

Original Article

The Cutting Edge Dimension: Unlocking the Future Intelligence of the Internet

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Abstract - Our daily routines would suffer from the loss of internet access. From the 1960s to the present day, the internet has become essential to our daily existence. Our daily routines at work, home and social places show this pattern. The internet will keep growing with brand-new innovations that bring incredible energy to everyone. This text analyzes current trends and predicts what the internet will become in our society.

Keywords - Internet, Technology, Artificial Intelligence, 5G.

1. The Future Imagery of the Internet

Observe the upcoming major internet technology advancements as you develop and update your internet use habits.

2. Literature Review

Advancements in technology will drive the growth of the internet in the future. This section examines important research on how AI, IoT, 5G, Quantum Computing, VR, and AR technologies will merge and what future shifts in tech are expected.

2.1. AI

Much scientific research shows that AI can now control standard operations effectively in business sectors [12]. AI helps develop online performance while serving as an essential tool in predictive analysis development and chatbot creation with autonomous system operations [21].

2.2. IoT

IoT supports connected devices through its technological advancement. Recent studies show that IoT adoption will grow fast in healthcare and manufacturing, while estimates show that 25 billion connected devices will be connected by 2025 [13].

2.3. 5G

5G deployment will give devices faster internet connections with lower delays, which will let them send information immediately [14]. According to research, the system will support the worldwide expansion of IoT devices through its base infrastructure [15].

2.4. Quantum Technology

Quantum Technology can solve data handling problems and make better-encrypted data systems to improve Artificial Intelligence security systems.

3. The Internet of Things (IoT)

The Internet of Things (IoT) refers to linking physical devices to the internet through technological advancements like smartphones, smart homes, smart cars, wearable health, farming, and transit equipment [22]. Through the IoT, multiple connected devices exchange data with each other.

According to Cisco, we will reach 29.3 billion connected devices in 2023, as documented in their tracking [1]. The rapid growth of connected devices in our world supports this development perfectly.

Equipment vendors predict that 30 billion IoT devices will operate across the world by 2025, according to their data [2]. Growth in IoT applications will result mainly from people installing more smart home appliances such as smart speakers and thermostats. The production sector and supply chain activities create more demand for IoT devices [23].

4. Artificial Intelligence (AI)

The internet community is engaged due to Artificial Intelligence, which represents a new type of internet-based technology.

AI technology will reshape internet development by taking provided data to learn and execute effective actions.

The future internet boosts Chatbots now and aims to create self-driving cars through AI technology.

According to McKinsey Global Institute, AI can create business value between \$3.5 trillion and \$5.8 trillion every year through its impact on 19 industries and nine official business functions [3]. By investing in this value, you will enjoy quality decisions and better products delivered to you.



AI and Machine Learning coordinate the functions of multiple chatbots, voice assistants, and predictive analytics systems. Artificial Intelligence will soon connect with connected devices to advance their features [20].

MarketsandMarkets predicts companies will increase their AI investments and expand their market from \$21.5 billion in 2018 up to \$190.6 billion in 2025 [4].

5. 5G Technology

5G stands as the fifth wireless technology generation, which will power the expansion of IoT and AI. The 5G technology will make IoT and AI systems possible.

Our main targets are faster internet speed for downloads and uploads, plus lower system delays while boosting performance strength. The speed of modern internet connection will become faster and more dependable in the future.

According to GSMA Intelligence, data shows that 5G connections will reach 1.2 billion globally by 2025, with a 14% market share [5]. The expansion of 5G networks and the availability of 5G smartphones will drive this market growth.

Ericsson predicts that 5G subscriptions will hit 3.5 billion by 2026, which means there will be 40% more total network subscribers overall [6].

6. Virtual and Augmented Reality (VR/AR)

Virtual and Augmented Reality (VR/AR) are technologies that enhance digital environments in an immersive manner. VR/AR inventions present ways that immerse users within digital content by enhancing their surroundings.

Headsets enhance digital content through VR, but AR adds digital info to real-world settings. MarketsandMarkets, the VR market analyzes the market to surge to \$46.6 billion from \$7.9 billion in business by the year 2025, according to data records [7].

AR technology shows increasing value in both entertainment, like Pokémon GO, and professional areas, such as retail and training.

References

- [1] "Cisco Annual Internet Report (2018–2023) White Paper," White Paper Cisco Public, Report, pp. 1-35, 2020. [\[Google Scholar\]](#) [\[Publisher Link\]](#)
- [2] Lionel Sujay Vailshery, "Internet of Things (IoT) and non-IoT Active Device Connections Worldwide from 2010 to 2025," Report, 2022. [\[Google Scholar\]](#) [\[Publisher Link\]](#)
- [3] "The Rise of Quantum Computing," Report, McKinsey & Company, pp. 1-103, 2024. [\[Google Scholar\]](#) [\[Publisher Link\]](#)
- [4] "Artificial Intelligence in Marketing Market by Offering (Hardware, Software, Services), Technology (Machine Learning, Context-Aware Computing, NLP, Computer Vision), Deployment Type, Application, End-User Industry, and Geography - Global Forecast to 2025," Artificial Intelligence in Marketing Market Size, Share and Growth, MarketsandMarkets, Report, 2025. [\[Publisher Link\]](#)

According to TechTarget, in their market analysis, the AR sector will achieve \$62 billion in profit by 2029, with a yearly growth speed of 7.42% from 2025 to 2029. People seek more interactive ways to learn and market products, which keeps this trend growing [18].

7. Decentralized Web

Several huge technology firms now dominate internet management. Peer-to-peer networks and blockchain technology create decentralized systems that help people regain control over their internet data through the popular InterPlanetary File System (IPFS).

Web 3.0 updates our internet by establishing decentralized applications or dApps that use blockchain platforms.

The change to immutable ledgers improves user privacy while building trust by giving people permanent access to their data [17]. When users own their digital identity and control their data, things will become more balanced in the online world.

8. Quantum Computing

Quantum computing operates with advanced technology that uses quantum bits instead of ordinary binary bits. The system performs faster data processing because it eliminates delays. Therapists will use quantum computing to progress faster in aligning molecular structures of drugs [19] for treatment engineering and weather forecast analysis.

According to research from McKinsey, quantum computing could lead to market values of \$15 billion to \$50 billion by the year 2030 [9].

9. Final Thoughts

The internet grew from its first email sent in 1971 through social media in this century [11] as its capacity to expand never stopped.

These developing technologies will alter multiple industries to boost easy communication and assist in managing large amounts of data. The internet can achieve its future potential by adopting these current industry transformations.

- [5] "GSMA Report Shows 5G Coverage is set to Accelerate Across Asia Pacific – But the Usage Gap Remains Significant," Mobile Economy Asia Pacific Report, 2022. [\[Publisher Link\]](#)
- [6] More than a Billion People will Have Access to 5G Coverage by the End of 2020 Ericsson, Ericsson, 2020. [Online]. Available: <https://www.ericsson.com/en/press-releases/2020/11/more-than-1-billion-people-will-have-access-to-5g-coverage-by-the-end-of-2020>
- [7] "Virtual Reality Market Worth \$44.7 Billion by 2024 - Exclusive Report by MarketsandMarkets," Market Research Report, pp. 1-157, 2019. [\[Publisher Link\]](#)
- [8] Davi Pedro Bauer, *InterPlanetary File System*, Getting Started with Ethereum, Apress, Berkeley, CA, pp. 83-96, 2022. [\[CrossRef\]](#) [\[Google Scholar\]](#) [\[Publisher Link\]](#)
- [9] Emily Grumbling, and Mark Horowitz, *Quantum Computing Progress and Prospects*, National Academies Press, pp.1-272, 2019. [\[Google Scholar\]](#) [\[Publisher Link\]](#)
- [10] Ray Tomlinson, First Email, Guinness World Records, 1971. [Online]. Available: <https://www.guinnessworldrecords.com/world-records/first-email#:~:text=In%201971%2C%20Ray%20Tomlinson%2C%20an,computers%20to%20exchange%20a%20message.>
- [11] Esteban Ortiz-Ospina, The Rise of Social, Our World in Data, 2019. [Online]. Available: <https://ourworldindata.org/rise-of-social-media>
- [12] R. Nalini, *Transformative Power of Artificial Intelligence in Decision-Making, Automation, and Customer Engagement*, Complex AI Dynamics and Interactions in Management, pp. 1-20, 2024. [\[Google Scholar\]](#) [\[Publisher Link\]](#)
- [13] Khandakar Akhter Hossain, "Evaluation of Influence of 'Internet of Things' (IoT) on Technologies and Devices in 21st Century," *Scientific Research Journal (SCRJ)*, vol. 11, no. 7, pp. 1-27, 2023. [\[Google Scholar\]](#) [\[Publisher Link\]](#)
- [14] Bhavik Patel et al., "Advancements in 5G Technology: Enhancing Connectivity and Performance in Communication Engineering," *Engineering International*, vol. 10, no. 2, pp. 117-130, 2022. [\[Google Scholar\]](#)
- [15] Aquije Ballon et al., "From Physical to Digital: What Does IoT Mean for Economic Growth?," *24th Biennial Conference of the International Telecommunications Society (Its): "New Bottles For New Wine: Digital Transformation Demands New Policies and Strategies"*, Seoul, Korea, pp. 1-26, 2024. [\[Google Scholar\]](#)
- [16] Shoumya Singh, and Deepak Kumar, "Enhancing Cyber Security Using Quantum Computing and Artificial Intelligence: A Review," *International Journal of Advanced Research in Science, Communication and Technology*, vol. 4, no. 3, pp. 4-11, 2024. [\[CrossRef\]](#) [\[Google Scholar\]](#) [\[Publisher Link\]](#)
- [17] Aishik Ghosh et al., "A Survey on Decentralized Metaverses Using Blockchain and Web 3.0 Technologies, Applications, and More," *IEEE Access*, vol. 12, pp. 146915-146948, 2024. [\[CrossRef\]](#) [\[Google Scholar\]](#) [\[Publisher Link\]](#)
- [18] "AR & VR - Worldwide," Statista, Market Insights Report, pp. 1-80, 2023. [\[Publisher Link\]](#)
- [19] Bancha Yingngam, and Alex Khang, *Quantum Computing in Drug Discovery*, The Quantum Evolution, CRC Press, pp. 242-275, 2024. [\[Google Scholar\]](#)
- [20] M. Deepika et al., *AI & ML-Powering the Agents of Automation*, Walter de Gruyter GmbH, pp. 1-244, 2019. [\[Google Scholar\]](#) [\[Publisher Link\]](#)
- [21] Nitin Rane, Saurabh Choudhary, and Jayesh Rane, "Artificial Intelligence for Enhancing Resilience," *Journal of Applied Artificial Intelligence*, vol. 5, no. 2, pp.1-33, 2024. [\[CrossRef\]](#) [\[Google Scholar\]](#) [\[Publisher Link\]](#)
- [22] Shaik Salma, Asiya Begum, and Hussain Syed, *Practical and Innovative Applications of IoT and IoT Networks (Smart Cities, Smart Mobility, Smart Home, Smart Health, Smart Grid, etc.)*, AI for Climate Change and Environmental Sustainability, CRC Press, 1st ed., pp. 1-24, 2024. [\[Google Scholar\]](#) [\[Publisher Link\]](#)
- [23] Mohd Javaid et al., "Upgrading the Manufacturing Sector via Applications of Industrial Internet of Things (IIoT)," *Sensors International*, vol. 2, pp. 1-16, 2021. [\[CrossRef\]](#) [\[Google Scholar\]](#) [\[Publisher Link\]](#)
- [24] M. Kiruthiga Devi, and M. Padma Priya, *Evolution of Next Generation Networks and its Contribution Towards Industry 5.0*, Resource Management in Advanced Wireless Networks, pp. 1-336, 2023. [\[CrossRef\]](#) [\[Google Scholar\]](#) [\[Publisher Link\]](#)
- [25] Aditya Kapoor, "Approach and Future Applications of 5G Technology," *SSRN*, pp. 1-25, 2024. [\[CrossRef\]](#) [\[Google Scholar\]](#) [\[Publisher Link\]](#)