

A dark gray background featuring a complex network diagram. The diagram consists of numerous black dots of varying sizes, representing nodes, which are interconnected by thin, light gray lines. The connections form a web-like structure that fills the entire background, with some nodes having more connections than others, creating a sense of dynamic activity and interconnectedness.

markoia
innovative solutions



About Us

Experience

Planned
Activities

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Data

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WE ARE...

Leading Croatian provider of **fiber optics** and **radio frequency network infrastructure solutions**

Owners of **5G frequencies in 9 Counties** in Croatia

System integrator for instrumentation and automation of industrial processes

Raising public awareness of the benefits of 5G through the online media outlet 5G.hr

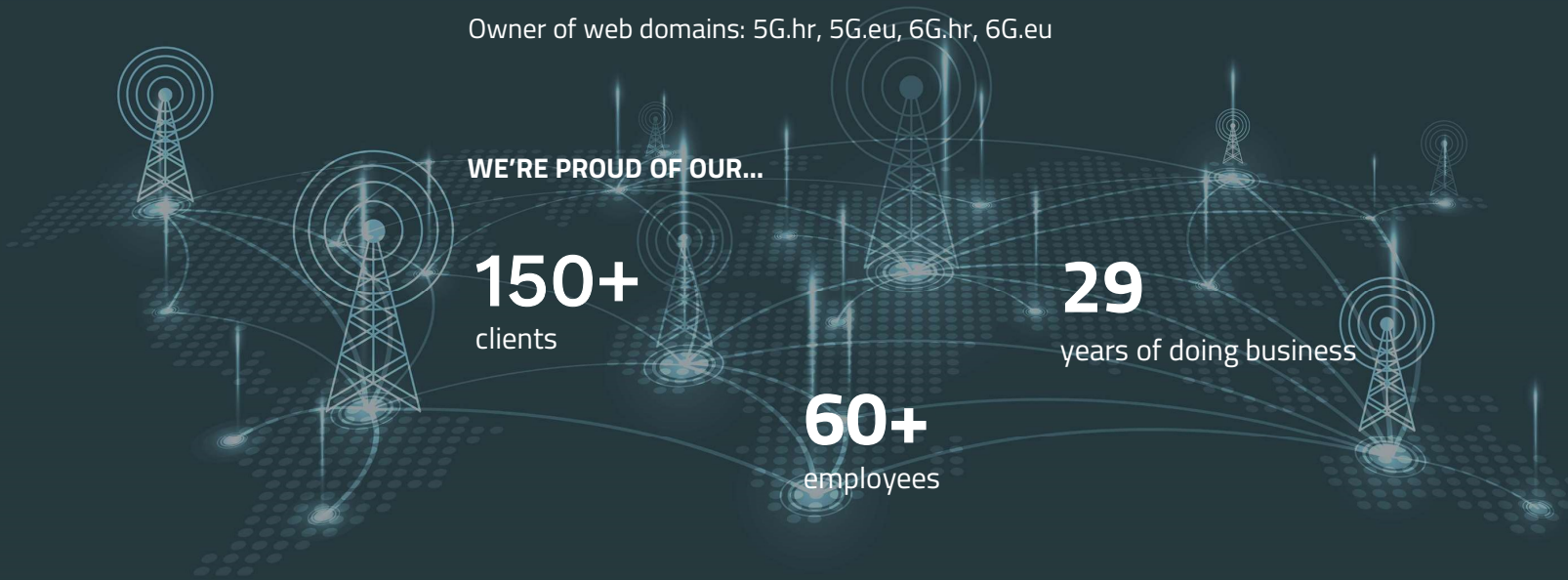
Owner of web domains: 5G.hr, 5G.eu, 6G.hr, 6G.eu

WE'RE PROUD OF OUR...

150+
clients

29
years of doing business

60+
employees



Fiber Optic Solutions

Turnkey technical solutions and consulting in fiber optic communications and generic cabling

- Design and implementation of optical distribution networks from the central office to end consumers
- Telecommunication cable systems
 - FTTH and FTTA
- Measurement and certification of fiber optic and copper networks
- Design of generic LAN cabling systems

Radio Frequency Solutions

A wide range of radio communication solutions in a variety of frequency bands, capacities and applications

– from private mobile networks, broadband radio access systems, 4G/5G networks, microwave radio systems, and telemetry systems (SCADA) to antennas and power supply systems

- Radio and telecommunication system and network solutions (DMR, TETRA, microwave, 4G, 5G) including conceptual and technical design and documentation
- Installation and deployment of private mobile networks, microwave links, and base stations
- Replacement, extension, and optimization of base stations
- Control, measurements, and system maintenance
- Consulting and technical support



EXPERIENCE, COLLABORATION, DEVELOPMENT

Years of experience in relevant engineering and management areas

- Building telecom infrastructure: data centers, fiber optics, base stations, monitoring
- In-house technical team experienced in radio equipment installation and maintenance, fiber optic cabling, FTTA, and power supply systems
- Industrial/civil engineering, technical monitoring, and automation
- In-house site survey and acquisition capabilities

Development

Cooperation



COMPLEX PROJECT DELIVERY REFERENCE

Weekend Media Festival Rovigno

- the biggest annual media event in South East Europe

- 4000 m of fiber deployed
- 100 fiber connection points
- WiFi network installation for >3000 visitors

Work completed in just 7 days



Successful cooperation and close working relationships with key market stakeholders

- All three national telecom operators (HT, A1, Telemach) and a government-owned communications infrastructure provider (OIV)
- Municipality representatives around Croatia – insight into the state of communication infrastructure and the needs of municipalities
- Acquired 5G frequency licenses in 9 out of 21 Croatian counties
- Croatian Regulatory Authority for Network Industries (HAKOM)

- 500+ antenna systems and BTS installations for mobile operators, public safety, and critical communication networks
- 250+ power supply systems installations
- 2000+ licensed and unlicensed microwave links installations and configuration
- 100+ kilometers of deployed optical cables
- 1000 pieces of ODF cabinets delivered to 300 locations
- 200+ ODF installation and cabling
- Owner of web domains: 5G.eu, 6G.eu, 6G.hr

Managed a whole cycle with another real-estate telecom infrastructure venture

Establishment of Data Center operations as a complementary line of business within Markoja Ltd.

Carved out data center operations in a separate company, Altus IT

Built the business to a clear market leader, unparalleled among carrier-neutral data centers in Southeast Europe

Acquisition of Altus IT by Interxion/Digital Realty

2005

2010

2015

2020

NEXT STEPS

Planned activities

▶ To establish ourselves as the principal wireless telecommunications infrastructure operator in Croatia by providing state-of-the-art infrastructural services and solutions with particular focus on:

- tower construction and leasing (standard and low-carbon wooden telco towers)
- neutral host
- 5G frequency sharing/national roaming agreements
- augmented towers

▶ To deploy portfolio for 5G private networks for Industry 4.0

▶ To deploy IoT and sensor solutions and products for the industry ecosystem

▶ To establish successful cooperations with local authorities in order to deploy 5G and other wireless solutions for public services

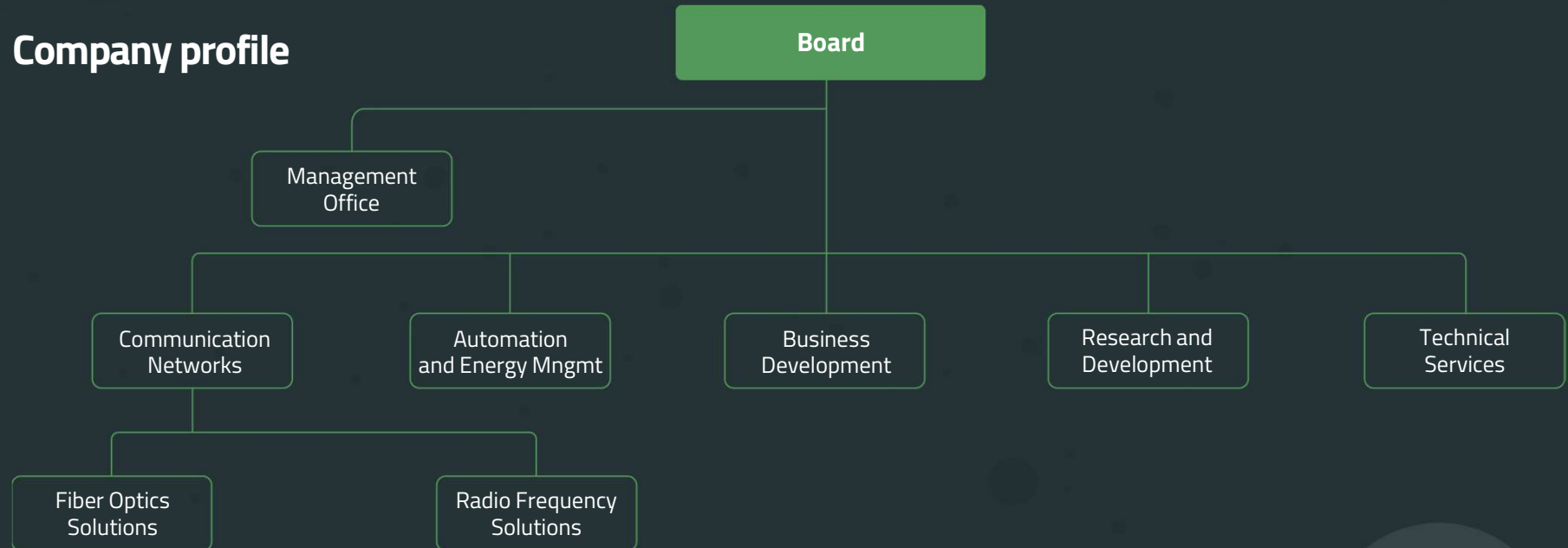
▶ Raising public awareness of the benefits of 5G networks through the online media outlet 5g.hr

▶ Owner of web domains: 5g.hr, 5g.eu, 6g.hr, 6g.eu



SUPPORTING DATA

Company profile



Customer-Centric Organization

Net Promoter Score: 10
(March 2022)

Key clients: 15+ years of loyalty

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SUPPORTING DATA

Core Values



ECOLOGY

We focus on delivering solutions to the highest quality standard while contributing to the sustainable use of natural resources. We follow the principle of responsible, transparent, and conscientious action in synergy with nature.

ECONOMY

Continuous effort on the development of solutions with a view to improving an individual's quality of life as well as the general well-being of society and the economy as a whole.

ENERGY

Measurement, management, and automation with a view to strengthening energy transformation and efficiency.

ETHICS

Responsibility, integrity, and professionalism towards all stakeholders in business operations – our employees and business partners are the cornerstone of our values.

ESTHETICS

Harmony and visual unity integrated with the environment according to the highest industry standards.

Technical services capability – Access Network

Proven know-how and business process for network lifecycle

PLAN;

- **Alignment** of marketing and technical objectives
- **Market evaluation** and priority setting
- Infrastructure roll-out development **phasing**, investment optimization
- **Investment planning** and budgeting
- Initial network **conceptual planning**
- **Radio planning** and site selection
 - ➔ Optimal location, height, site type
- Optimal **capacity management**
 - ➔ Initial configurations (site configurations, parametrization)
 - ➔ Expansion planning
- **Network optimization** – coverage planning, model tuning, performance improvement
- **Frequency and parametrization** planning

BUILD;

- **Site acquisition**
 - ➔ infra providers relationship
 - ➔ site selection
 - ➔ contacts life cycle
 - ➔ synergy with presales
- **Permitting**
 - ➔ special plans, legalization, EMF, regulatory obligations
- **Construction**
 - ➔ turnkey project management
 - ➔ partners selection, musts standardization,
 - ➔ infrastructure deployment
 - ➔ alignment with regulatory standards
- **Integration and commission**
 - ➔ equipment integration and commissioning

RUN;

RUN

Best practice in **telco processes** establishment and support

Telco-grade operations

- ➔ **24/7 SLA** processes
- ➔ service monitoring and QA capabilities

Troubleshoot and repair

- ➔ fixed and radio domain
- ➔ experienced and competent **field services**



Technical services capability – Transmission & Core Network

Proven know-how and business process for network life cycle

- **International routes** planning and deployment
- **Intercity and backbone transmission routes** planning and deployment (dark fiber or capacity-based)
- **Front/backhaul cost-aware**, fiber optic or radio relay mw links planning and deployment
- Telco cloud **physical data center** infrastructure planning and operations
- **Network functions virtualization** and cloud-native platforms

Technical services capability – OSS/BSS

Proven know-how and business process for network life cycle

Partnership support in BSS domains:

Naplata operatorima, plaćanje u stvarnom vremenu, upravljanje odnosima s korisnicima

- Operator billing, real-time charging, CRM, BI/DWH integration
- OSS integration and umbrella monitoring
- Proactive and reactive complaints automatization
- Online and value-added services

Additional non-core potential areas of support

- Market insights and analysis (tariffs, technology footprint, operators overlap...)
- EU funding know-how
- Talents recommendation and acquisition
- External partners (sales, legal, accounting, etc.) selection support
- Lawful interception implementation support
- Logistic and warehouse support
- Markoja's partnerships with established vendors

Market information and specifics - CROATIA

- 3.9M population (50% population lives in cities below 5K inhabitants)
- 1.5M households, 2.4M house units (w touristic units)
- 45% of house units in areas with development cost >1000 EUR for fixed broadband
- Tourism income > significant part of GDP and telecom revenue
- >5000 km coastal line
- DESI connectivity position 20/28
- 3 convergent telecom players
- Strong governmental and EU funding/support for broadband development
- FTTH and F-NGA predominantly developed in major cities
- FWA accepted as a superior solution to XADSL
- FWA major contributor to broadband customers increase (ARPU 21 EUR)

Thank You!

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An abstract geometric pattern consisting of numerous black dots of varying sizes connected by thin, light gray lines. The pattern is distributed across the dark blue background, with some larger dots acting as central nodes and many smaller dots forming a network around them. The lines create a complex web of triangles and polygons, giving the impression of a molecular structure or a network diagram.