Development of 5G and Its Impact on Network Infrastructure

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The thesis examines the development of 5G technology and the changes it imposes on network infrastructure. It analyses the technological evolution from previous generations of mobile networks, the key architectural components, and the technologies that enable higher speeds, low latency, and support for a large number of connected devices. Through a systematic review of technical requirements and infrastructure changes, the thesis also considers challenges related to network density, spectrum, investment, and integration with existing systems. The conclusion is that 5G is not merely an upgrade to mobile access, but a foundation for the broader transformation of telecommunications infrastructure and the development of new services in industry, transport, IoT, and smart cities.

Keywords: 5G · Network infrastructure · Telecommunications