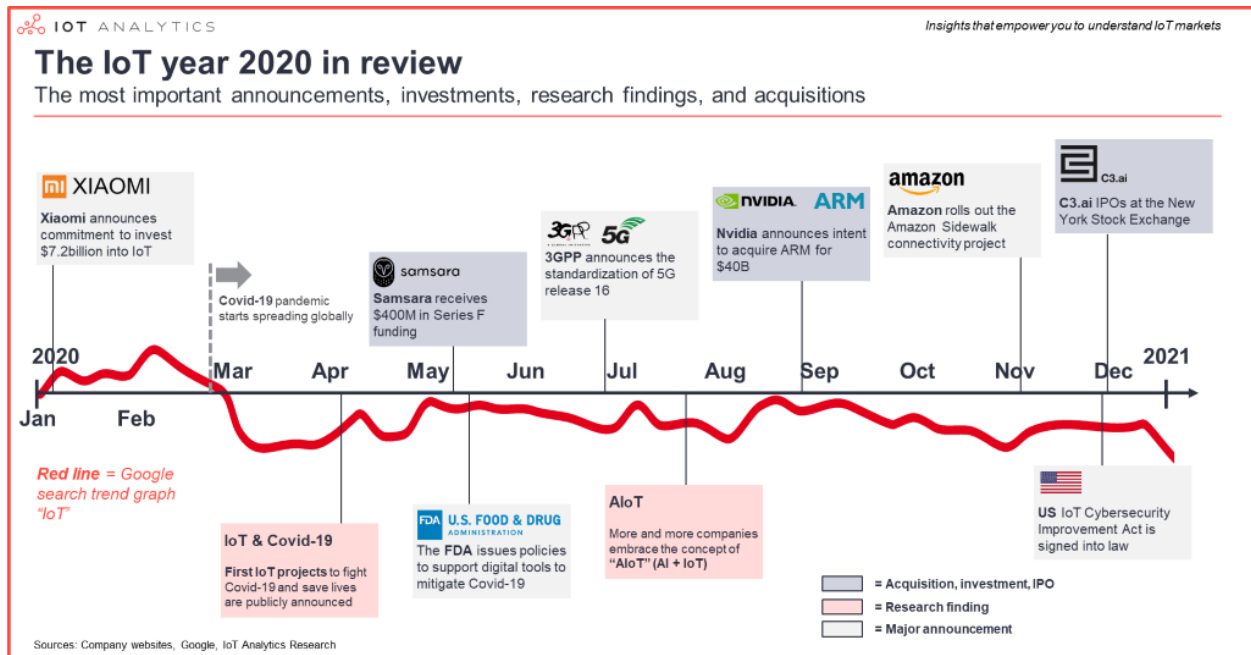


INSIGHTS RELEASE

The 10 Most Relevant IoT Developments of 2020

Hamburg/Germany, January 12, 2021: IoT Analytics, a leading provider of market insights and competitive intelligence for the Internet of Things (IoT) and Industry 4.0, has been monitoring significant developments around IoT technology throughout 2020. In their opinion, these are the top 10 stories of IoT 2020 (in chronological order):



1. Biggest new IoT commitment: Xiaomi

In January 2020, Chinese electronics manufacturer Xiaomi [announced](#) that it plans to at least invest \$7.2 billion into 5G and the artificial intelligence of things (AIOT) in the next 5 years. The new push includes major investments into a number of consumer and enterprise IoT devices such as smart TVs, drones, electric scooters, air purifiers, routers, security cameras, and much more.

2. Biggest IoT contribution to Covid-19 relief: Saving lives

At the beginning of 2020, nobody in the IoT industry could foresee the important role IoT technology would play to save lives throughout the year. A widely [cited](#) June 2020 study by the Imperial College London estimated that social distancing during the first wave of the Covid-19 pandemic saved 3 million lives in Europe alone. While most of these saved lives can be attributed to people simply staying at home, wearing masks, and avoiding contact, IoT technology undoubtedly prevented further spread in several instances. Many IoT vendors raced to launch social distancing tools (including Bosch.IO's workplace distancing and contact tracing [solution](#), Software AG's and Dell's Smart Social Distancing [solution](#), or Concept Reply's Tracking and Location [system](#) – just to name a few).

The Goebecke bakery in the German city of Leipzig is just one of the many examples of a business using such a solution. The business owner [described](#) how both the audio alerts in the workplace and the ability to analyze the employee data led to more cautious and aware employees who subsequently changed their distancing behavior.

More recently, the focus of IoT for Covid-19 has shifted to vaccine supply chain monitoring to ensure vaccines are delivered safely without product loss, tampering, or spoilage.

Pfizer/Biontech, for example, [selected](#) the Iceland-based startup Controlant to monitor its Covid-19 vaccine distribution.

3. Most accelerated IoT vertical: Healthcare

For years, implementing IoT projects in healthcare settings had proven to be cumbersome due to the highly regulated nature of the industry, and a lack of sponsorship and urgency to digitize portions of the sector.

Now, there is growing evidence that Covid-19 has led to a digital explosion in healthcare, particularly in hospitals. The US Food and Drug Administration (FDA), in May 2020, [issued](#) multiple temporary policies to support digital tools during 2020. For the first time, Germany in October 2020 allowed doctors to prescribe access to digital health apps for specific diseases (e.g., an app that helps in curing anxiety disorder).

One of the applications that surged during the pandemic is “telehealth”, where a doctor treats a patient via video conference. Doctors report that telehealth is often seen as just a first step towards digital diagnostics that leans on IoT devices to perform digital diagnostics from afar. Several hospitals started experimenting with it in 2020. In December 2020, a video of a London surgeon went [viral](#) who performed remote surgery on a Banana in California using 5G.

4. Biggest IoT 2020 funding round: Samsara 400M

Samsara has done it again. Samsara already topped our 2019 list of biggest IoT funding rounds (\$300M, Series F). In May 2020, in the middle of the first Covid-19 lockdown, the company raised another \$400 million with the aim to further build out its Industrial IoT presence. The funding round valued the company at \$5.4B, a 14% valuation decrease from the 2019 investment. While announcing the funding round, CEO Sanjit Biswas, also announced the layoff of 300 jobs (18% of the workforce) due to Covid-19 impact on their key vertical of transportation.

Notable top investment rounds of 2020 (with relevance for IoT) included:

Company	Funding stage	Amount	Country	Category
Samsara	Series F	\$400M	USA	Industrial IoT
Infarm	Series C	\$170M	Germany	IoT-based vertical farming
COSMOplat	Series A	\$150M	China	Industrial IoT Platform
Skylo	Series B	\$103M	USA/India	IoT Connectivity (Satellite)
ForgeRock	Series D	\$93.5M	USA	IoT security
Verkada	Series C	\$80M	USA	Smart Buildings

5. Most important technology standardization: 5G Release 16

In July 2020, the 3GPP standards body reached an important milestone: It [released](#) version 16, its second set of specifications for 5G technology, and a very important step for 5G IoT. The new set of specifications that make up Release 16 include major improvements for “ultra-

reliable, low-latency communication” (eURLLC), positioning capabilities, as well as support for TSN (Time-Sensitive Networking) – all aspects which are very important for IoT connectivity for various IoT use cases, particularly in the Industrial IoT space. While 5G connectivity for smartphones has become widely available throughout 2020, IoT Analytics expects 5G IoT (which does not include NB-IoT/LTE-M) to take off in 2022 and beyond.

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6. Most prominent new buzzword: AIoT

For years, people have argued that IoT's real value gets unlocked with AI/ML algorithms that are applied to the IoT data streams. Therefore, in hindsight, it is not surprising that 2020 produced a new buzzword that became mainstream: AI + IoT= AIoT. In December 2020, there were roughly 70% more Google searches for the topic than 12 months prior. Interestingly, the term seems to have originated in China (and not in the US, like the term “IoT”). Huawei and Xiaomi but also Taiwanese semiconductor giant TSMC have been pushing the idea of the Artificial Intelligence of Things, the convergence of AI and IoT for a couple of years now. In 2020, a number of “non-Chinese” firms took up the term in their branding efforts. US-based industrial software provider, Aspen Technology in August 2020, [announced](#) its new AIoT hub for Industry 4.0, Swiss cybersecurity company Wisekey in September 2020 [launched](#) a new digital strategy centered around AIoT. Other examples of firms pushing the term in 2020 include [Singapore-based](#) ASM Pacific Technology and [US-based](#) analytics software provider SAS.

7. Biggest IoT-related acquisition: ARM-Nvidia

On September 13, 2020, Nvidia announced its intent to acquire ARM in the largest semiconductor deal to date, valued at \$40 billion. Apart from being the largest semiconductor deal, the acquisition is expected to result in new technology innovation for AI & edge IoT. NVIDIA purchased the major segment of the business, ARM's Processor IP, which also has a significant IoT component, especially for edge computing. However, ARM's IoT product & service group (ARM's Pelion IoT Platform, MbedOS, SoC Solution/Security, and KigenSIM solution) will not be a part of this transaction. If the deal receives regulatory approval, it could lead to a scenario in which Chinese companies are permanently withheld from ARM's technology. This may further create imbalances in the US-China trade relation, creating a US dominance in the semiconductor IP market.

Notable acquisitions of 2020 (with relevance for IoT) included:

Acquirer	Acquired company	Deal size	Category
Nvidia	ARM	\$40B	Semiconductor
Infineon Technologies	Cypress	\$9.4B	Semiconductor
Nvidia	Mellanox	\$7B	Semiconductor
Aveva	OSisoft	\$5B	Industrial IoT
BMC	Compuware	\$2B	Smart Enterprise
HPE	SilverPeak	\$925M	Edge Computing
Netapp	Spot.io	\$450M	Edge Computing
Silicon Labs	Redpine Signals	\$308M	Semiconductor
Synaptic	DisplayLink	\$305M	Semiconductor
Amdocs	Openet	\$180M	Smart Enterprise
Microsoft	CyberX	\$165M	IoT Security

8. Most ambitious new IoT connectivity technology: Amazon Sidewalk

In November 2020, Amazon [informed](#) customers of Amazon Echo devices and Ring security cameras that Amazon Sidewalk will soon be rolled out to their devices. Sidewalk is an ambitious project aiming to create a neighborhood-shared network to allow IoT devices such as pet or asset trackers to connect to the internet even when someone's home wi-fi network is down or out of range. This is done by linking different wi-fi networks into a single low-bandwidth network that can be used by IoT devices from different users. In September 2020, Semtech, the chip company behind the Lora low-power standard, [announced](#) that it had entered into a partnership with Amazon to collaborate on building out the network. A few months later, in December, it was [reported](#) that the Lora Alliance was in talks to also come on board and support Sidewalk by using the open LoRaWAN standard, which the alliance and its 500+ member companies support.

9. Most important government initiative: US IoT Cybersecurity Improvement Act

In December 2020, the "IoT Cybersecurity Improvement Act" was finally [signed](#) into law in the US. We had already discussed the importance of the law in our 2017 IoT year in review article ([here](#)). Among other things, the law requires the National Institute of Standards and Technology (NIST) to update IoT security standards and guidelines regularly (at least every 5 years). Experts hope that the law will lead manufacturers to design IoT devices with a number of cybersecurity features in mind (e.g., using secure coding practices, providing adequate authentication, patch devices on a regular basis).

10. Biggest IoT 2020 IPO: C3.ai

On December 9, 2020, C3.ai went public (Traded with the ticker "[AI](#)" at the New York Stock Exchange). C3 is a true IoT success story. The company was founded in 2009 by American billionaire Tom Siebel who is well-known for founding Siebel Systems, which he sold in January 2006 to Oracle. C3.ai was initially called C3 Energy and had a heavy focus on digitizing grids, meters, and utilities. The company later (in 2016) branded into C3IoT and broadened its focus beyond energy and as a horizontal IoT platform. In recent years, the company has emphasized horizontal analytics and AI capabilities, which is why the company rebranded

yet again into C3.ai. C3.ai, today, claims that it reads data from 57 million sensors, but Siebel makes it clear that the focus is AI (including non-IoT applications). The December 2020 IPO has been a success so far, with shares having soared >40% from its opening price, valuing the company at almost \$14B (as of January 8).

Cautiously positive 2021 outlook

Commenting on this year's outlook, Knud Lasse Lueth, CEO of IoT Analytics, says "The overall picture for IoT technology, going into 2021, looks optimistic. There is a general consensus that any negative impact on business due to Covid-19 will fade in 2021 and that the new "digital transformation wave" will fuel IoT markets". One of the themes that companies are going to accelerate is "New tech-enabled business models" (see the analysis of top 5 IT priorities for 2021 [here](#)). Many of these new business models will be enabled by connected IoT products (see also our June 2020 analysis on how to create successful IoT business models with smart connected products [here](#)).

Another major theme that companies are focusing on is "Artificial Intelligence"; 3 of our top 10 IoT 2020 stories center around the topic of AI.

MORE INFORMATION AND FURTHER READING

<https://iot-analytics.com/iot-2020-in-review/>

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Please reach out to press@iot-analytics.com