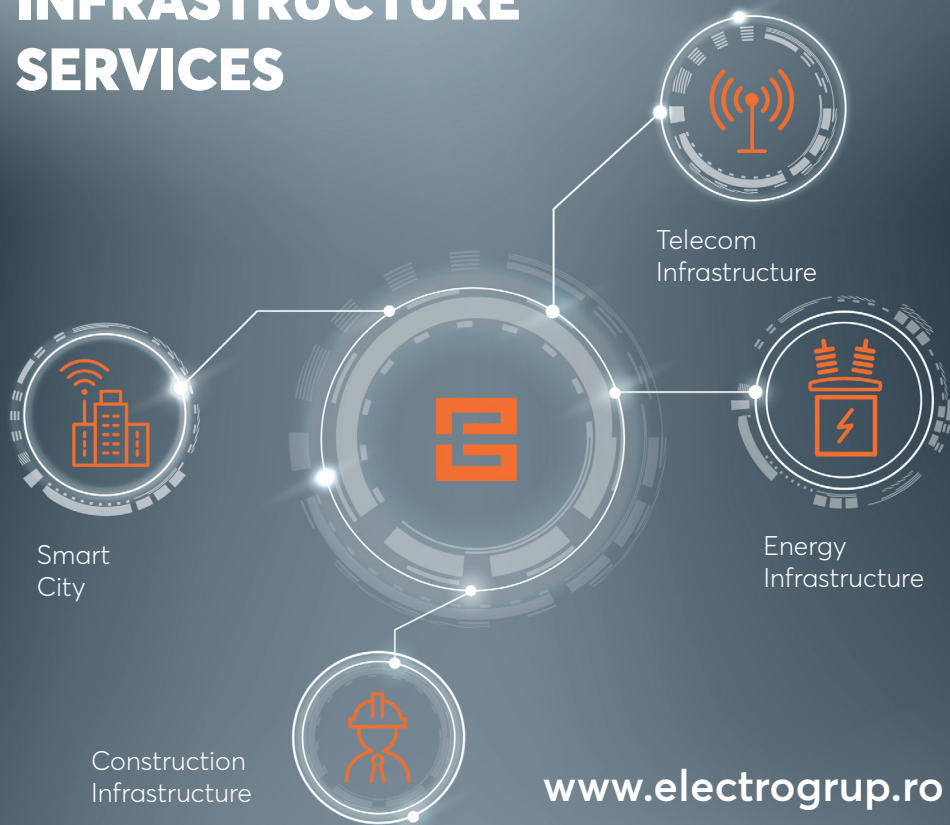


INFRASTRUCTURE SERVICES



www.electrogrup.ro

Electrogrup 

TELECOM DIVISION

June 2019

PERFORMANCE IN CROSS-SECTOR INTEGRATED SERVICES

The globalization and the technological advancements have redefined the competitive environment, bringing along both challenges and opportunities for local players. In this context, the innovative cross-sector concept, defined as the meeting ground of two or more industries provides us with a strong competitive edge. The main pillars of E-INFRA's success, the cross-sector excellence, ever modern technologies and project management practices and the dynamism are major advantages for the company in its domestic and international expansion plans."



Teofil MUREȘAN

Founder and Chairman
of the Board E-INFRA

WE ARE LEADERS IN INFRASTRUCTURE CROSS-SECTOR SERVICES

Electrogrup is part of E-INFRA, an owner and operator of, as well as a builder and a maintenance provider for essential, difficult-to-replicate infrastructure. With a history of over 20 years, E-INFRA is one of the largest business groups in the country, leader in infrastructure cross-sector services.



Electrogrup

ELECTROGRUP – constructions turn-key projects professional services



directONE

DIRECT ONE – fiber optic infrastructure and data carrier services



netcity

NETCITY – Bucharest underground fiber-optic telecom infrastructure



NOVA⁺
POWER & GAS

NOVA POWER & GAS – power and natural gas distribution and trading; power production



WESEE

WESEE – turn-key and maintenance services for wind parks

OUR VISION

Modernising the economy through modern and critical-to-society infrastructure to improve people's quality of life by offering a solid foundation for technologies of the future

OUR MISSION

Our mission is to offer:


- » True value and superior quality services to our customers
- » A solid professional development path for our employees in a stimulating and dynamic work environment, backed by continuous training
- » High-end technologies, competitiveness and innovation in any territory

OUR VALUES

Electrogrup supports the values promoted over time: **professionalism, quality, efficiency, integrity and transparency.**



**VISION
MISSION
VALUES**

-
- **1997** - Establishment of Electrogrup and entry into the energy infrastructure market with our first division, Electogrup Energy.
 - **1999** - Building of the first telecom sites and launch of Electrogrup Telecom division
 - **2001** - First aerial dielectric fiber optic installation project.
 - **2003** - Patenting the solution for installing cell sites on one of the 110 kV power lines poles
 - **2007** - New subsidiaries are open in Bucharest, Timisoara, Iasi and Brasov
 - **2008** - Finalizing the national fiber optic network, further transferred to Direct ONE.
- 

GOING BACK 21 YEARS

- **2010** - Launch of Electrogrup Constructions Division and the first general contractor projects
- **2013** - Entry of Electrogrup Constructions Division on the first foreign markets: Great Britain, Germany, Russia
- **2015** - Establishment of Electrogrup in Germany
- **2016** - Entering the Belgian market
- **2017** - Establishment of Electrogrup Poland
- **2018** - Establishment of the US Electrogrup Branch
- **2019** - Electrogrup Constructions starts its first project in the United States

WHY WORK WITH US

- » We offer **fully integrated services** through the expertise of the five companies in the group that help **reduce costs**, implementation time and environmental impact
- » We believe in **simple solutions** and we follow them even in the most complex challenges
- » We embrace the **culture of well-done** and never compromise on quality
- » We are constantly investing in **training our people** and specialize them multi-sector for an integrated vision of the projects

We offer a unique integrated services offer to cover covering essential areas: constructions – energy - telecom

- » Our **international experience** allows us to follow our customers with operations outside the country anywhere in the world!
- » We focus on our customer's needs and offer **smart and flexible solutions** for the most specific projects
- » We have **logistical and financial capabilities** for the execution of large-scale construction works as general constructors
- » We comply with the **highest ABAC***, **health & safety and labour standards, FCPA**** to follow

*anti-bribery, anti-corruption,

** Foreign Corrupt Practices Act

ELECTROGRUP DIVISIONS

With a history of over 20 years , Electrogrup provides its customers with complete infrastructure solutions at national and international level through its three divisions:

Electrogrup TELECOM

Electrogrup is a general contractor and one of the largest telecom infrastructure builders in the country.

Electrogrup ENERGY

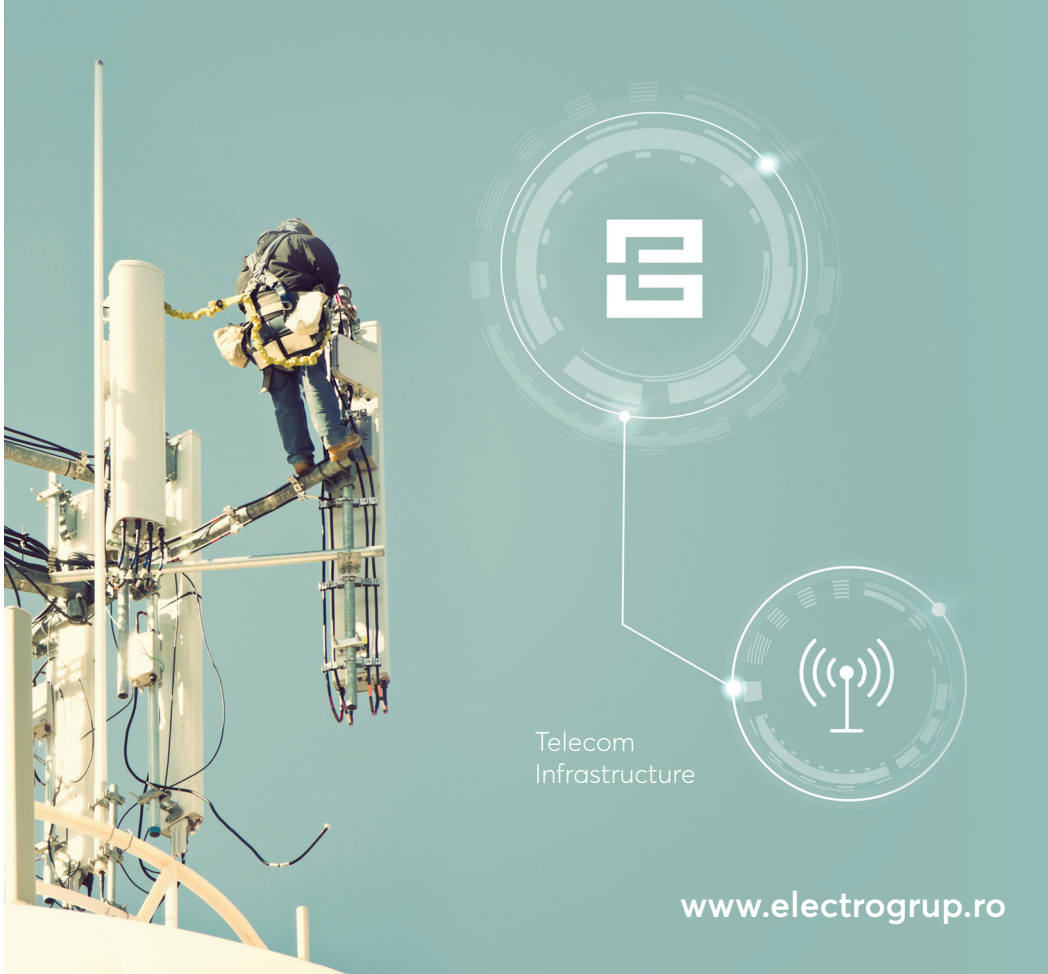
Electrogrup is one of the main energy infrastructure builders in Romania. Our portfolio covers all types of electric and gas pipeline works.

Electrogrup CONSTRUCTIONS

Electrogrup is a general contractor in complex construction projects, from civil to industrial, in Romania and outside the borders.

Electrogrup SMART CITY

Electrogrup is a builder and integrator for smart cities, covering all stages of implementation: infrastructure building, platform integration, solutions aggregation and deployment.



PROJECTS AND SERVICES

TELECOM SERVICES

Electrogrup is one of the first and top telecom builders in the country, with an impressive portfolio of highly complex telecommunication projects executed for national and international operators. By leveraging our special expertise gained in power services, we provide complex optical fiber networks on overhead high-voltage power lines and underground networks in Romania and external markets.

Our services:

- » design and authorization for telecom networks
- » turn-key project implementation
- » equipment installation works
- » preventive and corrective maintenance, dispatching and interventions for optical fiber networks, telecom sites (towers and rooftops)

Types of works:

- » Telecom sites construction including design, permits and right of way
- » Design, permits, right of way and execution of optic fiber networks
- » Equipment installation for 3G, 4G, LTE solutions
- » Equipment installation works: DWDM, multiplexers, switches, routers, servers, media converters;
- » Radio access networks implementation



OUR WORKS IN KEY NUMBERS:



1.500 +

cell sites
(rooftops and towers);



3.500 +

equipment's for 3G, 4G,
LTE solutions



600 +

metropolitan underground
duct infrastructure



15.000 + km

fiber optic networks



2.500 +

radio access networks



5

countries of operation



ELECTROGRUP & HUAWEI:

PARTNERS SINCE 2009

- 2009** » The beginning of our collaboration with a DSLAM Project for Romtelecom Romania
- 2010 - 2013** » Single RAN project with wireless and civil works (upgrade and swap 2G/3G) for Vodafone Romania
- 2011 - 2014** » NG-DWDM project for Vodafone Romania
- 2012 - 2016** » Preventive and corrective maintenance for Vodafone Romania
- 2013 - 2017** » Sharing services project with wireless and civil works for Vodafone & Orange Romania
- 2014 - 2017** » Upgrade 4G rollout project on wireless and civil works for Vodafone & Orange Romania
- 2016 - 2018** » IPN Project swap for Vodafone Romania
- 2017 - YTD** » Rollout project on wireless and civil works for Vodafone & Orange Romania





Electrogrup 
TELECOM

**TELECOM
PORTFOLIO**

FIBER OPTICS NETWORKS



Since 1998, our company has built over 10.000 km of aerial & underground fiber optics networks for Tier 1 telecom operators in Romania, consisting in:

- » complete design services
- » turn key implementation
- » verifications of existing networks and modernization solutions;
- » equipment installation: DWDM, multiplexers, switches, routers, servers, media convertors

Period: 1998 - present

Clients: Orange, Vodafone, UPC (Liberty Global)



NATIONAL OPGW NETWORK



One of the reference projects in the history of the company is the roll-out of our intragroup proprietary national fiber optics network, on OPGW technology, covering:

- » **62.000 +** fibre kilometers
- » **50+** PoPs
- » **5.500 +** route kilometres

Period: 1998 - 2008

Client: Direct One



TOWER AND ROOFTOP SITES FOR MOBILE TELEPHONY



We have build over 1.500 towers and rooftop sites for mobile telephony, both within the country and abroad, covering all project needs:

- » design and licensing
- » civil and electrical works
- » equipment installation
- » final acceptance
- » preventive and operative maintenance

Period: 1998 - 2017

Clients: Vodafone, Orange, Telekom, 2K Telecom



IPN PROJECTS

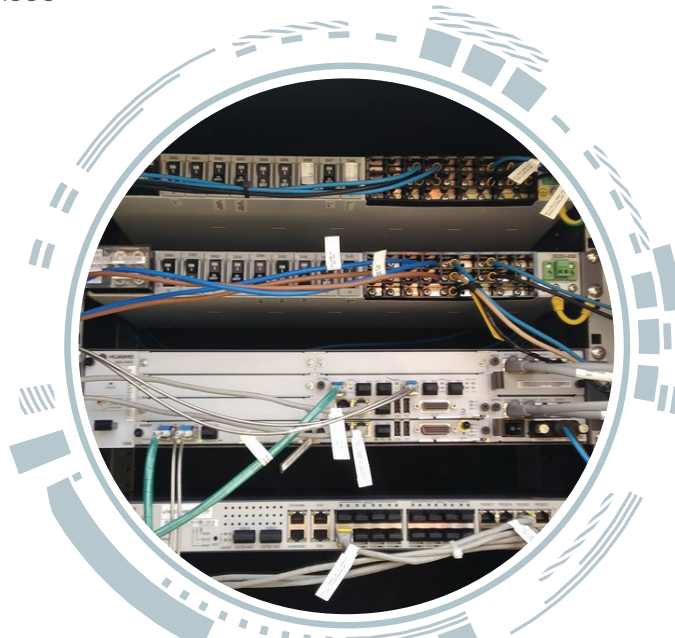
We integrated a number of 500+ Huawei routers into Vodafone sites, in order to migrate the Cisco customers to Huawei and uninstall the Cisco equipment.

Equipment installed:

ATN910B, ATN950B, PTN6900-2-M8 and PTN6900-3.

Period: 2017 – 2018

Client: Vodafone



RADIO ACCESS NETWORKS

BROADBAND TELECOMMUNICATION INTEGRATIONS

As a broadband radio telecommunication service integrator we have developed over 2.500 radio-links (MW), including 2G/3G/4G/LTE technology projects, covering:

- » site survey
- » design
- » turn-key implementation - civil engineering, equipment, power supply

Period: 2000-present

Clients: Vodafone, Orange, Telekom



RADIO ACCESS NETWORKS

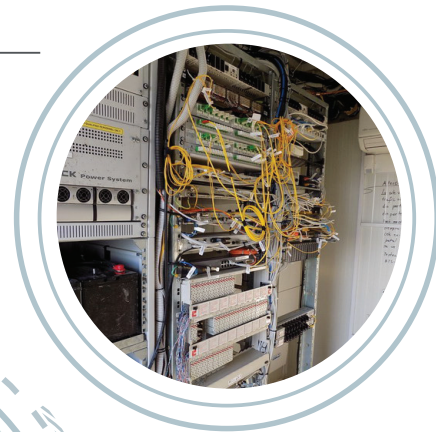
RADIO & FIBER OPTICS NETWORKS SHARING PROJECTS

We have deployed one of the top major radio infrastructure and fiber optics sharing projects in the country for Orange si Vodafone.

The project included upgrades or replacements on 1.500 + sites to RF antennas or cabinets.

Period: 2013 – 2017

Clients: Huawei, Vodafone Romania, Orange Romania



4G NETWORK UPGRADES

One of our major projects included upgrading existing infrastructure to 4G technology, with a total of 200 swaps, of which 30% took place in the urban area and 70% of them in the rural area.

ZTE equipment (RRUs, BBUs, PDUs, radiant systems) were replaced, targeting both existing GSM (2G), UMTS (3G) and LTE (4G) technologies with Ericsson equipment.

Period: 2017-2018

Client: Telekom Romania



METROPOLITAN UNDERGROUND DUCT INFRASTRUCTURE

Electrogrup is a general contractor for the underground fiber optics duct infrastructure in Bucharest – Netcity, with a complete infrastructure deployment of 500+ km in 2 years.

The project involves both civil constructions and telecom constructions:

- » execution of mini-trenches and fiber pulling rooms
- » side pavement asphalt/concrete dismount and restoration works
- » microducts installation works
- » optical fiber installation works

Period: 2017- present

Client: Netcity



EXTERNAL PROJECTS - BELGIUM

Through the experience gained in projects developed in Romania and our highly specialized teams, we have developed complex telecommunication infrastructure projects in Belgium.

One of the ongoing projects consists in swapping radio equipment, installing/uninstalling antennas, reconfiguring the site and integrating and commissioning newly installed equipment.

Since the beginning of 2017 until present day, our 7 teams involved in the project have built 300 + sites and have uninstalled 100 + old sites.

Period: 2017- present

Client: Fabricom Belgium for Operator Base



ELECTROGRUP

COVERAGE

Since 2013, Electrogrup is continuously expanding its services outside the borders, handling large projects in Germany, Russia, Poland, Belgium and Ireland.

NEW: IN 2019, ELECTROGRUP OPENED A NEW SUBSIDIARY IN THE UNITED STATES.



ELECTROGRUP PORTFOLIO

We are partners of most important telecom operators, energy distributors and industrial parks or renewable energy production units developers. The basis of long - term partnerships consists of our team's expertise, our innovative solutions, dynamic approach and the quality of our work.

Energy Infrastructure



Telecom Infrastructure



Construction Infrastructure



Electrogrup

ELECTROGRUP: CERTIFICATIONS & AFFILIATIONS

Electrogrup is certified by the relevant authorities in all of its sectors of operation.

We are also members of local and international commerce chambers and industry associations.



Deutsch-Rumänische
Industrie- und Handelskammer
Camera de Comerț și Industrie
Româno-Germană





**MODERN
INFRASTRUCTURE.
GOOD LIFE.
SHARED.**

