Press Release

DE-CIX's Technology Predictions 2025: Where AI and the Space Race will take us next year, and how connectivity will enable it

Frankfurt (Germany), November 12, 2024. Technology is evolving at an ever-faster pace. From mining on the moon to humanoid robots, DE-CIX experts Ivo Ivanov (CEO) and Dr. Thomas King (CTO) evaluate some of the most exciting trends and the essential interplay with communication technology. Below are 5 trends that will shape the connected business world, the further evolution of technology, and the interconnection business in 2025, the year of DE-CIX's 30th anniversary.

Trend 1: Intelligent economies - No smart value creation without smart networks
According to IDC, 80% of CIOs worldwide plan to embrace artificial intelligence (AI) and automation for agility and insights-driven business in the coming years. As AI becomes the core of smart business models on a global scale, it requires equally intelligent IT infrastructures and networks that are as agile and autonomously scalable as the self-managing systems, processes, and workflows within a connected global economy. "Standards, open architectures, and APIs will make tomorrow's network interoperable and intelligent," says Dr. Thomas King, CTO at DE-CIX. With 5G Advanced set for global roll-out in 2025, the stage is now being set for the next generation of mobile connectivity. "6G will not only be up to 100 times faster than 5G, but it will also integrate AI to secure, manage, and control networks. This level of intelligence will be needed in all connectivity technologies to manage future AI-driven data flows," Dr. Thomas King continues. "Smart value creation demands equally smart technologies. AI not only offers support for more intelligent network management, but for operational excellence in all areas of the telecommunications industry," says Ivo Ivanov, CEO at DE-CIX. "From network optimization to energy efficiency, to fraud detection, and customer service, smart solutions can enhance every single business process."

Trend 2: The Internet Space Race is heating up
Satellites in low earth orbit (LEO) will soon be providing humanity with ubiquitous connectivity, everywhere. This connectivity will even be based on conventional mobile communications standards and can therefore be used with any conventional smartphone. This not only allows dead spots to be closed in connected business models, but also for high-speed, low-latency connections to be guaranteed on the ocean or, for the first time, in every single aircraft seat – as well as enabling connections where this was previously not possible. "Satellite transmission technology offers new hope from space for the billions of people that are disadvantaged today because of limited or non-existent access to the Internet," says Ivo Ivanov. "That's why 2025 will see the Internet space race heating up," adds Dr. Thomas King. "A race that only Internet exchanges can really get going, by exchanging data packets with minimal latency across all interconnected platforms." Space exploration companies are now also eyeing the multi-billion-dollar potential of mining asteroids and the moon to access, for example, Helium-3 for

Quantum computing applications. “Without computing power and connectivity in space and on the lunar surface, none of this will be possible,” says Ivo Ivanov. An opinion that is supported by figures from the World Economic Forum and McKinsey: Both estimate the global space economy will be worth US$1.3 trillion by 2035, up from US$630 billion in 2023.

Trend 3: Self-driving cars are entering the mainstream

Increasingly autonomous vehicles are expected to hit the roads in 2025, with the first robotaxis using level 4 autonomous driving systems (highly automated, but with the option of human control) now in use in several US cities. Other car makers are planning to launch their level 3 (highly automated driving enabling the driver to take their eyes off the road and engage in secondary activities) and level 4 autonomous driving systems in various countries in 2025. These vehicles are dependent on excellent wireless connectivity – both mobile and satellite – to keep the cars and their passengers safe and provide them with near real-time data. So much so that car companies are even starting to build their own LEO satellite constellations as part of their global networks. “These networks need seamless interconnection to AI clouds, as well as to relevant content and application networks, in the lowest latency,” says Ivo Ivanov. To facilitate the use of AI in various industries, in 2024 DE-CIX introduced – as the first operator worldwide – the concept of the AI Exchange for robust and resilient connectivity to AI clouds and AI as a Service providers. “It’s about performance, security, compliance, and simplicity,” explains Ivanov, “and about allowing AI in action to work its magic.”

Trend 4: Humanoid robots to arrive in factories and homes

Humanoid robots have taken giant leaps forward since the arrival of generative AI, gaining the ability to communicate with people, learn new skills, and adapt their behavior dynamically. “Along with being able to learn from humans, being able to download new skills from the cloud or share them between different robots will significantly increase the versatility and usability of robots,” says Dr. Thomas King. The global market size for humanoid robots is forecast to reach close to US$10 billion by 2030, with their entry in 2025 into homes and workplaces. Already in 2024, several car manufacturers have tested humanoid robots in their production plants and logistics divisions, and limited commercial availability is anticipated in 2025. Mass availability is envisaged starting around 2026 in the US and Europe, while China is planning a mass roll-out of humanoid robots for 2025. “As the workforce takes the next steps towards a hybrid landscape of humans and machines, the need for responsible AI become increasingly clear,” says Ivanov. Estimates suggest that much as 30% of current work hours could be automated by 2030. “AI will create new roles and free up workers to undertake different challenges. Human specializations will focus more on areas that AI cannot solve, and AI can also support companies to enable their staff to develop new skills and change their roles.”

Trend 5: Disaggregated computing enables future AI training

The way companies train large language models (LLMs) will soon change. “Whereas huge, centralized data centers were previously needed to be able to quickly process computing loads on parallel clusters, in the future it will be necessary to be able to train AI models in a more decentralized way,” says Dr. Thomas King, “if only for the reason that space for data centers is limited everywhere.” “The solution is provided by AI Exchanges, which can interconnect disaggregated computing workloads and AI services via high-speed connections,” says Ivo

Ivanov, “and which are already prepared for the coming technological leaps in the AI market.” New Ultra Ethernet is driving one trend towards disaggregated computing by replacing InfiniBand. This means that if computers and storage were connected via InfiniBand in an AI data center, they usually had to be located only a few meters apart. “Ultra Ethernet can bridge larger distances,” says Dr. Thomas King. “The standard is less complex, easier to use, is based on established and widely used Ethernet technology, and allows large language models to be trained even in a metropolitan area.” High-speed interconnection for precisely this application is already part of the standard. And high-speed interconnection is probably also part of the solution needed to operate distributed networked data centers in precisely those locations where there is still space or energy for them.

DE-CIX: 30 Years of neutral interconnection

Whether in self-driving cars, autonomous networks, or disaggregated IT architectures: “Connectivity is the essence of every artificial intelligence application,” says Dr. Thomas King. “The history of DE-CIX over the past 30 years has shown how important a neutral and interconnected Internet is for the economy and prosperity in the world.” “Our development as a company has demonstrated how crucial interconnection is for cities, countries, and continents,” says Ivo Ivanov. “In this spirit, as we watch science fiction become reality in 2025, our anniversary year, we will celebrate our shared successes with employees, partners, customers, and friends.” And no matter whether on the dance floor, the shop floor, or the surface of the moon, latency is the currency that determines the success of AI use cases. Data from IDC and DE-CIX for companies in EMEA shows: 14% expect their cloud usage to be impacted by increased connectivity & networking needs because of AI use cases. And 22% say performance & latency are their main concerns when using or planning to use AI in the cloud.

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Media Contact DE-CIX:
Judith Ellis, Nils Klute, Elisabeth Marcard, Viola Schreiber, Robert Stotzem & Carsten Titt – Global Public Relations – Telephone: +49 (0)69 1730902 130 – Email: media@de-cix.net