Are You Ready for Massive Disruptions?

Jeffrey Kanne
National Real Estate Advisors

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The Disruptors

I. Demographic Trends

II. Automation

III. Climate Change
I. Demographics

Demographic Trends

I. Stage 1
   a. High birthrates, high death rates
   b. Stable population

II. Stage 2
   a. High birthrates, low death rates
   b. Population growth

III. Stage 3
   a. Low birthrates, low death rates
   b. Population aging

IV. Stage 4
   a. Low birthrates, low death rates
   b. Population decline
Population Comparisons: 1980

United States
Population: 224m

China
Population: 1.0b

Europe
Population: 74m

Source: United Nations Department of Economic and Social Affairs

14% of population over 60
7% of population over 60
16% of population over 60

Population Comparisons: 2015

United States
Population: 322m

China
Population: 1.4b

Europe
Population: 740m

Source: United Nations Department of Economic and Social Affairs

21% of population over 60
15% of population over 60
24% of population over 60
Population Comparisons: 2050

**United States**
Population: 389m
28% of the population over the age of 60

**China**
Population: 1.4b
36% of the population over the age of 60

**Europe**
Population: 705m
34% of the population over the age of 60

Population: 322m
21% of the population over the age of 60

Population: 255m
29% of the population over the age of 60

Source: United Nations Department of Economic and Social Affairs

Source: U.S. Census
China’s Population Problem

- Population today – 1.4 billion
- U.N. Predictions:
  - 2030 – 1.4 billion
  - 2100 – 1.0 billion (lose entire U.S.)
- Causes:
  - Urbanization
  - Female education
  - Children no longer an asset
  - No Immigration
  - 1971: “Later, Longer, Fewer”
  - 1979: “One Child” policy
    - An entire generation believes the ideal family has a single child
    - 30 million “missing” women and 30 men without mates
- “Empty Planet” prediction: 750 million in 2100, 630 million less than today

Japan’s Smart-Aging Seniors

Japan - Today

Population: 125m

- 33% of the population over the age of 60
- 16 million people under 14
Japan’s Smart-Aging Seniors

Japan - 2050

Population: 107m

43% of the population over the age of 60
13 million people under 14

Robear - Lifter
Telenoid – Remote Presence
Paro – Calming Therapeutic Robot
Pepper – Entertainer/Assistant

Source: Wall Street Journal

Japanese GDP

Per Capita

Per Worker

Source: World Bank
## IBEW Workforce

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<th>Age Range</th>
<th>Percentage</th>
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<td>10.0%</td>
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</tbody>
</table>

Source: IBEW

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## II. Automation
Long-Term Productivity

Source: Fred.stlouisfed.org

Automation – The Challenge

Source: Fred.stlouisfed.org
Automation – The Challenge

Candidates for Automation:
- 4.3 million drivers
- 3.9 million warehouse workers
- 3.5 million cashiers
- 4.6 million retail sales people
- ...

Source: U.S. Bureau of Labor Statistics

White-Collar Automation – Call Centers
Automation – The Opportunity

Electrical infrastructure in Sabey Data Center Property

Data Center IP Traffic

- 2013
- 2014
- 2015
- 2016
- 2017
- 2018
- 2019
- 2020
- 2021

Zetabytes per Year

25.0
20.0
15.0
10.0
5.0
0

Cisco projects 13% annual growth in data center traffic

Source: Cisco Global Cloud index

Electrical infrastructure in Sabey Data Center Property
III. Climate Change

Climate Change Consensus

1. **Scientists**: 97% of scientists agree that the climate is warming due to human activity.

2. **Department of Defense**: Climate change threatens the majority of mission critical bases.

3. **Trump Administration**: In November 2018, the Trump administration released reported that climate change is already causing damage to American’s health and the economy and is intensifying.

Source: climate.nasa.gov, www.militarytimes.com
Challenge – Climate Change

Average Global Temperature

CO₂ Concentration

Temperature

Source: NASA

Sea Level Chart

CO₂ Concentration

Global Temperature

Eemian

Holocene

Last Ice Age

Sea Level

Time (thousands of years before present)
Sea Level Rise

- NOAA: Sea level risen 8 inches since 1900
- NOAA: Currently rising 3mm per Year
- NOAA: Potential to rise up to 6 feet by 2100
  - Rise is likely already “Locked In”
  - 7.7 million people currently live within 6 feet of high tide in the U.S.
    - 4 million in Florida


The Front Lines of Climate Change

- Several towns in Alaska have voted to relocate
- Cost estimates ~ $100 million for several hundred people
- None have so far been able to raise funding to move

**Alaska**
- Community on Isle de Jean Charles in 2016 received $48 million HUD grant to relocate 30 miles inland

**Louisiana**
- 1.4 million people live on barrier islands in the U.S. usually just a few feet above sea level

**U.S.**
Miami Beach – Barrier Island

Miami Beach
- Population – 90,000
- Average Elevation – 4.4 feet
- 50% below 2.2 ft. – below current high tide
- Commercial RE – 70 million SF
- NPI assets – $700 million

Defenses
- 2015 Hired a Chief Resilience Officer
- Currently spending $400 million to raise streets, improve pumping and drainage
  - Limestone limits use of pumps and seawalls

South Florida/Miami

Projects Under Development

Sources: NOAA, CoStar Group
Climate Change – Challenge

![Image of forest fire and PG&E stock price chart]

- Dust storms in Arizona

Climate Change - Challenge

![Image of Dust Storms]
Climate Change – Challenge
Climate Change – Solution

Paris Agreement
- **Goal**: Keep global temperature rise below 2 degrees Celsius
- 195 signatories
- Every country sets own goals in order to reduce emissions

Emissions Goals
- Zero Emissions targets:
  - Europe
  - Canada
  - Mexico
  - New Zealand

Near-term goals:
- U.S.: 26% cut by 2025
- Europe: 40% cut by 2030, 100% by 2050
- China: Emission peak in 2030

Actual Results
- Coal usage has been falling worldwide
  - Not as fast as goals require
- CO₂ emissions rose everywhere in the world—except Europe
- 2018 set a record high for CO₂ emissions
- Radical change needed to avoid worst aspects of climate change
Climate Change – Converting the Grid

U.S. Electrical Energy Production

- Fossil Fuels
- Nuclear
- Hydro
- Other Renewable

Sources: U.S. Energy Information Administration

Climate Change – Changing Grid

Wind Power

Sources: U.S. Energy Information Administration
Climate Change – Changing Grid

Sources: U.S. Energy Information Administration

Solar Energy Growth

Terawatt-Hours


For Reference of NECA Now 2019
Attendees Only
Climate Change – Changing Grid

[Images of wind turbines and solar panels]

Climate Change – Changing Grid

[Images of hydroelectric dams and reservoirs]

For Reference of NECA Now 2019
Attendees Only
Climate Change – Changing Grid

Sources: U.S. Energy Information Administration

Climate Change – Nuclear

Sources: U.S. Energy Information Administration
Climate Change – Electric Vehicles

U.S. Energy Usage

- Electricity
- Gasoline

Challenge – Electric Vehicle Infrastructure
Climate Change – Home Energy

Climate Change – Electric Planes

**Status**
- Existing electric planes can hold two adults and fly for an hour
- Recharge fully in 45 minutes
- Used primarily for teaching and demonstration

**Goals**
- Norway expects to have all short haul flights to be electric by 2040
- Airbus would like to manufacture and electric short-haul plane by 2030
Climate Change – New horizons

- Sidewalks
- Electricity Generation Speed Bumps
- New Transportation
- Solar Pan Skin

Desalination Plants

**Tampa Bay**
- One of the largest desalination plant in the U.S.
- Produces 10% of region’s water
- 14 megawatt peak power demand
- Located adjacent to existing power plant – uses excess heat from cooling water

**Climate Change**
- Climate change will force more cities in deserts and near coasts to rely on sea water –
- Under Construction in California, Florida, Texas and Arizona
Carbon Capture

Status
- There is no significant market or mandate for carbon capture
- Startups are busily lowering the cost of the process hoping a market will emerge

Carbon Capture – Synthetic Oil

Status
- Carbon Engineering producing small amounts of synthetic fuel in British Columbia
- Could be economical with a $200/ton of carbon tax
**Challenge – Opportunity**

Total Energy Usage in U.S.

![Graph showing total energy usage in U.S. with 62% electricity and 38% all other usage.](image)

Sources: U.S. Energy Information Administration

**Climate Change – Moving Cities**

- Miami
- New York
- Boston
- Seattle

For Reference of NECA Now 2019
Attendees Only
The Disruptors

I. Demographic Trends
   a. Challenge – aging workforce
   b. Opportunity – robotics and automation

II. Automation
   a. Challenge – unemployment
   b. Opportunity – more electrical work, data centers

III. Climate Change
   a. Challenge – sea level rise, storms, disease
   b. Opportunity – massive rebuilding and expansion of electrical infrastructure
Company End Notes

1. National commenced operations on January 1, 2010. National was the result of a spin-out of an internal division of the NEBF. Substantially all personnel, including all senior management, transitioned from NEBF Real Estate to National.

2. Registration as an investment adviser does not imply any level of skill or training. National is a registered investment adviser with the United States Securities and Exchange Commission (SEC). The SEC does not endorse, indemnify or guarantee National’s business practice, selling methods, the class or types of securities offered, or any specific security.

3. Property-Level Gross Asset Value (GAV) is based on property-level unleveraged values for real estate investments. The reported GAV is based on the “as is” value (including properties in development) per the most recent property appraisal, and includes working capital and other adjustments such as lender and capital reserves and construction costs spent. However, the GAV for debt (senior and subordinate loans) investments is reported as the fair value of the loan, as opposed to the fair value of the underlying collateral (property). The GAV (Pro-Rata) at Market is the ownership % interest of the Property-Level GAV.
   a. Fund’s Share Property-Level GAV: The Fund’s share of GAV is reported at the Fund’s economic interest in the investment, which takes into consideration any applicable preferred returns and/or promoted interests, per the partnership operating agreements (if not wholly owned).
   b. Fund-level GAV: Fund-Level GAV represents the Fund’s economic interest in real estate investments, cash, cash equivalents, and other Fund assets as defined by National. More information can be provided upon request.

4. Net Asset Value (NAV): Net assets under management are calculated using the Fund’s Share Property-Level NAV of investments, plus cash and other assets and liabilities. The calculation is explained further below:
   a. Property-Level NAV for Equity Investments: For equity investments, the Property-Level NAV equals the Property-Level GAV less market-to-market debt.
   b. Property-Level NAV for Debt Investments: The NAV for mezzanine and debt (senior and subordinate loans) investments is reported as the fair value of the loan.
   c. Fund’s Market Value: in accordance with FASB guidance for performance returns calculation and presentation. The Reporting Standards are co-sponsored by the National Council of Real Estate Investment Fiduciaries (NCREIF) and the Pension Real Estate Association (PREA).

5. Property-Level Loan-to-Value Ratio (LTV): For equity investments, the LTV reflects the aggregate of the property-level debt divided by the aggregate of the Property-Level GAV as previously defined.

6. National Real Estate Development, LLC is a subsidiary of National Real Estate Advisors, LLC and was established in June 2013 to offer a full spectrum of development related services as well as consulting and advisory services to investors, joint venture partners, and developers, and to provide technical expertise and project oversight capabilities.

7. National is an independently operated subsidiary of the National Electrical Benefit Fund, a substantial pension trust with a significant amount of assets managed by National on a discretionary basis.

Performance End Notes

1. The INDURE Real Estate Asset Return is different than the INDURE Fund Return as it is calculated before factoring in other assets and liabilities on INDURE's balance sheet. INDURE Real Estate Asset Returns are reported gross of fees. INDURE fees are deducted at the Fund level and are not allocated at the individual asset level. INDURE Equity, Permanent Loans and Construction Loans are sub-categories of INDURE Real Estate Assets.

2. Registration as an investment adviser does not imply any level of skill or training. National is a registered investment adviser with the United States Securities and Exchange Commission (SEC). The SEC does not endorse, indemnify or guarantee National’s business practice, selling methods, the class or types of securities offered, or any specific security.

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   c. Fund’s Market Value: in accordance with FASB guidance for performance returns calculation and presentation. The Reporting Standards are co-sponsored by the National Council of Real Estate Investment Fiduciaries (NCREIF) and the Pension Real Estate Association (PREA).

4. An Internal Rate of Return (IRR) is calculated on all assets within the INDURE Build-to-Core Fund. IRR Definition: The discount rate often used in capital budgeting that makes the net present value of all cash flows from a particular project equal to zero.

5. The INDURE Real Estate Asset Return is different than the INDURE Fund Return as it is calculated before factoring in other assets and liabilities on INDURE's balance sheet. INDURE Real Estate Asset Returns are reported gross of fees as only INDURE fees are deducted at the Fund level and are not allocated at the individual asset level. INDURE Equity, Permanent Loans and Construction Loans are sub-categories of INDURE Real Estate Assets.

6. The Blended Benchmark is calculated by weighting the corresponding time-weighted return methodologies prescribed by GIPS. INDURE performance calculations are based on the NCREIF PREA Reporting Standards (Reporting Standards) guidelines for performance returns calculation and presentation. The Reporting Standards are co-sponsored by the National Council of Real Estate Investment Fiduciaries (NCREIF) and the Pension Real Estate Association (PREA).

7. The INDURE Real Estate Asset Return is different than the INDURE Fund Return as it is calculated before factoring in other assets and liabilities on INDURE's balance sheet. INDURE Real Estate Asset Returns are reported gross of fees as only INDURE fees are deducted at the Fund level and are not allocated at the individual asset level. INDURE Equity, Permanent Loans and Construction Loans are sub-categories of INDURE Real Estate Assets.

8. The particular investments identified and described herein do not represent all of the investments purchased, sold or recommended for the Fund. The reader should not assume an investment in the assets identified was or will be profitable.

11. National’s GIPS Compliance has been independently verified for the periods January 1, 2010 through December 31, 2017. The verification report is available upon request.

12. To obtain a compliant presentation and/or the firm’s list of composite descriptions, please contact Sam Bendix, Managing Director, Investor Relations (847.271.7735 | sbendix@natadvisors.com) or Heather Fernstrom Border, Managing Director, Investor Relations (202.997.4844 | hborder@natadvisors.com).
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Questions? Thank you!

Up Next: 11:45 am
Lunch in Ballroom Lawn

Plenary Session: 12:45 – 1:45 pm
*When Good Jobs Go Bad* - Neil Swidey
in Grand Canyon Ballroom

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