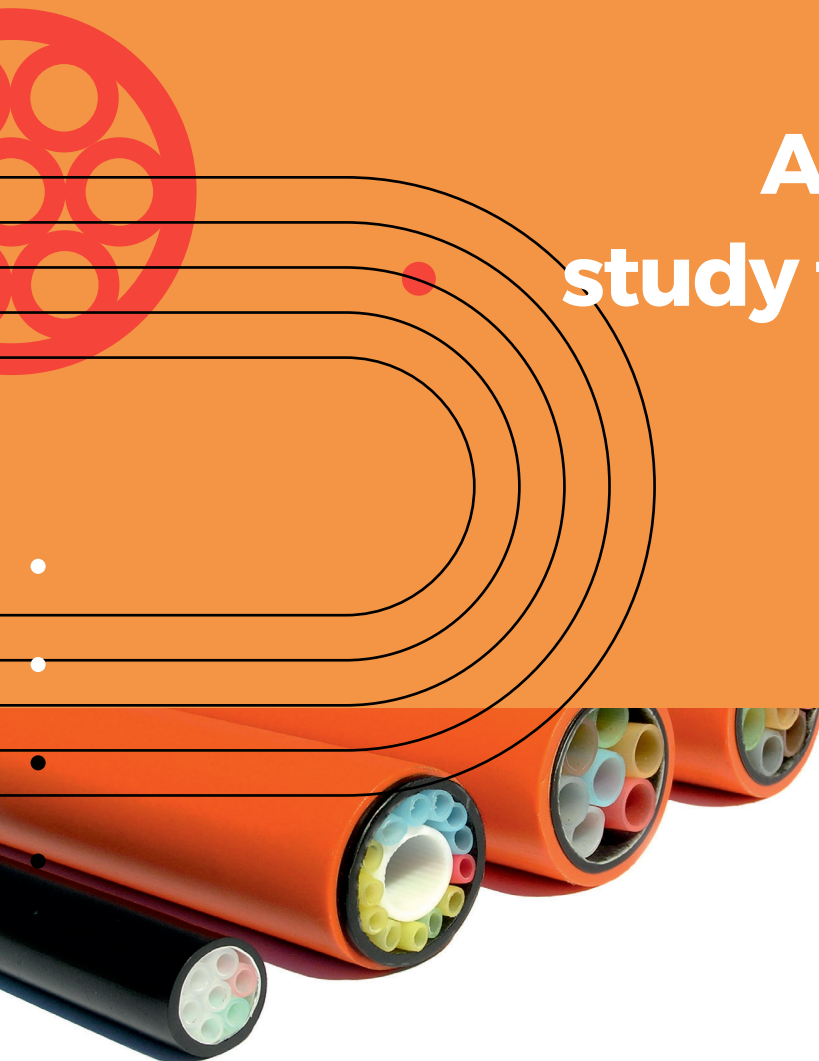


# The comprehensiveness of the METROJET system



A pilotage case  
study for Hungarian  
railways





# MetroJet FIBRAIN fiber optic microduct



FIBRAIN 

 varioedge

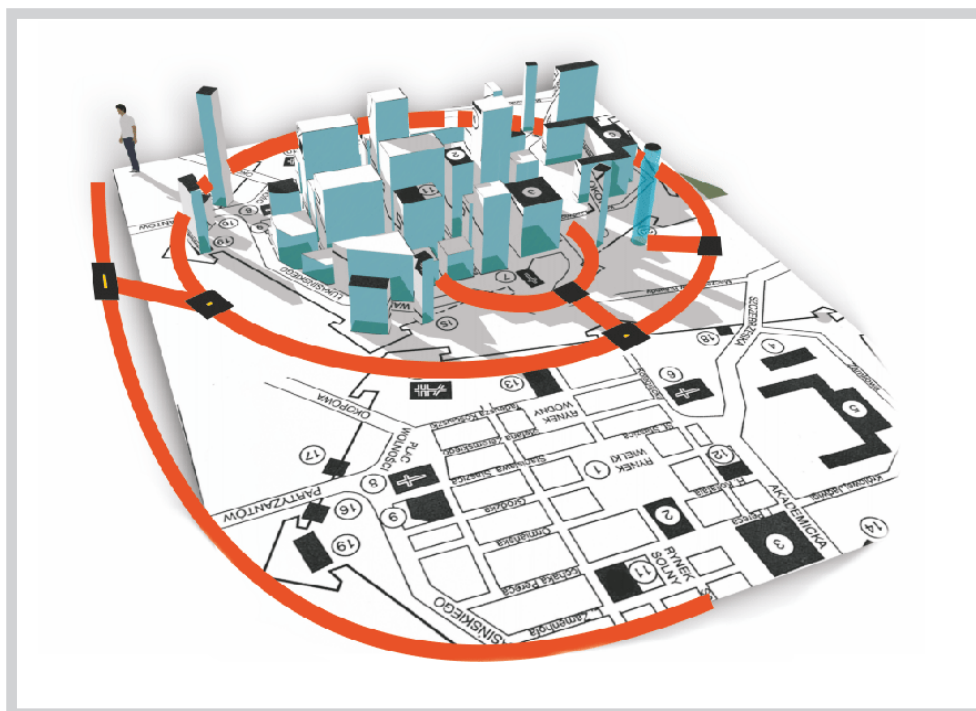
 AccessPoint

  
R-KORD

# FIBRAIN together with Varioedge, AccessPoint Kft. and R-Kord Kft. proved the comprehensiveness of the METROJET system

It happens more and more often that customers do not only ask about products but about complete systems (solutions) where each element fits perfectly together, which significantly helps in achieving the best results during installation and maintenance of the network. It is not only the product price (CAPEX) that counts, but the time or installation costs (OPEX), which will allow the Investor to estimate the overall cost of building and maintaining the network (TCO).

A great example of this approach is the introduction into the **GSMR system of Hungarian Railways** of a new network construction technology, i.e. microduct system, which is ultimately to displace the traditional network construction based on optotelecommunication pipes, the traditional „RHDPki”.





## It started with....

**...the usual request for the delivery of products: microcables ...  
but if microcables, why not microducts or bundles?**

**Why not the whole system: connectors, housings, machines,  
etc.?**

**If a complete system, then also installer trainings, audits,  
extended warranty.**

# Time to meet with the Client

So let's go to a meeting, system presentation, showing references from different markets, investments **where the SYSTEM was successfully delivered**. And here we go - the first success, because the Investor decided to change the inquiry **from delivery of the products to delivery of the entire system with an extended warranty**. But as we all know, not the only „METROJET“ is in the world, the competition also has got systems. We keep fighting!

## The first success is behind us

After some time, an invitation came to be a part in the tender for the supply of microduct technology, i.e. a complete system. The first success is behind us. Smaller competition. Normally, about 10 to 20 companies start to be regular suppliers. For the delivery

of a complete solution less, about 3 to 5, but instead they are more technically developed competitors with specifically formed departments and supported with the technician.



**We are also well prepared for such activities, with years of experience and many years of trainings we can offer for:**

Proposed training cycle:					
W	Installers	P	Designers	iN	Investors
W1	Construction of outdoor, direct buried MetroJET microduct network (requirements and recommendations) stage 1.	P1	MetroJET system - Implementation and design requirements of telecom networks construction - stage 1.	iN 1	MetroJET microduct in the existing telecom networks - technical and business topics.
W2	Construction of outdoor, direct buried MetroJET microduct network (implementation experience) stage 2 .	P2	MetroJET system - Implementation and design requirements of telecom networks construction - stage 2.	iN 2	MetroJET microduct system - outdoor and indoor FTTH networks - technical and business topics.
W3	MetroJET installation using mechanical and pneumatic methods inside an existing and secondary pipes (multiplying of slots).	P3	MetroJET system - Design in the application CCTV video surveillance for cities, stadiums, air ports and other metropolitan and industry areas.	iN 3	MetroJET and other FIBRAIN systems - application in rural and metropolitan broadband networks .
W4	Pneumatic installation of fiber optic micro cables MetroJET method.	P4	Design of MetroJET microduct system in the application of FTTH network.	iN4	Supervision and technical examination over fiber optic microduct systems (training for Technical Supervisors).
W5	Construction of MetroJET microduct system in the presence of existing cablesans conduits (so called overblowing).	P5	Design of rural and metropolitan broadband networks and NGN with implementation of microduct and other systems from FIBRAIN Metro family. (*)	iN5	Implementation, supervision and technical examination over MetroJET microduct systems (training for Project Managers).
MetroJET system Certified Integrator (W1-W5 + P1-P5)				Presentations with optimized program adjusted to the customer need and requirement.	
MetroJET system Training Trainer (W1-W5 + P1-P5)					

# Certificates and guarantee

After all trainings, participants receive certificates, which are necessary to be a part of the tender and later to apply for a system's guarantee for the Investor.



Installer certificate  
FIBRAIN fiber optic microduct



Warranty certificate  
FIBRAIN fiber optic microduct

## Time for challenges

There were many difficult conditions to complete/to fulfill the request.

**One of the most difficult was to prove during pilotage the possibility of blowing a 96F microcable into a 14/10 micro-**

**tube in a bundle at a distance of at least 2 km in one blow without seeing the route,** not knowing such important details as the number of turns, the difference in elevations, the number of connections, pass through wells, etc.

## Here you had to have:

- ✓ **well-matched products that have proven that they can be used on many different investments and on our test track**
- ✓ **experienced Installer who has already blown lots of cables in his life (we had two Installers with us, just in case)**
- ✓ **courage to go into the unknown**



## So we can do it!

In the meantime, the translation of all catalogue cards and instructions into Hungarian (thanks to Oliwier Paulik for working during nights for the simple Polish, thank you"). Prices of the products accepted, support services, training as well, **so the job is ours!**



Rendelés came, so we're taking the crew, equipment and good moods in our backpacks, it's Hungary, near Balaton lake, it's going to be hot, June, so it's going to be fun.

At the very last moment, it turned out that we cannot use our machines during pilotage, we have to teach Hungarian installation team who has to prove using

their equipment that it is possible to blow a cable for a minimum of 2 km ...



# Let's get started

 **The network is done, well „almost” perfectly:**



There were no plugs at the ends, the pipes were not cut with the tools from the METROJET suitcase but the saw blade, and every experienced blowing machine operator knows how disturbing can be the filings ... **It should be pointed out that we came across the perfect installation crew from the ZOLMAT company: experienced, open-minded, absorbing knowled-**

**ge people, who are not afraid of difficult tasks with which we get along according to the old saying: „The Pole – The Hungarian two nephews ...” we go together and make connections once again, we suggest, train, improve.** In the first well, it turns out that we need to make a connection at a 270 degree bend and a 93 cm elevation difference.



At a later stage, it turns out that the pipes are bent like a flexible grain (corn) snake-well, we still say that we

can manage that, we can blow the cable for a distance of at least 2 km!



The investor with a smile accepted this information and called the best engineers for the next day - D-day.

Appetizers prepared, so it is time to have fun in good company when the FIBRAIN METROJET is installed.

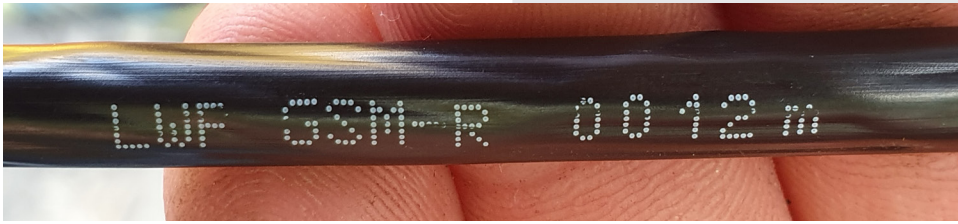


## After talking time to start the job!

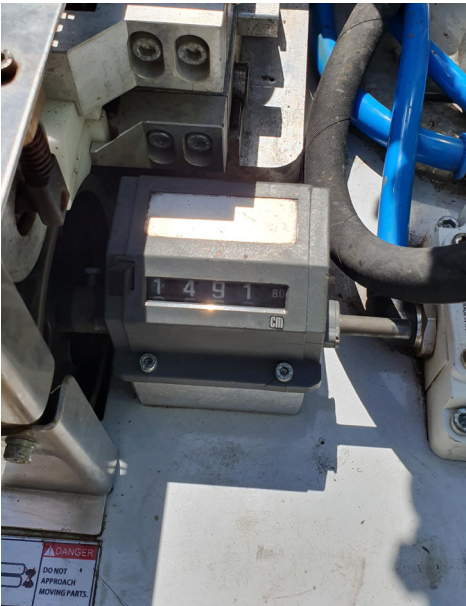




**We are blowing...**



**... and still blowing**



**Done! We have it! 😊**

**2km**

• • • •

## **With what have we won and implemented this investment?**

- ✓ **courage**
- ✓ **faith in the quality of our products**
- ✓ **technical knowledge**
- ✓ **ingenuity**
- ✓ **experience**
- ✓ **cooperation with the local installer**

### **There was also a funny moment ...**

... in the hotel after 3 days of „fighting” in the field of investment, finally it was time to get a good night sleep. But not everyone was given such a pleasure. The Chief Auditor of FIBRAIN decided to trumpet the success, and he was snoring so loud that his roommates

were not able to sleep. Even Michał was too tired for crossing this obstacle, so he was forced to leave the room and spent the rest of the night in the silence of the hotel lobby ... 😴<sup>zzz</sup>



FIBRAIN

**MetroJET**

**Prepared by:**

**Michał Ziemba**

BUSINESS DEVELOPMENT DIRECTOR

E-mail	m.ziemba@fibrain.com
mobile	+48 603 387 778
phone	+48 17 86 60 819
skype	miczie_fibrain

FIBRAIN 36-062 Zaczernie 190F Poland

**FIBRAIN** ®

FIBER OPTIC CABLE AND EQUIPMENT  
MANUFACTURER

[www.fibrain.pl](http://www.fibrain.pl)