IOT ANALYTICS
MARKET INSIGHTS FOR THE INTERNET OF THINGS

IoT Analytics GmbH   T: +49 (0) 40- 63911891
Zirkusweg 2   M: info@iot-analytics.com
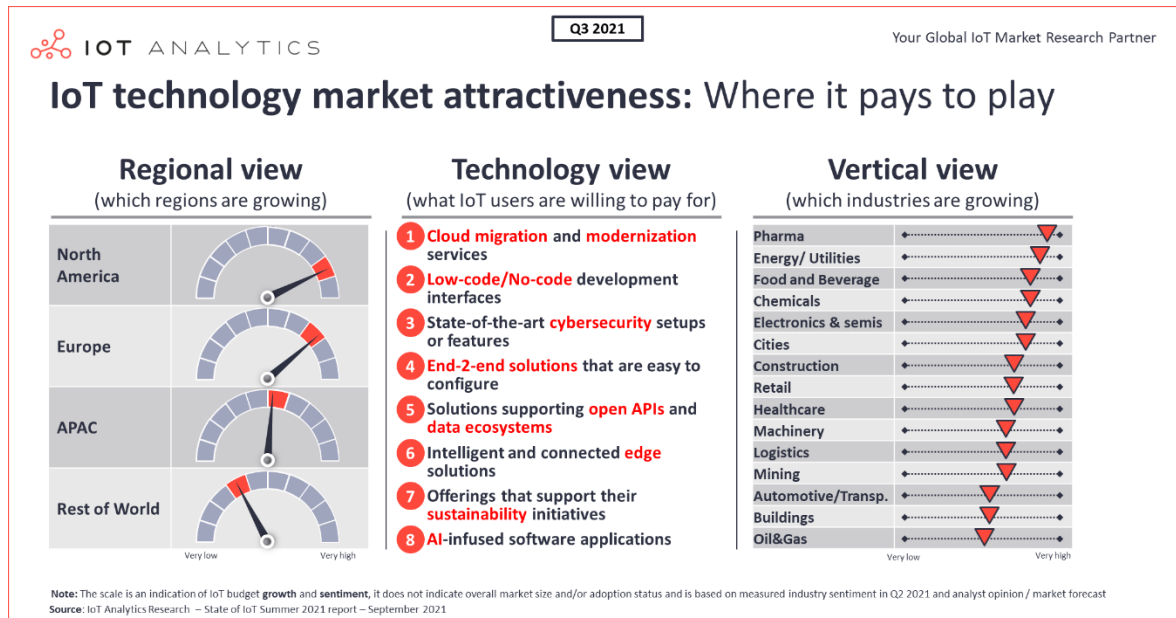D-20359 Hamburg   www.iot-analytics.com

INSIGHTS RELEASE

IoT technology market attractiveness: Where to invest going into 2022

In short

- Digital and IoT markets continue to accelerate, with North American and European enterprise customers leading the way.
- Cloud and cybersecurity—but also topics such as no-code—are becoming more important to end-users.
- Pharma and energy verticals are leading the recovery, while automotive, buildings, and oil and gas lag behind.

Key Quotes

- **Knud Lasse Lueth, CEO at IoT Analytics**, says: *"This is also what we are hearing in our research discussions along the entire IoT tech stack. The two main remaining concerns in the industry right now are the shortage of IoT semiconductor chips (see our recent analysis) and the ongoing regional impacts of COVID-19, especially in Asia-Pacific (APAC), Latin America, and Africa."*
- **Knud Lasse Lueth, CEO at IoT Analytics**, adds: *"**Moderna** has shown the pharma industry what it means to put digital first. Therefore, it is not surprising that this industry is embracing digital much more than it was before COVID-19 hit. Other industries embracing IoT as we move into 2022 are the energy/utilities industry, the chemicals industry, and food and beverage."*

Hamburg/Germany, September 16, 2021: IoT Analytics, a leading provider of market insights and competitive intelligence for the Internet of Things (IoT) and Industry 4.0, this month launched the latest 148-page **State of IoT** report highlighting 100+ recent IoT-related news stories, the 100 largest IoT-related funding rounds of the last nine months, major acquisitions in the space, their team's input on 36 current trends, and a view of the IoT vendor landscape.

THE OPPORTUNITIES AND THREATS OF HIGHLY DYNAMIC TECHNOLOGY MARKETS

We recently interviewed an IoT technology provider that almost lost the entire business due to COVID-19 effects but then pivoted quickly. The company had found initial market success providing solutions for the digitalization of commercial office buildings. In early 2020, COVID-19 hit, and overnight, all investments in commercial office buildings were halted as people stayed home. Six months later, while still in the middle of lockdowns, the company was thriving again. Why? They had shifted their efforts toward the digitalization of specialty buildings, such as airports and hospitals, which were in urgent need of tracking and other IoT applications.

This example shows that, in changing times, the success of an entire technology business can depend on understanding which market segments are or remain attractive and which ones are limiting their budgets. Markets can change radically in a matter of months, and technology vendors need to be aware of these changes and be ready to pivot.

Twice a year, we provide our view on the current IoT market environment, offering our clients a general market overview of enterprise technology with a focus on Internet of Things-related businesses and use cases. The latest 148-page State of IoT report highlights 100+ recent IoT-related news stories, the 100 largest IoT-related funding rounds of the last nine months, major acquisitions in the space, our team's input on 36 current trends, and a view of the IoT vendor landscape.
The report also includes our view of the growth prospects and general sentiment in 20 industry verticals, the four main global regions, and along 10 elements of the IoT tech stack. Here are some of the highlights from our summer 2021 analysis.

OVERALL STATE OF IOT: CLEARLY ACCELERATING, HAMPERED BY THE CHIP SHORTAGE

Digital technology markets in general have seen steady and pervasive momentum in 2021. As Julie Sweet, CEO of **Accenture**, put it in her conference call on June 24, 2021:

"The dynamics in the market we are seeing are not only of recovery from the lower spending pattern at the onset of the pandemic but a more sustained growth in demand as companies race to modernize and accelerate their digital initiatives."—Julie Sweet, CEO at Accenture

Svenn-Tore Larsen, CEO of **Nordic Semiconductor**, says that this digital acceleration has clearly reached IoT markets:

"The most important thing is to see that the adoption of IoT is really happening."—Svenn-Tore Larsen, CEO at Nordic Semiconductor

Knud Lasse Lueth, CEO at IoT Analytics, says: *"This is also what we are hearing in our research discussions along the entire IoT tech stack. The two main remaining concerns in the industry right now are the shortage of IoT semiconductor chips (see our recent [analysis](#)) and the ongoing regional impacts of COVID-19, especially in Asia-Pacific (APAC), Latin America, and Africa."*

REGIONAL VIEW: NORTH AMERICA AND EUROPE LEADING OUT OF THE PANDEMIC

Tech budgets in 2021 and going into 2022 differ greatly by region. These budgets are still strongly correlated to regional COVID-19 impacts, with North America and Europe increasing IoT tech spending, while most places in APAC and the rest of the world are cautious when it comes to innovation and tech investments.

Overall business sentiment across all companies in North America has surpassed pre-COVID-19 levels. In North America in the second quarter (Q2) of 2021, business sentiment indexed at 107, compared to an index of 100 in Q2 2019. Europe is also strong at 104.

TECHNOLOGY VIEW: OPPORTUNITIES ACROSS THE ENTIRE STACK

There are plenty of opportunities for technology vendors. Addressing some of the current demand trends in the market will help them strengthen their solutions and win customers. Here are eight important technology topics that customers are increasingly willing to pay for (the State of IoT report covers many additional and more technology-specific trends):

1. **Cloud migration and modernization services**

The migration of software workloads and entire software applications to private and public cloud environments accelerated in 2021. Growth rates for both **Google Cloud** and **Microsoft Azure** climbed back above 50% (year on year) in Q2 2021. For IoT vendors in general, there is a large opportunity in helping clients move their IoT assets and existing IoT-based applications to the cloud. (We [reported](#) earlier in the year that manufacturing software applications are moving to the cloud.) However, IoT software providers also face a growing need to modernize their existing software technology in the cloud. Containers have become the de facto standard in modern software design. Leading software firms are modernizing their applications with serverless architectures (at least partially) while some lagging software companies still have their applications optimized for on-premises installations (often with the option to host the software in the cloud but without any of today's powerful cloud-native functionalities). Consistent data structures and state-of-the-art data warehouses are also a large area of investment.

2. **Low-code/No-code development interfaces**

The low-code/no-code trend is in full swing. Given the current shortage of global tech talent, it is more important than ever that companies allow non-techy users to easily use applications and develop solutions. Offerings such as **C3.ai**'s Ex Machina platform (announced for general availability in January 2021) are popping up in response to that need. No-code (or at least low-code) interfaces are becoming a customer expectation in IoT software, much like they are in other software categories (e.g., low-code website builders that let a user design an entire website with no or little coding knowledge).

3. State-of-the-art cybersecurity setups or features

Cyberattacks have increased in the last two years, driven by the remote work trend and IT integrations with multiple (supplier) systems alongside poor cybersecurity practices in many firms. Several IoT companies were subject to large cyberattacks in recent months, including **Sierra Wireless, Ubiquiti**, and others. As a result, enterprise spending for cyber tools has increased.
In 2021, many IoT companies introduced IoT security tools or features**. u-blox** launched a new IoT security as a service, **Ericsson** launched a new threat monitoring and mitigation service, and **Microsoft** announced its new firmware vulnerability detection tool.

4. End-to-end solutions that are easy to configure

Complexity is still the enemy of all IoT initiatives. IoT practitioners remain extremely thankful for solutions that allow a portion of the overall architecture to be seamlessly connected. Zero touch is the name of the game in IoT connectivity (i.e., onboarding new devices and connecting them to a network instantly). Easy onboarding of devices to the cloud has become a general expectation of users. Ready-to-use software solutions are also increasingly common. Several system integrators, for example, have developed typical IoT applications that are available on the marketplaces of leading IoT platforms (e.g., **Infosys'** asset efficiency solution in the **PTC** marketplace or **HCL**'s real-time manufacturing insight solution in the **Microsoft Azure** marketplace).

5. Solutions supporting open application programming interfaces (APIs) and data ecosystems

There is an increasing focus on clean data and/or semantic data structures for contextualizing, synthesizing, and solving IoT data issues. The **OPC Foundation**, in collaboration with **CESMII**, for example, announced the launch of the OPC Unified Architecture (UA) cloud library joint working group (JWG) in October 2020 . The goal of the JWG is to specify how OPC UA information models of machines, supervisory control and data acquisition (SCADA), and manufacturing execution systems will be stored in and accessed from a cloud-based database.
New data marketplaces are appearing and, in some cases, displacing old data-sharing models. These data marketplaces unify governance, Big Data, and security tools in a common, seamless data supply chain. In May 2021, for example, **Nokia** launched a blockchain-powered data marketplace for secure data trading and artificial intelligence (AI) models. Some of the leading players of the vehicle industry joined forces in March 2021 to form **Catena-X**, a data marketplace that aims to enable a secure and cross-company-wide data exchange for all participants in the automotive value chain.

6. Intelligent and connected edge solutions

The edge continues to become more intelligent, and vendors are racing to support more connected and smart edge devices.

At their annual Ignite 2021 conference, **Microsoft** announced Azure Percept, a new family of AI-enabled edge hardware and services. A logic layer on top of Azure IoT, Percept streamlines AI model deployment for low-power edge devices.

As previously highlighted, IoT Analytics classifies six different types of edges. In June 2021, **Cisco** revealed a series of new routers and IoT gateways designed for cellular and Wi-Fi connectivity in industrial environments, aiming to simplify enterprise requirements for IoT connectivity at what Cisco considers the network edge.

Several interesting startups are receiving funding for intelligent edge initiatives. **ZEDEDA**, for example, in March 2021, closed a $12.5 million strategic investment round to develop secure distributed edge computing.

An edge trend we have discussed in depth is the migration of control away from traditional programmable logic controllers (PLCs) in manufacturing environments. As further proof of this trend, several industrial automation vendors recently introduced new products that decouple industrial control software from the underlying hardware, enabling more flexible and interoperable control systems. In March 2021, for example, **WAGO** announced that it is launching two devices, Edge Controller and Edge Computer, that provide distinct advantages over traditional PLCs and industrial personal computers (IPCs). They can take over data mining from controllers that need low latency and high determinism, perform control tasks that IPCs cannot, and deliver close to real-time analytics and displays that would otherwise have to come from remote servers or the cloud.

7. Offerings that support sustainability initiatives

Sustainability has become a CEO priority, as highlighted in some of our recent "What CEOs talked about" articles. IoT plays an important role for a sustainable planet, as also highlighted in previous research.

"We are incorporating environmental, social, and governance considerations into our strategy."—Jeff Cote, president and CEO, **Sensata Technologies**

There are numerous examples of IoT for sustainability at work, including **TCS' new** IoT solutions, which help organizations become energy efficient, reduce greenhouse gas emissions, and meet financial and sustainability goals; **Orbcomm**'s satellite IoT technology, which supports African wildlife conservation; and **Kerlink**'s partnership with wireless, real-time water-management systems provider WEGoT to address serious water shortages in India.

8. AI-infused software applications

Artificial intelligence is becoming ingrained in many legacy software applications, giving rise to new themes, such as machine learning model monitoring (MLOps or autoML), which automates the task of data integration and model creation.
"Artificial intelligence and machine learning is really the future of IoT."—Svenn Tore Larsen, CEO, **Nordic Semiconductor**

"We're going to see AI and robotics in a very large number of applications in industries, and we're just seeing so much excitement there."—Jensen Huang, president and CEO, **NVIDIA**

VERTICAL VIEW: PHARMA HAS WOKEN UP, AUTOMOTIVE MORE MUTED

Moderna has shown the pharma industry what it means to put digital first. (See our recent analysis of smart factories and the Moderna smart factory.) Therefore, it is not surprising that this industry is embracing digital much more than it was before COVID-19 hit.

Other industries embracing IoT as we move into 2022 are the energy/utilities industry, the chemicals industry, and food and beverage. The automotive industry is suffering from the chip shortage and battling with other structural issues related to the switch to electric vehicles. The oil and gas industry is battling with the same issue, the switch away from fossil fuels. The building industry is plagued with uncertainty associated with future occupancy levels as more workers opt to work from home. Selected recent comments on specific industries, as highlighted in the report:

Pharma

"We believe the pharma market represents a significant growth opportunity for Aspen Tech."—Antonio Pietri, president and CEO, Aspen Technology—April 29, 2021

Energy and Utilities

"On the economic recovery side [], some of our customers in spaces like smart metering are seeing increased deployments overall."—Kent Thexton, president and CEO, Sierra Wireless—February 24, 2021

Chemicals

"The strength in global healthcare, automotive, and residential construction end markets is driving demand for [specialty chemicals for] advanced materials."—Greg Lewis, senior vice president and CFO, Honeywell International—January 29, 2021

Food & Beverages

"The food sector is really coming back. As we climb out of these lockouts and people are more comfortable getting out, that bundled offering for SmartSense IoT solutions to food is going to be more and more attractive."—Ronald Konezny, president, CEO, and director, Digi International—May 6, 2021

Automotive

"We [see] a steep increase in business activity in both robotics and machine automation in most customer segments outside of automotive."—Timo Ihamuotila, CFO, ABB—April 27, 2021

Oil and gas

"Macro conditions continue to put pressure on the sensing and IoT and gas-sensing businesses."—Greg Lewis, senior vice president and CFO, Honeywell International—January 29, 2021

MORE INFORMATION AND FURTHER READING
www.iot-analytics.com/research-blog

FOR FURTHER INQUIRIES
Please reach out to press@iot-analytics.com