S&P KENSHO INDICES

The Fourth Industrial Revolution Is Here: Are You Ready?

S&P Dow Jones Indices
A Division of S&P Global
Introduction: Who is Kensho?
Data Analytics & Machine Intelligence Company

- Started in 2013 out of Cambridge, MA – offices in New York City and Washington DC
- Initial investors included Google, Goldman Sachs, and NBC Universal (CNBC)
- S&P Global acquired Kensho Technologies in April 2018
- Firm leverages artificial intelligence and alternative data to provide sophisticated analytical tools to some of the largest global banks and hedge funds
- Recognized as one of the most innovative artificial intelligence companies within Fintech

TECH PIONEER
World Economic Forum

AI 100
CB INSIGHTS

#1 FINTECH 50
Forbes

TOP 5 HOTTEST IN FINTECH
Fortune
Prior Industrial Revolutions
Context for the Fourth Industrial Revolution

Prior revolutions have caused significant disruption to the way people lived. However, in each case, the net result has been an expanding, healthier, and wealthier fully-employed population.

**First Industrial Revolution**
- Mechanization
- Steam Power
- Power Looms

1760 - 1850

**Second Industrial Revolution**
- Electrification
- Mass Production
- Assembly Lines

1870 - 1914

**Third Industrial Revolution**
- Digitalization
- Automation
- Communication

1969 - 2010

Urbanization
- 25% of agriculture jobs lost to industry
- Population growth >50% (1.2B)
- GDP per capita growth > 11% ($788)

Migration
- 21% of labor force leaves agriculture
- Population growth >40% (1.8 B)
- GDP per capita growth > 80% ($1,240)

Globalization
- Add’l 20% global workforce shifts to Services
- Population growth >90% (6.9 B)
- GDP per capita growth > 277% ($9,516)
Catalysts driving ‘Industrial’ Transformation
Mutually reinforcing catalysts transforming society & the global economy

- Mutually reinforcing catalysts driving innovation at an unprecedented rate and breadth
- Significant impact to the global economy - industries are being transformed and new ones created
- The catalysts themselves are interesting but how they are being applied is more so
- Not purely a technologically driven revolution: cultural shift to a more open, shared economy is also fueling this latest industrial epoch

ARTIFICIAL INTELLIGENCE
HYPERCONNECTIVITY
EXPONENTIAL PROCESSING POWER
ROBOTICS & AUTOMATION
DEMOCRATIZED INFRASTRUCTURE
A New Industrial Epoch: The Fourth Industrial Revolution (4IR)

The merging characteristics of Man and Machine

- Machines match or outperform humans, including activities requiring cognitive capabilities
- Wearable and implantable technology and genetic engineering enhance human abilities

Cyber-Physical Systems: fusing the physical, digital and biological worlds, impacting all disciplines, economies and industries, and even challenging ideas about what it means to be human

- World Economic Forum
Impact of the Fourth Industrial Revolution
Every aspect of our lives will be impacted

- ~50% of activities are automatable ($16T in wages globally) McKinsey Global Institute
- 32% of US workers, 14% globally, may need to change occupations by 2030 PwC
Considerations for Market Participants

Key takeaways in the context of the Fourth Industrial Revolution

1. Pervasive structural change in the economy = huge opportunities and risks
2. Unprecedented disruption in terms of rate, breadth, and depth
3. Underlying technologies and capabilities are evolving very quickly
4. History doesn’t favor the incumbent – some established companies will fail to adapt
5. This is early days: hard to pick winners and losers

Nobody knows where the dominos will stop falling … Advisors need to look ahead and anticipate what’s going to happen in a way we’ve never done before.

Ric Edelman
Edelman Financial Engines
Harnessing the Exposure
Key characteristics to consider

- Adaptive
- Forward-Looking
- Full Ecosystem of Companies
- Balanced - Modified Equal Weight
Introducing: S&P Kensho New Economies
Capturing the industries and innovation of the Fourth Industrial Revolution

A comprehensive framework with which to understand and precisely capture exponential innovation and growth – 21st Century Sectors

### Tracking Indices

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<th>Sectors</th>
<th>Subsectors</th>
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S&P Kensho New Economies - Approach
Unique insights to capture a dynamic and transformative exposure

CUTTING EDGE TECHNOLOGY + INNOVATIVE METHODOLOGY = UNIQUE INSIGHTS

1. Industry Model
   - Expert curation, combined with advanced topic modelling, is used to create a comprehensive model of the target industry

2. AI Selection
   - Natural Language Processing (NLP) and machine learning identify companies from SEC filings
   - Captures both pure play names, as well as the supporting ecosystems

3. Categorization
   - Each company categorized according to the degree of its focus on the New Economy
     (Core vs Non-Core)

4. Weighting
   - Core category over-weighted vs Non-Core
   - Companies equal weight within each category
   - Minimum market cap and ADTV
   - Optimized to accommodate minimum daily trade size

5. Verification
   - Index construction verified by Investment Analysts and approved by the Index Committee
   - Entirely rules-based and objective
Pursuing Potential with Artificial Intelligence
Skating to where the puck is going, rather than where it’s been

- Apple first mentions ‘Mobile’ in filings in 2006, iPhone launches in 2007
- <10% of revenue until 2009 – for an interim annualized return of 56% vs 22% following
- Alternative data provides opportunities to look ahead and capture the full upside
## Taxonomy of the New Economies

### 21st Century Sectors

The most comprehensive family of indices to capture the industries and innovation of the Fourth Industrial Revolution

### Tracking Indices

#### New Economies Composite (KNEX)^#

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The S&P Kensho New Economies Composite tracks all qualifying New Economy subsectors, weighting each using an algorithmic proxy for industry maturity.

Please note: all final weights are relative to all other subsectors.
S&P Kensho New Economies℠ Composite
Relative returns and characteristics

Diversified + Differentiated

22  New Economy Subsectors
384  Companies
27  Countries
75B  Weighted Avg Market Cap
85%  Avg Active Share

Breakdown of the New Economies Composite
(as of 30 Apr 2020)

MARKET CAP
- 46.8% Large Cap (>$10bn)
- 27.3% Mid Cap ($2bn-10bn)
- 25.9% Small Cap (<$2bn)

COUNTRY
- 79.3% United States
- 4.5% China
- 2.6% Canada
- 1.5% UK
- 1.4% Italy
- 1.3% Japan
- 1.3% Israel
- 1.1% Switzerland
- 1.0% Netherlands
- 6.0% Other

TRADITIONAL SECTOR
- 35.1% Info Tech
- 20.2% Industrials
- 13.5% Healthcare
- 11.2% Cons Disc
- 9.1% Comm Disc
- 7.3% Utilities
- 1.7% Financials
- 1.2% Materials
- 0.7% Energy

Relative Performance of the S&P Kensho New Economies Composite
(normalized price return - 1/2/2014 - 4/30/2020)

S&P Kensho New Economies
21st Century Sectors

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Questions?

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MD, Global Head of S&P Kensho Indices
Performance Disclosure

• The S&P Kensho New Economies Composite Index was launched February 6, 2017. All information presented prior to an index’s Launch Date is hypothetical (back-tested), not actual performance. The back-test calculations are based on the same methodology that was in effect on the index Launch Date. However, when creating back-tested history for periods of market anomalies or other periods that do not reflect the general current market environment, index methodology rules may be relaxed to capture a large enough universe of securities to simulate the target market the index is designed to measure or strategy the index is designed to capture. For example, market capitalization and liquidity thresholds may be reduced. Complete index methodology details are available at www.spdji.com. Past performance of the Index is not an indication of future results. Prospective application of the methodology used to construct the Index may not result in performance commensurate with the back-test returns shown.

• S&P Dow Jones Indices defines various dates to assist our clients in providing transparency. The First Value Date is the first day for which there is a calculated value (either live or back-tested) for a given index. The Base Date is the date at which the Index is set at a fixed value for calculation purposes. The Launch Date designates the date upon which the values of an index are first considered live: index values provided for any date or time period prior to the index’s Launch Date are considered back-tested. S&P Dow Jones Indices defines the Launch Date as the date by which the values of an index are known to have been released to the public, for example via the company’s public website or its datafeed to external parties. For Dow Jones-branded indices introduced prior to May 31, 2013, the Launch Date (which prior to May 31, 2013, was termed “Date of introduction”) is set at a date upon which no further changes were permitted to be made to the index methodology, but that may have been prior to the Index’s public release date.

• The back-test period does not necessarily correspond to the entire available history of the Index. Please refer to the methodology paper for the Index, available at www.spdji.com for more details about the index, including the manner in which it is rebalanced, the timing of such rebalancing, criteria for additions and deletions, as well as all index calculations.

• Another limitation of using back-tested information is that the back-tested calculation is generally prepared with the benefit of hindsight. Back-tested information reflects the application of the index methodology and selection of index constituents in hindsight. No hypothetical record can completely account for the impact of financial risk in actual trading. For example, there are numerous factors related to the equities, fixed income, or commodities markets in general which cannot be, and have not been accounted for in the preparation of the index information set forth, all of which can affect actual performance.

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