COMARCH

2022

Telco Trends Alert

Predictions for the telecom industry
in 2022 and beyond

A New Era for B2B Customers – 5G, Retail-Style Serving and Tailored Services

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Not so long ago, business customers of CSPs were served using a silo-style approach, with each product line served by dedicated teams from sales departments, call centers and technical services. The evolution of telecoms, introduction of the digital marketplace, emergence of new, combined offers by many business partners, and advent of a new radio, virtualization and cloud-based approach have changed this for good. **In 2022 and beyond, B2B customers will be served in the same way as retail**. Using digital eShops they will, in a much simplified manner, be able to get tailored services for their needs. These services will be created based on partnerships between telecoms and third-party service providers, managed in common catalogs, and presented via digital channels as we see now for B2C.

The ability to expose network services to be presented and managed as business ones will bring data and service aggregation to a level that allows such processes to be sold as a service. For example, an airport operator can get real-time access to data presenting connectivity from different perspectives, and can see where overloads occur or latency is compromised. What's more, thanks to enterprise portals, self-care applications can manage the parameters for business needs, giving control over service quality and costs.

As offers flourish due to the growing number of services brought by business partners, telecoms will act as service aggregators to offer "project as a service", where they will take full responsibility for the design, deployment and management of solutions for customers. Here, the right project management tools will be key, as **this will allow operators to understand each project holistically and present each B2B customer with a 360-degree view of services, key performance and quality indicators, and processes**.

The perfect example here is a green energy supplier who will need to generate, manage and sell energy, while monitoring and managing the grid. A telecom can offer not only smart meters, but also end to end service, from data center monitoring (physical and digital service assurance) to managing vital parameters (such as IoT parameters including temperature, voltage stored, and AI/ML monitored with predictive maintenance).

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AI-Assisted Customer Experience Monitoring

Digitization of customer service, traditionally confined to the retail sphere, is quickly reaching the communications market. Customers know and like digital-based communication with brands, so they expect operators to be reachable through online platforms and social media as well.

In fact, **according to research conducted by Ledgeview Partners**, up to 54% of people had a more favorable view of brands that responded to customer service questions or complaints on social media. We believe that this number will only grow in 2022 and beyond. How can operators address this growing need for digital-nativeness and 24/7 communication, and to what should they pay special attention?

Excellent, preferably close to real-time customer service will be the top priority when it comes to enhancing customer experience. In order to provide this kind of service, telecoms will introduce technologies such as NLP (natural language processing) and AI-assisted process monitoring. These will help them not only keep their customers happy and acquire new ones, but also greatly optimize their services.
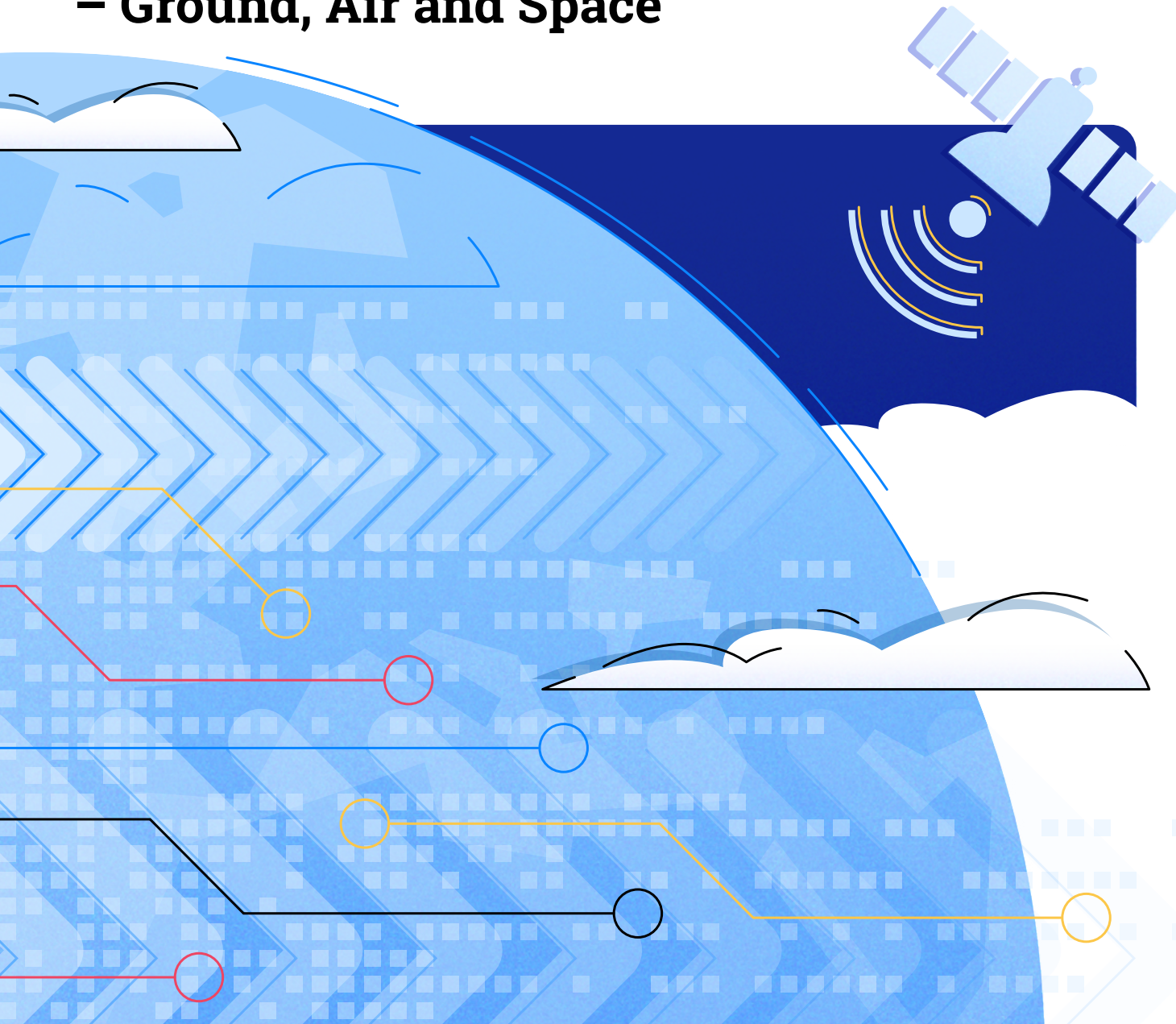
Autonomous Networks Will Become a Reality

While SON, SDN, and plug and play solutions have been available for several years, and have significantly reduced time to market and the effort required for operations, the real boom in autonomous networks is just starting. The pandemic and the growing need for "automated everything" have accelerated the development of this concept.

The key to automating networks is to follow open architectures such as TMF ODA with well-defined, open APIs, de-fragmenting the network. O-RAN and SDN technologies facilitate standardized, southbound APIs that are the key drivers for automation. Well-defined communication protocols on the architecture layers provide a starting point for applying AI/ML algorithms and decision-making engines which will automate the entire process. We cannot forget about transformation of the industry itself, to be able to handle and perform the smooth transition from a legacy way of working to more automated efficient business processes, running on top of autonomous networks.

We've been hearing about the potential of autonomous networks for several years. These are networks that can be self-configured and self-optimized, which can adapt to any conditions, and which don't need human intervention because they are managed through AI/ML techniques. That all seemed a long way off before 2020, but now the picture is changing.

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Demand for Internet Broadband Access – Ground, Air and Space

Technological growth tries to keep pace with the world's growing needs for Internet access. Even with technologies such as fixed copper or fiber lines, wireless access (mobile or fixed) and newcomers from low Earth orbit satellites, some 40% of the world's population still lack sufficient Internet access.
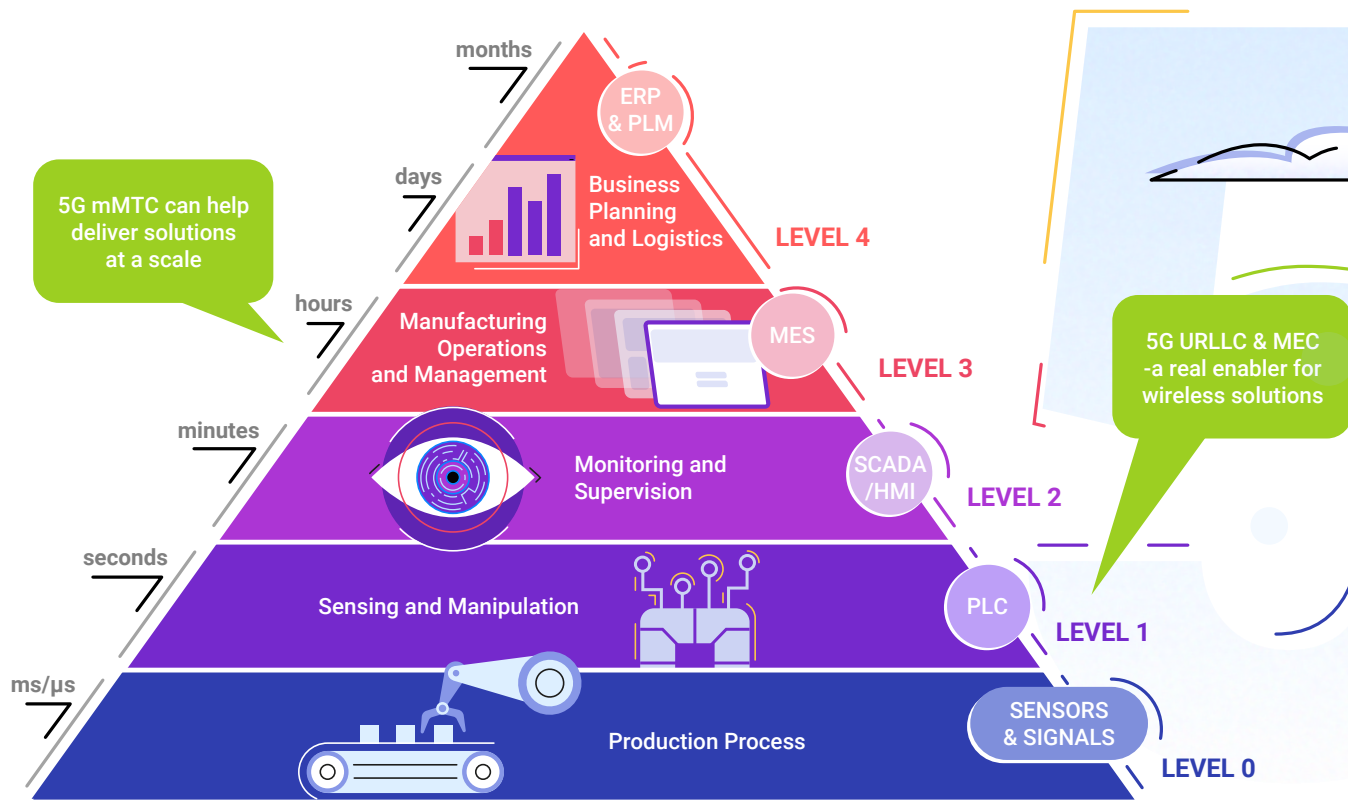
The ITU (International Telecommunications Union) **report** for 2019 shows that the Internet penetration rate is 87% in developed countries, but only 47% in developing countries (19% in the least developed ones).

As the expansion of 5G networks and fixed-line access for rural areas can be very challenging, we turn to the sky for affordable solutions – in the shape of low Earth orbit (LEO) Internet satellites.

Space will become increasingly crowded as three strong satellite constellations come into play – SpaceX's Starlink, OneWeb, and, lately, Amazon's Kuiper. This brings new possibilities, which could reduce prices of satellite Internet and facilitate the delivery of new services such as private 5G networks connected by satellite links.

5G will Have to Prove Its Value for Manufacturing Automation in Industry 4.0

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months — ERP & PLM — **LEVEL 4**

days — Business Planning and Logistics

5G mMTC can help deliver solutions at a scale

hours — Manufacturing Operations and Management — MES — **LEVEL 3**

minutes — Monitoring and Supervision — SCADA /HMI — **LEVEL 2**

5G URLLC & MEC -a real enabler for wireless solutions

seconds — Sensing and Manipulation — PLC — **LEVEL 1**

ms/μs — Production Process — SENSORS & SIGNALS — **LEVEL 0**

2022 is the year for 5G to prove its value as an enabler for advanced automation in industry, particularly in manufacturing. We may expect proofs of concept in which CSPs must find ways to monetize 5G beyond selling faster Internet for the mass market.

5G URLLC combined with network slicing and mobile/multi-access edge computing have the potential to revolutionize the factory floor. The manufacturing environment has traditionally been dominated by wired solutions due to low latency requirements which could not been met by prior generations of wireless technology which served higher levels of the manufacturing automation pyramid in systems such as MES and ERP.

5G has the potential not only to eliminate wires connecting PLCs (programable logic controllers), but also to **transform legacy PLCs based on ladder logic programming into cloud-native applications hosted at MEC**.

The key to success is the creation of an ecosystem of developers who can build advanced applications for manufacturing. Thus, CSPs are likely to continue to partner up with hyperscalers who manage cloud infrastructure and have the ability to attract developers to their platforms. As this kind of cooperation might be challenging, 2022 may also see hyperscalers stepping up attempts to deploy private 5G offers tailored for Industry 4.0. Combining URRLCs with mMTC can help operators to provide a full wireless solution for Industry 4.0. However, in the case of mMTC, the availability of cheap IoT devices may be the most limiting factor.

The Time for Private Networks Is Now

In 2021, we should observe growing interest in private networks. Spectrum release and regulations that exclude existing mobile network providers from acquiring certain frequencies mean big players from the utilities, fuel, mining, ports and airport industries have begun examining the business cases and benefits of having their own private networks. These industries require excellent quality and the highest level of security, and this is exactly what owning private networks can provide.

We're now seeing a number of ongoing projects focused on developing LTE and 5G technologies. **Here, the key is network reliability and low frequency bands, especially when it comes to critical infrastructure for electricity, gas and fuel**. SA and NSA are being tested widely by sectors seeking highly reliable, secure communication and architecture for their own applications.

Of course, there are several ways to implement private networks. They include industry-wide deployments (for example, utilization of networks from operators thanks to network slicing), closed, E2E implementation of in-house infrastructure in the "build it by yourself" model, and even "telco in a box". We can definitively see huge potential in private networks for enterprises, but also for technology as a whole. What's needed here is a transformation to light solutions and open standards-based architectures, that support multitenancy.

FSM Companies Will Need to Adopt AI/ML-Driven Zero-Touch Planning Solutions to Stay in the Game
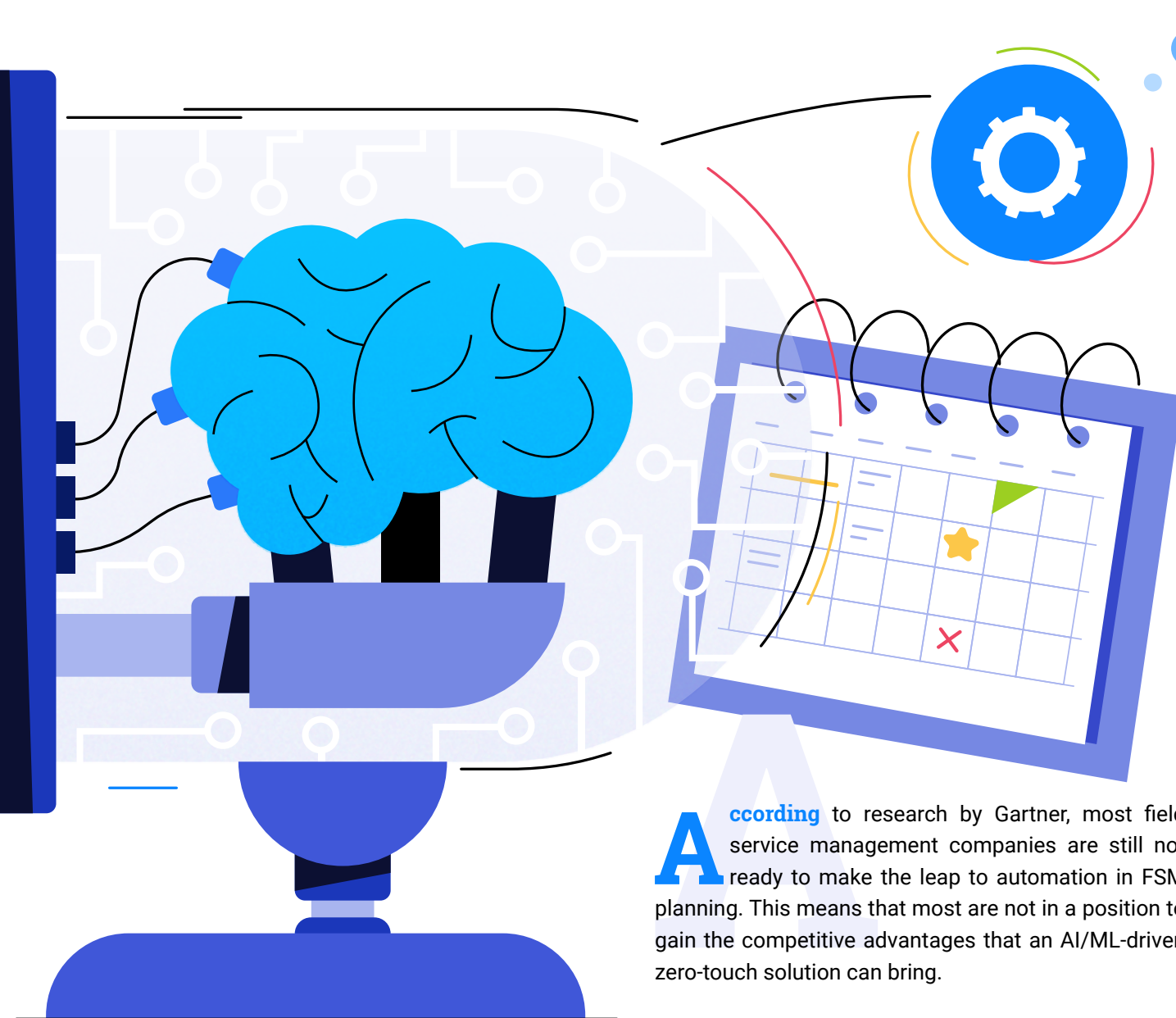
In 2022 and beyond, this should start to change. Every company delivering field services will need to be looking at their manual or semi-automated systems for task planning and staff rostering, and considering how these processes can be optimized.

There's no fast-track to effective FSM planning automation, but with firm goals, a roadmap and the right solution/partner, deployment can be relatively straightforward.

Powered by AI/ML, an FSM planning engine will remove the need for human intervention from all aspects of task planning, scheduling and dispatching technicians. Based first on historical data about tasks and technician skills, location and availability, the optimal solution will make suggestions before moving on to fully automated scheduling and dispatching, finally reacting to changes in real time and even predicting how future events might impact your business.

The benefits of zero-touch FSM planning automation are clear. It brings savings by correctly balancing human resources, raising technician efficiency, and optimizing route planning to ensure time and transport resources are used effectively – monitoring KPIs such as SLAs every step of the way.

According to research by Gartner, most field service management companies are still not ready to make the leap to automation in FSM planning. This means that most are not in a position to gain the competitive advantages that an AI/ML-driven zero-touch solution can bring.

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Industry 4.0 Will Be Gaining Ground

Settling into 2022, we should expect more Industry 4.0 deployments. We will see further growth of **automation and robotization**, vast implementation of **preventive and predictive maintenance**, and companies investing more into **technologies powered by AI/ML algorithms, telemetry, CCTV, smart sensors, drones and wearables**.

Another important factor for Industry 4.0's development will be **the cloud**, which will soon become more of a mainstream solution. This will be driven particularly by the unrelenting need for remote work in most industries, with field service work being no exception.

Interestingly enough, with accelerating adoption of IoT and sensors, we can also expect **the emergence of digital twins**, which, according to studies, **will likely reach $184.5 billion in value by 2030**. These could help companies better conduct tests, and simulate real business operations and equipment behavior in changing conditions without the need for costly investments.

The Emergence of Predictive Maintenance 4.0
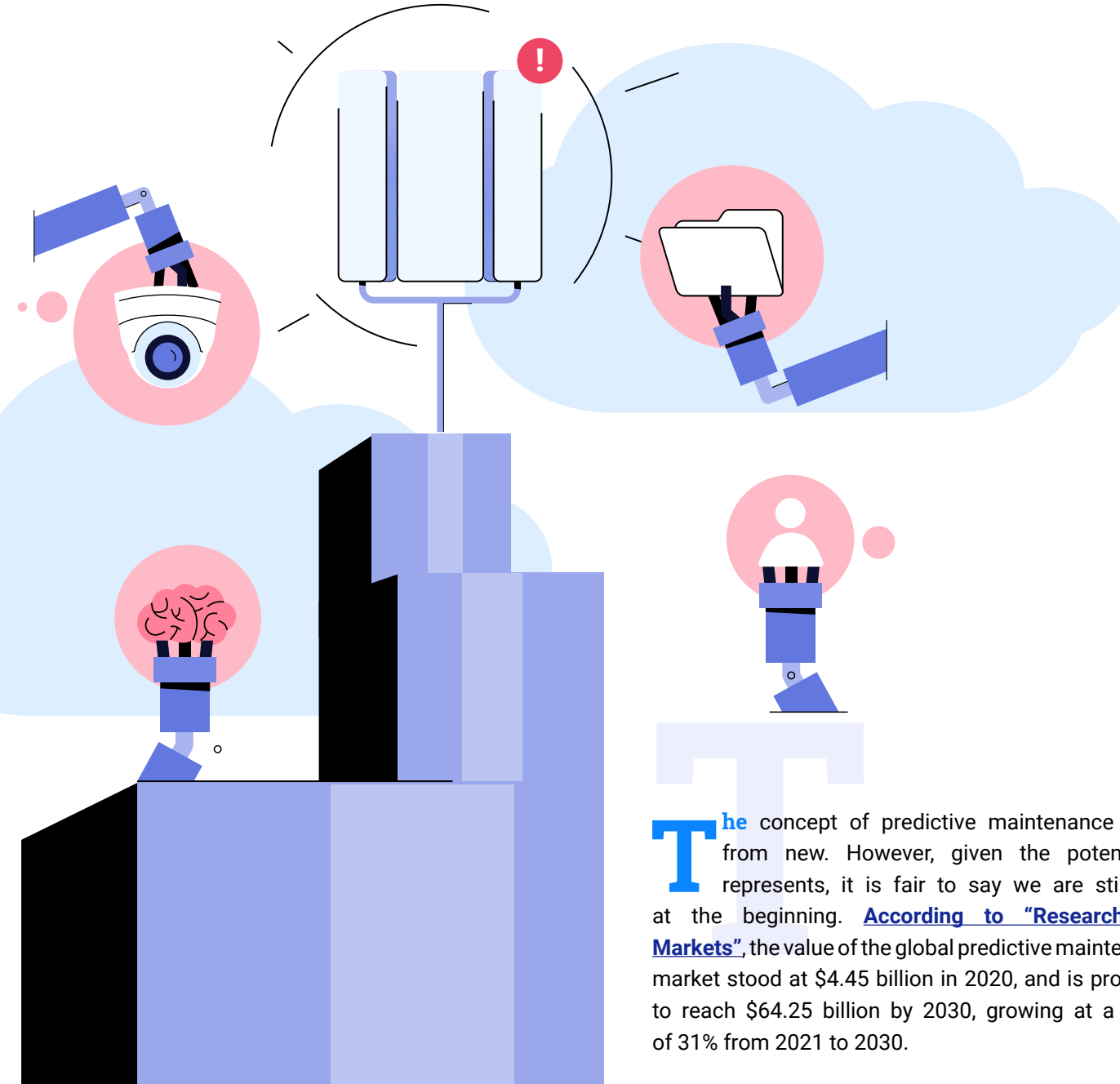
The increasing complexity of industrial infrastructure, the rising popularity of cloud connectivity, the accelerating deployment of 5G and IoT, and business demand for safer, more predictable and precise industrial ecosystems, will create a growing appetite for predictive maintenance software which will gradually outweigh concerns about risk.

In 2022, and beyond, we should observe development of different functionalities supporting the boom of predictive maintenance tools, such as:

- **Anomaly detection and alert management 4.0**

- **Machine health index and forecasting**

- **Field service management software with assisted video calling, HoloLens®, drones management and thermal imaging**

- **Digital twins**

- **Plug-and-play technology**

- **Predictive maintenance as a service**

The concept of predictive maintenance is far from new. However, given the potential it represents, it is fair to say we are still only at the beginning. **According to "Research and Markets"**, the value of the global predictive maintenance market stood at $4.45 billion in 2020, and is projected to reach $64.25 billion by 2030, growing at a CAGR of 31% from 2021 to 2030.

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Open RAN to Strengthen Its Position in 2022

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Over the course of the year, Open RAN strengthened its position. This resulted in a mid-year update of its revenue forecasts (which **increased by 50%**), ending with a projection of up to $15 billion in revenues between 2020 and 2025 (report by Dell'Oro Group). By 2025, Open RAN is expected to account for over 10% of the entire RAN market.

At the end of 2021, Europe's leading telecom operators issued a comprehensive analysis of the European Open RAN landscape. Recommendations were made for policymakers to ensure high-level political support for the open radio access network, and to incentivize its development in the EU while engaging in international partnerships. **Whether Europe decides to embrace it or not, O-RAN is coming. Most likely, adoption will pick up speed in 2022**.

In 2021, Open RAN gained global recognition and this trend will extend further in 2022 to include a strong presence of major MNOs. As 2021 began, the largest European telecom operators, including **Deutsche Telekom, Orange, Telecom Italia (TIM), Telefónica and Vodafone** committed to supporting development of the global open ecosystem by signing a memorandum of understanding.

Proving their dedication to driving the development and growth of O-RAN, **Comarch and IS-Wireless have also established cooperation** and developed a plan to reach customers with their joint telecommunications offer. The companies will integrate their solutions **to provide fully functional mobile networks built in the Open RAN model**.

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Strong Growth for eSIM as a Facilitator for Instant Digital Onboarding

Embedded SIM (eSIM) technology is finally gaining some well-deserved traction. A report by **GSMA** shows that the number of eSIM-capable devices in operation doubled in 2020, and forecasts that there will be 2.4 billion eSIM smartphone connections (33% of all smartphone connections) globally by the end of 2025.

At the same time, 5G offers low battery consumption, higher density and lower latency (not to mention broader bandwidth), adding the ability to create private and/or dedicated network slices for a given business. This creates potential for industry and business users that will be even greater than for the retail market.

The combination of 5G networks and flourishing eSIM technology removes the need for physical SIM cards, so **telecoms can finally enter B2B areas and the retail market, such as in the automotive and wearables sectors**. It will bring demand for new offers (from the connectivity perspective), extended with managed quality, dedicated monitoring and predictive maintenance and management.

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ABOUT COMARCH

Since 1993, Comarch's specialist telecommunications business unit has worked with some of the biggest telecoms companies in the world to transform their business operations. Our industry-recognized telco OSS and BSS products help telecoms companies streamline their business processes and simplify their systems to increase business efficiency and revenue, as well as to improve the customer experience and help telcos bring innovative services to market. Comarch's customers in telecommunications include Telefónica, Deutsche Telekom, Vodafone, KPN and Orange.

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