



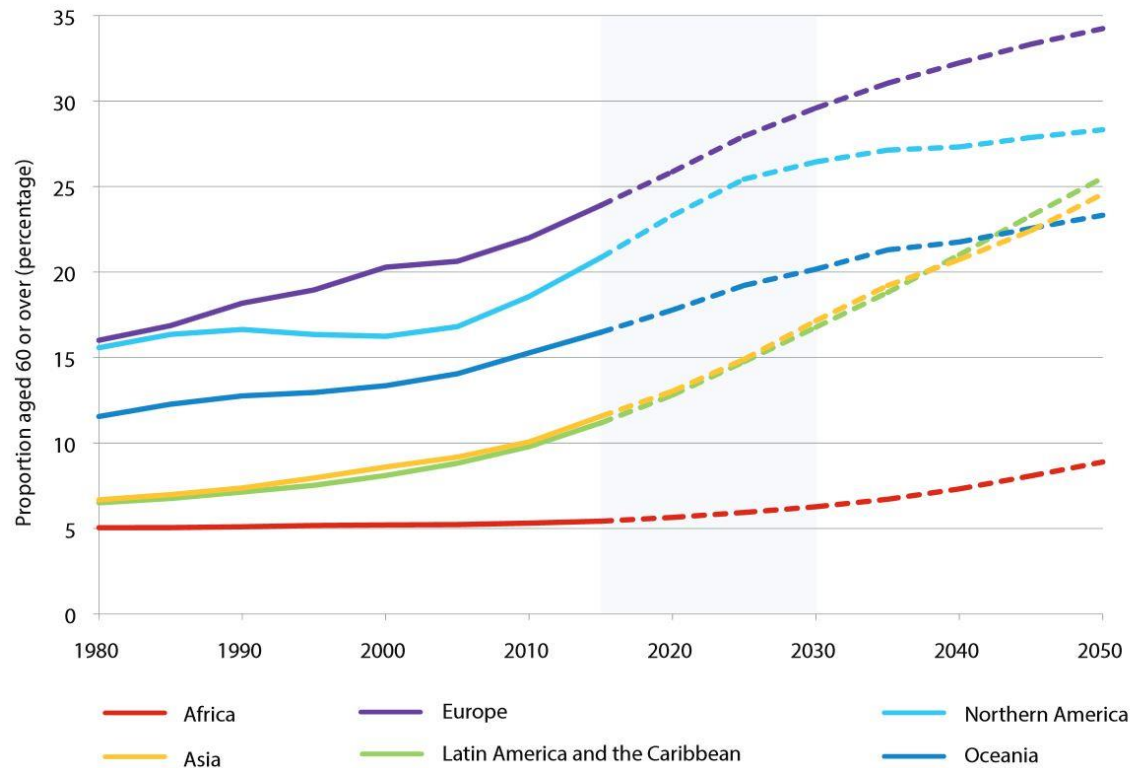
The S-Network Healthcare Innovation Index (PHIX)

Q4 2019

❑ Demographics Drive Demand for Healthcare:

- ❑ Aging Population (More Than 1.4 Billion Over 60 by 2030)
- ❑ Increase in Life Expectancy
- ❑ Increase in Rate of Chronic Illness Globally
- ❑ Half of All Lifetime Care Expenditures are from 65 On

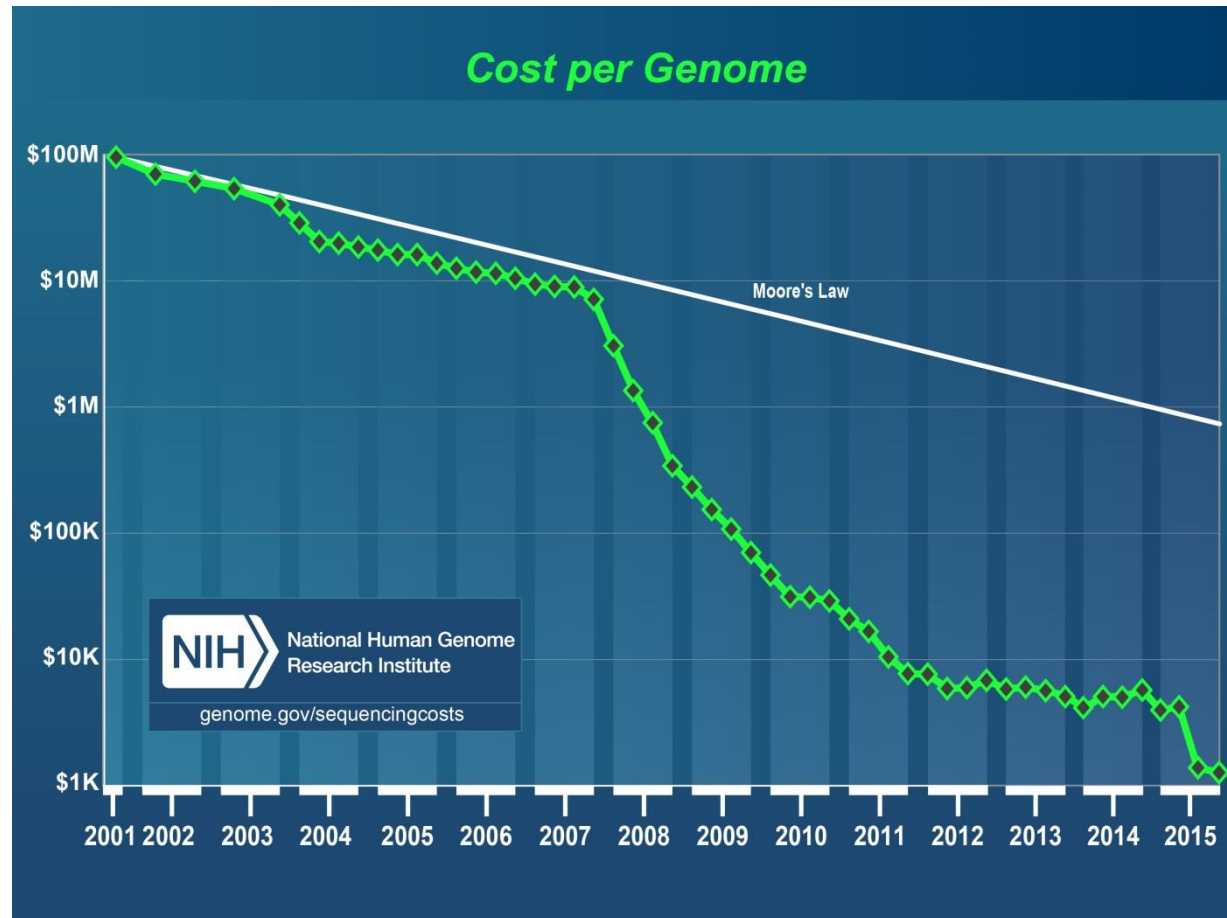
Percentage aged 60 years or over by region, 1980-2050



Source: United Nations, Department of Economic and Social Affairs, Population Division (2015). World Population Ageing 2015 - Highlights (ST/ESA/SER.A/368).

Scientific Innovations Driving Opportunities:

- Increasing Understanding of Disease Mechanism
- Genomics Enabling Precision Medicine
- Better Therapeutics Increasing Investor Opportunity



Evolution of the S-Network Healthcare Innovation Index

❑ S-Network Biopharma Merger & Acquisition Index (PBMA)

- Liquid Stocks With Market Cap Between \$1 Billion and \$15 Billion
- Includes All Companies Meeting Screening Criteria as Attractive Potential Acquisition Targets
- 94 Companies as of June 30, 2019



❑ S-Network Healthcare Innovation Index (PHIX)

- 30 Companies Selected from PBMA Index
- Additional Screening Criteria Used to Pinpoint Innovative Companies Especially Likely to Be Targeted Within the Next 24 Months

Rationale for S-Network Medical Index Family

S-Network's Focus is on Innovation and Biotech, Not Big Pharma

- ❑ **Pharma Drugs Historically Target Symptoms of Diseases**
- ❑ **Conversely, Biotech Drugs Target the Underlying Diseases Themselves**
- ❑ **Biotech Drugs Are Viewed as “Disruptive” to Big Pharma**
 - Big Pharma Therefore Slow to Conduct Primary Biotech R&D
- ❑ **Big Pharma's Preferred Approach to Biotech Is Through Acquisition**
- ❑ **Pharma Acquisition Policies Accelerated by “Patent Cliff”**
 - Large Numbers of Pharmaceuticals Going Off Patent In Coming Years
 - M&A Key Driver in Revenue Growth



Rationale for S-Network Biopharma M&A Index (PBMA)

- ❑ **Mergers and Acquisitions in Biotechnology and Pharmaceutical (“Biopharma”) Industry Driven By Constant Expiration of Patent Exclusivity on Marketed Drugs and Lack of Productivity in Internal Development Programs**
- ❑ **The Loss of Pharmaceutical Patent Exclusivity for 2018 was \$33 billion and Estimated to Approach \$55 Billion in 2019**
- ❑ **\$219.4 Billion Worldwide Biopharma M&A Transaction Volume (Including Completed and Announced Deals, Asset Deals, Acquisitions of Divisions)**
- ❑ **S-Network Identifies Criteria for Liquid Biotech Stocks Ready for Acquisition By Larger Industry Players**
- ❑ **94 Companies Met These Criteria as of June 30, 2019**

Rationale for S-Network Healthcare Innovation Index (PHIX)

Criterion	Rationale
Constituent of S-Network Biopharma M&A Index	First Step of Selection, Encompassing Screens of PBMA
At Least One Drug in Phase II or III	A Drug in Phase II Testing Has a 48% Probability of Advancing to Phase III Making the Odds of At Least Six Successes in 30 Trials Very High
Catalyst Date Within 24 Months	Catalyst Events (i.e., Decision Points) for Drugs That Have Already Passed the Early Tests Often Trigger Higher Valuations
Drug Designation of Breakthrough, Fast Track or Orphan	Prospective M & A Likelihood Increases with FDA Status Designations of Breakthrough, Fast Track, or Orphan
Qualifying Drug Must Not Be Under Partnership	Companies Without Large Distribution Partners More Likely to Accept M & A Overtures
Ratio of Peak Economic Revenue Forecast to Market Cap	Increases Attractiveness of Company to Potential Acquirers

PHIX Index Description

- ❑ **Equity Index Designed to Isolate US Biotechnology Companies That Are Potential Takeover Targets**
- ❑ **Comprised of Three Main Business Segments**
 - Biotechnology
 - Pharmaceuticals
 - Life Sciences Tools & Services
- ❑ **Inclusion Criteria**
 - Constituents Must Be Principally Engaged in the Biotechnology Industry
 - Listed on Recognized Exchange
 - Minimum Capitalization USD 1 Billion
 - Maximum Capitalization USD 15 Billion
 - Minimum Average Daily Trading Volume Greater Than 1 Million USD
 - Existing Constituents Remain in Index Until Market Capitalization Exceeds USD 50 Billion
- ❑ **Weighting Methodology**
 - All Stocks are Equally Weighted

The S-Network Healthcare Innovation Index Embraces Companies That Mainly Participate in the Biotechnology Industry in the US.

PHIX Index Highlights

❑ Companies Conducting R&D

- Antisense Technology
- Chimeric Antigen Receptor T-cell Immunotherapy
- RNA Interference (RNAi)
- Recombinant Human Proteins

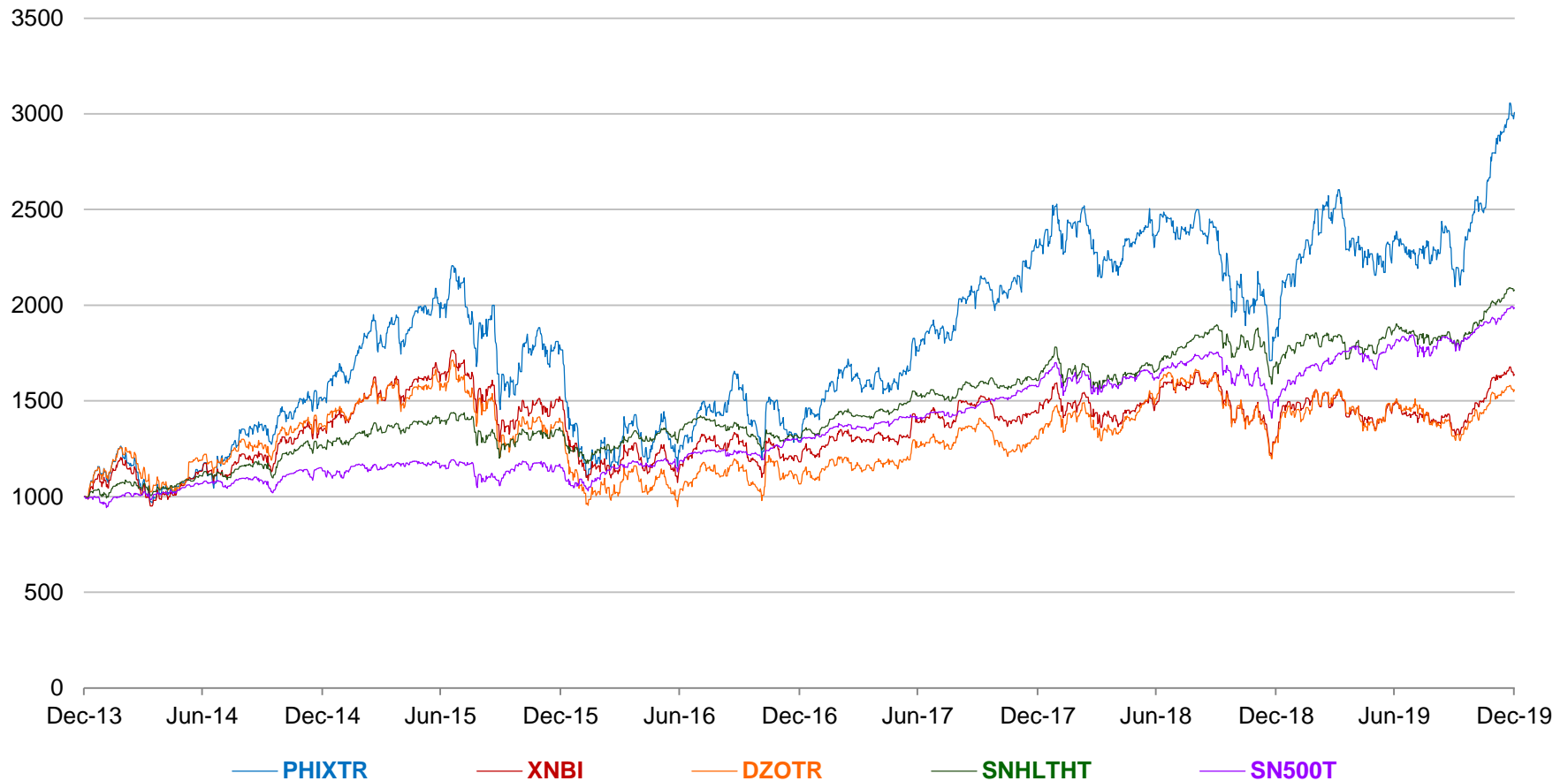
❑ Targeting Cure/Mitigation of Significant Diseases

- Alzheimer's
- Parkinson's
- Cancer
- Muscular Dystrophy
- Multiple Sclerosis
- Cardiovascular Disease
- Schizophrenia
- Diabetes

❑ This Research & Development Not Widely Conducted by Big Pharma

Historical Performance

Poliwogg Healthcare Innovation Total Return Index vs. Benchmarks*
(12/31/2013–12/31/2019)



*To ensure fair comparisons, all of the starting index values are normalized to 1,000 as of December 31, 2013.

Source: Bloomberg, as of 12/31/2019

Calendar Year Price Appreciation

Year	S-Network Healthcare Innovation Total Return Index	NASDAQ Biotechnology Total Return Index	S-Network US Equity Large/Mid Health Care Index	S-Network US Equity Large Cap 500 Index
12/31/2014	50.81%	34.40%	25.42%	13.43%
12/31/2015	17.15%	11.77%	7.09%	1.45%
12/31/2016	-26.87%	-21.35%	-2.66%	11.65%
12/31/2017	78.15%	21.63%	22.91%	22.56%
12/31/2018	-18.53%	-8.86%	6.00%	-4.33%
12/31/2019	60.36%	25.11%	22.10%	31.88%

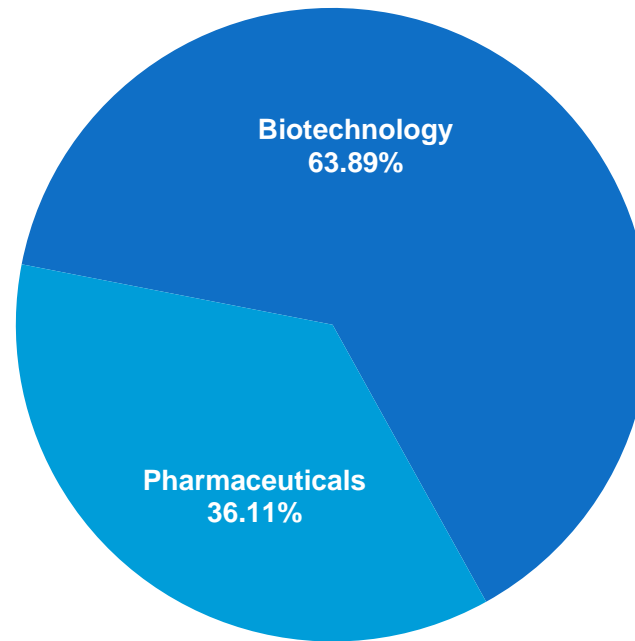
Source: Bloomberg, as of 12/31/2019

Market Capitalization Profile

Market Capitalization Profile	
Number of Constituents	30
Total Market Capitalization	71.22 Billion USD
Largest Market Capitalization	5.35 Billion USD
Smallest Market Capitalization	752.00 Million USD
Average Market Capitalization	2.37 Billion USD
Median Market Capitalization	2.13 Billion USD

Source: Thomson Reuters Eikon, as of 12/31/2019

Poliwogg Healthcare Innovation Index



Source: S-Network, as of 12/31/2019

Historical Acquisitions

Year	Total Acquisitions
2014	4
2015	7
2016	2
2017	1
2018	1
2019	1
Total	16

Source: Bloomberg, as of 12/31/2019

Top Ten Constituents

Company	Ticker	Country	Weight
Axsome Therapeutics, Inc.	AXSM US	United States	6.85%
Epizyme Inc.	EPZM US	United States	4.31%
Theravance Biopharma Inc	TBPH US	United States	3.68%
Karyopharm Therapeutics Inc	KPTI US	United States	3.55%
ODONATE THERAPEUTICS INC	ODT US	United States	3.47%
APELLIS PHARMACEUTICALS INC	APLS US	United States	3.43%
Myokardia Inc	MYOK US	United States	3.39%
Intercept Pharmaceuticals Inc	ICPT US	United States	3.37%
Aimmune Therapeutics Inc.	AIMT US	United States	3.32%
Supernus Pharmaceuticals Inc	SUPN US	United States	3.30%

Source: Bloomberg, as of 12/31/2019

Statistical Profile I

Total Return Appreciation

	S-Network Healthcare Innovation Total Return Index	NASDAQ Biotechnology Total Return Index	S-Network US Equity Large/Mid Health Care Index	S-Network US Equity Large Cap 500 Index
Since Inception*	200.70%	63.86%	107.96%	98.67%
5 Year	99.39%	21.91%	65.80%	75.14%
3 Year	132.75%	38.69%	59.07%	54.64%
1 Year	60.36%	25.11%	22.10%	31.88%

Compound Annual Growth Rate

	S-Network Healthcare Innovation Total Return Index	NASDAQ Biotechnology Total Return Index	S-Network US Equity Large/Mid Health Care Index	S-Network US Equity Large Cap 500 Index
Since Inception	20.14%	8.58%	12.98%	12.12%
5 Year	14.80%	4.04%	10.64%	11.86%
3 Year	32.52%	11.52%	16.73%	15.64%
1 Year	60.36%	25.11%	22.10%	31.88%

*Inception Date of 12/31/2013

Source: Bloomberg, as of 12/31/2019

Statistical Profile II

Annualized Monthly Standard Deviation

	S-Network Healthcare Innovation Total Return Index	NASDAQ Biotechnology Total Return Index	S-Network US Equity Large/Mid Health Care Index	S-Network US Equity Large Cap 500 Index
Since Inception*	31.47%	23.14%	13.09%	11.54%
5 Year	32.86%	23.41%	13.72%	12.15%
3 Year	26.71%	20.90%	13.26%	12.31%
1 Year	30.74%	23.37%	11.95%	13.19%

Sharpe Ratio

	S-Network Healthcare Innovation Total Return Index	NASDAQ Biotechnology Total Return Index	S-Network US Equity Large/Mid Health Care Index	S-Network US Equity Large Cap 500 Index
Since Inception	0.7206	0.4349	0.9325	0.9740
5 Year	0.5587	0.2421	0.7291	0.8974
3 Year	1.1329	0.5457	1.1122	1.1115
1 Year	1.6334	0.9802	1.5608	2.0220

*Inception Date of 12/31/2013

Source: Bloomberg, as of 12/31/2019

Statistical Profile III

Correlation (vs. S-Network US Equity Large Cap 500 Index)

	S-Network Healthcare Innovation Total Return Index	NASDAQ Biotechnology Total Return Index	S-Network US Equity Large/Mid Health Care Index
Since Inception*	0.5742	0.6644	0.7924
5 Year	0.6142	0.7079	0.8018
3 Year	0.6408	0.7643	0.8133
1 Year	0.5701	0.7086	0.6822

Beta (vs. S-Network US Equity Large Cap 500 Index)

	S-Network Healthcare Innovation Total Return Index	NASDAQ Biotechnology Total Return Index	S-Network US Equity Large/Mid Health Care Index
Since Inception	1.5654	1.3319	0.8983
5 Year	1.6614	1.3642	0.9055
3 Year	1.3901	1.2974	0.8760
1 Year	1.3285	1.2553	0.6182

*Inception Date of 12/31/2013

Source: Bloomberg, as of 12/31/2019

Statistical Profile IV

R-Squared (vs. S-Network US Equity Large Cap 500 Index)

	S-Network Healthcare Innovation Total Return Index	NASDAQ Biotechnology Total Return Index	S-Network US Equity Large/Mid Health Care Index
Since Inception*	0.3297	0.4415	0.6279
5 Year	0.3772	0.5012	0.6429
3 Year	0.4106	0.5842	0.6614
1 Year	0.3250	0.5021	0.4654

Source: Bloomberg, as of 12/31/2019

*Inception Date of 12/31/2013

PHIX Index Methodology

□ Eligibility Criteria

- Market Capitalization > \$1 Billion and < \$15 Billion
- ADTV > \$1 Million
- Must Be Principally Engaged in Biotechnology/Pharmaceutical Industry
- Fundamental Screens
 - Must Have At Least One Drug in Phase II or Phase III FDA Clinical Trials Without a Partnership
 - Must Have A Drug Designated as Breakthrough, Fast Track, or Orphan OR Have a Catalyst Date in the Next 24 Months
 - To Narrow Down to 30 Companies, the Ratio of Peak Economic Revenue Forecast to Market Capitalization is Used

□ Weighting Methodology

- All Stocks Equal Weighted

Complete data availability and index transparency facilitate more effective benchmarking and investment analytics.

PHIX Index Details & Data Distribution

- ❑ **Index Values Distributed EOD in USD and EUR**
- ❑ **Total Return Index Calculated Daily in USD and EUR**
- ❑ **Index Values Distributed via Consolidated Tape**

- ❑ **Comprehensive Historic Data (including simulated back-tests from 12/29/2006)**
 - Daily Prices for Price-Only + TR Indexes in USD + EURO
 - Quarterly Portfolio Snapshots (Historic Constituents and Weights)
- ❑ **Extensive Analytic support**
 - Quarterly Reports (“Index Insights”)
 - Industry Overviews
 - Extensive Statistical Data
- ❑ **Comprehensive website**
- ❑ **Broad data distribution via third party vendors**
 - S&P/Bloomberg/Yahoo, etc.
 - S-Network contribution page on Bloomberg: SNET