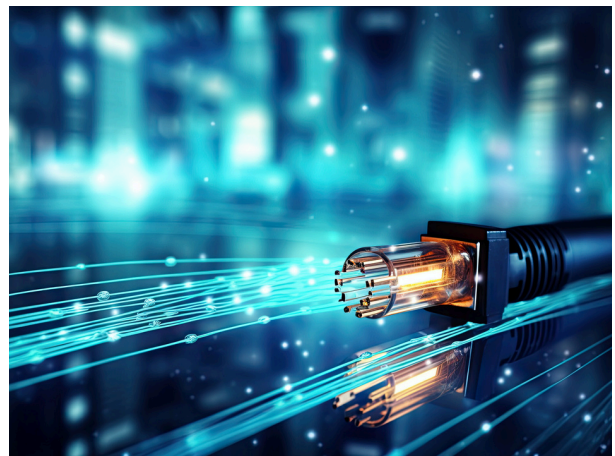


FIFTEEN POSSIBLE USE CASES FOR AI IN BROADBAND; IT COULD SAVE ON ENERGY TOO!

Artificial intelligence (AI) is a hot topic in broadband today. Although the technology has existed in some form in telecom devices for years, what has created a large part of the current buzz is generative AI, a form of AI that uses language models and learning to generate new content.

Almost half of broadband providers surveyed by global consulting firm Altman Solon in October 2023 said they expected spending on generative AI to “surge” over the next two years. The researchers expect to see a six-fold increase in AI spending by 2025.



AI can play a crucial role in broadband by enhancing various aspects of operations and services. It can enhance efficiency, reliability, and the customer experience by optimizing networks, providing proactive maintenance, improving customer support, enhancing security, and facilitating data-driven decision-making. Below, we discuss 15 possible use cases for AI in broadband.



1. **App-less Smartphones.** If you have AI, you might not need smartphone apps. International wireless service provider Deutsche Telekom already has demonstrated this capability, which was developed via a partnership with Qualcomm and Brain.ai. The partners were able to develop a smartphone that relies on voice assistant capability to replace a wide range of apps. You could think of it as Siri on steroids. Developers are looking at creating AI tools that will run on the phone – an approach that would enable faster response times in comparison with relying on a network connection to reach those tools. By 2030, 90% of smartphones will have on-device generative AI, according to a forecast from ABI Research.



2. **Voice Protection.** Unfortunately, AI can be put to sinister as well as beneficial uses. One of the most concerning is mimicking a person's voice to simulate a phone call saying the person is in an emergency situation and needs help in order to defraud family or friends. Conversely, however, developers are exploring the use of AI to prevent voice fraud.

3. **Smarter CPQ.** Configure-price-quote (CPQ) systems can streamline the process of selling connectivity or other offerings customized for a business customer's needs. AI, specifically generative AI, has the potential to simplify the usage of those systems, while also enhancing their capabilities.

4. **Zero-touch Networks Could Put a Lid on Opex Growth.** AI can play an important role in developing totally autonomous networks that won't need employees to handle routine operational tasks – an important consideration as it becomes increasingly challenging to find and retain skilled workers.

5. **It Could Be Like Einstein Managing Your Network.** AI could add a whole new level of intelligence to telecom networks by analyzing data in real-time and changing network parameters as needed to enable networks to use network resources more efficiently and forestall network congestion.

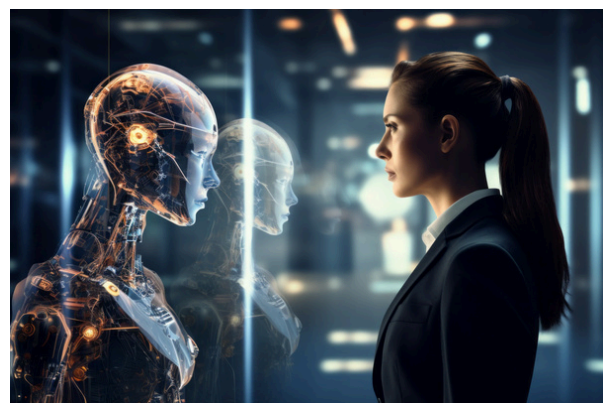
6. Reducing Energy Consumption is Good for the Planet and Saves Costs. One European operator expects AI to reduce energy consumption on the company's wireless network by as much as 40%.

7. Where Should We Deploy Next? Making deployment decisions could be improved and made easier by using AI to analyze demographic, usage, and other data. Service providers would be able to easily identify neighborhoods and communities where current speeds, latency, and other parameters need improvement.

8. Taking Proactive Maintenance and Network Resiliency to a Whole New Level. By using AI to analyze data from network elements, service providers will be able to predict potential network failures before they occur. Potentially the network will fix itself before issues impact customers. One North American service provider was able to detect network issues 120x faster by adding AI and machine learning.

9. It's Like Waze Navigation for Telecom Networks. Waze is considerably more sophisticated than traditional navigation software in telling drivers the best route. AI should do the same thing for telecom network traffic routing. By analyzing real-time network data, AI can redirect traffic to the most efficient paths, thereby preventing network congestion and improving latency and the user experience. This approach also can be used to adjust the amount of bandwidth that a network can support to accommodate peak periods.

10. Securing Networks Could be So Much Easier. AI can play an extremely valuable role by detecting and mitigating cybersecurity threats on telecom networks. This capability stems from AI's ability to analyze huge amounts of network data to identify unusual patterns, potential attacks, and vulnerabilities. The upshot is that it should be a welcome alternative to keeping up with an endless stream of CISA alerts and mitigations.



11. Broadband Mapping is An Enormous Task That Also Could be Easier.

Broadband mapping is crucial for ensuring equitable access to high-speed internet. By utilizing AI, stakeholders will gain the most accurate information about broadband availability down to the census block level.

12. A Pesky Wireless Network Problem Solved. By analyzing all the data and knowing how wireless works, AI could be used to mitigate interference on wireless networks by identifying patterns or abnormalities. This would allow for prompt action to address and mitigate the problem before it affects network performance.

13. Staving Off Potential Wireless Spectrum Shortages. Ensuring that sufficient spectrum is available to meet consumer demand is a daunting task. But it could be made easier by using AI to analyze how various spectrum bands are being used and to use that information to gauge future spectrum needs. The FCC has been exploring this possibility with the goal of identifying future spectrum opportunities to support the wireless industry.

14. Improved Personalization. Today's content recommendation engines could be substantially improved by using AI to analyze user behavior and preferences more deeply in comparison with today's technology. In so doing, AI can recommend and deliver content, advertisements, and services that are most relevant to individual users.

15. Getting Rid of Robocalls and Robotexts, At Last? AI could protect consumers from robocalls and robotexts through fraud detection techniques that use algorithms and voice biometrics.



The upshot is that AI is not just a technological advancement; it has the potential to enable the telecom industry to work more efficiently, make informed decisions, provide targeted interventions, and stay ahead in a rapidly evolving landscape.

It's important to note, though, that some industry pundits expect the telecom industry to be slower than some others to adopt AI because of the potential risk involved if the technology is not sufficiently mature. It's easy to see how an AI glitch involving public telecom networks could be disastrous.

Nevertheless, providers should be exploring how they can use AI, keeping track of new developments and considering proof of concept tests as the technology matures. One approach to consider is to begin with lower risk use cases that have the potential for clear gains. Some use cases have the potential to quickly generate those gains.

According to ABI Research, Telecom providers could see \$30 million in value created this year as a result of generative AI, and that could jump to \$102 million by 2027.

Ultimately, embracing AI technologies may prove to be essential for staying agile and meeting the evolving demands of today's marketplace.

Are you ready for the future of AI?

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