

Cognitive Radio Market Size, Share & Trends Analysis Report By Component, By Application, By End Use Vertical (Government & Defense, Telecommunication, Transportation) By Region, And Segment Forecasts, 2022 - 2030

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Abstracts

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Cognitive Radio Market Growth & Trends

The global cognitive radio market size is expected to reach USD 24.69 billion by 2030 and is expected to expand at a CAGR of 18.6% from 2022 to 2030. The emergence of 5G technology and increasing demand for advanced wireless communication devices in the government and defense sector is expected to fuel the demand for cognitive radios in the forecasted period. The demand for cognitive radios has increased owing to its benefits, such as optimized radio frequency spectrum and integration with Artificial Intelligence (AI) and Machine Learning (ML), making the system more efficient. Furthermore, the ability to overcome radio spectrum scarcity to improve satellite communications and enhance service quality is resulting in the faster adoption of cognitive radios worldwide, consequently driving the market globally.

The emergence of 5G technology is expected to empower various industries to access connected devices to improve bandwidth, latency limitations, and performance on connectivity. The 5G wireless networks are expected to provide low end-to-end latency, ubiquitous connectivity, improved energy efficiency, higher data transfer rates, and much higher system capacity. The cognitive radio network allows for dynamic spectrum sharing, which is necessary for 5G architecture. Therefore, the rapid adoption of 5G technology worldwide is likely to boost the global market for cognitive radio over the

forecast period.

Cognitive radio is majorly adopted in the defense and government segment owing to the increasing demand for advanced and secured wireless communications. The technology has enabled government and defense organizations to shift from traditional hardware such as amplifiers, modulators, and mixers to Software-defined Radio (SDR), allowing them to overcome radio spectrum scarcity and improve satellite communications.

However, the rising concerns related to communication security hamper cognitive radios' growth. The inadequacies and vulnerable elements generated by the nature of cognitive radio may negatively impact security requirements and Quality of Service (QoS) delivery for the entire network, creating high chances open to attackers compared to traditional wireless networks. Moreover, technological advancements in the future are expected to overcome the issues related to communication security.

Cognitive Radio Market Report Highlights

By components, the software segment is estimated to witness a significant growth rate through 2030. The growth can be attributed to the flexibility offered by cognitive radios resulting in their adoption in telecommunication, defense, and government segments

By application, the spectrum sensing segment is anticipated to grow significantly over the forecast period owing to its ability to prevent harmful interference with licensed users and improve spectrum utilization by identifying the available spectrum

By end-use verticals, the telecommunication segment is expected to record the highest revenue share of the market by 2030. The cognitive radio provides a favorable atmosphere to implement 5G technology as it meets the capacity demand of the spectrum of 5G wireless communication

Integrating cognitive radio with cloud computing, artificial intelligence, and machine learning and ongoing research and development efforts to strengthen network capabilities and provide secure wireless communication are some key strategies major market players adopt to increase their market share

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