



ate Railways (MÁV) coun ng GNSS technology



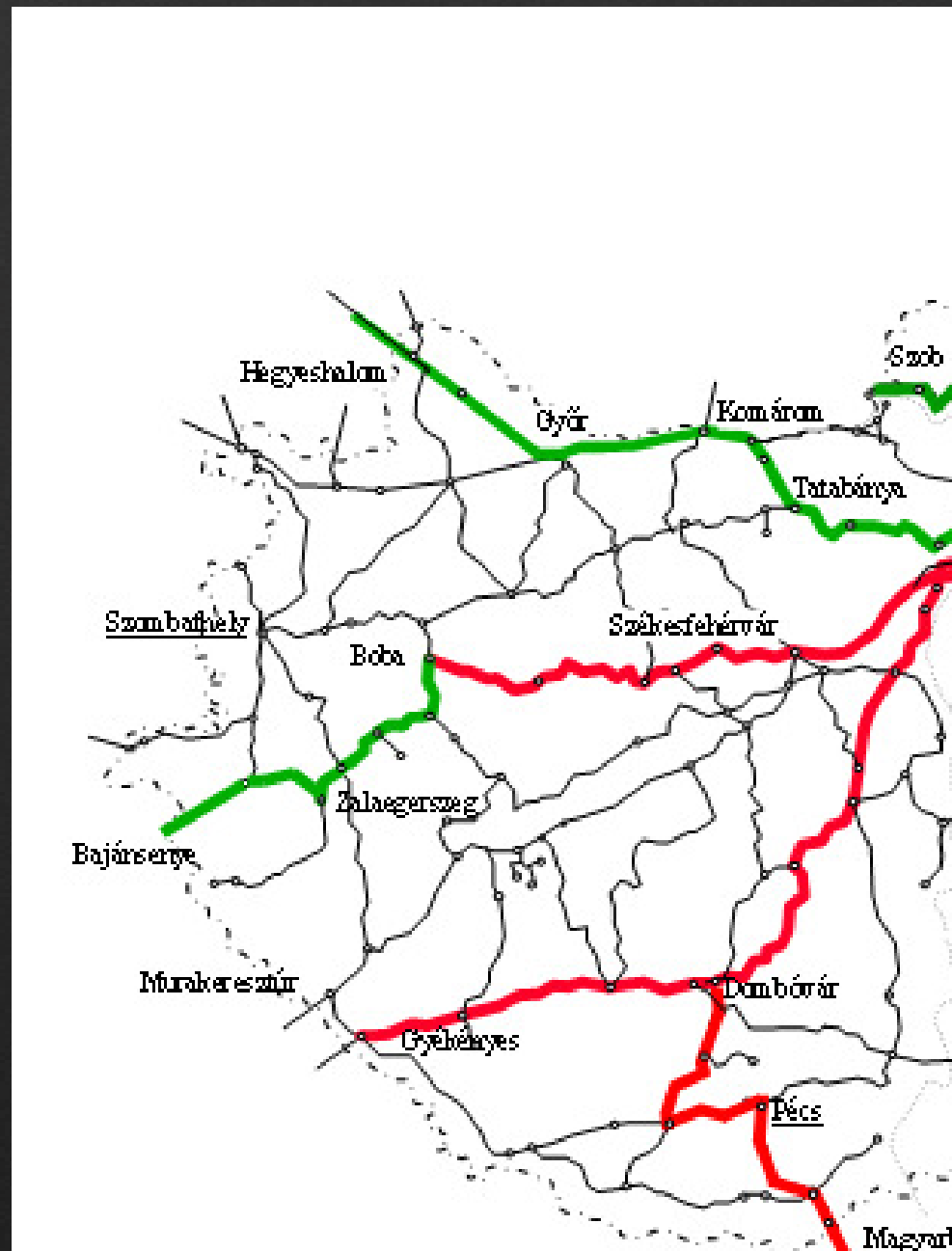
insight on how MAV, the Hungarian
objects with high precision (5 cm ~ 2
in 14 month. Data collection is key
0% of resources are often used for data
environment including civil & electrical e
d in one measurement process.

es

diversed assets
of the country

ed with fields or forest
th forests or trees

nt
ed line
ne



6 + 1 groups

Overhead Line

Utility Management
Contracts

ent of 7 different „utilities”



e

of updated maps

GIS initiatives

ts

o his own GPS

to receive data

- Analyzed data collected
- Geodetic surveying
 - Cost and time prohibitive
- Raster design based
 - Precision and availability
- Helicopter based collection
 - Cost and time prohibitive

Hungarian reference station infrastructure operating and mapping authority

(σ) horizontal, ≤ 3 cm (1σ) vertical over the whole

equipment
IONASS

(.5%)
quality

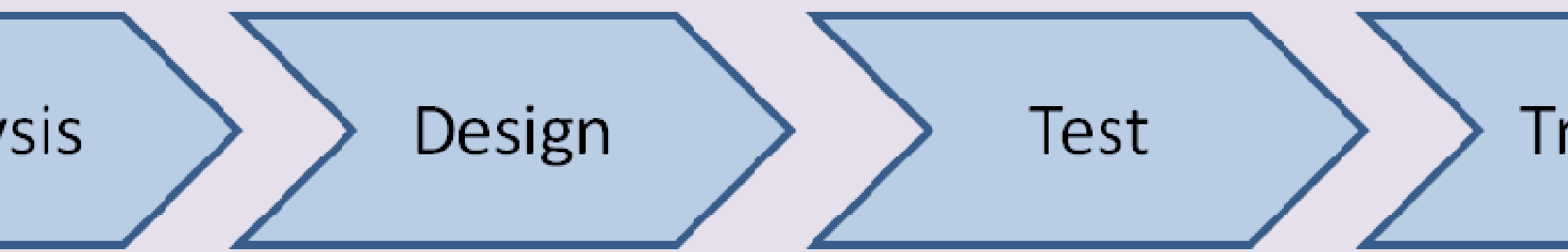


on needed
cation

age of GPRS

color codes
ernal antenna
ernal antenna





Analysis

Maps

Objects

Attributes

Workflow

Reports

Design

System

Maps & layers

Objects

Attributes

Workflow

Reports

Data collection

Measurement

Test

Integrated System

& Data collection

test

Quality

Quantity

Control systems

Training

Measurement

Measurement

Applications

Attributes

Data

Systems

Departments with independent graphical inter
vel – some assets are components of inc
objects used by all departments
erent attributes needed for specific obje
ed for all objects

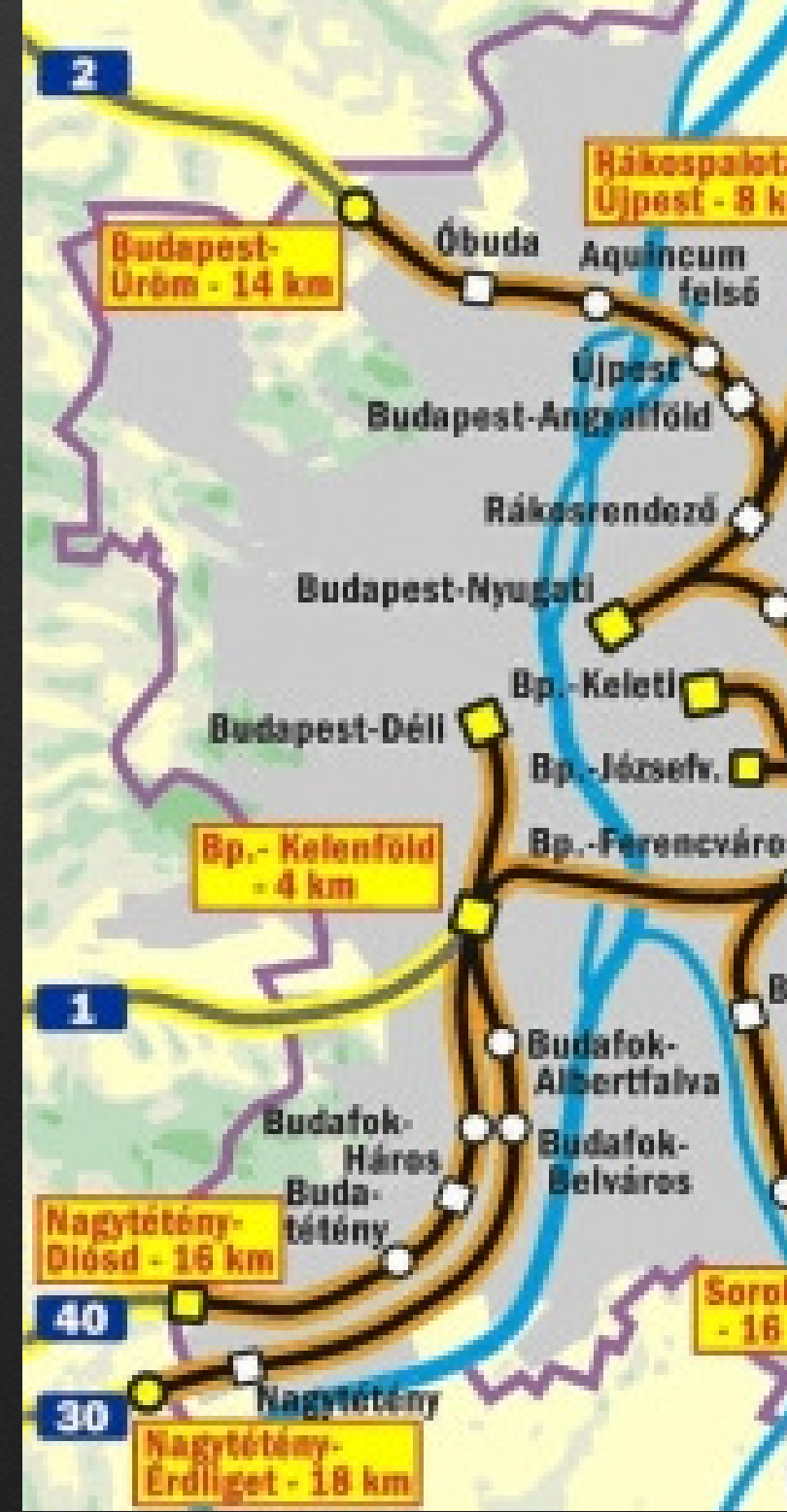
categories

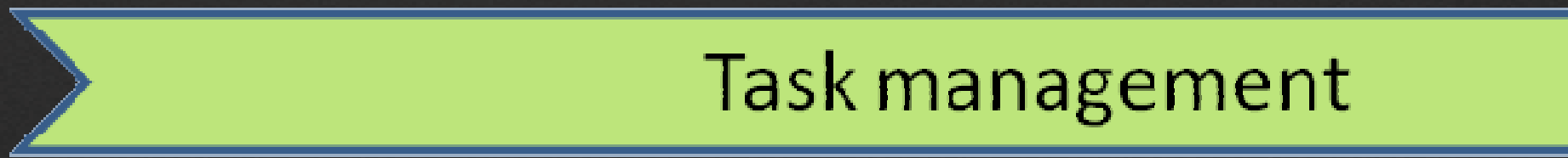
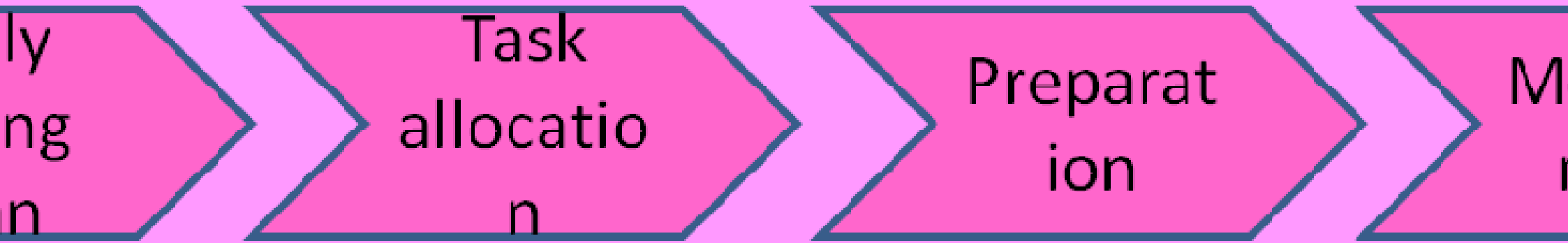
electrified

tra

new technology ratio

measurement expectations





Task allocation

- Generate task
- Allocate resources
- Holiday planning

Preparation

- Map analysis
- Support info
- Device update

Me

- Tea
- On
- Use
- Hel

Measurement area and knowledge of the territory

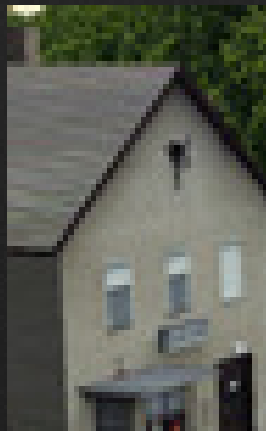
are needed

are needed for access of high risk – risk

for operation management

is performed in the 6 territories

assured by reporting



S

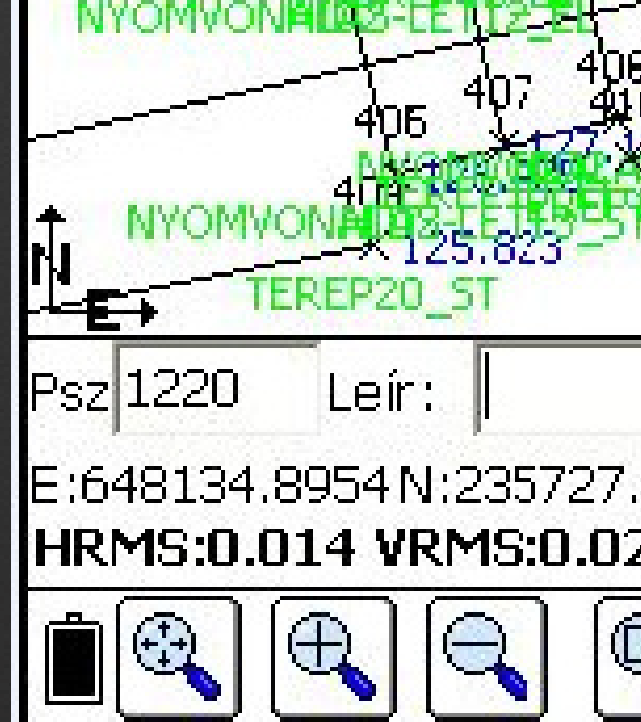
(on the earth objects)

sources

for measurements

available + colleagues with special skills

or → repeated measurement needed



Average site access time

Average measurement time

E

...erely over the whole country
... is strongly related to measurement tim
... measurement is important to follow the deve
...ures strong control of both measurement
...ories



User name	Device active time [UTC]
mavmt201	2010-08-03 05:56:49 - 2010-08-03 14:48:37
mavmt201	2010-08-04 05:57:48 - 2010-08-04 15:05:27
mavmt201	2010-08-05 04:30:49 - 2010-08-05 12:21:15
mavmt201	2010-08-05 10:44:00 - 2010-08-05 14:41:00

l to measurement time in normal proced
is a performance and quality issue
and upload is broken down to small cycle
s altogether
e in progress x 7 divisions included in ea
ss is built from 7 steps
cesses steps are

„umbrella”

processing and control

The screenshot shows the 'MÁV-MTR' web application interface. The browser title is 'MÁV-MTR - Windows Internet Explorer' and the address bar shows 'http://10.1.2.63:8080/mav-mtr-eles/'. The page header includes the MÁV logo and 'MTR - IGM/PTM' with the text 'MÁV Térinformatikai Rendszer Ingatlankezelési és Pályavasúll Tárgyi Osztós Működés'. The breadcrumb trail is 'Pálya -> WFM-2 -> WFM-2 Adatrendezés | MÁV-MTR, verziószám: 3.38 | [Kezdőoldaj]'. The main content area is titled 'Felmérés (Nagyút-Kálkáp 1077-1020)'. It shows a table with columns for 'Sorszám:', 'Indítás dátuma:', and 'Aktuális állapot:'. Below this, there are sections for 'Feladatkiértés - Ügy indítása --- 1. lépés' and 'Térképi Feldolgozás II. - Digitál-4 --- 3. lépés', each with associated details like 'Területi mérés koordinátor:', 'Állapot:', 'HUSZ - Vonalszám és szelvénytípusok:', 'Következő témafelelős:', 'Feladat átadás dátuma:', 'Mégnevezés:', and 'Határidő:'.



Task management

	<u>Adjust</u>	<u>Control</u>
from	Automatic	Local expert types
	Manual	Integration control
		Documented
		feedback
		Controlled time

y for corrections of measurements

departments

AutoDesk SW based with AU partner add

ons of GIS device in data processing

y data for processing but not in final – GIS ready - form

2008 based Upload

omatically performed for data adjustments

ections have to be performed manually

based Job Management

6 territories

working independently

data available at the review

decision has to be simple

do not wait till all reviews are performed

parallel functionality was introduced with parallel processing

central support and control

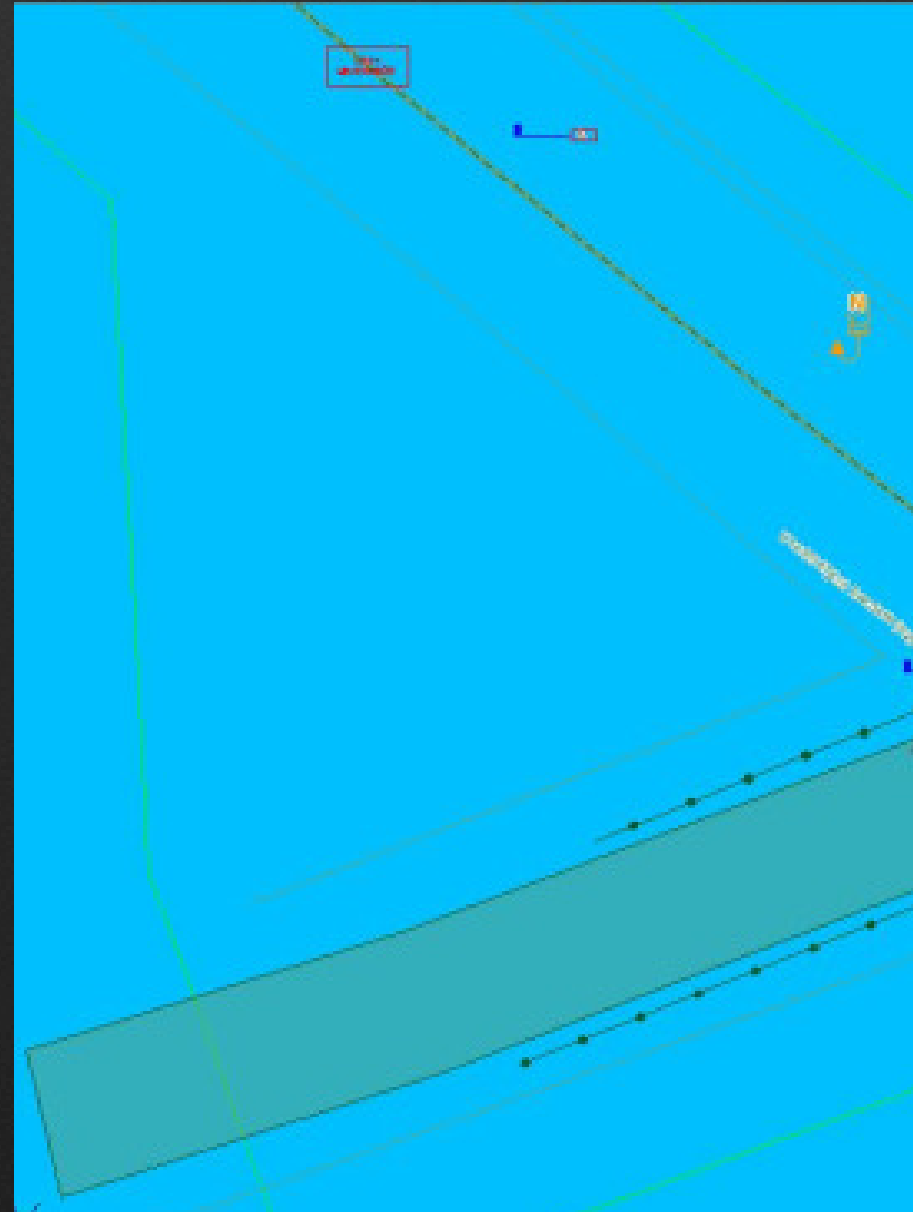
top-down approach

bottom-up approach

the data
of data quality
quality improvement
handling

users to come with
s
and interface requests

ilding measurement



Working at MÁV

eReporting
eControlling
Satisfaction survey

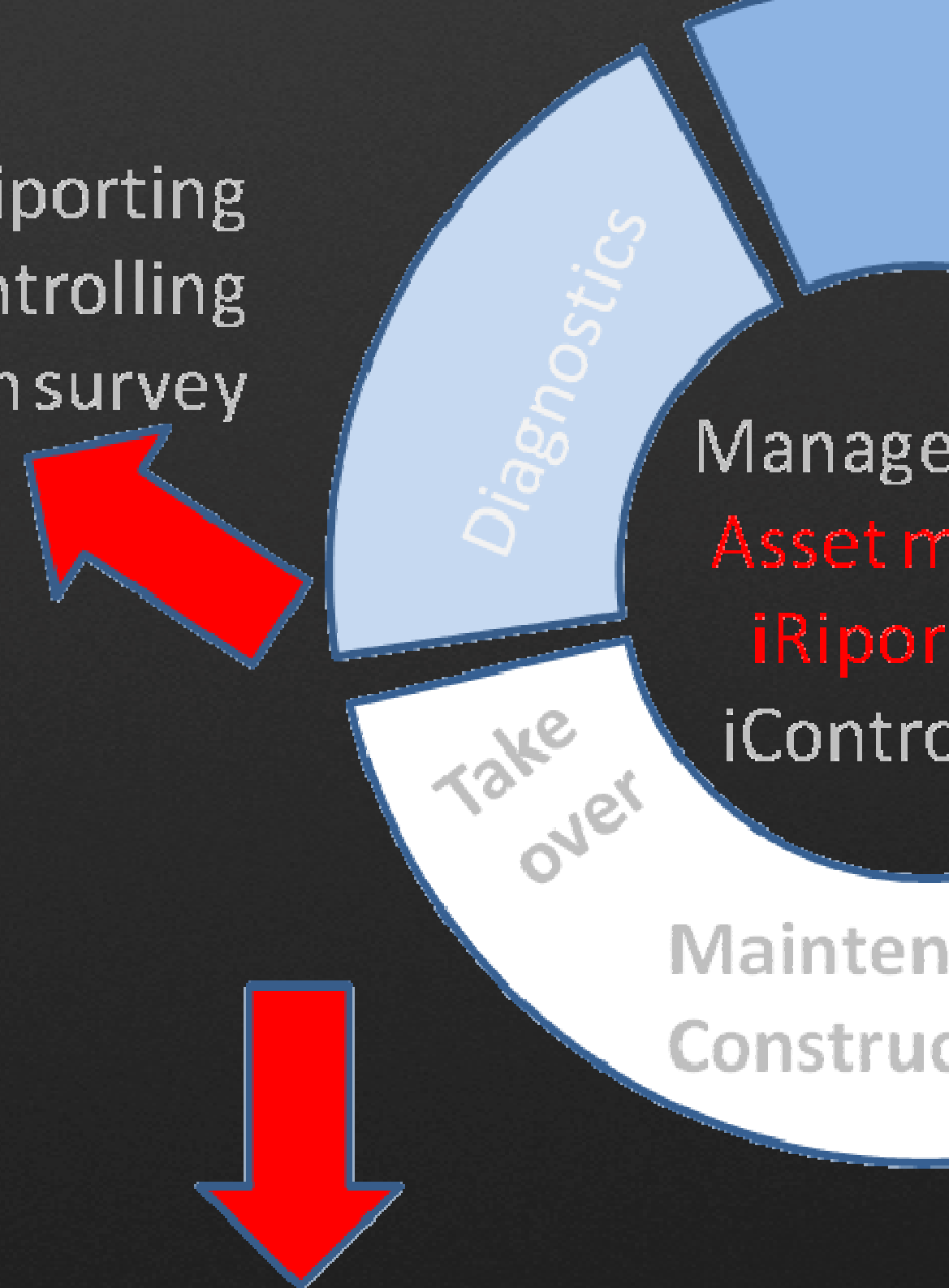
Improved

info - GIS

approach needed

stage have

communicated in basic



g for data

d

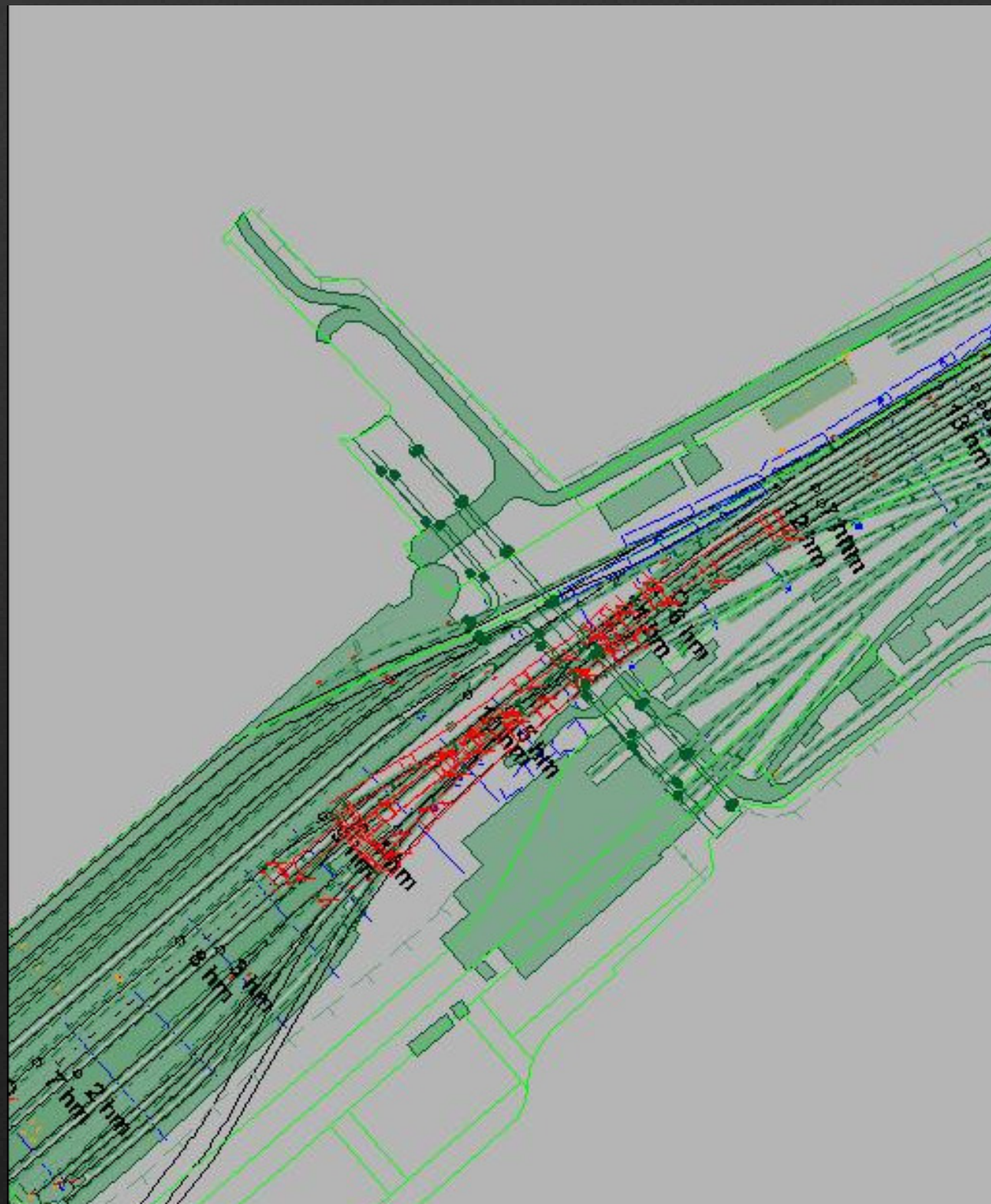
e cost versus
ost – 4 times

rencing versus
4 times savings

d on MÁV

ge

tem” effect



ay aspects of MÁV GIS project was gov

Mr. Dr. László Mosóczi,
resident of the Hungarian State Railways