



# *hanetf*

## **Connecting the Fourth Industrial Revolution**

Cloud Computing

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2020

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## Overview

The fourth industrial revolution is the current environment where disruptive technology trends such as the Internet of Things (IoT), Robotics, Artificial intelligence (AI), Future Cars/Autonomous Vehicles, Blockchain, Cloud Computing, Genomics and Social Media are changing the way we live and work.

Unlike previous industrial revolutions, these technologies are rapidly combining to create an accelerating, virtuous cycle of nearly unlimited disruption. While previous industrial revolutions were often localised, today is interconnected and global and its impact is already visible in homes and businesses across the world.

This is a short guide to help investors understand the main sectors of the fourth industrial revolution and their features, applications, and growth potential:

**Robotics & Automation**

**Future Transport**

**Cloud Computing**

**Cyber Security**

**Genomics**

**Social Media**

**Blockchain**

**Augmented & Virtual Reality**

## Cloud Computing Theme

Cloud computing refers to a wide range of computing infrastructure, platforms, security services and software which are delivered over the internet and that can be accessed remotely and on-demand.

Cloud underpins a massive amount of businesses – everything from Gmail, Netflix, Facebook, almost any app on your smartphone to services that enable large organisations to host all their data and applications, to ecommerce providers – all are reliant on the cloud to continue to operate.

Cloud has seen rapid adoption at the enterprise level as companies seek to build a robust IT infrastructure without the risks and costs of maintaining, staffing and upgrading it themselves. Instead of owning their own IT infrastructure, companies can hire or license services and applications from cloud providers.

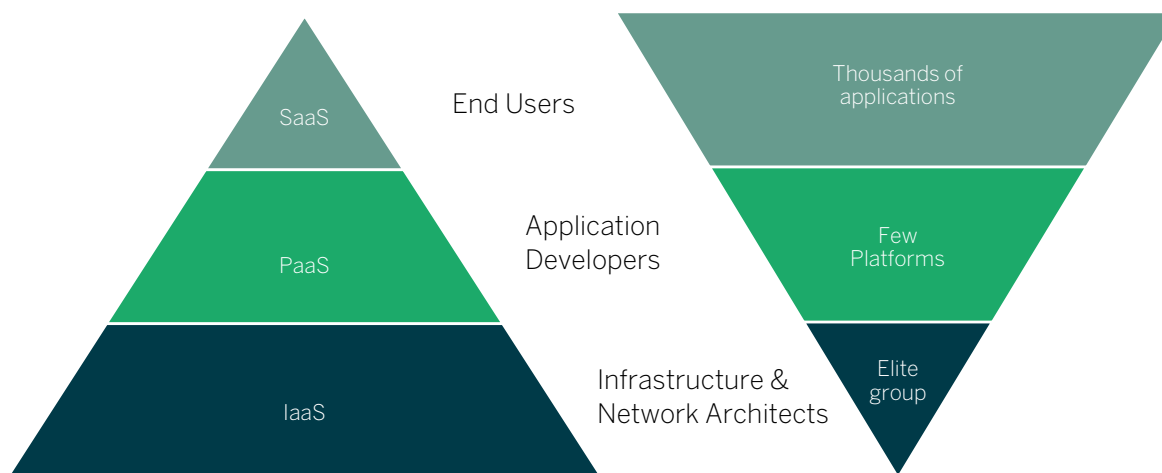
Cloud companies are often grouped in “X-as-a-Service” categories, depending on what they provide.



**Software as a Service (SaaS):** Software as a Service providers host and manage the software application and underlying infrastructure and handle any maintenance, such as software upgrades and security patching. e.g. Gmail, Adobe, Netflix, Salesforce, Workday, Zoom

**Platform as a Service (PaaS):** Software development platforms delivered over the internet.

**Infrastructure as a Service (IaaS):** a way of delivering cloud computing infrastructure – servers, storage, network, and operating systems – as an on-demand service.



Cloud technology can be either public or private. Public clouds are operated by third parties such as Amazon Web Services whereas private clouds are operated by a single organisation for the benefit of their geographically diverse business. Hybrid clouds are custom combinations of the two.

## Cloud Market Demand Drivers

From data storage to accounting and HR systems, website hosting or e-commerce infrastructure; cloud-based services have seen early adoption on a massive scale as they have offered:

- ✓ **Significant cost savings:** compared to owning, maintaining, upgrading and staffing own internal IT systems
- ✓ **Greater speed and flexibility:** employees can now access necessary tools and data from any location, changing how and where businesses can operate. A key feature in an age where remote working is increasing
- ✓ **Reliability:** cloud computing makes data backup, disaster recovery and business continuity easier and less expensive
- ✓ **Productivity:** Lack of on-site hardware reduces the need for IT support
- ✓ **Scalability:** Cloud solutions can expand and be deployed quickly to meet a company's changing needs

We are only seeing the tip of the iceberg for cloud usage – requirements for data storage, hosting, access-anywhere applications and secure mobile services are expected to surge as billions of Internet of Things devices are connected, as emerging market internet usage grows and as remote working styles proliferate.



**Data Storage** The need to store data has never been greater and has never grown faster. In 2018, it's estimated that 2.5 Quintillion bytes of data were created every day. By 2025, this is expected to grow to a mind-shattering 483 Quintillion bytes of data every day.<sup>1</sup>

# 483,000,000,000, 000,000,000 bytes a day

The advent of AI, Big Data and machine learning could potentially push this number even higher. Storing this data remotely and securely is a critical challenge that cloud can address.

**IoT** Up to 64 Billion Internet-of-Things devices could be connected by 2026<sup>2</sup> - smart phones, connected appliances, medical wearables, smart cars, home assistants, smart watches, internet connected home security systems and locks are examples we already see around us.

**Ecommerce** Ecommerce providers rely heavily on the efficiencies, scalability and automation that cloud-based computing can bring. Websites, mobile apps, payment systems, order systems, logistics, fulfilments and many other critical services need cloud to function. It's perhaps no surprise that two of the largest ecommerce providers, Amazon and Alibaba are also leaders in cloud infrastructure. (See below)

**Growth Businesses** As cloud offers scalability, reduced costs and flexible access, it has seen rapid adoption among small and medium sized businesses, as well as by entrepreneurs in emerging markets. Businesses can now access a tremendous variety of online services at a low-cost such as mobile banking, payment systems, email, social media, HR systems, finance systems and website hosting. This is enabling them to 'leapfrog' traditional models and grow using secure, low-cost, modern, cloud-based solutions – often with ecommerce models.

This change is highlighted in the Flexera Cloud Market Report 2020 <sup>3</sup> which polled 750 organisations between 100-10,000 employees. The report found that by 2021, an estimated 70% of small and medium sized businesses data and workloads will be in the cloud – far higher than the overall average of 58%.

It is now entirely possible to create a company with no physical location, offering web-based products or services, with most of not all functions (accounting, marketing, sales, legal, management, design) taking place remotely using online tools to help the team coordinate.

In this respect cloud technology is helping to create a new type of business that floats above us invisibly, which in turn drive new demand for additional cloud services.

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<sup>1</sup><https://www.forbes.com/sites/bernardmarr/2018/05/21/how-much-data-do-we-create-every-day-the-mind-blowing-stats-everyone-should-read/>

<sup>2</sup><https://www.businessinsider.com/internet-of-things-devices-examples?r=US&IR=T>

<sup>3</sup><https://resources.flexera.com/web/pdf/report-state-of-the-cloud-2020.pdf>



## Remote Working

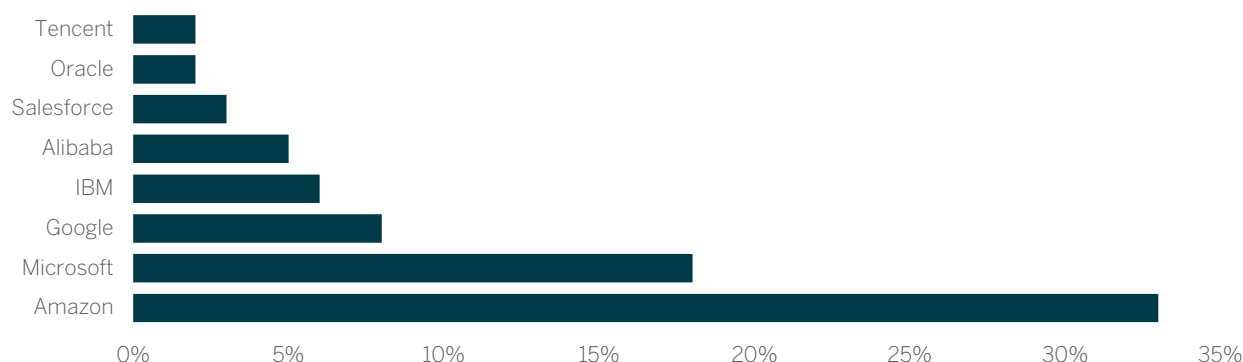
The response to COVID-19 saw a huge rise demand from companies using cloud-based solutions to help their employees effectively transition to remote working. From remote system or database access to email, videoconferencing and workflow tools, cloud has enabled many businesses (including HANetf) to continue to operate continuously and effectively throughout the crisis.

With remote working seemingly set to be a more normalised feature of tomorrow's world, the need for cloud-based solutions is set to grow with 59% of respondents in the Frontera report saying that COVID-19 will directly increase their cloud usage.

## Key Players in the Cloud Market

The main players in the provision of public cloud infrastructure are large technology and ecommerce providers; with Amazon clearly leading the way with 33% of the market share.

### Amazon Leads \$100bn Cloud Market



*For illustrative purposes only*

*Source: Synergy Research Group. Data as of Q4 2019. Data includes PaaS infrastructure as a service as well as hosted private cloud services*

## Growth of the Cloud Market

The strong tailwinds propelling the cloud market alongside its critical infrastructure-like role in the modern digital economy has created a great deal of investor interest in the sector. Spending on cloud already accounts for a large proportion of corporate IT budgets and this is expected to continue to increase - respondents to the Flexera survey <sup>4</sup> expected an average 47% rise in cloud spending this year.

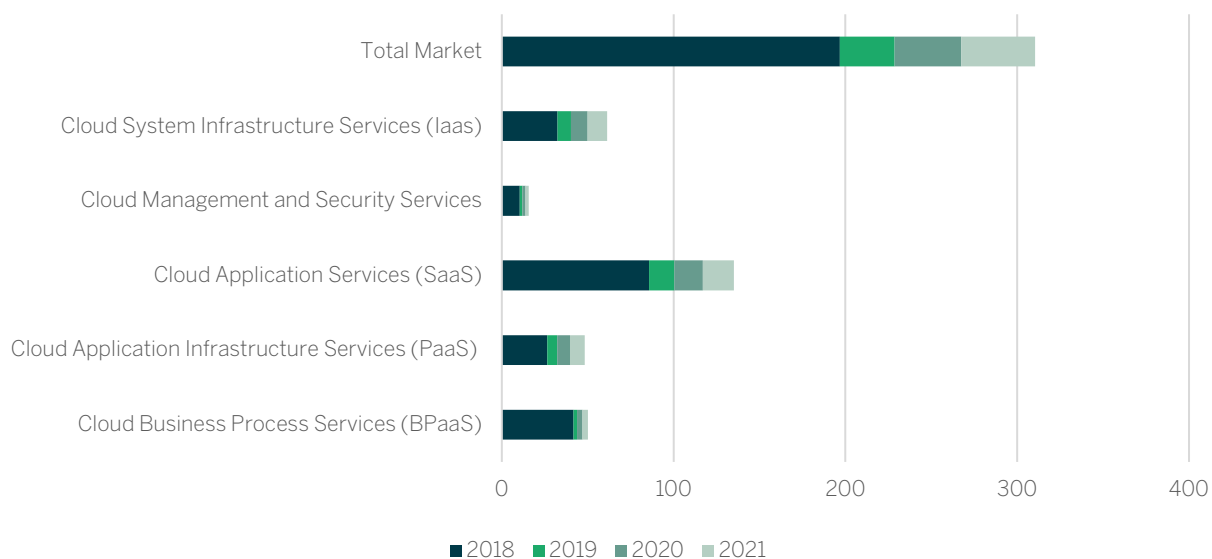
Annual Cloud Spend \$	% Respondents
More than \$12 Million	20%
\$2.4m - \$12 Million	36%
\$1.2 - \$2.4 Million	18%
\$600k - \$1.2 Million	13%

<sup>4</sup> <https://www.flexera.com/blog/industry-trends/2020/05/trend-of-cloud-computing-2020/>



Predictions for the growth of the global cloud industry show a similar trajectory with Gartner suggesting 17% revenue growth for cloud companies in 2020-2021 period .<sup>5</sup> Other analysts suggest that by 2027, the cloud market could be worth as much as \$927 Billion – nearly four times its current size.

### Worldwide Public Cloud Service Revenue Forecast \$US bn



For illustrative purposes only

Source: Gartner 2019

### Investing in Cloud Technology

The high growth potential and widespread industrial, corporate and consumer adoption of cloud technologies has pushed this theme to the forefront of many investors' minds.

Investors who see long-term opportunity in this theme can consider an allocation to The HAN-GINS Tech Megatrend Equal Weight UCITS ETF (ITEK). ITEK includes Cloud Computing as part of 8 transformational technology trends that are reshaping the world alongside Robotics & Big Data, Cyber Security, Future Cars, Genomics, Social Media, Blockchain, Augmented & Virtual Reality.

HANetf also provides a highly targeted cloud computing thematic ETF – The HAN-GINS Cloud Technology UCITS ETF (SKYY). SKYY includes the 50 largest cloud technology companies from developed and emerging markets.

<sup>5</sup> <https://www.gartner.com/en/newsroom/press-releases/2019-11-13-gartner-forecasts-worldwide-public-cloud-revenue-to-grow-17-percent-in-2020>



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When you trade ETFs, your capital is at risk

EXCHANGE	BB CODE	RIC	ISIN	CURRENCY	INCOME
London Stock Exchange	ITEK LN	ITEK.L	IE00BDDRF700	USD	Acc
London Stock Exchange	ITEP LN	ITEP.L	IE00BDDRF700	GBP	Acc
Borsa Italiana	ITEK IM	ITEK.MI	IE00BDDRF700	EUR	Acc
XETRA	T3KE GY	T3KE.DE	DE000A2N5XE0	EUR	Acc
SIX	ITEK SW	ITEK.S	IE00BDDRF700	CHF	Acc

- [ITEK Factsheet](#)
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Name	TER	Bloomberg Codes				
		LSE \$	LSE £	Borsa €	XETRA €	SIX
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<b>HAN-GINS Tech Megatrend Equal Weight UCITS ETF</b>	0.59%	ITEK LN	ITEP LN	ITEK IM	T3KE GY	ITEK SW
<b>HAN-GINS Cloud Technology UCITS ETF</b>	0.59%	SKYY LN	SKYP LN	SKYY IM	5XYE GY	SKYY SW
<b>HAN-GINS Indxx Medical Innovation UCITS ETF</b>	0.59%	WELL LN	WELP LN	WELL IM	W311 GY	WELL SW
<b>KMEFIC FTSE Kuwait UCITS ETF</b>	0.80%	KUW8 LN	KUWP LN	KUW8 IM	KUW8 GY	-
<b>The Medical Cannabis &amp; Wellness UCITS ETF</b>	0.80%	CBDX LN	CBDP LN	-	CDSX GY	CBDX SW
<b>The Royal Mint Physical Gold ETC</b>	0.22%	RMAU LN	RMAP LN	-	RM8U GY	-
<b>BTCEtc Bitcoin Exchange Traded Crypto*</b>	2.00%	-	-	-	BTCE GY	-

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