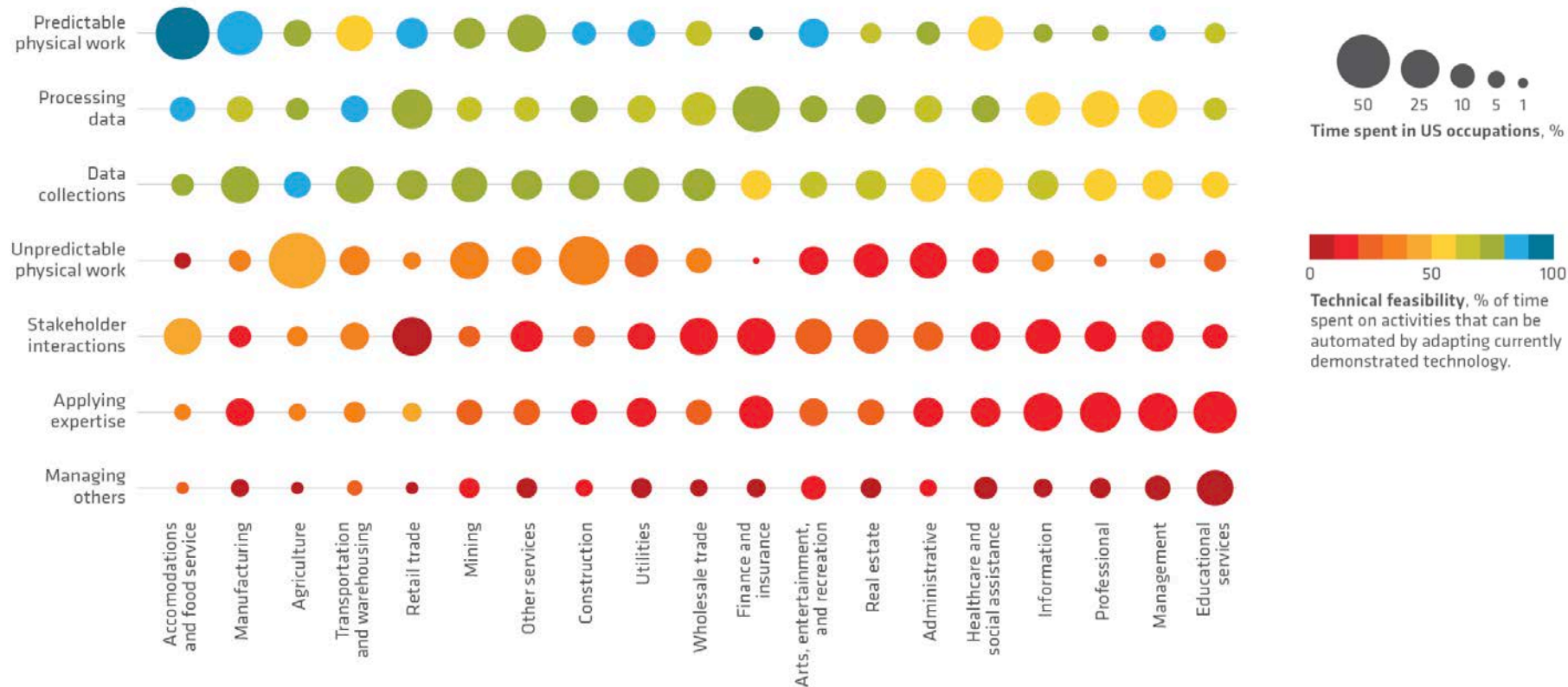
net job loss by 2020

Source: *The Upside of Disruption: Megatrends shaping 2016 and beyond*, EYQ 2016

Reproduced from *Next Industrial Revolution*, Future iQ, 2018



# Vulnerability to automation



Source: Where Machines could replace humans – and where they can't by Michael Chui, James Manyika, and Mehdi Miremadi, McKinsey Quarterly 2016.

Reproduced from Next Industrial Revolution, Future iQ, 2018



# Predictions and observations

- Everything that can be automated, will be.
- Humans will adapt better than we think.
- Young people see technology as THE solution.
- Generational change is coming which will trigger widespread upheaval of norms.
- The workplace will transform.

# Technology and the speed of change

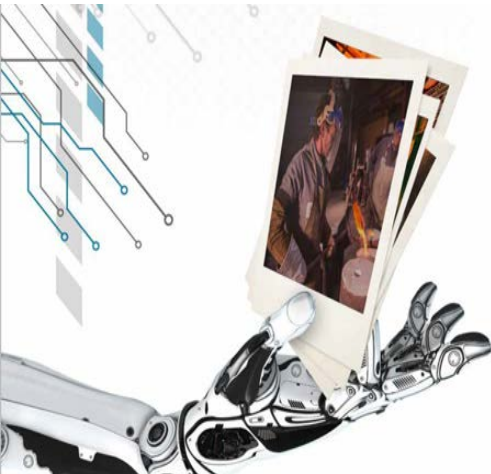
future→iQ

Create Future Intelligence™



# 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

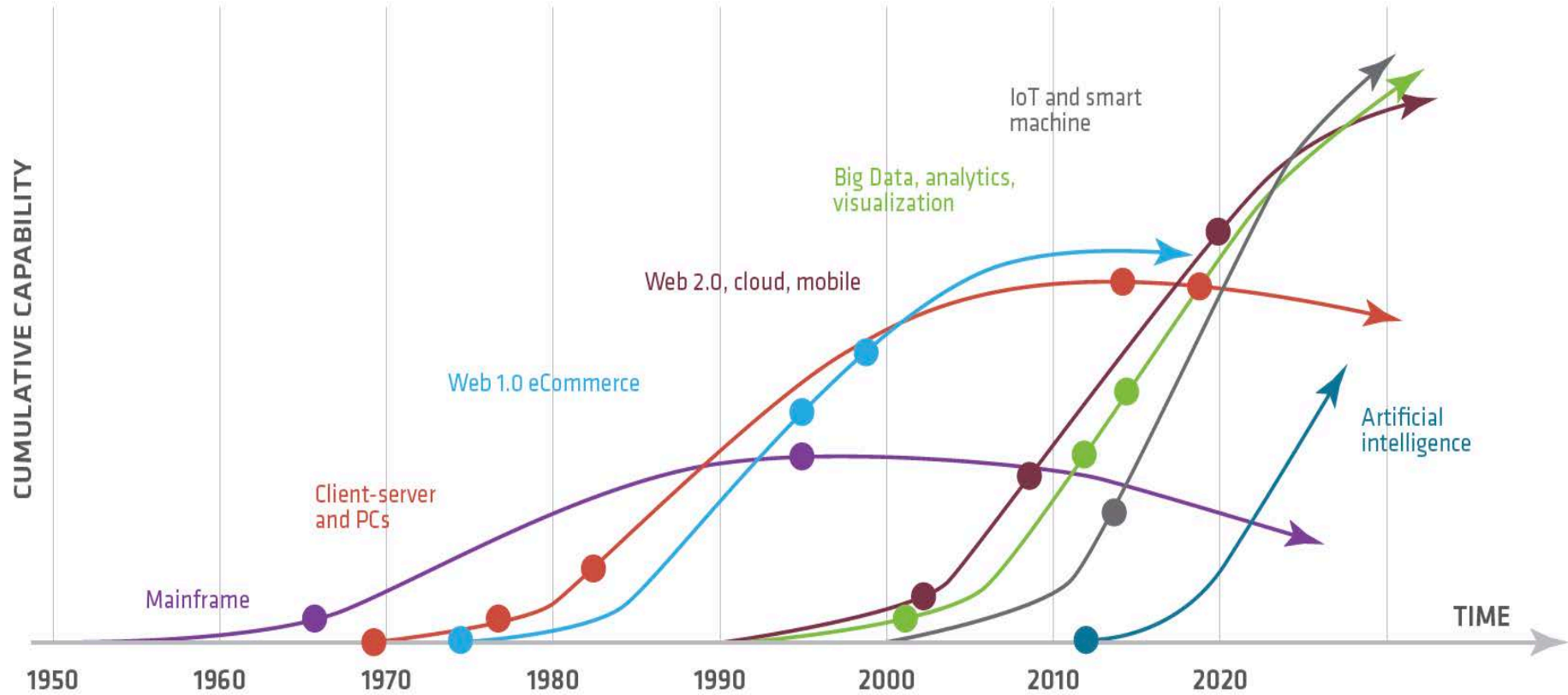
3.5

◆ **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

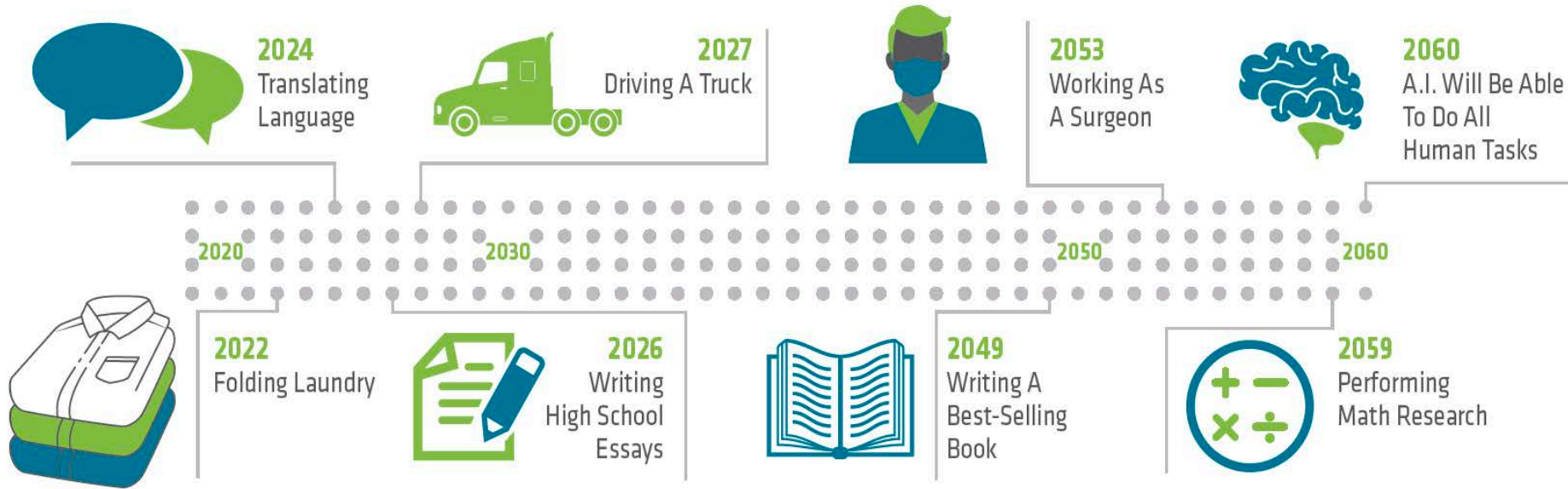
## THE INCREASING CAPABILITY OF DIGITAL TECHNOLOGIES





# When will AI outperform people?

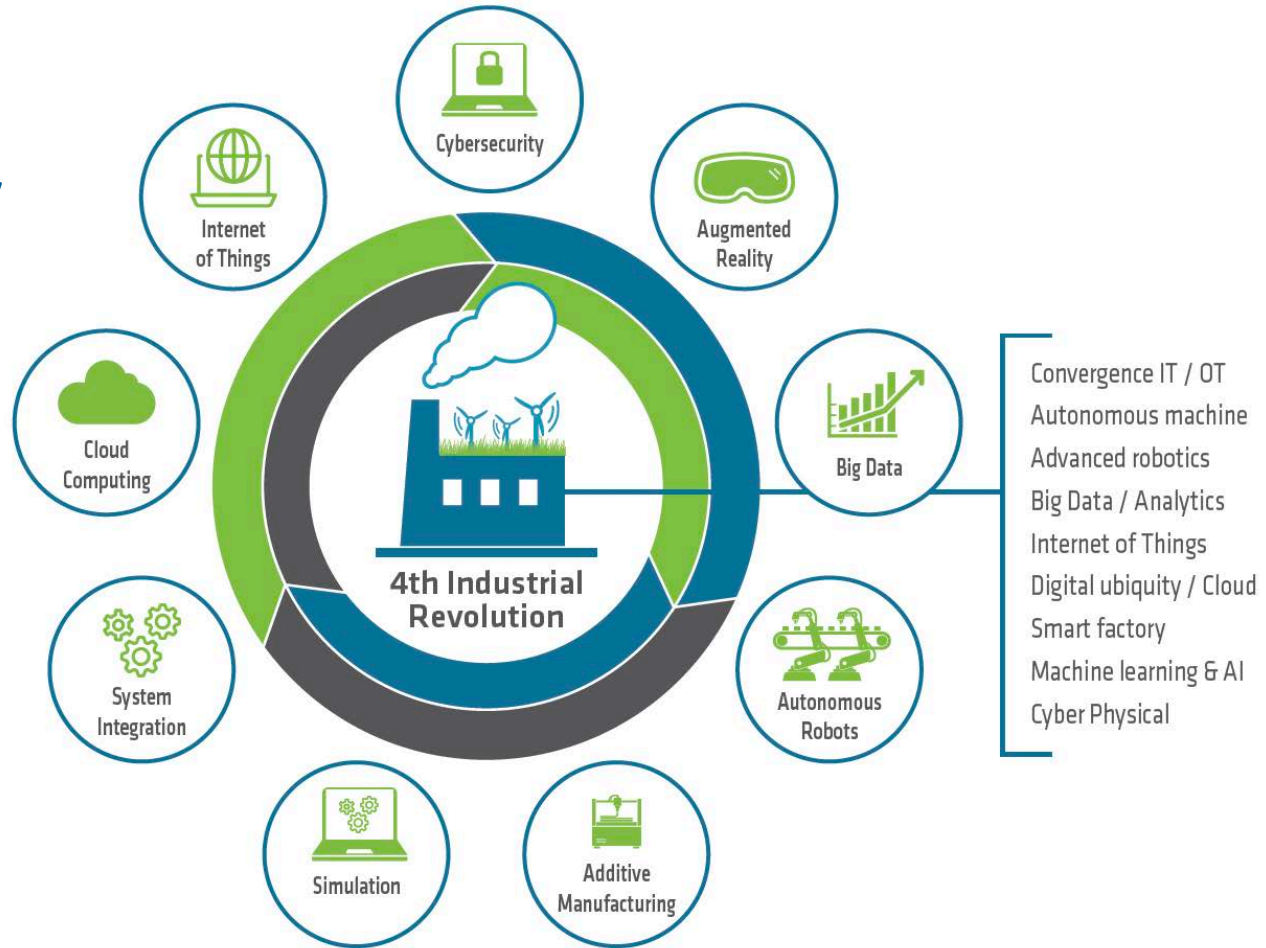
AI WILL LIKELY OUTPERFORM HUMANS AT...



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) <sup>12</sup>

Reproduced from Next Industrial Revolution, Future iQ, 2018

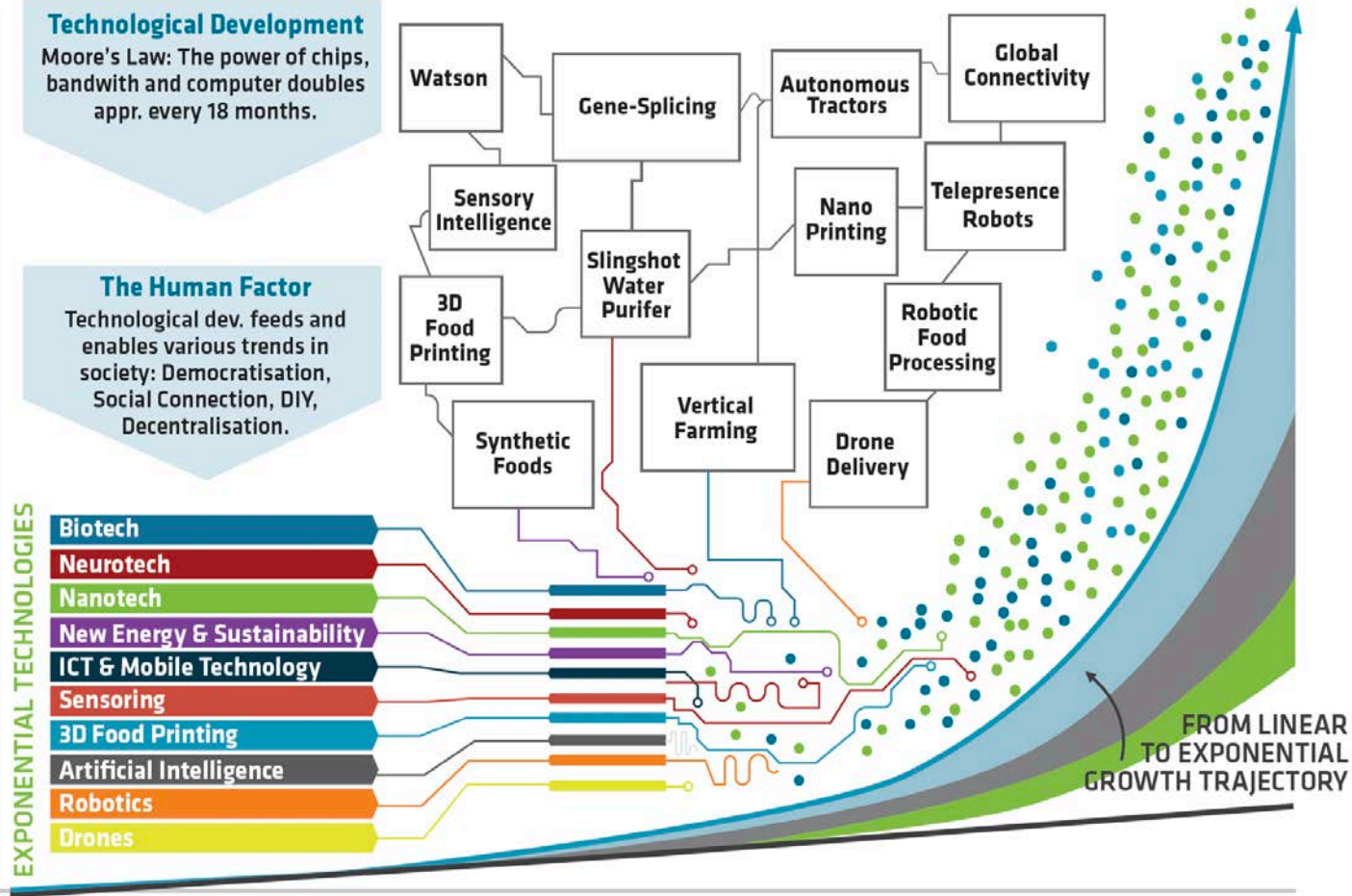
# Manufacturing transformed by technology



# 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



# Predictions and observations

- There will be those that can keep up, and those who get left behind.
- Traditional small and medium manufacturers are most vulnerable.
- Regions need to build '**future business intelligence**' and collaborative systems.



Future-Splitting  
Questions™

**How do we invest  
enough (*and fast enough*)  
in the right priorities, to  
stay competitive in an  
exponential world?**





## Business Intelligence Committee

### Co-Chairs

John Kreul  
VP for Supply Chain,  
Amcor



Kelli Bischoff,  
Owner,  
KB & Associates

## Supporting Partners

