

OPTIMIZATION OF THE STRUCTURE OF 4G AND 5G (LTE) MOBILE COMMUNICATION NETWORK IN THE STATE OF LIBYA

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Relevance: In the State of Libya, like in many other countries, mobile communications are gradually evolving and improving, particularly with the advent of 4G and 5G (LTE) standards. Optimizing the structure of the mobile communication network in Libya is an important task to ensure faster and more stable connectivity, improved coverage, and better quality of service for subscribers.

Goal of the work: the goal is to provide subscribers in Libya with a robust, high-speed, and reliable mobile communication network that meets their evolving needs and supports the country's socio-economic development.

Result analysis – The 4G (LTE) standard provides higher data transfer speeds and better bandwidth compared to older technologies. In Libya, communication providers are actively working on deploying and enhancing 4G networks to offer subscribers broader access to high-speed internet and data transmission. Optimizing the network structure involves constructing new base stations, expanding network infrastructure, and improving resource management algorithms for more efficient network utilization. 5G promises even higher data transfer speeds, lower latency, and increased network capacity. This opens up new possibilities for various industries, including the automotive sector, Internet of Things. Optimizing the network structure for 5G involves deploying new base stations, utilizing new frequency bands, improving network architecture. One of the main challenges in optimizing the network structure in Libya is ensuring coverage across the entire country, including remote and sparsely populated areas. This requires building new infrastructure and optimizing network coverage considering the geographical and demographic characteristics of Libya. Improving access to modern communication technologies will help develop the digital economy, enhance education and healthcare quality, foster innovation, and improve the living standards of the population.

Conclusion. Optimizing the structure of the 4G and 5G (LTE) mobile communication network in the State of Libya is a crucial step in the development of mobile communications and providing higher-quality service to subscribers. The development of 4G networks and the implementation of 5G technologies require building new infrastructure, utilizing new technologies, and optimizing network coverage. Alongside challenges such as ensuring coverage across the entire country, these efforts open up prospects for developing the digital economy and improving the quality of life for the people of Libya.