



SOLUTIONS FOR MOBILITY OF 21ST CENTURY

**New role of a multinational mobile operator
in the area of intelligent mobility**

The background of the slide is a vibrant, abstract digital landscape. It features a deep blue gradient with glowing, curved lines that suggest the flow of data or information. Scattered throughout are streams of binary code (0s and 1s) in various shades of blue and white, creating a sense of depth and movement. The overall aesthetic is futuristic and high-tech.

ARE BIG DATA TRANSPORT'S “SILVER BULLETS”?

MOBILITY is recently on the edge of **FUNDAMENTAL CHANGES**: vehicles, travelers, and the transportation infrastructure are being connected and form a network of **MILLIONS OF SENSORS/DEVICES** that can communicate with each other.

Travelers are flooded with **REAL-TIME** information coming from overarching **COMMUNICATION NETWORKS**.

This will change today's intuition based **DECISION MAKING** to decision making **BASED ON KNOWLEDGE** of ambient conditions.

To enhance the decision making process, **WE DEVELOP SOLUTIONS**, which are built upon **BIG DATA**, using the information coming from the very **TECHNOLOGIES**, which are currently **CHANGING OUR WORLD**.

BIG DATA FOR MOBILITY & TRAFFIC

“IF YOU CAN MEASURE IT, NEVER MODEL IT“

COMPLEX TRAFFIC MOBILITY LIVE MONITORING – THE FIRST STEP TOWARDS ACTIVE SMART MOBILITY MANAGEMENT

MOBILITY MONITORING

Based on anonymized signaling data from mobile network



CELLULAR DATA USED



TRAFFIC MONITORING

Based on floating car data, detectors, toll data, meteo data



GPS DATA USED



BIG DATA VALUE CHAIN

GENERATION OF ANONYMIZED DATA



Anonymized signaling data + cell map data
GPS data from large fleets and navigation communities

DATA PROCESSING, DATA ANALYSIS AND DATA INTERPRETATION



Linked with other data – digital maps, census data

TRAFFIC AND MOBILITY MEASURED BUSINESS INTELLIGENCE FOR EXTERNAL CUSTOMERS



Recomputing output for the entire population

OFF-LINE BUSINESS INTELLIGENCE

- # of people, socioeconomic data
- Typical (repetitive) / Atypical
- “Snapshot” / time series per location
- Relations (home-work), list of daily trips

ON-LINE BUSINESS INTELLIGENCE



ROZVOJ DOPRAVNÍCH SYSTÉMŮ

Mobility monitoring

MONITORING MAJOR EVENT IN REAL TIME



NATIONAL MOBILITY ANALYSIS

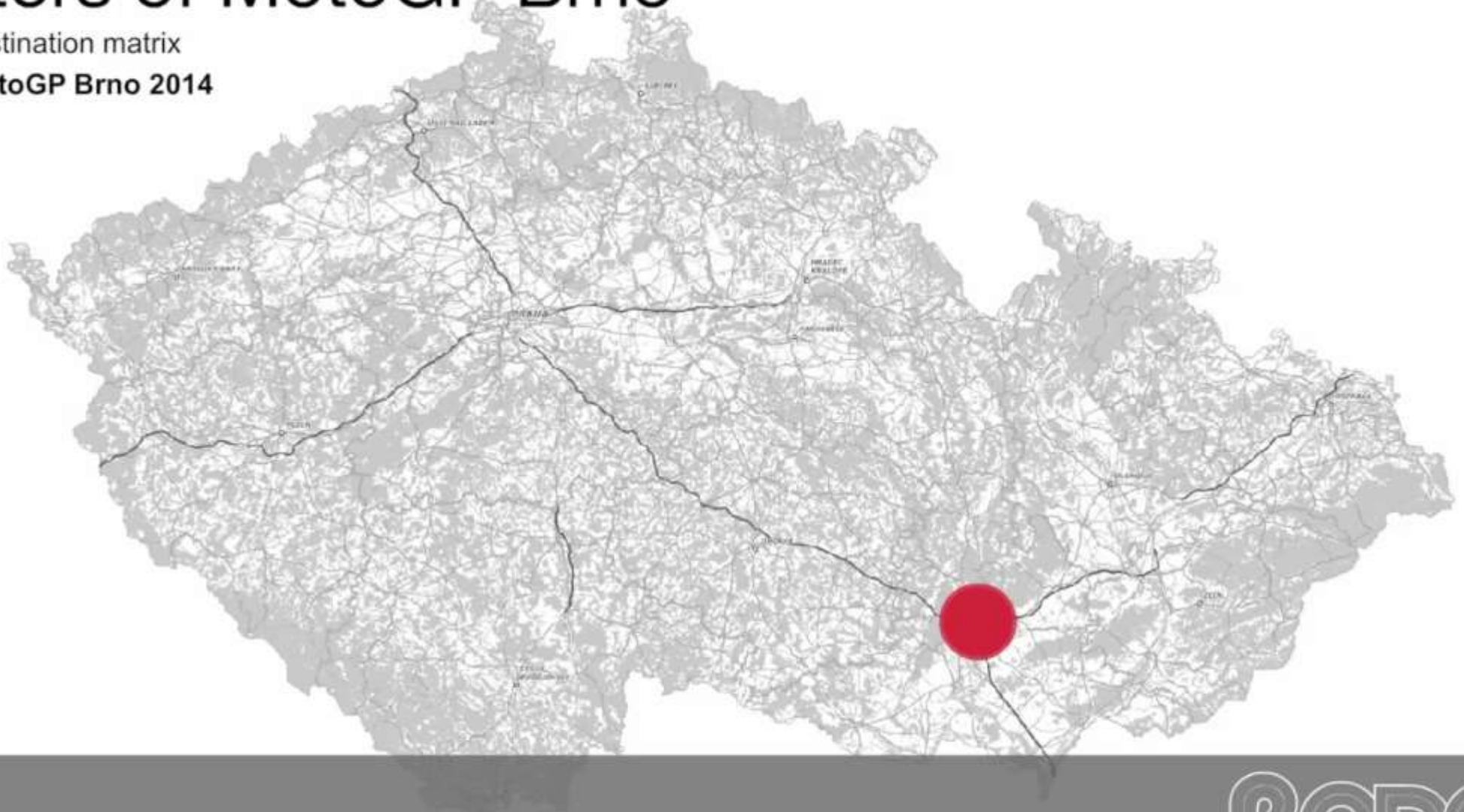
AGGREGATED ORIGIN-
DESTINATION
MATRIX



Visitors of MotoGP Brno

Origin destination matrix

Case: **MotoGP Brno 2014**



CENTRAL EUROPEAN MOBILITY ATLAS CEMA – CROSS BOARD DATA

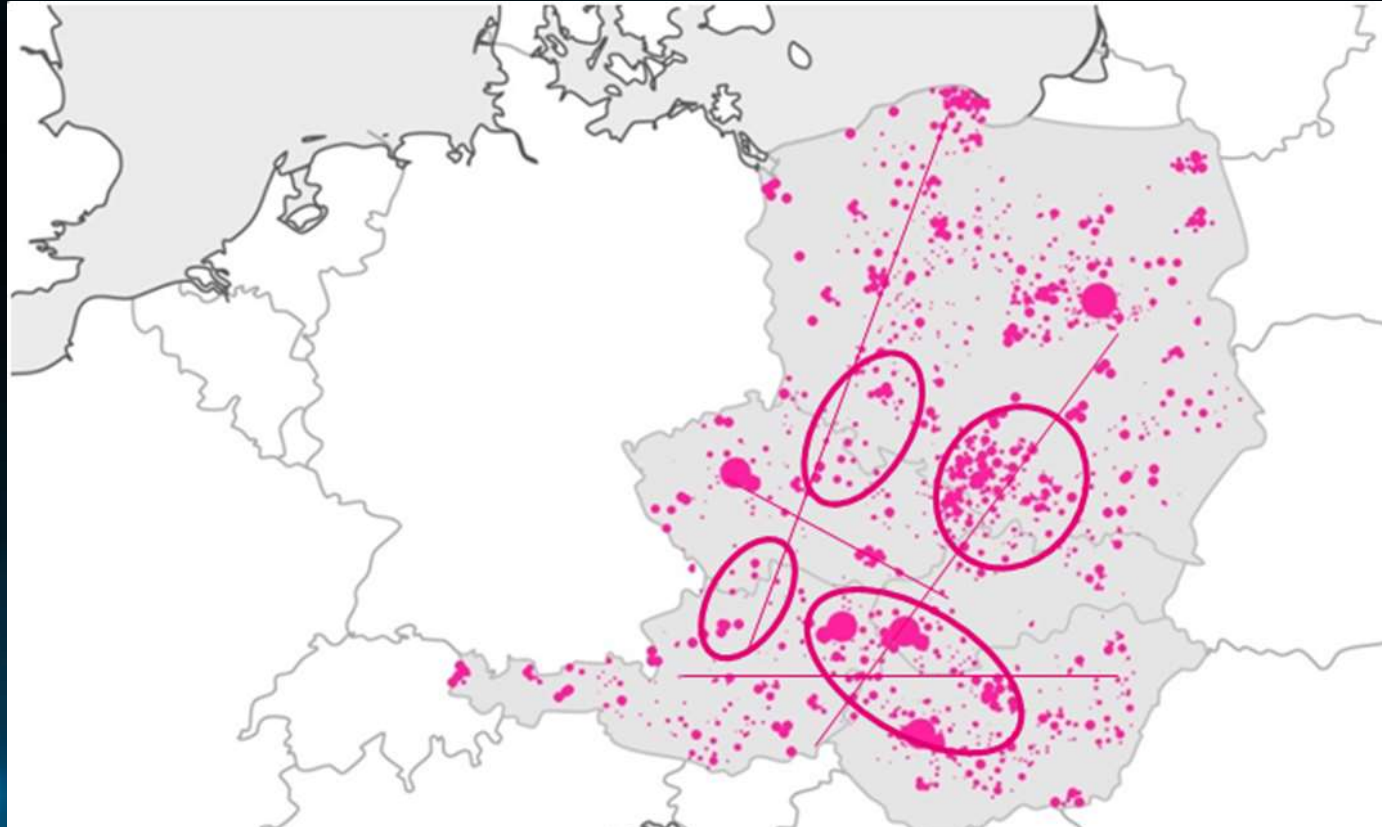
Neither bodies of the EU Commission nor individual member countries have access to comprehensive data describing the transport / mobility across the EU. It is missing system which crosses national borders and allows monitoring of mobility across Europe as well as enable realize more Data Value Chains.



(CENTRAL) EUROPEAN MOBILITY ISSUES

MISSING COMMON TOOLS FOR TRAFFIC AND CRISIS MANAGEMENT

- Individual countries of Central Europe have different levels of mobility services, respectively systems for traffic management and crisis management. This situation is not ideal either for travelers, global logistics or for public entities guaranteeing the operation on European transport corridors.
- Three major mobility issues in Central Europe
 - Economical cross-country regions (Wien+Bratislava+Budapest; Ostrava+Katowicz+Žilina etc.)
 - Global logistic corridors
 - Personal transport peaks (holiday ...)



BUSINESS INTELLIGENCE – FOR WHOM?

PUBLIC AS WELL AS CORPORATE SECTOR

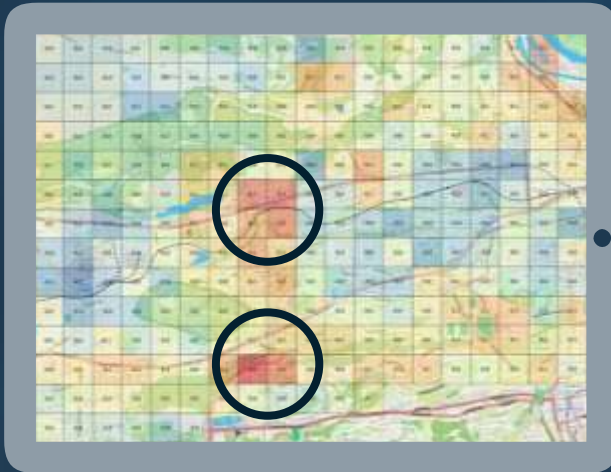
PUBLIC SECTOR		VARIOUS OPTIMAIZATION OPPORTUNITIES FOR PUBLIC SECTOR (PUBLIC SERVICE „RETAIL“ NETWORK)
		BETTER INFORMATION FOR TRAFFIC AND CRISIS MANAGEMENT
		MOBILITY PLANNING – INFRASTRUCTURE, PUBLIC TRANSPORT
		COORDINATED METROPOLITAN MANAGEMENT
		URBAN PLANNING
PUBLIC SECTOR + CORPORATE		TOURISM STATISTICS
CORPORATE		RETAIL NETWORK OPTIMALISATION

ADVANCED MOBILITY ANALYTICS CASE STUDIES

LOCAL/CITY MOBILITY ANALYSIS

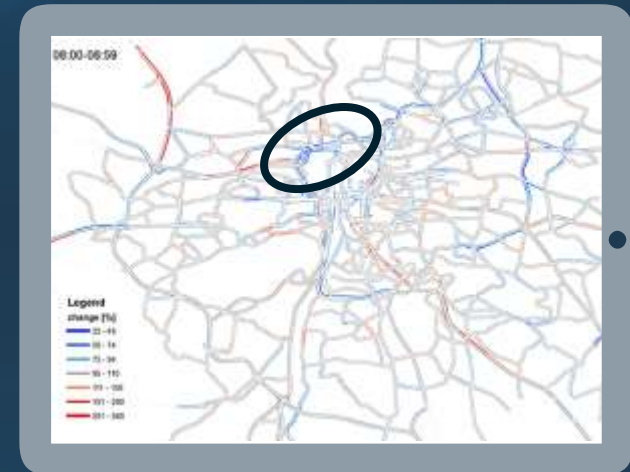
INFRASTRUCTURE PROJECT IMPACT ANALYSIS IN PRAGUE

OPENING NEW METRO A STATIONS



- In red: increases of daily visitors ner new mobility hubs formed by newly opened metro stations
- In blue: overall deconcentration of mobility from the the entire area from the surface towards metro

OPENING OF A MAJOR TUNNEL BLANKA



Increased of fluidity of traffic around the tunnel and on alternative routes before and after opening the tunnel (marked on the map)

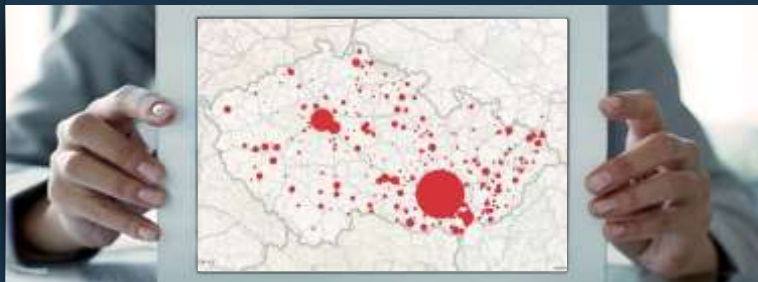
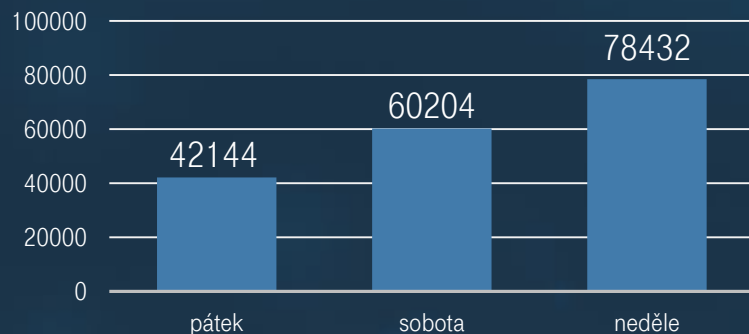
- In blue: less congestion in %

EVENT MOBILITY ANALYSIS

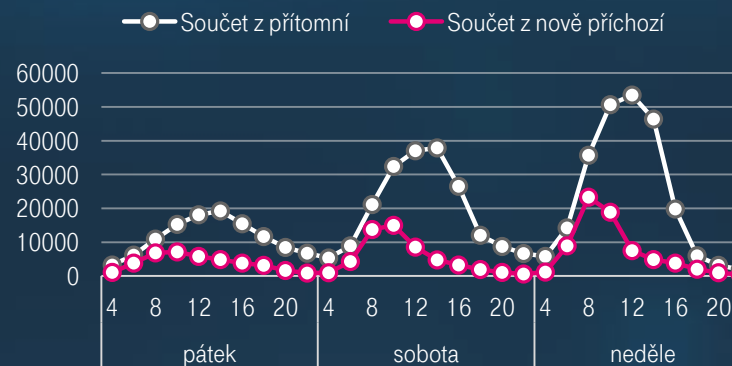
MOTO GP BRNO 2014



NUMBER OF VISITORS PER DAY OF THE EVENT



NUMBER OF PEOPLE PRESENT AND "NEWCOMERS" DURING THE EVENT



CUSTOMER



TRAFFIC AND CRISIS MANAGEMENT

ON-LINE APPLICATION FOR MANAGEMENT OF CRISIS



Showing traffic jams and
number of people present
per square in real time

WRAP UP

OUR VISION



To offer
**MULTINATIONAL
BIG DATA
PLATFORM**



Leveraging **5 YEARS
OF EXPERIENCE
IN BIG DATA
AREA**

WHY US



More than
**20 REALIZED
PROJECTS**
in EU



**UNIQUE
COOPERATION**
WITH Universities
and Commercial
sector

DEUTSCHE TELEKOM

ENABLER FOR DIGITALIZATION

INNOVATION POWER OF GLOBAL PLAYER

Digital Division bundles the innovation power of T-Systems, Deutsche Telekom and leading partners



STANDARDIZED, SCALABLE PLATFORMS

Digital Division offers standardized, scalable platform-based products combined with connectivity and footprint of a global ICT player and Deutsche Telekom



PARTNER ECO-SYSTEMS + OWN DIGITAL ASSETS

Digital Division combines standardized products from best of breed partners as well as own industry-focused digital platforms



TRUSTFUL BRAND: “T” FOR TRUST

Deutsche Telekom is the most trustful and valuable brand in Telecoms in Europe with strong investment in innovation, network quality and customer service

CLOUD & SECURITY MADE IN GERMANY

Cloud operated in Germany by Deutsche Telekom under German Law ensures privacy/security in line with highest data standards

BEST NETWORK IN EUROPE

Deutsche Telekom offers the most reliable network in Germany and is technology leader in CEE with PanNet and IP

THANK YOU!

