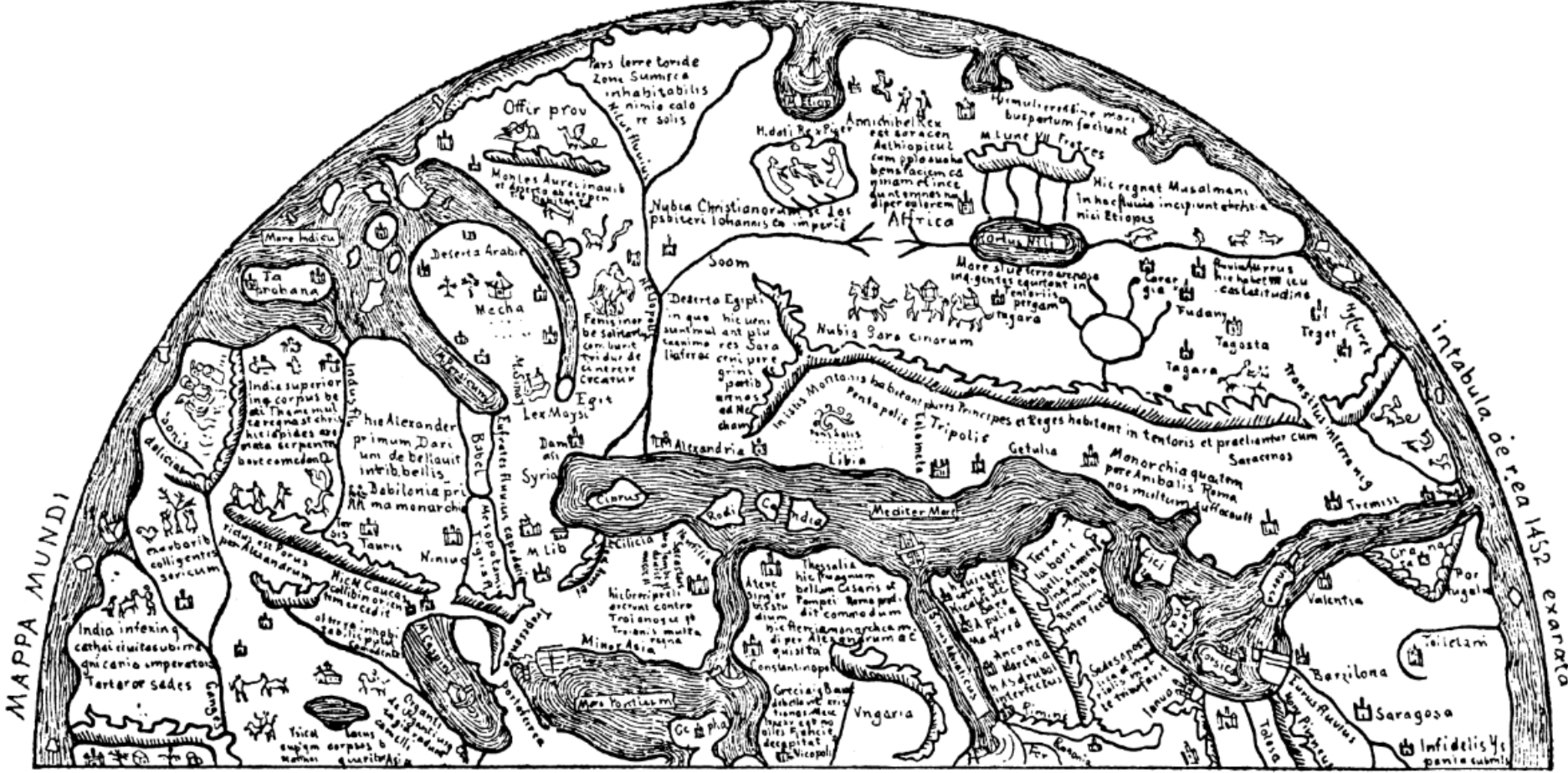# Revolution in Map Creation with FCD and xFCD

ESRI European Congress 2014   October14th, 2014
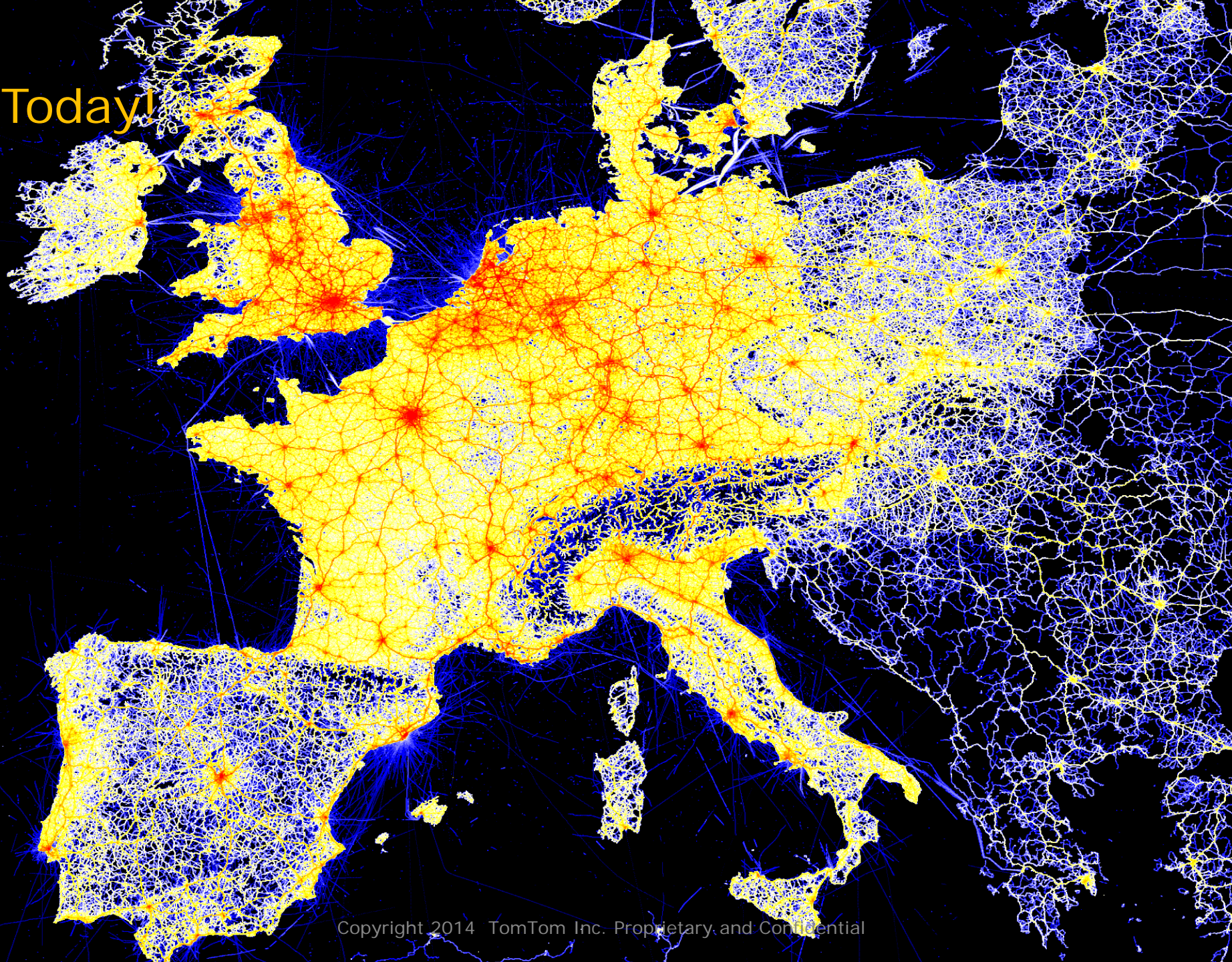
Jeroen Brouwer

The Past

Today!

Topics for Today

- ❯ MAP CREATION

- ❯ REVOLUTION WITH FCD

- ❯ THE FUTURE WITH XFCD

TOMTOM

MAP CREATION

Intelligent Mapmaking
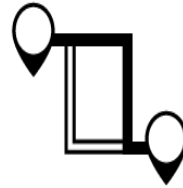
Mobile Mapping Van's

Field Survey

Authoritative Sources

Probe Data
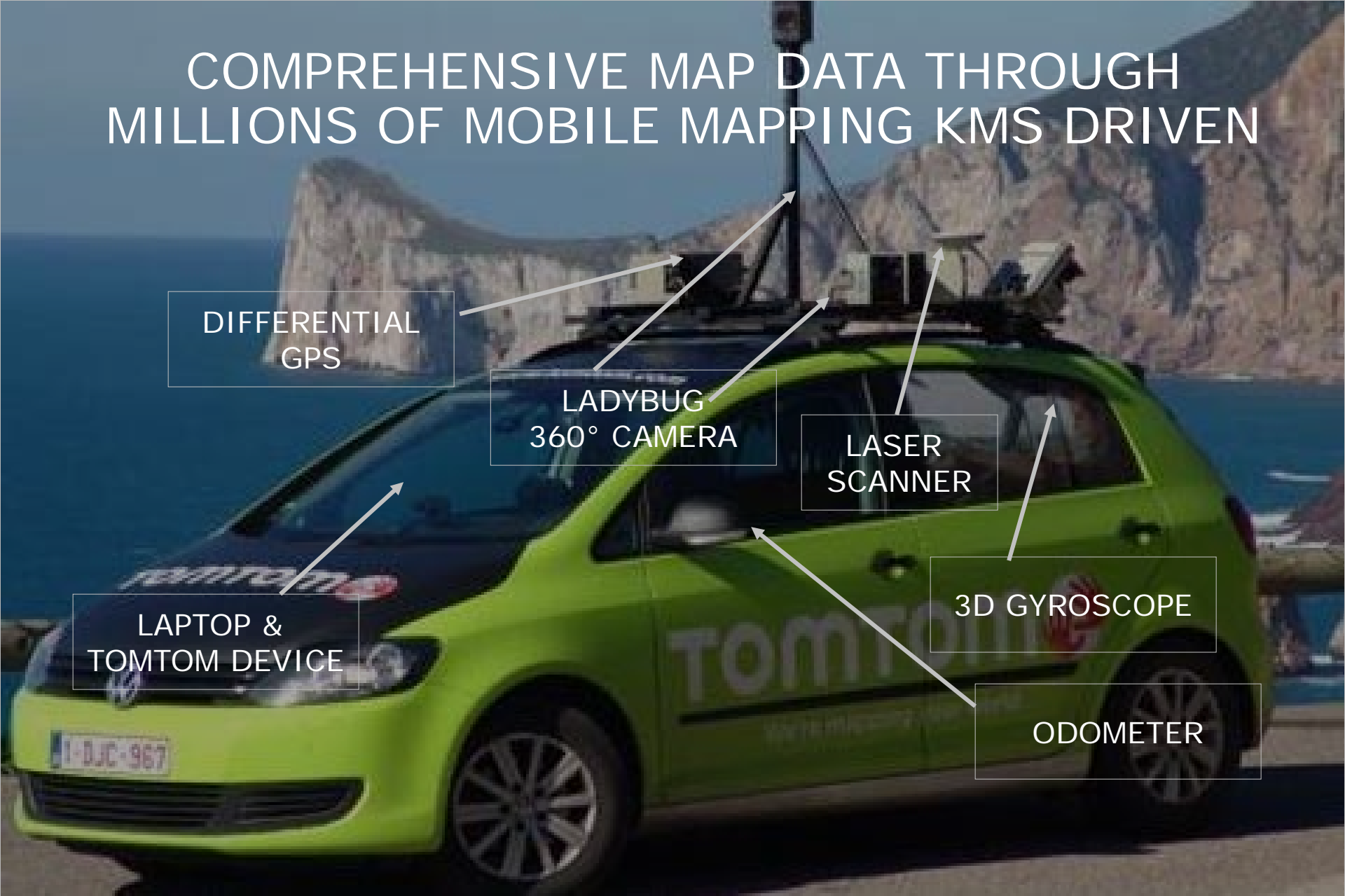
Community Input

Sensor Data

INTELLIGENT MAPMAKING

Hybrid approach that optimizes professional mapmaking through the use of community input from hundreds of millions of map users

COMPREHENSIVE MAP DATA THROUGH MILLIONS OF MOBILE MAPPING KMS DRIVEN

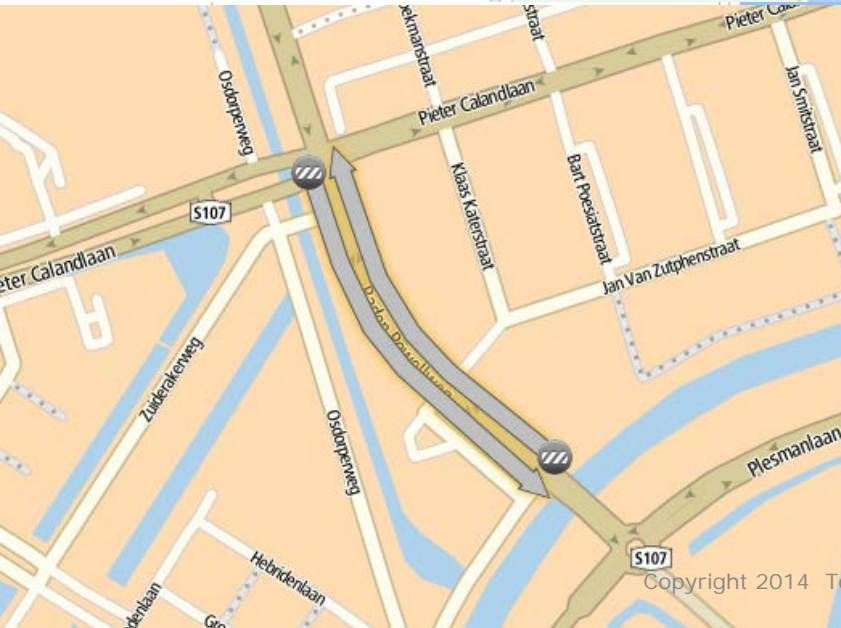DIFFERENTIAL GPS

LADYBUG 360° CAMERA

LASER SCANNER

LAPTOP & TOMTOM DEVICE

3D GYROSCOPE

ODOMETER

TOMTOM

Active Community Input

FLOATING CAR DATA

TomTom
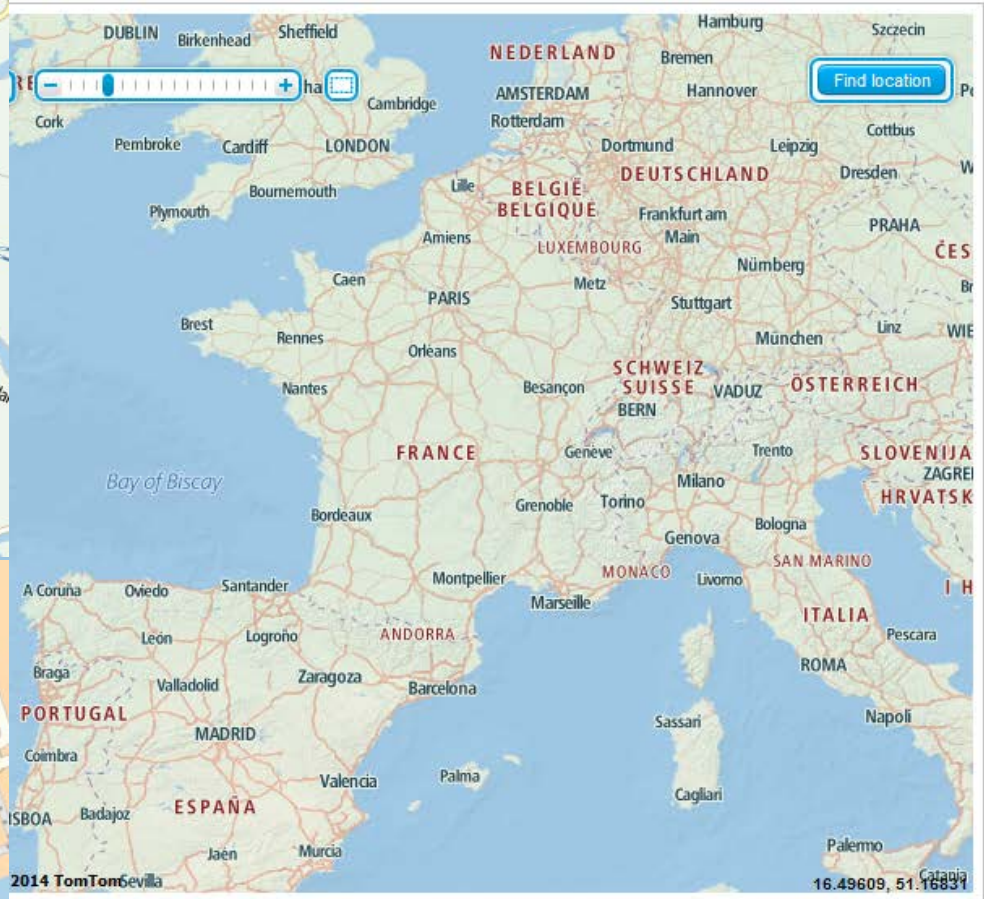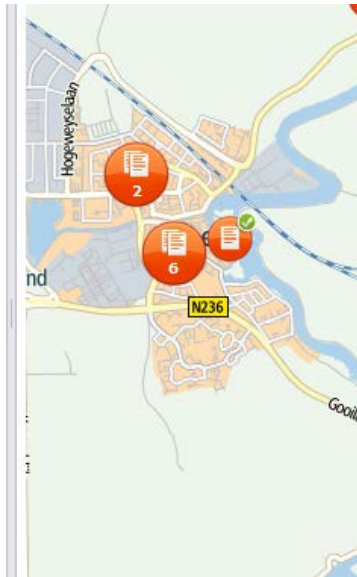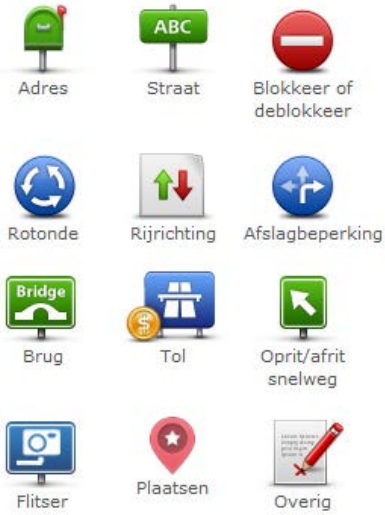
Floating Car Data

Passive Crowd Sourcing

700,000	Years
9,000,000,000,000	Points collected to date
7,000,000,000	Traces per Day
175,000,000,000	Total Miles Driven

Passive Community Input – Fusion Engine

Passive Community Input

Field Survey

Connected Device

Over 8 billion payments validated

Database & Satellite image

Passive Community Probe Trace

TOMTOM

Intelligent Map Making

SOURCES

GPS Measurements

Field Survey

Community Input

Authoritative Sources

TECHNOLOGY

Change Detection Algorithms
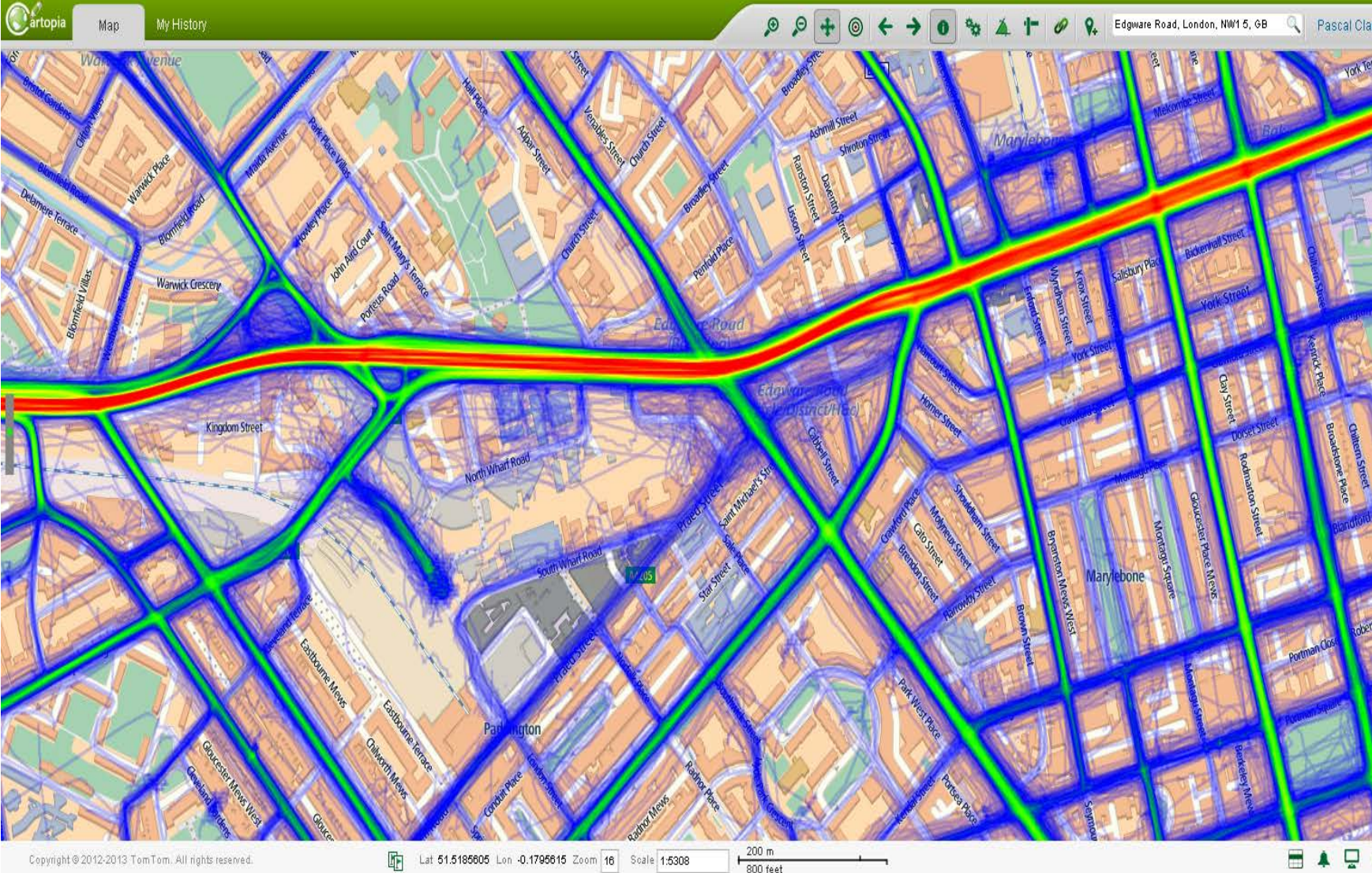
Consistency Checking Algorithms

Validation Algorithms

Automated Feature Creation Algorithms

PRODUCTS

Traffic Sollutions

Landmarks

Address Points

Logistics

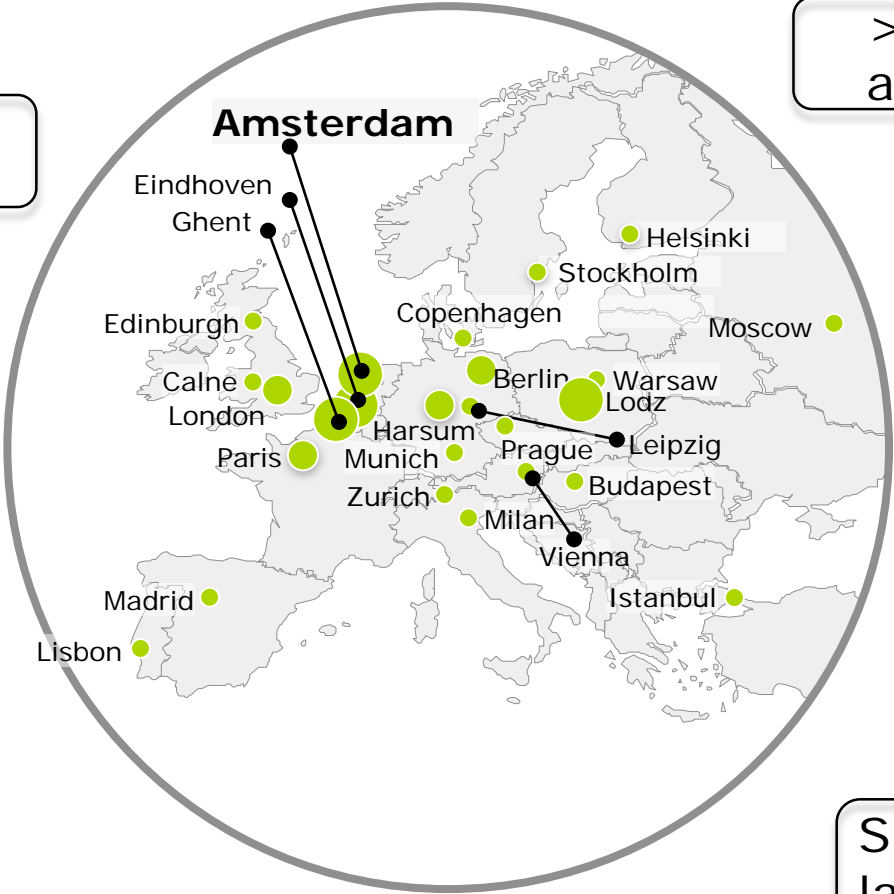Advanced City Maps

Voice maps

POIs

2D City Maps

Combining massive amounts of local user knowledge, driving behaviour and authoritative content with smart statistical processing and controlled quality processes

TomTom

Global Reach, but with Local Knowledge

>40 Countries around the world

>1300 Map experts

Amsterdam

Eindhoven
Ghent

Helsinki
Stockholm

Edinburgh
Copenhagen
Moscow

Calne
London
Berlin
Warsaw
Lodz

Paris
Harsum
Munich
Prague
Leipzig

Zurich
Budapest

Milan
Vienna

Madrid
Istanbul

Lisbon

Supporting 30 languages

Local partners in specific markets

TOMTOM

The Complete Process

Detect Change	Validate Change	Accept Change
Community Input Active + Passive	Leading Fusion Engines	Leading Content Store
Traditional Sources	Moderation & Guided Community	Real-time Quality Checks
Partner community input		
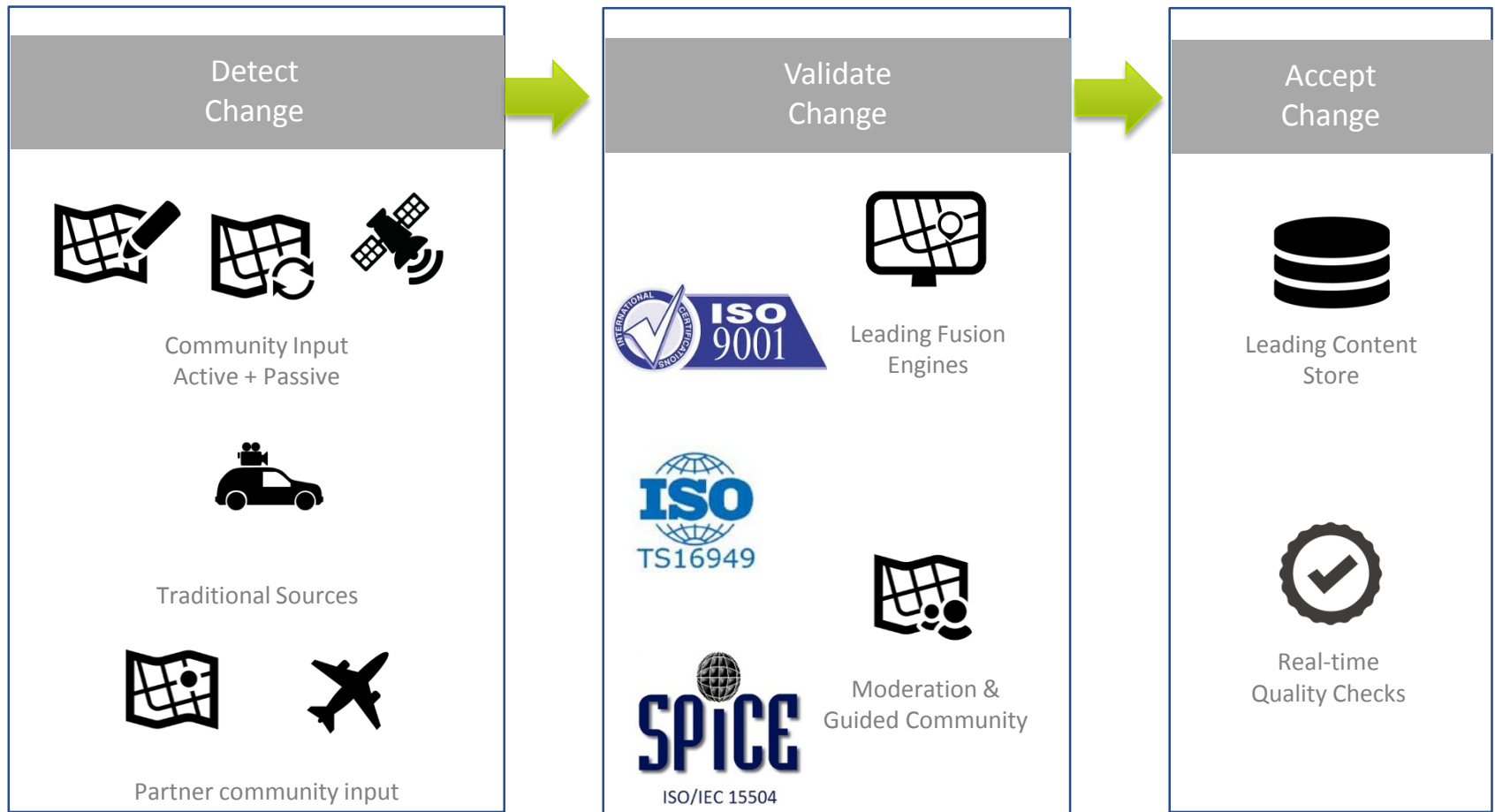
Rigorous Quality Processes

TomTom

MultiNet-R

Now: Monthly Updates

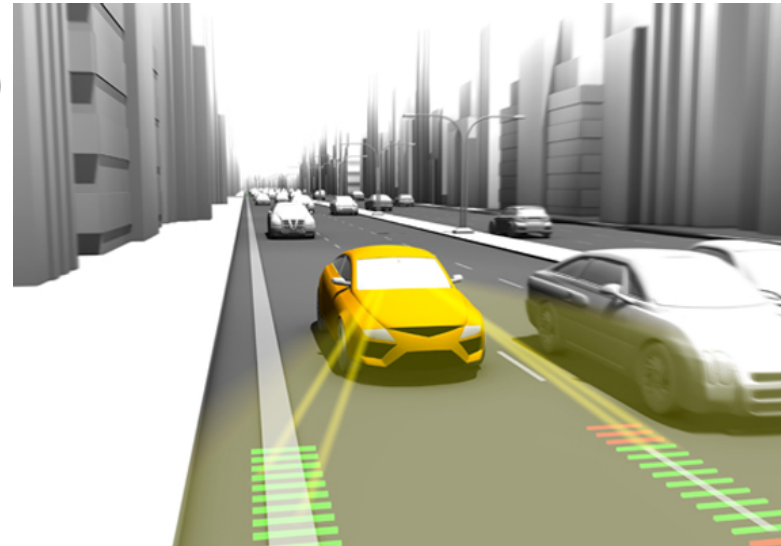2016: 48 hour Update Cycle

Available as Delta Update

Benefit directly from the extensive update process

EXTENDED FLOATING CAR DATA

TOMTOM

The future with xFCD

- xFCD = eXtended Floating Car Data
- More than only GPS – additional data from the board computer
- Highly interesting for Highly Automated Driving (HAD)
- Potential values to collect:
    - Curvature
    - Road Signs
    - Distance to other cars
    - Toll Gates
    - Weather Sensors (ABS, Temperature etc.)
    - Traffic Light
    - Start-Stop usage
    - Gradient
    - Number of Lanes;

TOMTOM

Thank you

Any questions?

TOMTOM