

Seeking Singularity

Q4 and Full Year Report 2020

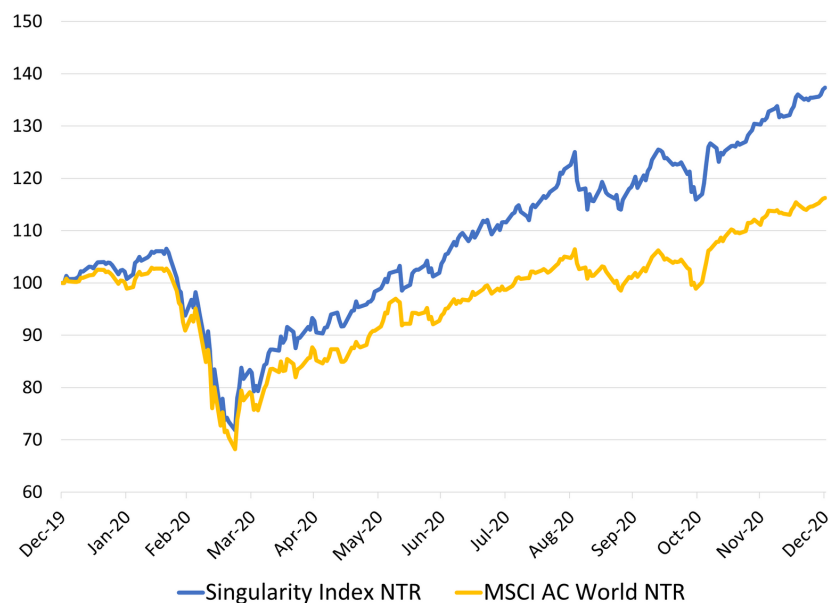




SINGULARITY PERFORMANCE - Q4 2020

Singularity Index (SI; NQ2045) vs. benchmarks: Global stocks finished the 4th quarter and the year at a record with the Singularity Index gaining **+15.3%**, outperforming the MSCI AC World Index (MSCI ACWI), which advanced by **+14.7%**. Global equity markets posted strong returns for the quarter: MSCI AC Asia Pacific **+17.8%**, S&P 500 **+12.0%**, MSCI Europe **+10.8%**, SMI **+5.2%**. **On a YTD basis the SI is up by +37.4% vs MSCI ACWI (+16.3%), S&P 500 (+17.8%), MSCI AC Asia Pacific (+19.7%), SMI (+4.4%), MSCI Europe (-3.3%).**

Performance YTD Singularity Index vs. MSCI ACWI per end December 2020



Source: Bloomberg, TSG

Over the fourth quarter, compared to the MSCI ACWI, the SI had a positive contribution from stock selection (+1.9%) which was somewhat offset by smaller negative effects of sector allocation (-0.5%) and currency (-0.7%). Stock selection was positive in most sectors with the biggest gains coming from Consumer Discretionary and Communication Services. In terms of names, relative overweights in Tesla, Snap, Samsung Electronics, Qualcomm, and Alphabet drove relative outperformance vs the MSCI ACWI. Overweights in Nvidia and SAP were the biggest relative detractors this quarter due to an overall flat performance against the backdrop of a big market rally. From a sector perspective, underweights in Consumer Staples and Real Estate benefited performance, whereas underweights in Consumer Discretionary and Energy were detrimental this quarter. **YTD, stock selection, sector allocation and currency effects accounted for +16.4%, +5.3% and -0.7% respectively relative to MSCI ACWI.** Outperformance of the SI vs MSCI ACWI continued to trend higher to a new alltime high towards year-end.

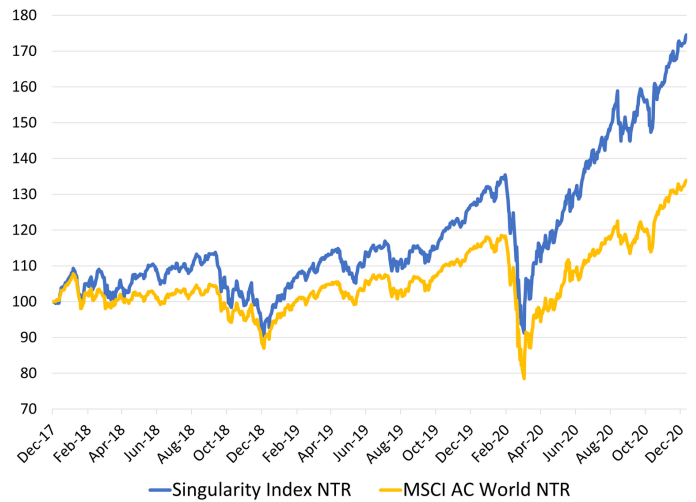


YTD Outperformance Singularity Index vs. MSCI ACWI per end December 2020



Source: Bloomberg, TSG

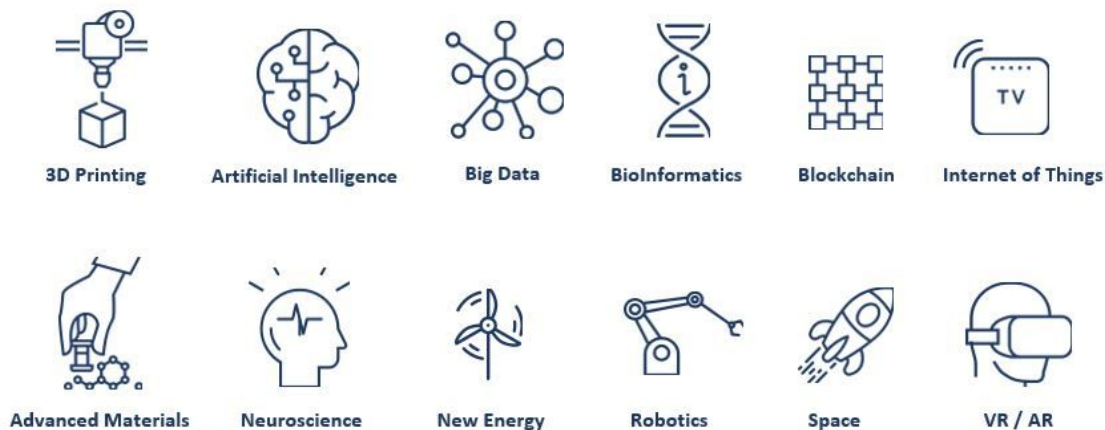
Performance Since Inception: Singularity Index vs. MSCI ACWI per end of December 2020



Source: Bloomberg, TSG

Singularity Sectors: Top performing Singularity Sector in Q4 was again **New Energy (+43.1%)** driven by strong returns across the complex: Tesla (TSLA US, +98.7%), Samsung SDI (006400 KS, +56.0%), Neste Oyj (NESTE FH, +38.8%), and LG Chem (051910 KS, +35.7%). Second best sector was **Space (+24.9%)** which benefited from a cyclical upswing in November with a strong showing by TransDigm Group (TDG US, +30.3%). **IOT (+21.6%)** was the next best performing sector with Snap (SNAP US, +91.8%), Micron (MU US, +60.1%) and CrowdStrike (CRWD US, +54.3%) leading the charge. Worst performing Singularity Sector was **Virtual Reality (+3.8%)** where gains in Evolution Gaming (EVO SS, +53.0%) and Sony (6758 JT, +30.9%) were partially offset by small losses in NVIDIA (NVDA, -3.5%) and Intel (INTC US, -3.1%). Bioinformatics (+6.7%) also saw muted returns : While Repligen (RGEN US, +29.9%) and Bio-Techne (TECH US, +23.2%) gained significantly, Biomerieux (BIM FP, -10.0%) and Dexcom (DXCM US, -10.3%) finished in the red.

The 12 Singularity Sectors



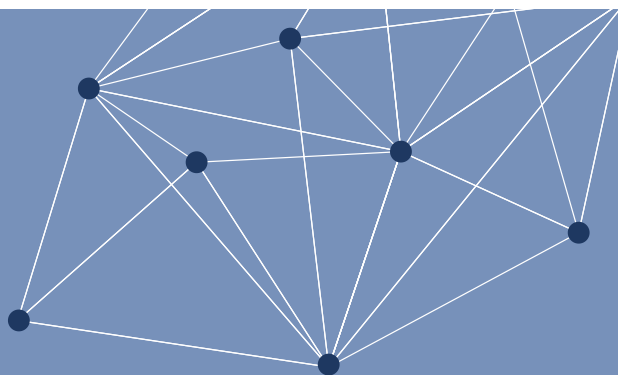


Singularity Stocks: Best performing stocks for the quarter were **Snap (SNAP US, 91.8%), Cloudflare (NET US, +85.1%), Baidu (BIDU US, +72.7%), and Tesla (TSLA US, +64.5%)**. The biggest performance contributions came from Tesla (TSLA US, +2.4%), Alphabet (GOOGL US, +0.7%), Samsung Electronics (005930 KS, +0.6%), Apple (AAPL US, +0.5%), and Snap (SNAP US, +0.4%). The largest relative detractors were SAP (SAP GY, -0.2%), Alibaba (BABA US, -0.2%), and NVIDIA (NVDA US, -0.2%).

Top Q4 Contributors by Singularity Sector

Sector	Company	Performance (%)	Contribution (%)
New Energy	Tesla	64.5	2.41
Artificial Intelligence	Alphabet	19.6	0.70
Internet of Things	Samsung Electronics	49.9	0.60
Robotics	Keyence	21.1	0.30
Big Data	Microsoft	6.0	0.24
Advanced Materials	Align Technology	63.2	0.21
3D Printing	ASML	32.3	0.20
Virtual Reality	Advanced Micro Devices	11.9	0.15
Bioinformatics	Medtronic	13.3	0.11
Space	TransDigm Group	30.3	0.10
Neuroscience	Acadia Pharmaceuticals	29.9	0.03
Blockchain	Square	11.1	0.01

Source: Bloomberg, TSG





SINGULARITY PERFORMANCE - 2020 REVIEW

It's fair to say that 2020 was a very tumultuous and eventful year. While we are pleased with performance, we cannot expect such strong returns every year. That said, **we strongly believe that investing in innovation will continue to bear fruit and is as important as ever.** During the March virus panic, one would have found it rather difficult to believe that it would turn out to be such a stellar year for stocks in the end. The market's impressive rally occurred against the backdrop of a global pandemic which wreaked havoc on the economy and society as businesses and entire industries were shut down and travel came to an abrupt halt. Central banks intervened heavily to support the market while governments scrambled to put together one fiscal relief package after another. If it feels like there is a disconnect between the real economy and financial markets, it's because there is. Stock markets don't reflect the current state of the economy but rather try to anticipate the future.

Clearly, individual stock performance was very heterogeneous in this context with huge differences between winners and losers. **While certain industries such as travel and leisure, physical retail, and oil & gas among others suffered disproportionately as a result of economic shutdown measures, it merely accelerated the technological disruption which was already under way with its transformative effect on entire industries.** Those companies able to adapt to these developments and trends by integrating exponential technologies into their business models and capitalizing on them by offering innovative products and services were able to thrive, leaving more traditional brick and mortar businesses that continue to travel down the beaten path in the dust.

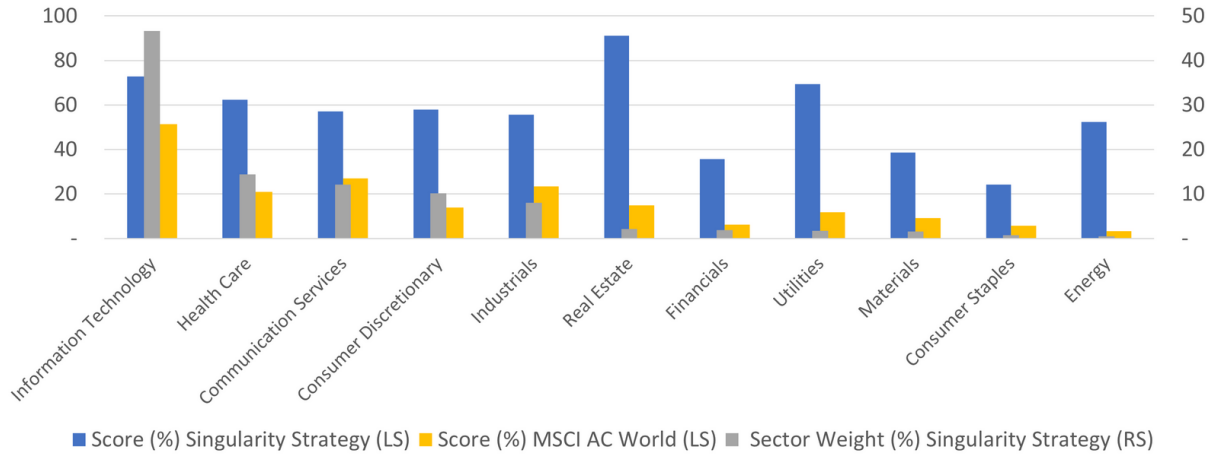
Winners of 2020 include, for instance, companies in the areas of internet services and infrastructure (e.g. Shopify), clean energy (e.g. Orsted), electric vehicles (e.g. Tesla), semiconductors (e.g. Nvidia), health tech (e.g. Veeva Systems), internet retail (e.g. MercadoLibre), home entertainment (e.g. Netflix), life sciences (e.g. Thermo Fisher), application software (e.g. Synopsis), systems software (e.g. Cloudflare), interactive media and services (e.g. Tencent), and online streaming services (e.g. Spotify). **Last year's laggards** can be found in industries such as travel (e.g. cruise lines), leisure (e.g. hotels), department stores (e.g. Nordstrom), oil and gas (e.g. Exxon), traditional banks and others.

With a performance of +37%, the Singularity Strategy was able to shine during this challenging year by seeking out exponential innovation leaders and differentiating itself significantly from broader market returns for the year (+16% for MSCI AC World Index). The strategy not only had exposure to outperforming industries but more importantly demonstrated strong stock selection by being on the right side of change within each sector.

What many of the winners have in common is that in one way or another they leverage new technologies including Artificial Intelligence, Internet of Things, Robotics, Advanced Materials, 3D Printing and others to gain a competitive advantage over their peers. Consequently, on our screens **companies in the Singularity Strategy by design have higher Singularity Scores compared to ones in the global benchmark.**



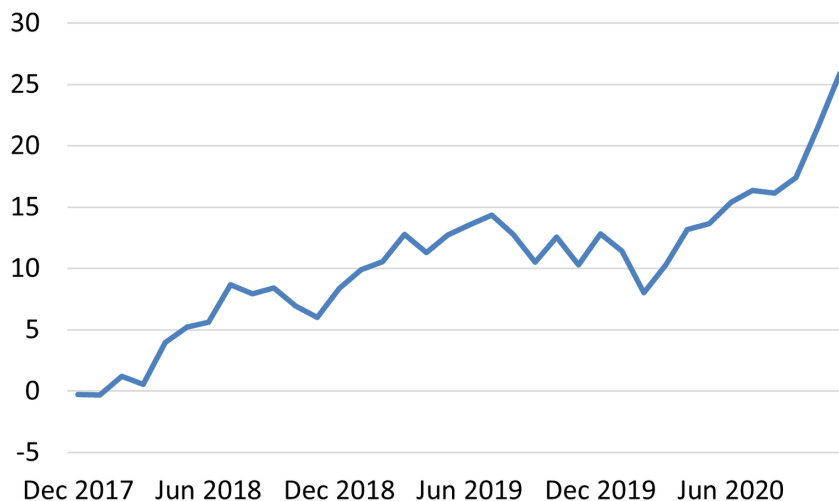
Singularity Score by Sector per end December 2020



Source: Bloomberg, TSG

The reason why we think this is important is because we find that **on a sector-neutralized basis, companies with higher Singularity Scores outperform those with lower ones** and we believe this will continue to be the case going forward. The below chart shows the outperformance of the top 2 Singularity Score quintiles vs the bottom 2 quintiles based on a broad global equity universe. Score quintiles are determined on a sector-neutralized basis so as to compare apples with apples. For this analysis the portfolio is equally weighted and rebalanced monthly. Since inception of our investment methodology just over 3 years ago now, higher rated companies have outperformed lower rated ones by more than 25%.

Outperformance (%) of Top 2 Quintiles Minus Bottom 2 Quintiles (Sector-Neutral)

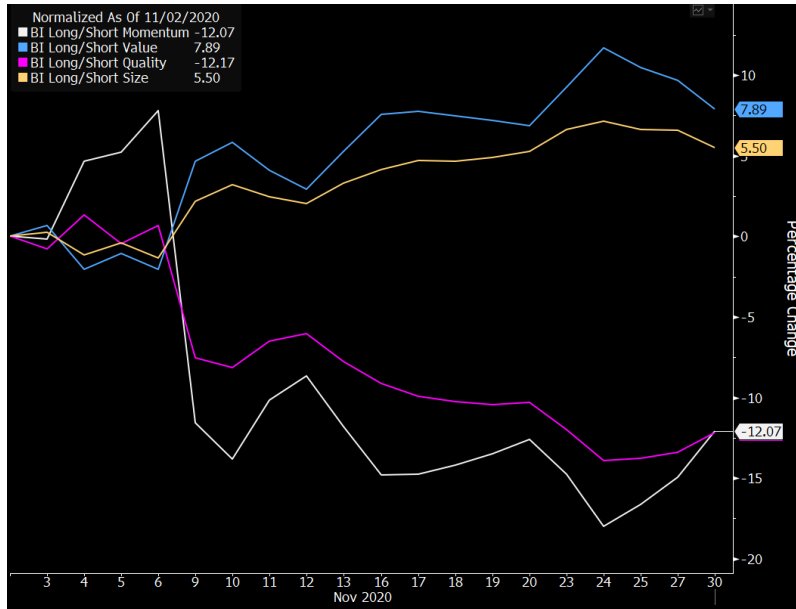


Source: Bloomberg, TSG



November was another testing month for investment strategies towards the end of the year: the large factor rotation following the Pfizer vaccine news raised hopes for a quicker path to normalization. This led to a significant rotation of extraordinary magnitude from momentum and quality stocks into beaten-down value and small cap stocks on November 9 and 10. Pure market-neutral, long-short factor returns experienced unprecedented moves. For example, momentum and value factors moved by more than 10 standard deviations in just two days, very large moves by historical standards indeed.

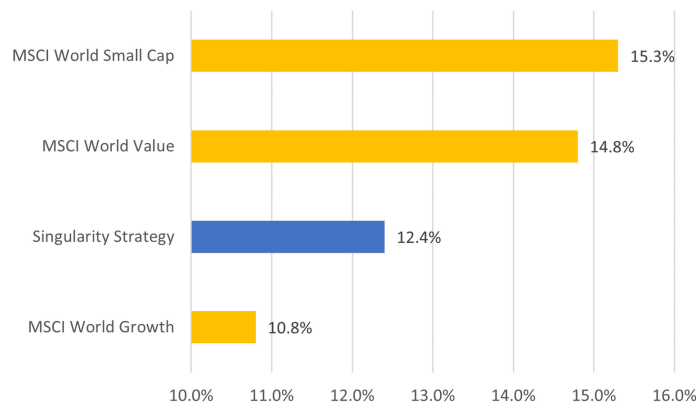
Pure Factor Returns During November 2020



Source: Bloomberg Intelligence

Such undercurrents can be vicious for growth-oriented investment strategies which lagged value strategies heavily during November. In this context the MSCI World Growth Index posted a return of +10.8% vs the MSCI Value and MSCI Small Cap indices which gained +14.8% and +15.3% respectively. **The Singularity Strategy held up well over this period with a balanced return of +12.4%, putting its performance squarely between Value and Growth.** For the entire year the Singularity Strategy was more than 40% ahead of Value and outperforming Small Cap and Growth by 23% and 5% respectively.

November 2020 Performance Singularity Strategy vs Factor Indices



Source: Bloomberg, TSG



SINGULARITY PERFORMANCE - 3-YEAR STRATEGY REVIEW

On December 21 2020 the Singularity Strategy reached its 3-year track record, an important milestone we've been eagerly looking forward to, with total assets under advisory of currently more than \$55mn. Three years ago, the strategy was created in the form of our proprietary Singularity Index listed on the Nasdaq and covering global equities across sectors beyond Nasdaq's traditional US and tech-oriented universe. Roughly nine months later on October 1 2018 the Singularity Fund was launched as the investible vehicle of the strategy.

Over this three year period, the Singularity Strategy generated a total return of 74.4% (vs. 33.6% for the MSCI AC World Index) resulting in an outperformance of 40.8%. The active return can be further broken down into its components of (sector) allocation, (stock) selection and currency effect. **From a sector perspective, the bulk of the return came from stock selection (25.8%)** while 14.9% was attributable to sector allocation. Currency effects were negligible at 0.2%.

3-Year Performance Attribution by Sector (Dec 21, 2017 - Dec 21, 2020)

Total Return			Active Return Decomposition			
Singularity Strategy	74.35	Active Return	40.78			
MSCI ACWI	33.57	Allocation	14.87			
Active Return	40.78	Selection	25.75			
		Currency	0.17			

Strategy Weight	MSCI Weight	Weight Diff	Sector	Total Attribution	Allocation	Selection	Currency
39.72	16.74	22.98	Information Technology	17.88	16.49	0.79	0.59
3.82	15.98	-12.16	Financials	5.93	1.58	4.23	0.13
7.57	11.05	-3.48	Consumer Discretionary	5.66	-4.54	10.50	-0.29
9.81	8.96	0.85	Communication Services	4.50	0.20	4.23	0.07
19.67	11.71	7.96	Health Care	4.20	2.63	1.79	-0.23
0.4	5.13	-4.73	Energy	3.63	-1.18	4.75	0.05
2.11	8.05	-5.94	Consumer Staples	1.75	0.49	1.35	-0.10
0.17	3.1	-2.93	Real Estate	0.42	0.81	-0.37	-0.02
0	1.2	-1.2	Not Classified	0.39	0.38	-	0.02
1.06	4.79	-3.73	Materials	0.36	0.81	-0.49	0.05
0.31	3.18	-2.87	Utilities	0.24	-0.14	0.36	0.01
15.35	10.11	5.24	Industrials	-4.17	-2.67	-1.40	-0.11

Source: Bloomberg, TSG

All sectors, with the exception of Industrials, contributed positively to the outperformance. The largest selection effect was generated in Consumer Discretionary, a sector which was overall underweighted vs the benchmark on average and performed well over the period, resulting in a negative allocation effect. Communication Services, Financials and Energy contributed significantly on a relative basis while Information Technology was responsible for the largest overall attribution. The industrial complex in the strategy carried a higher average weight over the period compared to the global benchmark and suffered disproportionately in 2020 given its exposure in the Space sector and the difficult performance of several aerospace-related names like Boeing and Airbus, many of which had been removed from the investment universe following the introduction of our ESG filter at the rebalancing event in May.



3-Year Performance Attribution by Region (Dec 21, 2017 - Dec 21, 2020)

Total Return			Active Return Decomposition		
Singularity Strategy	74.35	Active Return	40.78		
MSCI ACWI	33.57	Allocation	2.85		
Active Return	40.78	Selection	37.76		
		Currency	0.17		

Strategy Weight	MSCI Weight	Weight Diff	Sector	Total Attribution	Allocation	Selection	Currency
67.96	59.43	8.53	North America	28.91	4.56	24.23	0.12
15.93	18.96	-3.03	Asia Pacific	6.42	-0.28	6.53	0.18
14.93	18.37	-3.44	Western Europe	4.50	0.32	4.62	-0.45
0.6	1.2	-0.6	Africa / Middle East	0.56	0.03	0.50	0.03
0.15	0.67	-0.52	Eastern Europe	0.36	-0.51	0.69	0.18
0.36	1.13	-0.77	South & Central America	0.03	-1.49	1.39	0.14
0.07	0.22	-0.15	Central Asia	-0.01	0.22	-0.22	-0.01

Source: Bloomberg, TSG

On a regional basis, the Singularity Fund generated value across the board with strong selection effects in all regions. For instance, in Asia Pacific the fund generated an attribution of 6.4% on an average weight of ca. 16% corresponding to an outperformance of close to 40% on a normalized basis.

Equally, from a market capitalization perspective the strategy generated positive total attributions for all segments with particularly strong returns for mid cap companies within a market capitalizations range of \$10-\$25bn.

3-Year Performance Attribution by Market Capitalization (Dec 21, 2017 - Dec 21, 2020)

Total Return			Active Return Decomposition		
Singularity Strategy	74.35	Active Ret	40.78		
MSCI ACWI	33.57	Allocation	8.61		
Active Return	40.78	Selection	32.01		
		Currency	0.17		

Strategy Weight	MSCI Weight	Weight Diff	Sector	Total Attribution	Allocation	Selection	Currency
61.49	54.67	6.82	Large Cap	19.14	1.39	18.06	-0.31
20.88	17.78	3.1	Mega Cap	9.62	4.05	5.35	0.22
11.94	17.82	-5.88	Mid Cap	6.83	-1.18	8.06	-0.05
5.64	9.27	-3.63	Small Cap	5.00	4.55	0.15	0.30
0.05	0.45	-0.4	Not Classified	0.19	-0.23	0.40	0.02

Source: Bloomberg, TSG



Turning to the top contributors over the last 3 years, a couple of points stand out. The portfolio is generally well-diversified. The largest position over the period was Microsoft with an average weight of close to 3% and a contribution of 4.2%. The second largest position was NVIDIA and was also the second best contributor. **Tesla accounted for the biggest performance contribution (8.6%) on an average weight of 1.6% thanks to a nearly 10x performance.** The median weight of the top 20 winners was 1.4%, the median performance was 148%. A bit more than half of the top contributions came from the tech sector, more than a quarter from consumer discretionary, and the rest from communications services, healthcare and industrials.

Top 20 Contributors (Dec 21, 2017 - Dec 21, 2020)

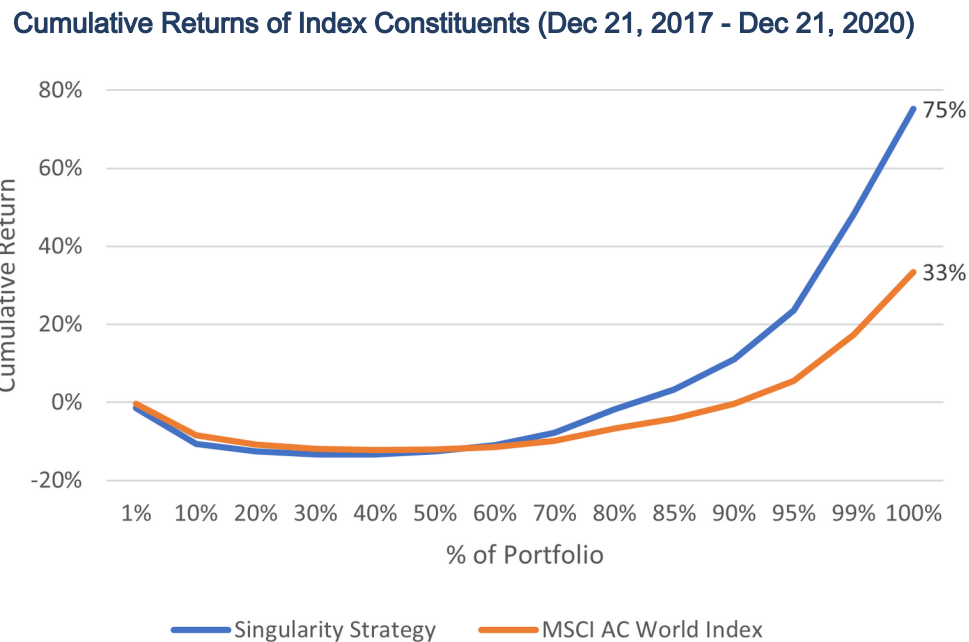
Company	Avg Weight (%)	Performance (%)	Contribution (%)
TESLA	1.64	879.7	8.62
NVIDIA	2.73	174.5	5.46
MICROSOFT	2.93	171.6	4.15
APPLE	2.17	204.6	3.83
ADOBE	1.99	185.5	2.63
AMAZON.COM	1.58	172.9	2.25
ALPHABET	2.28	62.0	1.85
ADVANCED MICRO DEVICES	0.54	756.1	1.67
TENCENT HOLDINGS	1.30	41.7	1.63
BROADCOM	1.27	83.9	1.49
QUALCOMM	1.65	151.8	1.33
TAIWAN SEMICONDUCTOR	1.69	46.4	1.17
NETFLIX	0.75	180.4	1.14
ALIBABA GROUP	1.05	54.4	1.04
KEYENCE	1.21	92.6	0.98
AT&T	0.64	38.7	0.95
THERMO FISHER SCIENTIFIC	0.71	144.1	0.94
DANAHER	0.70	144.9	0.94
AUTODESK	0.64	188.1	0.90
SAMSUNG ELECTRONICS CO	1.76	59.3	0.88

Source: Bloomberg, TSG



A relatively small number of names is responsible for the bulk of the returns. To many this is a rather surprising result. However, in a recent paper Bessembinder et al. (2019) have shown that the distribution of long-run stock returns are strongly positively skewed¹. In their comprehensive study on global stock performance they find that out of nearly 62,000 global common stocks between 1990 to 2018 **only 1.3% of the entire equity universe (or ca. 800 names) are responsible for global stock market wealth creation** above and beyond the one-month US Treasury Bill benchmark! The remaining 98.7% of firms collectively matched the returns to one-month US Treasury bills. Thus stock returns follow a power law rather than a normal distribution. This observation impressively underscores the importance of stock selection. **If one fails to invest in the few crucial companies that generate extraordinary return contributions, investing in stocks will not be a pleasant long-term experience.**

In the case of the Singularity Strategy, the chart below shows that since inception over the last three years approximately 20% of the names have been responsible for the entire wealth creation of ca. 75% total return, which is twice as many names as for the MSCI AC World relatively speaking with a corresponding percentage number of 10% and a total return of 33%². In other words, **the Singularity Strategy had relatively more and bigger contributors than its global benchmark.** The chart sums up all stock contributions from losers to winners. For the Singularity Strategy, the blue line crosses the zero mark around the 80% point on the x-axis, leaving the remaining 20% to account for the strategy's total return of 75%.



Source: Bloomberg, TSG

²Technically, 35% of the companies in the portfolio have contributed negatively. It took positive contributions from another 45% to get back to zero. So overall, about 65% of the names in the portfolio contributed positively while the distribution of the returns of the winners is positively skewed.

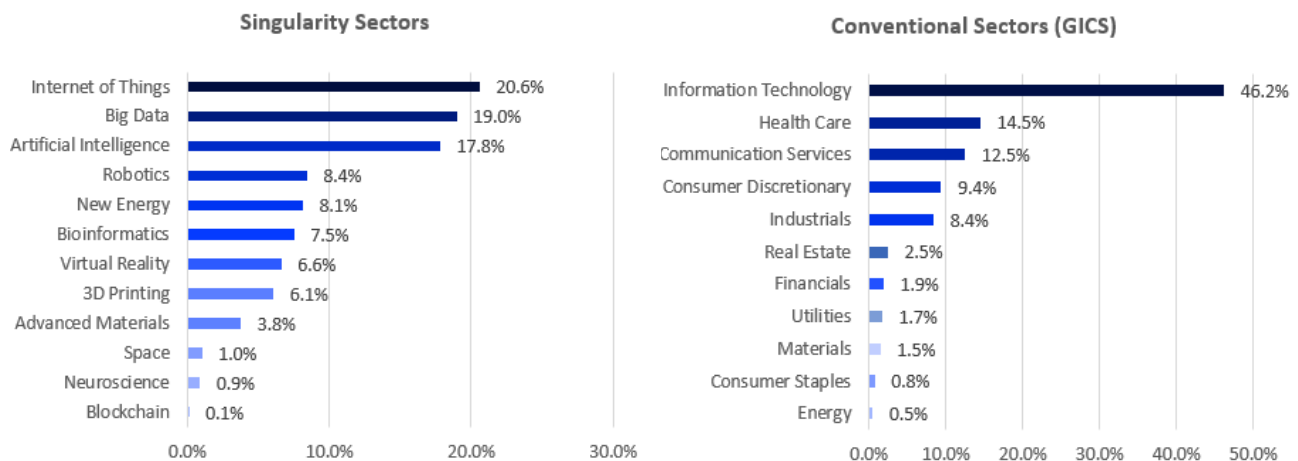




SINGULARITY REBALANCING

On November 20, 2020 the new composition of the Singularity Index came into effect following the market close in accordance with the semi-annual rebalancing cycle. As usual, the rebalanced index is the result of a bottom-up process that tracks technological developments within our Singularity Sectors and identifies companies that have exposure to revenue streams associated with the key focus areas of such technologies. It excludes companies that do not pass our ESG criteria. **A total of 76 names have been replaced in the index. In terms of weights, 17% of the index are made up of new positions. Total portfolio turnover was 46%.** In the following section we provide some highlights and major changes coming out of the most recent index rebalancing.

Singularity Index Sector Composition as of Nov 23, 2020



Source: Nasdaq, Bloomberg, TSG

Singularity Sector Changes Post Rebalancing

Singularity Sector	post	pre	+/-
Internet of Things	20.6	17.2	3.4
Big Data	19.0	17.8	1.2
Artificial Intelligence	17.8	18.2	-0.3
Robotics	8.4	10.5	-2.1
New Energy	8.1	6.5	1.7
Bioinformatics	7.5	7.5	0.0
Virtual Realty	6.6	7.5	-0.9
3D Printing	6.1	7.6	-1.5
Advanced Materials	3.8	4.5	-0.7
Space	1.0	0.9	0.1
Neuroscience	0.9	1.8	-0.9
Blockchain	0.1	-	0.1

Source: Nasdaq, Bloomberg, TSG



The biggest sector in the index post rebalancing on November 23, which is also the biggest gainer in terms of sector weight, is Internet of Things (IOT) with an allocation of 20.6% post rebalancing, an increase of approximately 3.5% percentage points compared to pre-rebalancing levels. Top allocations in IOT are Tencent (0700 HK), Broadcom (AVGO US), Qualcomm (QCOM US) and Samsung Electronics (005030 KS), followed by American Tower (AMT US) and Crown Castle (CCI US) which are essential enablers of connectivity and the internet of things among others by operating and maintaining wireless communications infrastructure. The largest names in **Big Data** are Microsoft (MSFT US), Visa (V US), Mastercard (MA US) and Amazon (AMZN US). The New Energy sector has the largest number of new names (+13) with core holdings in Orsted (ORSTED DC), Nio (NIO US) and Nextera (NEE US). **Robotics** had the biggest weight decrease (-2pp) and stands at 8.4% with companies including Keyence (6861 JT), Intuitive Surgical (ISRG US) and Siemens (SIE GY). **3D Printing** was the sector with the second biggest weight decline. Square (SQ US) was added to **Blockchain** and is now the sector's only holding.

Conventional Sectors:

Information Technology remains the largest allocation with 47% (-2pp) in the new index constitution as measured by the GICS standard. The biggest tech names are Microsoft (MSFT US), NVIDIA (NVDA US) and Apple (AAPL US). **Health Care** (15%) declined by roughly 3 percentage points overall, whereas Communication Services (12%) registered a small increase. Top positions in the former and latter sectors are Thermo Fisher (TMO US), Johnson & Johnson (JNJ US), Intuitive Surgical (ISRG US); and Alphabet (GOOGL US), Tencent (0700 HK) and Facebook (FB US). In **Consumer Discretionary** the core holdings remain Tesla (TSLA US), Amazon (AMZN US) and Alibaba (9988 HK), while a number of new Chinese names have been added including Meituan (3690 HK), Nio (NIO US) and JD.com (JD US). **Real Estate** exposure increased by 2 percentage points via the addition of infrastructure REITs such as American Tower (AMT US) and Crown Castle (CCI US). **The Utilities** sector was introduced into the portfolio through the additions of alternative energy wholesalers and electrolysis equipment manufacturers essential for the production of hydrogen from renewable sources. New names in the sector include Orsted (ORSTED DC) and NextEra Energy (NEE US).

GICS Sector Changes Post Rebalancing

GICS Sector	post	pre	+/-
Information Technology	46.2	48.1	-1.8
Health Care	14.5	17.4	-2.8
Communication Services	12.5	11.1	1.5
Consumer Discretionary	9.4	9.8	-0.4
Industrials	8.4	9.2	-0.8
Real Estate	2.5	0.4	2.1
Financials	1.9	2.0	-0.0
Utilities	1.7	-	1.7
Materials	1.5	0.9	0.6
Consumer Staples	0.8	0.9	-0.1
Energy	0.5	0.3	0.2

Source: Nasdaq, Bloomberg, TSG



Regional Changes Post Rebalancing

Region	post	pre	+/-
North America	71.6	70.0	1.6
Asia Pacific	15.4	17.5	-2.2
Western Europe	11.8	11.5	0.3
South / Central America	0.5	0.6	-0.1
Africa / Middle East	0.4	0.3	0.2
Central Asia	0.2	-	0.2
Eastern Europe	0.1	0.2	-0.1

Source: Nasdaq, Bloomberg, TSG

There were no material regional changes. **North America** (72%) slightly increased by more than 1pp, **Asia Pacific** (15%) decreased by 2pp, and **Western Europe** (12%) increased by a bit less than 1pp. Within the Asia Pacific region, China slightly increased while Japan decreased the most. In Europe, Denmark, Sweden, Italy and Spain gained whereas Germany and Switzerland's weights decreased. Allocations to the rest of the world remain negligible.

Style Factor Exposure: Using the Bloomberg Global Risk Model which operates with long-short style portfolios (i.e. long the top quintile of stocks, short the bottom quintile of stocks), the Singularity Index has - in descending order - **positive exposures to the equity style factors momentum, growth, earnings variability, profitability, and trade activity, while exhibiting negative exposures to dividend yield, value and leverage.**³ At the same time, these tilts also apply to the index's respective active exposure vs the MSCI ACWI. For example, the index, both on an absolute and relative basis vs the MSCI ACWI⁴, is positively exposed to companies that have strong sales and earnings growth, with a beta of 0.32. On the other hand, it has a relatively low dividend yield of 1.2% as evidenced by the negative exposure to the dividend yield factor. **In sum, the index comprises companies with a strong growth and profitability profile at reasonable valuations that have low levels of indebtedness and reinvest earnings back into the business to innovate and grow the topline.**

Equity Style Factor Exposure as of Nov 23, 2020

Factor	Singularity Index	MSCI ACWI	+/-
Momentum	0.55	-0.01	0.56
Growth	0.32	-0.02	0.34
Earnings Variability	0.27	-0.05	0.32
Trade Activity	0.27	-0.03	0.29
Profitability	0.19	0.08	0.11
Size	0.04	0.23	-0.19
Volatility	-0.08	0.01	-0.09
Leverage	-0.26	0.00	-0.26
Value	-0.36	-0.00	-0.35
Dividend Yield	-0.37	0.01	-0.39

Source: Bloomberg, TSG

³ Style factor definitions: **Momentum:** cumulative return over one year (averaged), skipping the most recent two weeks to mitigate the price reversal effect. **Value:** composite of book to price, earnings to price, cash flow to price, sales/EV, EBITDA/EV, forecast earnings to price. **Dividend Yield:** most recently announced net dividend (annualized) divided by the current market price. **Size:** composite metric of log(market capitalization), log(sales), log(total assets). **Trading Activity:** trading volume normalized by shares outstanding; this factor indirectly controls for the Size effect. **Earnings Variability:** earnings, cash flow, and sales volatility vs median total assets (5y horizon). **Profitability:** composite of ROE, ROA, ROCE, EBITDA margin. **Volatility:** composite of rolling 1y volatility, rolling CAPM beta, historical residual volatility, and cumulative range. **Growth:** composite of total asset growth, sales growth, earnings growth, forecast of earnings growth, and forecast of sales growth. **Leverage:** composite of book leverage, market leverage and debt to total assets.

⁴Equity style factor exposures for the MSCI ACWI are by design close to zero as the global equity universe forms the basis of the long-short style portfolios.



Portfolio Characteristics as of Nov 23, 2020

Indicator	Singularity Index	MSCI ACWI	+/- (%)
Profitability			
Profit Margin	13.1%	5.9%	122%
Operating Margin	16.1%	9.2%	75%
Return on Capital	10.5%	4.5%	133%
Return on Common Equity	15.2%	7.6%	100%
Return on Assets	5.3%	1.2%	330%
Balance Sheet / Solvency			
Net Debt to Shareholders Equity	22.7%	61.7%	-63%
Total Debt to EBITDA	2.4	4.5	-47%
Interest Coverage Ratio (Adj.)	4.4	6.5	-31%
Liquidity			
Quick Ratio	1.3	0.8	55%
Current Ratio	1.6	1.3	24%
Growth Rates (5 Year CAGR)			
Revenue	16.5%	9.2%	80%
EBITDA	17.0%	10.7%	60%
EPS	19.8%	15.0%	32%
Valuation			
EV/EBITDA	24.2	15.3	58%
P/E Ratio	44.5	30.5	71%
P/S Ratio	5.5	2.0	180%
Dividend Yield	0.9%	1.9%	-55%

Source: Bloomberg, TSG

Top Positions: Below is a list of the **top 20 holdings** in the Singularity Index per rebalancing date (November 20 2020). While individual weights are meaningful, there is a significant degree of diversification. Top 5 positions sum up to 18.5%, for the top 10 it's 27.1%, and the weight of the top 20 holdings is 38.6%. **Thermo Fisher** and **Qualcomm** are the most notable new entrants in the top 10 while Johnson & Johnson and Alibaba moved down the ranks. **American Tower, Facebook and Accenture** are new positions in the top 20. Intel and VMWare dropped off the roster and recorded the biggest weight declines. Intuitive Surgical and Netflix moved just below the cut-off line. The new names in the top 20 are marked with an asterisk.

Top 20 Holdings per November 23 Rebalancing

#	Company	Weight (%)	#	Company	Weight (%)
1	TESLA	4.0	11	SAMSUNG ELECTRONICS	1.4
2	ALPHABET	3.9	12	MASTERCARD	1.3
3	MICROSOFT	3.8	13	KEYENCE	1.3
4	NVIDIA	3.4	14	JOHNSON & JOHNSON	1.3
5	APPLE	3.4	15	ADVANCED MICRO DEVICES	1.1
6	VISA	1.8	16	AMAZON.COM	1.1
7	TENCENT HOLDINGS	1.8	17	AMERICAN TOWER*	1.1
8	THERMO FISHER SCIENTIFIC*	1.8	18	ADOBE	1.0
9	BROADCOM	1.7	19	FACEBOOK*	1.0
10	QUALCOMM*	1.4	20	ACCENTURE*	1.0

* denotes new position in top 20

Source: Nasdaq

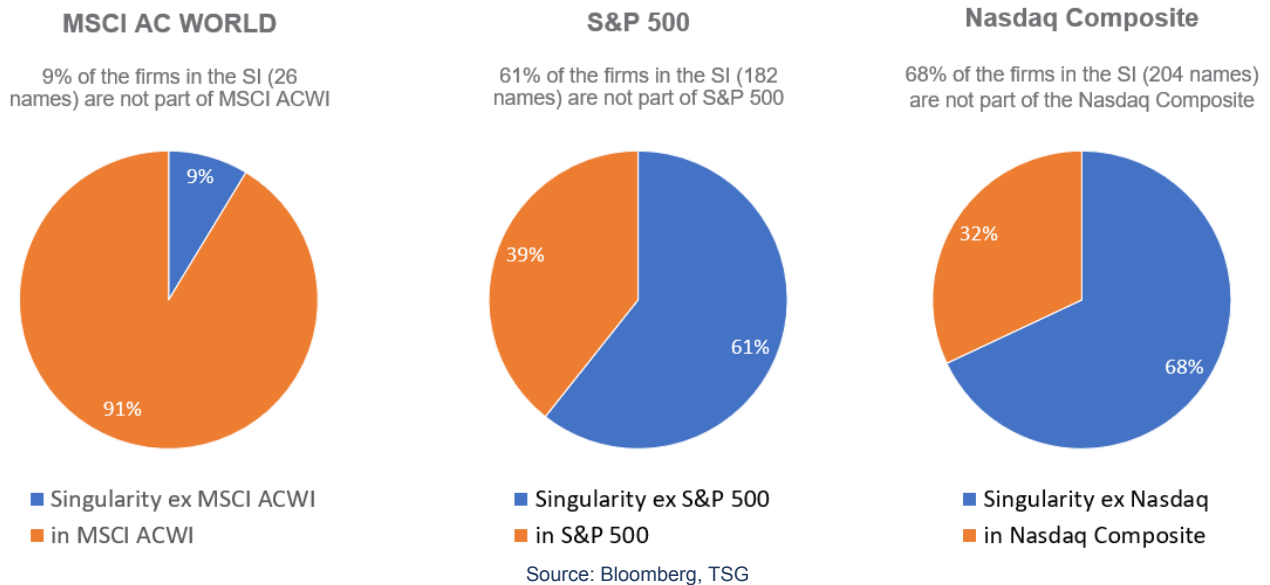


PORTFOLIO INSIGHTS

Position Overlap Analysis

We have been asked how large the Singularity Strategy’s name overlap is compared to standard market indices such as the MSCI AC World Index, the S&P 500 Index or the Nasdaq Composite. Below we take a closer look at this. The MSCI AC World Index is a very broad market index covering close to 3,000 companies and about 85% of the global investable equity universe. Our selection process for the Singularity Strategy starts from a very broad global equity universe and it is thus perhaps not too surprising that most of the 300 names in the strategy are also represented in the MSCI ACWI. Yet, still close to 10% of the names in the Singularity Strategy are unique, i.e. not represented in the MSCI ACWI. Compared with the S&P 500 Index, 182 names or 61% are unique with the remaining 39% in common names. Finally, the company count overlap with the Nasdaq Composite is 32%, with 204 unique companies (68%) in the Singularity Strategy.

Overlap Analysis of Singularity Index (SI) vs MSCI ACWI, S&P 500, and Nasdaq Composite



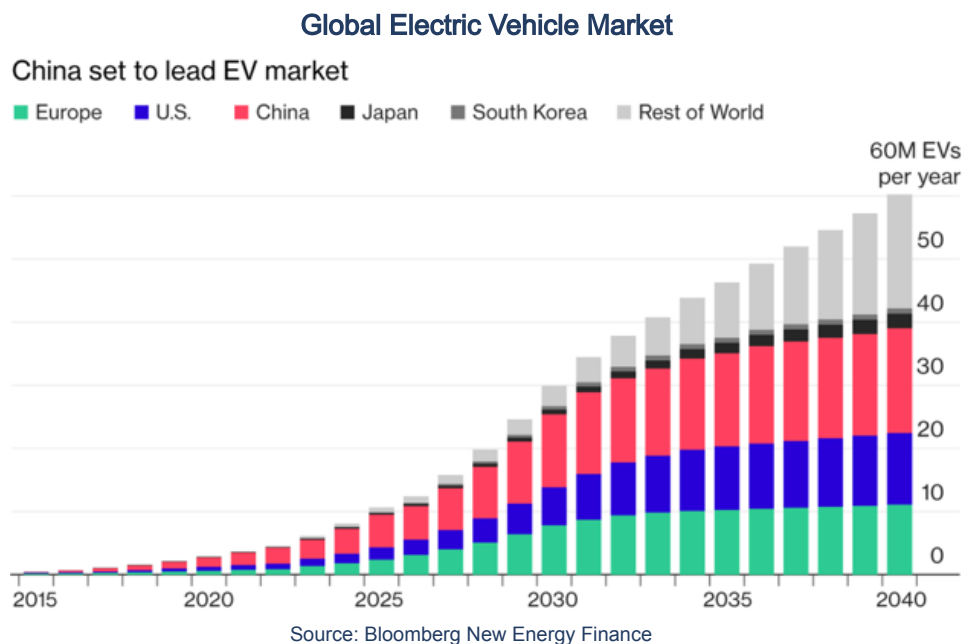
We believe the Singularity Strategy is an ideal core building block in equity portfolios as it carves out and regularly updates the leading 300 innovation firms from the global investable equity opportunity set and weights them according to their exposure to exponential innovation, the driver of future viability and performance.



China EV companies

During the November rebalancing **two thematic exposures have appeared more prominently in the portfolio: Chinese electric vehicle (EV) players and eSports (covered in the next section below).**

The global trend towards greenhouse gas emission reductions has been very supportive for the EV market. The European Green Deal aims to reduce emissions by at least 50% by 2030, Joe Biden pledged to substantially increase subsidies for EV in the United States, and China wants approximately 25% of all new cars sold in 2025 to be electric, tripling EV subsidies for 2021 compared with 2020.



In the EV market all eyes have been squarely on Tesla against the backdrop of an impressive growth profile over the last few years. The recent announcement of Tesla's index inclusion in the S&P 500 on November 16 gave the stock another boost. In China, the company is a leader in the premium EV market driven by its Gigafactory 3 in Shanghai and has raised consumers' awareness for this segment. Tesla has had a stimulating effect on the world's largest and fastest growing electric-car market and paved the way for other local players to come in. Accordingly, **during the latest rebalancing of the Singularity Index two Chinese players, that have recently listed in the US, have been added to the index: NIO (NIO US) and Li Auto (LI US).** Following a strong stock performance their combined market capitalization now amounts to about one fifth of Tesla's. The Chinese EV market has been booming and China-based manufacturers now account for more than 50% of global deliveries with an attractive runway against a strong push towards higher EV penetration by the authorities.



NIO designs, jointly manufactures (with Jianghuai Automobile Group Co., Ltd.), and sells smart and connected premium Battery EV (BEV). It was founded in 2014 and began making deliveries of its first vehicle in June 2018. It currently offers three premium SUVs: ES8, ES6, EC6, and plans to introduce a new model every year. SUV is China's largest and most popular vehicle segment. The company aims to provide its customers with comprehensive, convenient and innovative charging solutions including home charging, battery swap technology, mobile charging trucks and a 24h on-demand pick-up and drop-off charging service. The ability to simply swap batteries is a novelty and made possible thanks to its Battery as a Service (BaaS) which allows customers to subscribe to a battery as opposed to paying for it upfront. Its in-car AI assistant called NOMI is a voice-assisted digital companion that allows for a personalized driving experience. NIO is also developing its own autonomous vehicle technology, currently based on enhanced Level 2 autonomous driving. It follows a "local brand, locally built" strategy and works with international leaders in its supply chain including Mobileye (ADAS processor), NVIDIA (autonomous vehicle development platform), Contemporary Amperex Technology (battery cells), and Bosch (iBooster braking system). The powertrain, or e-propulsion system, the battery pack and electric driving systems are developed in-house. It has located its engineering teams in Shanghai, Hefei, Nanjing, Oxford, Munich and San Jose based on where they believe the talent is located. The company's distribution strategy is B2C, as opposed to most of its competitors' strategy of B2B.



Li Auto is an up and coming player in the Chinese new energy vehicle market with its own production plants in Changzhou, China. It was founded in 2015 and named after its founder Li Xiang who previously founded Autohome. Its Li Xiang ONE SUV is an Extended-Range Electric Vehicle (EREV), a bridge technology which packs a small gasoline engine for additional electric power generation for the battery and a longer range, was the top selling new energy vehicle in China in September 2020. Given China's still relatively limited charging infrastructure and related range anxiety there is ample demand for its attractive vehicles as it targets customers who are not quite ready, whether for cost or convenience, to commit fully to a BEV. Beginning in 2022 the



company plans to launch an additional model, the Li Xiang TWO SUV, and henceforth introduce one new model per year. The company wants to make its autonomous driving technology a core differentiator and is planning to catch up with its competitors by switching to NVIDIA Orin as the SoC (system on a chip) at the heart of its fleet in the future. Moreover, it has made a strategic investment in Neolix located in Beijing, which focuses on developing an autonomous driving capability primarily for delivery to benefit from valuable knowledge sharing. Li currently distributes its cars across 30 cities in China through 35 retail stores.



Financials: NIO delivered approximately 26k vehicles cumulatively in 2020 by the end of Q3 while Li Auto delivered 22k vehicles during the same period. In 2020 expected full-year revenues for NIO and Li Auto are \$2.4bn (110% yoy) and \$1.3bn respectively. In comparison, Tesla booked revenues of about \$4bn during the first three quarters and is set to exceed \$5bn for the full year. While Li Auto only started booking revenues this year, expected revenue growth for NIO for the full year of 2020 is 110% with little signs of slowing down. Gross margins in Q3 improved from 8.4% to 12.9% for NIO and from 13.3% to 19.8% for Li Auto which is on the high end and due to some one-off rebates, decrease in material prices, higher efficiency due to its current focus on just one vehicle model, and the fact that EREV are cheaper to produce than BEV ceteris paribus. While both companies are still loss making, margins are likely to improve sharply as volumes pick up. NIO and Li are trading at a market cap of \$85bn and \$31bn respectively at year-end.

Both companies are on track to continue to grow rapidly in the domestic Chinese market. That said, this significantly hinges on the availability and amounts of government subsidies, economic incentives, and government policies which support growth in EV. If local new energy vehicle companies like NIO and Li can successfully leverage China's low-cost manufacturing infrastructure and its evolving ecosystem of battery producers and parts suppliers they will be able to play a bigger role in the global EV market and give the market leader Tesla a run for its money.



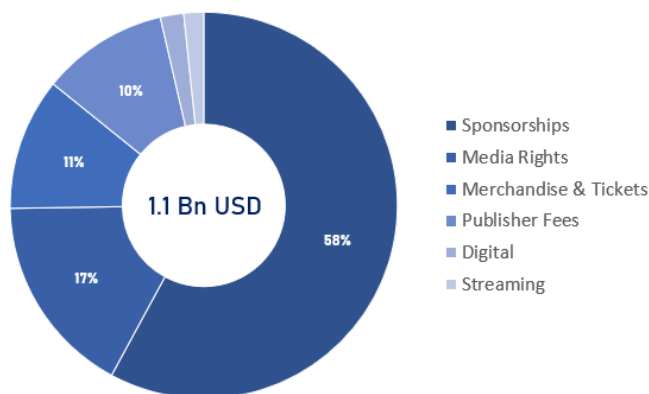
eSports

eSports is defined as the business of professional or semi-professional competitive gaming in an organized format with a specific goal of winning a championship title or prize money. Considered in a broader context, it is a rapidly growing area of entertainment which displays and broadcasts computer game players both physically at professionally organized tournaments and virtually via streaming platforms. The most popular games are Dota 2, Counter Strike, Fortnite, and League of Legends among others. eSports is particularly popular and surging among digital natives and Millennials to the extent that it's starting to rival the film industry and traditional sports and is generally taking an increasing share of media consumption. The eSports audience is projected to reach about 500M in 2020 (up 12% from 2019). Several major networks have signed big deals for media rights. In 2018, for instance, ESPN announced a partnership with Riot Games to broadcast League of Legends while Fox News acquired exclusive rights to show all FIFA eSports events.

To put things into context, the League of Legends World Championship final held in South Korea in 2019 had 100mn unique viewers, exceeding that year's Super Bowl viewers of 98mn. The industry exceeded \$1bn in revenues in 2020 (+27% year-over-year) and is expected to grow at high double digits for years to come with China and Asia more broadly leading the way, followed by North America and Western Europe. From an investment standpoint, eSports is not gaming, but the newest and fastest growing area in the entertainment/media industry.

More generally for gaming, approximately 100bn hours of video game content was watched on YouTube this year, an increase of close to 100% from two years ago. More than 80,000 gamers have over 100,000 streaming subscribers each, and more than 1,000 have over 5mn subscribers each. The game with the most views was Minecraft at 201bn followed by Roblox at 75bn views. Of the 100bn hours watched, 10% were watched live.

Projected Revenue Streams for 2020

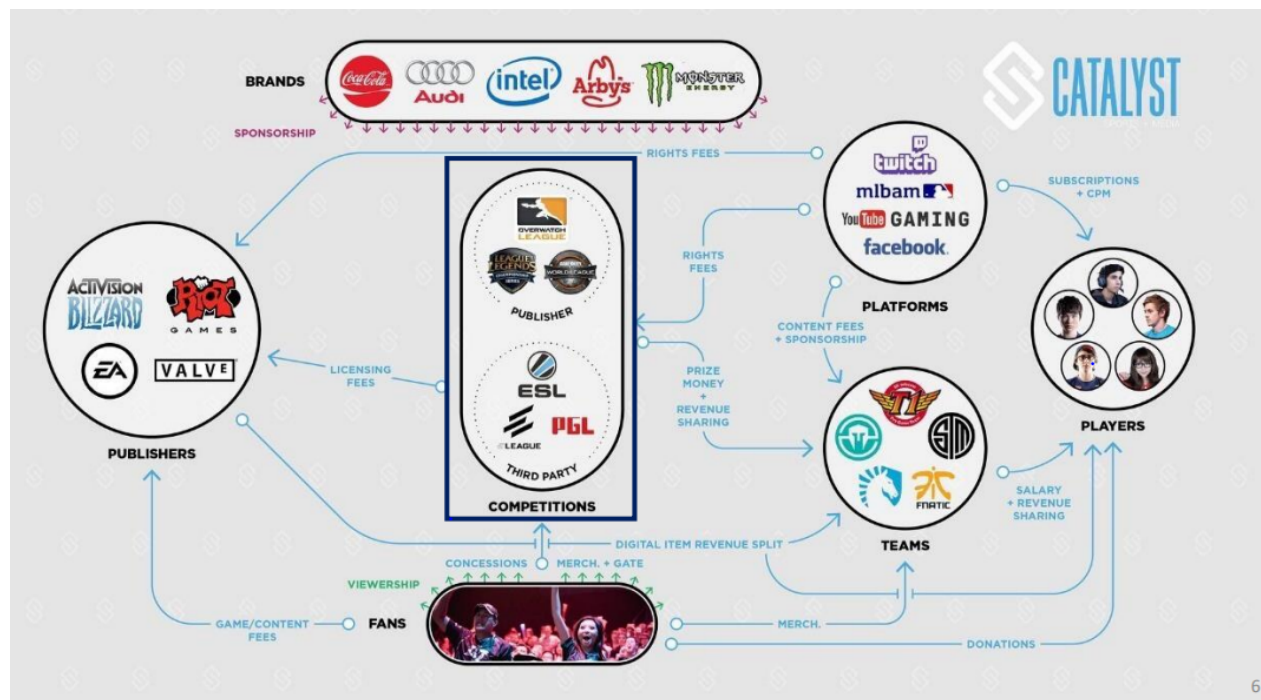


Source: Newzoo, TSG

Players and teams are battling for ever increasing prize pools. For instance, in 2019 the game Fortnite had a total prize pool of \$72mn. The best paid tournament was “The International”, the world championship for Dota 2, which paid out a prize pot of \$34mn. Johan Sundstein aka N0tail was the highest earning player in 2019 and took home \$3.2mn at the age of 26 with lifetime earnings of \$7mn. The infographic below does a nice job at capturing the main elements of the eSports ecosystem and visualizing its main stakeholders, revenue streams and power dynamics. In the broader ecosystem not depicted here, there are online video platforms, hardware manufacturers and chip makers which will also profit significantly from eSports moving into the mainstream.



The eSports Ecosystem



Source: Catalyst Sports

Gaming starts with a **game engine** which is basically the architecture that developers use to run the game. Some publishers such as Epic Games develop games based on their own game engine, named Unreal Engine, while others licence third-party engines. Unreal Engine and **Unity (IPO September 2020, a new addition to the Singularity portfolio in November 2020)** are currently the two leading game engines in the industry.

Publishers create and distribute video games. Their revenue sources are game sales and in-game content. The leading publishers encompass both publicly listed (EA, Activision-Blizzard) and private (Riot Games, Valve) companies. Because publishers own all the IP for their games they are able to exert significant control and power within the ecosystem. They collect licencing fees from competition and league organizers and rights fees from broadcasters and platforms to stream the games. Publishers are more and more embracing the broader business potential from eSports by launching and operating their own franchised leagues to capitalize additional revenue streams from media rights, sponsorships, merchandising, and more. For example, Riot Games and Activision-Blizzard run their own leagues whereas Valve, the maker of Counter Strike and Dota 2, simply approves tournament organizers.

Competitions include leagues and tournaments and can be either organized by publishers themselves, as mentioned above, or by event organizers such as Electronic Sports League (ESL) and Turner who pay a licencing fee to the publisher. Competitions' revenue streams include sponsorships, media rights fees, concessions, and ticket sales.

Teams are professionally run organizations with multiple eSports players under contract and are active in various games and tournaments/leagues. The most prominent teams include Team Liquid, OG, Team SoloMid, Fnatic, Cloud9, among others. These organizations have large followings and create a lot of buzz for the entire ecosystem. Teams make most of their money via sponsorships and increasingly from exclusive content distribution fees from platforms such as Twitch and YouTube.



Platforms are streaming services and social media platforms that distribute live and on-demand content. They often get exclusive broadcasting rights by sponsoring competitions, teams, and players. By sponsoring a team, for instance, platforms have the right to the streams of the players, giving the audience live access to players' views. The main revenue streams are selling ads and premium subscription services. The latter are shared between the platform and the streamer. Subscribers enjoy an ad-free experience and can get access to private chats, channel-specific emotes and other benefits. Twitch (owned by Amazon) is the leading platform with YouTube Gaming and Facebook Gaming gaining clout. DouYu and Huya (owned by Tencent) are the leaders in China.

Players are the athletes competing in eSports. Their training schedules are no different than in other professional sports including physical and mental training. Some players also stream on the side or even transition into making this their main occupation. For example, Richard Tyler Blevins aka Ninja started out as a professional gamer and now maintains the most-followed Twitch channel with over 16 million followers. Players earn a salary from their teams and have numerous other sources of income such as prize money, sponsorships, streaming subscriptions, fan donations, and merchandise sales.

Brands are companies that advertise on platforms and sponsor teams, players and tournaments. Initially endemic brands which create products for gamers were responsible for the lion share of the sponsorship and ads market. Nowadays an increasing number of companies are becoming active in the space to address this young and rapidly growing cohort.

Fans are people who consume eSports either online or live at events. For an increasing number of people eSports is becoming their main source of entertainment. Fans play computer games, support teams, subscribe to streaming channels, buy products and services from brands marketing through sponsorships and ads on platforms and purchase merchandise. Unlike in traditional sports, fan communities often have an active dialogue with other stakeholders such as league officials and team executives, making the eSports space highly interactive.

eSports in the portfolio: While still a large part of the companies in the eSports ecosystem are held privately, **our portfolio provides attractive exposures to the eSport ecosystem through listed equities** and includes investments in the following areas:

- Game Engines: **Unity Software (U US)**
- Game Publishers and Competitions: **Activision-Blizzard (ATVI US), Electronic Arts (EA US), Tencent (700 HK), Take-Two Interactive (TTWO US), Microsoft (MSFT US), Sony (6758 JT)**
- Platforms: Twitch via **Amazon (AMZN US)**, YouTube Gaming via **Alphabet (GOOGL US)**, Facebook Gaming (**FB US**), and DouYu and Huya via **Tencent (700 HK)**.

In the broader ecosystem, gaming beneficiaries from eSports in our portfolio include chip makers such as **Nvidia (NVDA US) and Qualcomm (QCOM US)**, as well as cloud gaming services by industry heavyweights such as **Sony (6758 JT), Microsoft (MSFT US), Google (GOOGL US), and Apple (AAPL US)**.



SINGULARITY INSIGHTS

TSG in the News: Media attention for TSG was very strong during the last quarter of 2020. You can find the highlights in the News section on our website. Overall, we appeared almost 50 times in the Swiss and German press, the coverage's tonality was - without exception - positive and further established TSG as a key opinion leader in the field of exponential technologies and applied innovation investing. We want to point out a few Q4 clippings for you:

- Finanz und Wirtschaft covered an article on the indispensability of innovation in establishing a resilient future: There is an I (for Innovation) missing in ESG. Please find the translated English version here.
- Focus Money published a full two-pager introducing our Singularity Strategy and the new retail share class.
- Our CEO Evelyne Pflugi was quoted as an innovation expert by portfolio institutionell.
- Our Head of Research, Aleksandra Gadzala Tirziu, PhD, guest authored a piece on how exponential technologies shape the digital payments landscape. It is based on and translated from the recently released report "Digital Payments and a New Economic Infrastructure".

What happened: The Research Department released the first two issues of our new Seeking Singularity Newsletter. On a monthly basis, our Head of Research Aleksandra Gadzala Tirziu, PhD, keeps you updated on The Singularity Group's research efforts, Expert Advisory Board discussions, and she explores how our societies will change under the force of rapidly accelerating technologies. As a member of the TSG inner circle, you should have exclusively received "Seeking Singularity". If you haven't, please sign up for it here.

- November edition
- December edition

We celebrated the 2-year anniversary of the Singularity Fund with a milestones video and toasted on the 3-year track record of the Singularity Strategy with a festive, Christmas inspired review - it's never too late for some holiday cheer and a good laugh. Watch out for another video in your inboxes soon, in which our chairman Eric Sarasin, co-founder and board member Tobias Reichmuth and co-founder and CEO Evelyne Pflugi talk about our history, the present and what lies ahead.

After much positive feedback, we continued our monthly "Investment Office Update" featuring our CIO Gregory Hung, a series born during lockdown in spring. If you haven't watched the last episode, you can find it here.

Sign up for a personal CIO update: Our CIO and author of this year-end report, Gregory Hung, will give a presentation and further insights on all topics touched here during an "Investment Office Update Live" session on January 21 at 3.30pm CET. Secure your spot and register for the webinar here.



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