

# ROBO GLOBAL QUARTERLY REPORT Q4 2020

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# Quarterly Review Q 4 2020

The last quarter of 2020

THE ROBO GLOBAL INNOVATION INDICES ENDED 2020 WITH A BANG, LARGELY OUTPERFORMING GLOBAL EQUITIES.

The Robotics & Automation Index (ROBO) returned 45.3% for the year, the Artificial Intelligence Index (THNQ) increased 68.2%, and the Healthcare Technology & Innovation Index (HTEC) rose 66.6%. While the turbocharging of digitization trends will likely continue in 2021, we also expect a broadening of the economic recovery and with M&A accelerating, the setup for robotics, AI and healthcare technologies looks attractive. In this report, we discuss key trends and big movers across our index portfolios.

**Total Returns** 

	Q4	2020	3 YR	5 YR
ROBO	27.0%	45.3%	14.7%	21.1%
HTEC	25.4%	66.5%	41.1%	34.3%
THNQ	24.1%	68.2%	37.9%	36.7%
ACWI	14.7%	16.3%	10.0%	12.2%

PRIOR TO 30 APRIL 2019, HTEC DATA IS BASED ON SIMULATED BACK-CASTED DATA. PRIOR TO 21 AUGUST 2018, THNQ DATA IS BASED ON SIMULATED BACK-CASTED DATA. ANNUALIZED RETURNS FOR PERIODS GREATER THAN 1 YEAR

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Global equities rose 14% in the final quarter of 2020, led by emerging markets, small caps and value stocks, in the context of a strong economic recovery from the Covid-19 related downturn of the first half, and continued fiscal and monetary support. Despite the renewed second wave concerns and European lockdowns, the announcements early November by Pfizer and Moderna that their vaccines were found to be more than 90% effective kicked off a remarkable rally in cyclical equities that had been left behind in the snap-back phase of market recovery.

Against this backdrop, the ROBO Global indices continued to outperform global equities in Q4, with the Robotics & Automation Index (ROBO) rising 27.0%, the Healthcare Technology & Innovation Index (HTEC) up 25.4%, and the Artificial Intelligence Index (THNQ) up 24.1%. As shown in the above table, the three research-driven index strategies have largely outperformed the MSCI ACWI year to date and over the past one, three, and five years.

With vaccines on the way and governments and central banks determined to continue to stimulate aggressively, it has become increasingly clear that this global rebound has now gathered significant momentum and markets are willing to look through the negative Covid data. Yet the scale of this synchronized global upcycle may still be underappreciated.

First, the policy response to Covid-19 in terms of the unprecedented fiscal and monetary stimulus is simply massive - more than 20% of global GDP. And policy makers around the world appear strongly committed to continue to support, even in the face of rising inflation expectations. Second, early-cycle segments of the economy, such as housing, automotive and manufacturing are especially strong. In the final two months of 2020, global factory output and order book inflows continued to rise at some of the fastest rates seen over the past decade. Third, the US economy is on track to recover pre-recession levels of GDP by Q1 2021, even with large sectors such as aerospace and leisure still in limbo, with considerable pent-up demand for re-engagement yet to be unleashed. Perhaps more importantly this demand can be fueled by the record levels of personal savings accumulated in 2020, which stood at \$2.7 trillion at the end of November.

In short, we expect 2021 to be a boom year and while the markets have begun to reflect this scenario, we see ample room for equities to continue to rally on the reopening dynamic, with international, cyclical, and small cap stocks leading the way.

We believe our portfolios are well positioned to continue to outperform in this environment, with significant international, small and mid-cap exposure, and a high level of M&A activity. The ROBO strategies are specifically focused on technology disruptors that are positioned to gain share as the digitalization of the economy accelerates, many of which have been massive beneficiaries of this shift—especially companies in the areas of artificial intelligence, factory and logistics automation, enterprise software, and healthcare technologies

# Market COMMENTARY

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### M&A HAS PROVIDED A STRONG TAILWIND TO OUR PORTFOLIOS SINCE INCEPTION IN 2013

with a total 23 attempts at taking over ROBO index members in seven years reflecting the increasingly high value given to robotics, automation and AI technologies by large companies. The year 2020 was a banner year with seven out of the 86 ROBO index portfolio companies receiving acquisition offers, for a total exceeding \$74 billion. In addition, FLIR announced on the first trading day of 2021 it had agreed to be acquired by Teledyne in a \$7.4 billion deal.

The Healthcare Technology & Innovation (HTEC) portfolio also benefited from strong M&A activity: in addition to Qiagen, Varian and Biotelemetry discussed above, Livongo agreed to merge with Teladoc in a \$17.5 billion deal.

### NOTABLE 2020 MERGERS AND ACQUISITIONS

- ISRA Vision, a Germany based leader in machine vision, was acquired by Atlas Copco in a \$1.2 billion deal
- Qiagen, a leader in molecular diagnosis, received a \$12.6 billion offer from Thermo Fisher Scientific
- Varian Medical, the leader in hardware and software products for treating cancer with radiotherapy, is being acquired by Siemens Healthineers in a \$16.4 billion deal
- Xilinx, a semiconductor company focused on FPGA, is being acquired by AMD in a \$35.7 billion deal
- Hollysys, a Chinese industrial automation company, received a \$0.9 billion takeover offer
- Omnicell, the leading pharmacy and medication automation provider, received a more than \$5 billion offer from Baxer, which was rejected by the board
- BioTelemetry, a leading mobile and wireless medical technology company, is being acquired by Philips in a \$2.7 billion deal

### **ROBO: Robotics & Automation Index**

Robotics and Automation stocks continued to outperform global equities in Q4, with the ROBO Global Robotics & Automation Index (ROBO) returning 27.0% in the quarter and a total 45.3% in 2020, the best annual return since the inception of the index in 2013. This compares to 14.7% (Q4) and 16.3% (2020) for the MSCI AC World Index. All 11 index subsectors delivered positive returns in Q4, with 3D Printing (+76%), Security (+45%) and Manufacturing & Industrial Automation (+31%) leading the gains, while Consumer (+6%) and Logistics (+17%) lagged.



By region, US stocks outperformed (+33%), with strong contributions from 3D Systems, Brooks Automation, Zebra Technologies and Ambarella. China (+36%) and Taiwan (+32%) also stood out, reflecting rapid improvement in factory automation, especially in the electronics industry with Shenzhen Inovance, Delta Electronics and Airtac benefiting.

ROBO INDEX			Total Return by SubSector	Q4 2020	PAST 12M
Industry Classification	Application Manufacturing & Ind. Healthcare	<b>49%</b> 14% 12%	3D Printing Security	76% 45%	65% 40%
	<ul> <li>Logistics Automation</li> <li>Food &amp; Agriculture</li> </ul>	11% 6%	Manufacturing & Industrial Automation	<u> </u>	<u> </u>
	3D Printing	3%	Healthcare	28%	52%
	Consumer Products Security	2% 1%	Computing, Processing, & AI Food & Agriculture	28% 26%	57% 16%
	Technologies Computing, Processing, & AI	<b>51%</b> 21%	Sensing	21%	42%
	<ul> <li>Actuation</li> <li>Sensing</li> </ul>	12% 11%	Integration Logistics Automation	<u> </u>	<u>18%</u> 47%
	Integration	7%	Consumer Products	6%	59%
			INDEX TOTAL	27%	45%

# ROBO

Investing in Robotics and Automation The ROBO Global Robotics & Automation Index is the original and leading stock index tracking the robotics and automation revolution for investors. ROBO provides investment exposure to a basket of best-in-class robotics companies around the world.

### **ROBO: Robotics & Automation Index**

In 2Q and 3Q, we saw the key beneficiaries of the turbocharging of digitization across the economy in a pandemic-stricken world lead the gains for ROBO. As businesses strive to discover new ways to operate safely and efficiently amid the pandemic, technology has proven critical in supporting the distributed work environments that make this possible: Al-powered technologies, logistics and warehouse automation supporting the boom in e-commerce, sensing and digital health, among others. In Q4, we saw the breadth of performance expand into the more challenged areas of automation during the downturn; namely, the industrial sector, with a strong recovery in 3D printing stocks and solid gains at factory automation companies like Teradyne, Brooks, Harmonic Drive and Hiwin.

We believe this set-up is attractive for robotics, AI, and automation stocks. Equities of best-in-class automation stocks from around the world are now trading on a forward P/E of 33x, a record high since the inception of the index in 2013 and 10 points above the historical average of 23x (see below chart). However, this is based on a forward aggregate earnings estimate that stands 28% below the high of early 2019 (see below chart). In the past three months, consensus estimates for 2021 have been revised up by 4% and currently point to 25% YoY growth, followed by a 19% increase in 2022.





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### **ROBO: Movers and Shakers**

**3D Systems (+113%)** a leading provider of 3D content-to-print solutions bounced hard from a decade low point hit in September, as Q3 revenue came in 16% above expectation on the back of strength in its medical business and dental end-markets in particular. In addition, the company made progress with its efforts to lower its cost structure by lowering headcount and cutting operating expenses, as reflected in margin improvements in its Service business, and the sale of its Cimatron and Gibbs CAM software businesses. 3D systems was not the only 3D printing stock to rise sharply in Q4: Stratasys and Materialise rose 66% and 47% respectively.

**Ambarella (+76%)** a leader in video processing chips, hit an inflection point in recent months. The company is rapidly morphing into an AI company with computer vision capabilities attracting major players in the automotive and security industries. The company raised its outlook for the year and announced a \$600m funnel of business opportunities in automotive, of which 70% is already won and major programs going into production in 2022 with Advanced Driver Assistance powered by Ambarella CV chips. Notable to us is that Ambarella has been able to generate such a large funnel despite only having a SoC that supports functional safety standards (ASIL B) available beginning earlier this year. We believe the market may be starting to realize that Ambarella's technology not only has strong potential in surveillance cameras but also in the automotive market

**Ocado (-12%)** the UK-based online grocery and warehouse automation technology provider, pulled back after a 126% run up in the first three quarters of 2020, even though it raised again its ebitda outlook to more than GBP70m on strong sales. Ocado experienced a dramatic surge in demand for its online grocery services as a result of Covid lockdowns and has been running at full capacity. With three new warehouses opening in 2021, which will boost capacity by 40%, Ocado is set to grow strongly again in 2021. The company completed the acquisitions of Kindred Systems and Haddington Dynamics during the quarter and announced the appointment of former Mastercard chairman Richard Haythornthwaite as independent non-executive chairman.

**Siasun Robot & Automation (-11%)** the Chinese industrial robotics provider, reported 3Q results sharply below expectations, with an operating loss and disappointing order trends, below industry average. After showing improvements in Q2, Q3 orders declined ~50% YoY despite improvements in domestic automotive industry capex.

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### **HTEC: Healthcare Technology and Innovation Index**

Healthcare tech stocks also continued to outperform both global equities and the broader healthcare categories in Q4, with the ROBO Global Healthcare Technology and Innovation Index (Ticker: HTEC) returning 25.4% in the quarter and 66.5% for FYE 2020. This compares to 14.7% (Q4) and 16.3% (2020) for the MSCI AC World Index, and 7.2% (Q4) and 16.3% (2020) for the S&P Global Healthcare Index.



All nine index subsectors delivered double digit positive returns in Q4, with Genomics (+42%), Precision Medicine (+36%) and Robotics (+29%%) leading the gains. For more information on the HTEC index, see factsheet.

#### HTEC INDEX Industry Classification



Medical Instruments	27%
Diagnostics	13%
Precision Medicine	13%
Process Automation	13%
Genomics	9%
Data Analytics	9%
Robotics	6%
Telehealth	5%
<b>Regenerative Medicine</b>	5%

Total Return by SubSector	Q4 2020	PAST 12M
Genomics	42%	115%
Precision Medicine	36%	68%
Robotics	29%	33%
Data Analytics	27%	130%
Regenerative Medicine	26%	6%
Medical Instruments	25%	45%
Process Automation	19%	60%
Telehealth	17%	145%
Diagnostics	10%	53%
INDEX TOTAL	25%	67%

# HTEC

Investing in Healthcare Innovation HTEC provides unique, global exposure to best-in-class companies leading the healthcare technology revolution, across diagnostics, robotics, genomics, precision and regenerative medicine, lab automation, instruments, data analytics, and telehealth.

# HTEC: Healthcare Technology and Innovation Index

There was quite a bit of excitement in the Genomics subsector during 2020, with over \$10 billion in M&A transactions as various HTEC companies pursue the early cancer detection market with liquid biopsy testing. In Q4, Genomics performance of +42% was largely led by CareDx (+91%), a technology leader in transplants who reported strong Q3 results and received Medicare reimbursement pricing for its heart cell-free DNA test.

Precision Medicine performance of 36% in Q4 was largely driven by milestone achievement among HTEC's CRISPR leaders such as the advancement of treatment for sickle cell disease with Editas. (See below for more details.) There was also the advancement of the world's first mRNA therapies for Covid-19 vaccines, which HTEC's Moderna launched at the end of the year.

The index currently trades at 6.7x forward EV/Sales. We believe we are still in the very early days of several fastgrowing themes in healthcare, and that continued upside remains among HTEC's underlying securities as areas like genomics, precision medicine, and telehealth continue to advance over the next decade.



# HTEC

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# **HTEC: Movers and Shakers**

**Intellia Therapeutics Inc (+179%)** is a gene editing company focused on CRISPR/Cas9 treatments for severe and life-threatening diseases. The company is making headways in their lead immune-oncology development candidate NTLA-5001, which showed high anti-tumor activity in POC mouse models for acute leukemias. The company also published pre-clinical data demonstrating a potential curative effect from a single course of therapy for AAT Deficiency.

**Editas Medicine Inc (+150%)** a gene editing company focused on CRISPR gene editing, announced preclinical data supporting a durable one-time cell therapy for sickle cell disease and beta-Thalassemia.

**Quidel Corp (-18%)** a diagnostics company, is facing pressure due to increasing competition for the Covid-19 antigen tests coming to market, as well as the perceived anticipated decline in demand for such tests following wide-scale adoption of the vaccine. That said, we believe the company continues to be a market and technology leader, and that there will continue to be high demand for Quidel's Covid test offering with or without high vaccine adoption.

**Regeneron Pharmaceuticals Inc (-14%)** is a global market leader in precision medicine and antibody therapeutics. The stock underperformed following the company's pausing of new enrollment for patients for their B-cell non-Hodgkin lymphoma study, in compliance with the FDA's partial clinical hold and request to amend trial protocols. We continue to view Regeneron as a tech leader and view its rich pipeline and scalability will continue to drive innovation and strong performance over the longer term.

# HTEC

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### **THNQ: Artificial Intelligence Index**

The ROBO Global Artificial Intelligence Index (THNQ) rose 24.1% in 4Q20. All eleven sub-sectors delivered positive returns driven by Healthcare (+46%), Network & Security (+38%) and Cloud Providers (+31%) posting the strongest gains during the quarter. For 2020, THNQ delivered a total return of 68.2%, compared to 16.3% for the MSCI AC World Index and a 18.4% gain for the S&P 500.



More details are available on the ROBO Global Artificial Intelligence Index Factsheet.

			Total Return by SubSector	Q4 2020
THNQ INDEX Industry Classification	Applications & Services Business Process Ecommerce Consumer Healthcare Factory Automation Consulting Services Infrastructure Big Data/Analytics Semiconductor Network & Security Cloud Providers	19% 12%	Healthcare Network & Security	46% 37%
		8% 6%	Cloud Providers Semiconductor	31% 29%
		3% 1% <b>52%</b> 13% 11% 11% 10%	Big Data/Analytics Business Process	21% 20%
			Ecommerce Cognitive Computing	20% 19%
			Factory Automation	17%
	Cognitive Computing	6%	Consulting Services Consumer	14% 8%
			INDEX TOTAL	24%

# THNQ

Investing in Artificial Intelligence Artificial Intelligence (AI) is disrupting global business in industries including healthcare, financial services, technology, transportation, technology, manufacturing, and retail. THNQ offers unique exposure to the AI ecosystem.

**PAST 12M** 

94% 54% 69% 58% 40% 147% 131% 32% 23% 50% **68%** 

### **THNQ: Artificial Intelligence Index**

2020 was a driving force for the cloud computing era, where internet officially became the new IT network driven by high performance computing power, declining hardware costs and massive migration of data and applications to the cloud that became a necessity due to the pandemic. In this cloud and mobile world, where a digital workforce is being created with AI as a key enabler for productivity enhancement, it is important to note that the traditional legacy IT approach is finally crumbling. From an investor's perspective, it's clear that key leaders emerged in 2020 and many of them will continue to advance with strong growth prospects for the next decade. The global AI market is expected to reach \$89 billion annually by 2025 and much of this growth will be powered by the integration of AI technology into the cloud computing environment as the value of data continues to rise.

In 4Q, Healthcare was the best performing subsector, driven by gene editing company Intellia (+174%) and genomic diagnostics player Veracyte (+51%), while Veeva Systems (-3%) took a breather after particularly strong performance throughout the year. Al and genomics are playing a critical role in building an informatics platform for the development of next-generation cancer therapies and diagnostic tools. THNQ index members in Healthcare are deploying AI capabilities to help find treatment or detect diseases.

Cloud providers gained +31%, driven by Cloudflare (+85%) and Baidu (+71%), with strong earnings resulting from a surge in datacenter growth. Cloud providers benefitted from the acceleration in cloud migration, driven by work-from-home combined with digitization initiatives from enterprises around the world. Cloud Providers has a global network of internet infrastructure and offers a wide range of products to allow customers to operate securely and efficiently. Cloud provider deployment more than tripled in 2020.

The Network & Security sector demonstrated strong performance after the biggest data breach in the US government history was unveiled in December, with at least 18,000 government and private networks infiltrated by cyber hackers. This raised expectations that enterprises and government agencies will have to invest heavily to boost protection. THNQ index members in cybersecurity, such as Rapid7 (+47%), Palo Alto Networks (+45%), Varonis Systems (+42%) and Proofpoint (+29%), play a key role in the Zero Trust network architecture, a new security initiative designed to protect modern digital environments by leveraging network segmentation and managing user access control. Zero Trust network control powered by Al will help prevent future data breaches.

Consumer underperformed during the quarter, driven by company specific issues at CD Projekt SA (-32%) and Grubhub (-1%), while Booking Holdings rallied (+30%). CD Projekt SA disappointed, with major technical glitches disrupting the long-awaited launch of its video game CyberPunk 2077.

# THNQ

Investing in Artificial Intelligence Artificial Intelligence (AI) is disrupting global business in industries including healthcare, financial services, technology, transportation, technology, manufacturing, and retail. THNQ offers unique exposure to the AI ecosystem.

### **THNQ: Artificial Intelligence Index**

**Intellia Therapeutics (+174%)** is a therapeutic company using a CRISPR gene-editing system. The role of AI in gene technology has grown over the past year as it is helping identify harmful genes and assist in the treatment of diseases. Intellia is an early entrant in the race to develop a therapy for rare diseases using gene editing and artificial intelligence.

**Cloudflare Inc (+85%)** a cloud infrastructure and website security company, posted 54% revenue growth with 78% gross margins, the highest in the company history and in the billion-dollar industry. Cloudflare is disrupting a large and well-established market with its industry-leading solutions with the best of breed security and performance products grounded in Machine Learning. Cloudflare offers content delivery network services, DDoS mitigation, and Internet security with ML tools and AI models. Cloudflare is benefiting from the massive technology shifts in Serverless, IoT, 5G and Remote work with operations more than 90 countries.

**CD Projekt SA (-32%)** was the worst performer during the quarter. The video game developer from Poland is best known for its award-winning game series, "The Witcher." The company has a strong history of innovation incorporating AI into the digital experience. In December 2020, "Cyberpunk 2077," a sci-fi role-playing video game was proven too ambitious and widely criticized for major software glitches. The developer team is working on patches to fix the game, but it will likely take some time to regain credibility.

**Appen (-22%)** is the market leader in labeling data for training AI models with its AI- assisted data annotation platform. While the AI market is growing rapidly, much of the data analytics market was negatively impacted by the global pandemic as large AI projects were pushed out. We anticipate that Appen will return to its normalized growth rates as its addressable market is poised to grow rapidly. Enterprises are still looking for assistance in managing their unstructured data and extracting intelligent insights to improve business decisions.

# THNQ

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