



m3 SYSTEMS

RESEARCH · CONSULTING · ENGINEERING

We guide you

High performance positioning/navigation

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SOMMAIRE



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1/ M3 Systems corporate

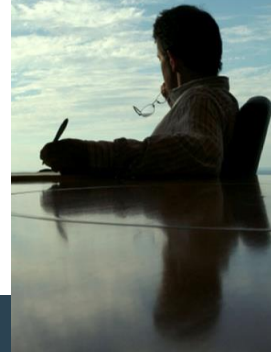
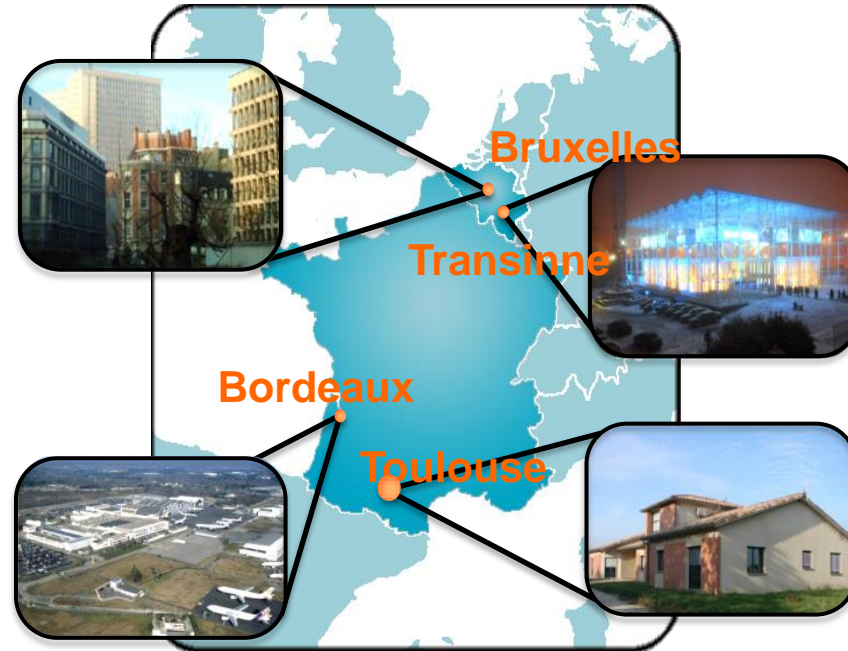
2/ Expertise and offer

3/ Data fusion (Hybridization)

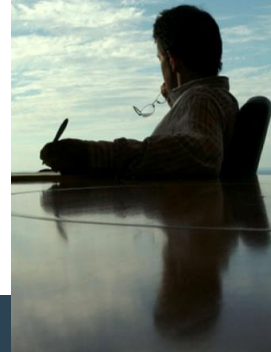
4/ Agriculture

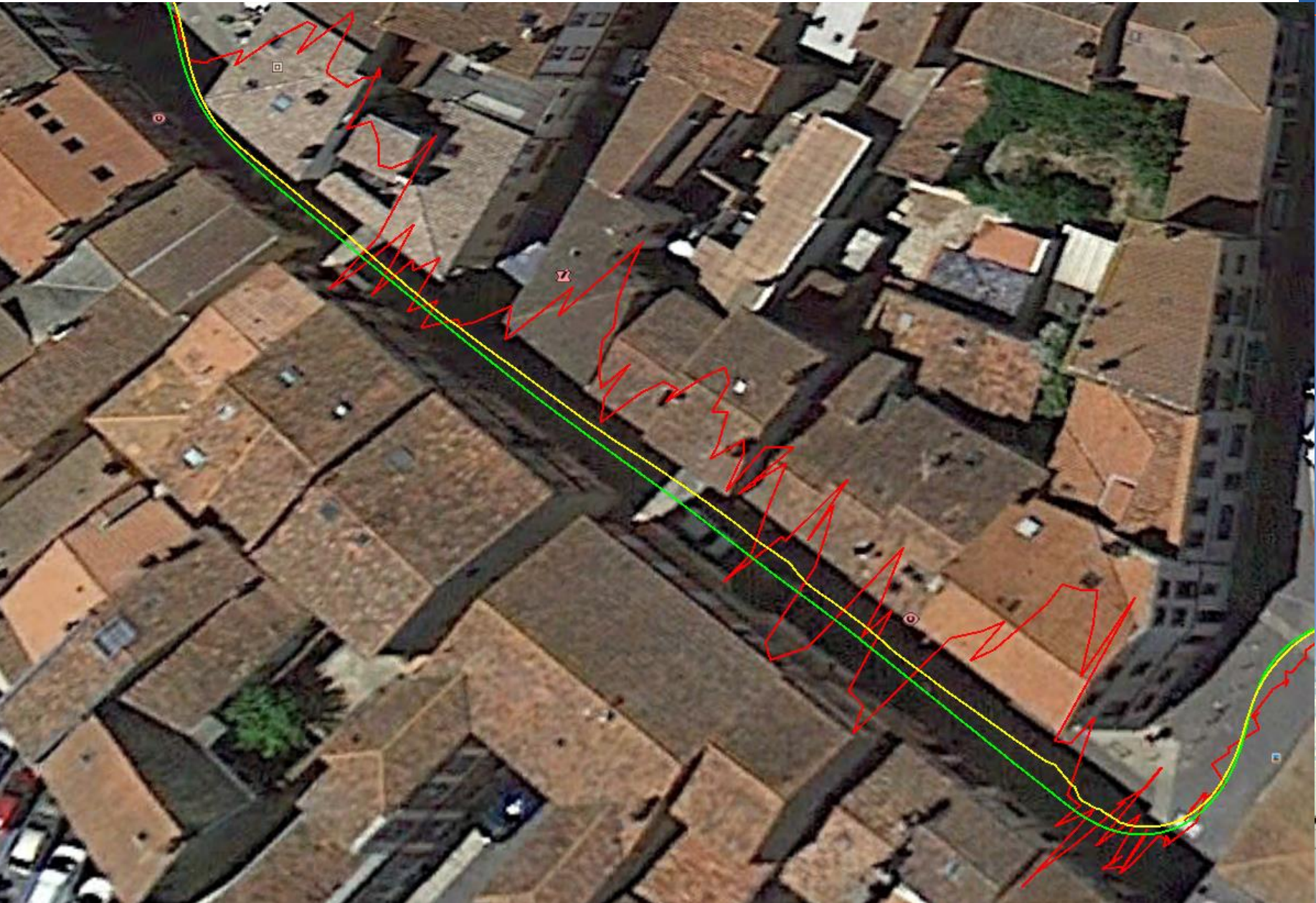
independent SME

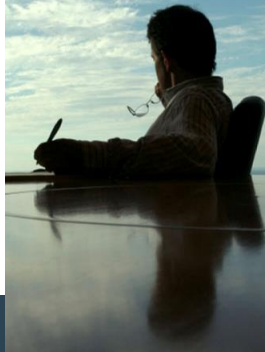
- Created in 1999
- CEO
 - Marc POLLINA
- Around 35 employees
- Turnover : 2.7 M€ (2012)
- Location
 - France
 - Toulouse (head office), Bordeaux
 - Belgium



- **Localization/positioning**
 - Innovative GNSS technologies & applications.
- **Sample of Applications**
 - Transport of Dangerous goods
 - Airport inspection
 - Versatile positioning unit
 - Precise positioning
 - Test & measurement



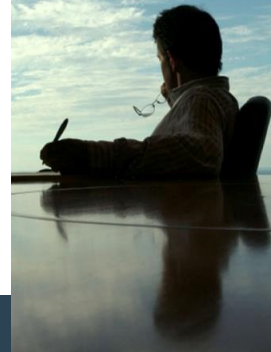




Data fusion

HOW

- Constellations + Frequencies
- Precise positioning
- Sensors (odometer, vision...)
- Data fusion
 - Loose / Tight / Ultra-tight



Data fusion

HOW

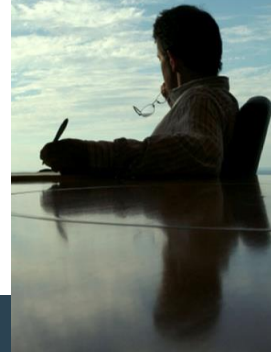
- Constellations + Frequencies
- Precise positioning
- Sensors
- Data fusion
 - Loose / Tight / Ultra-tight



Position
Vitesse / attitude

WHY

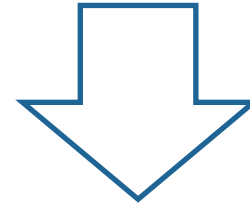
- Accuracy
- Availability
- Integrity(reliability)



Data fusion

HOW

- Constellations + Frequencies
- Precise positioning
- Sensors
- Data fusion
 - Loose / Tight / Ultra-tight



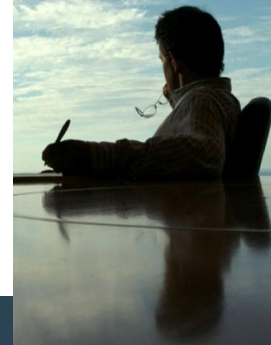
Position
Vitesse / attitude

WHY

- Accuracy
- Availability
- Integrity(reliability)

WHO

- B to B



Data fusion

HOW

- Constellations + Frequencies
- Precise positioning
- Sensors
- Data fusion
 - Loose / Tight / Ultra-tight

WHY

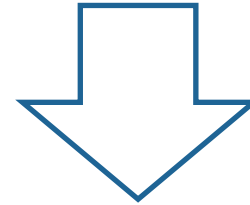
- Accuracy
- Availability
- Integrity(reliability)

WHO

- B to B

APPLICATIONS

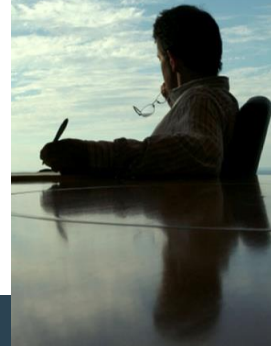
- Outdoor
- Indoor



Position
Vitesse / attitude



- Autonomous systems
- Dynamic and reliable map
- Anti-jamming
- E-call...



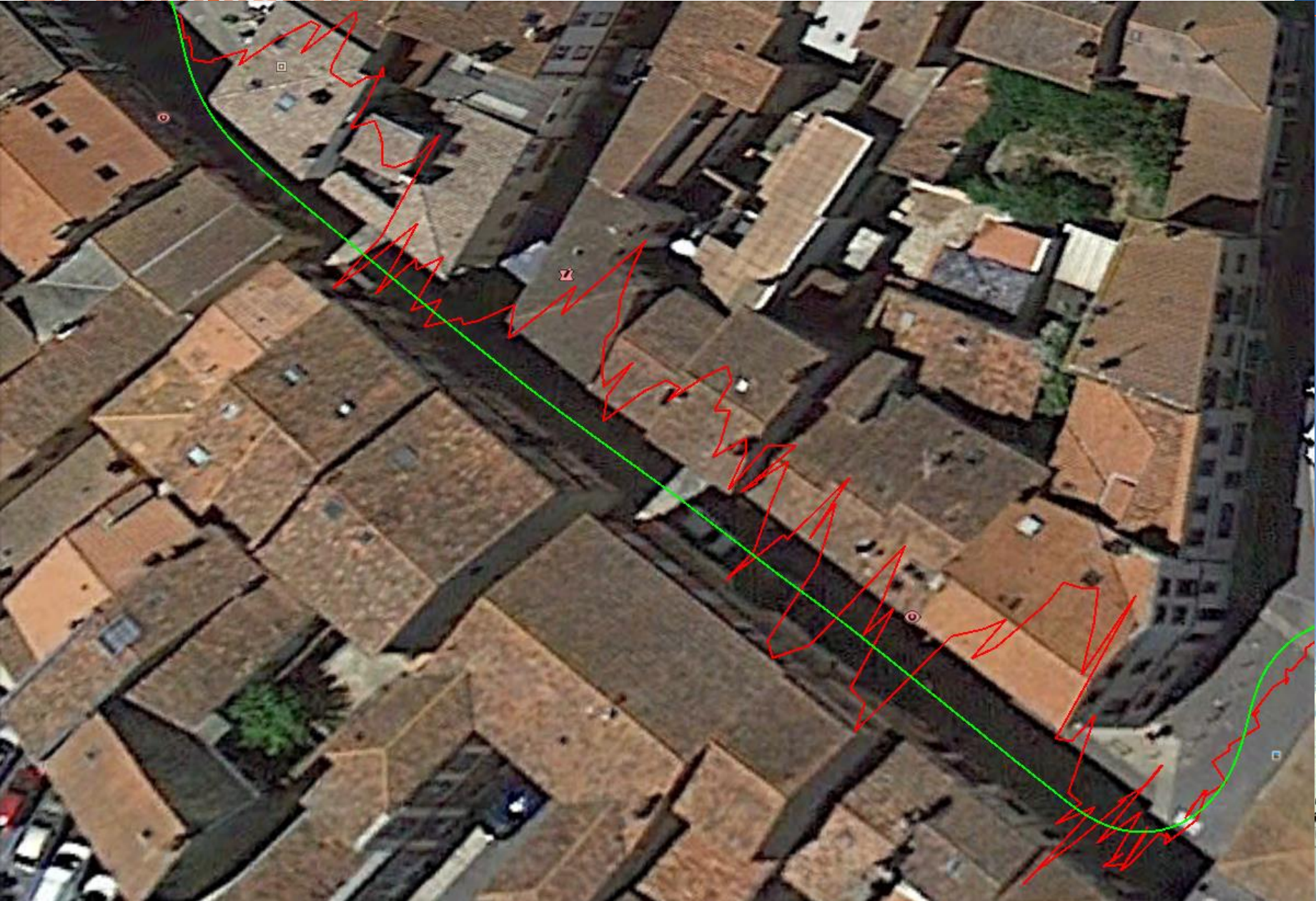


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Reference trajectory (GBOX)



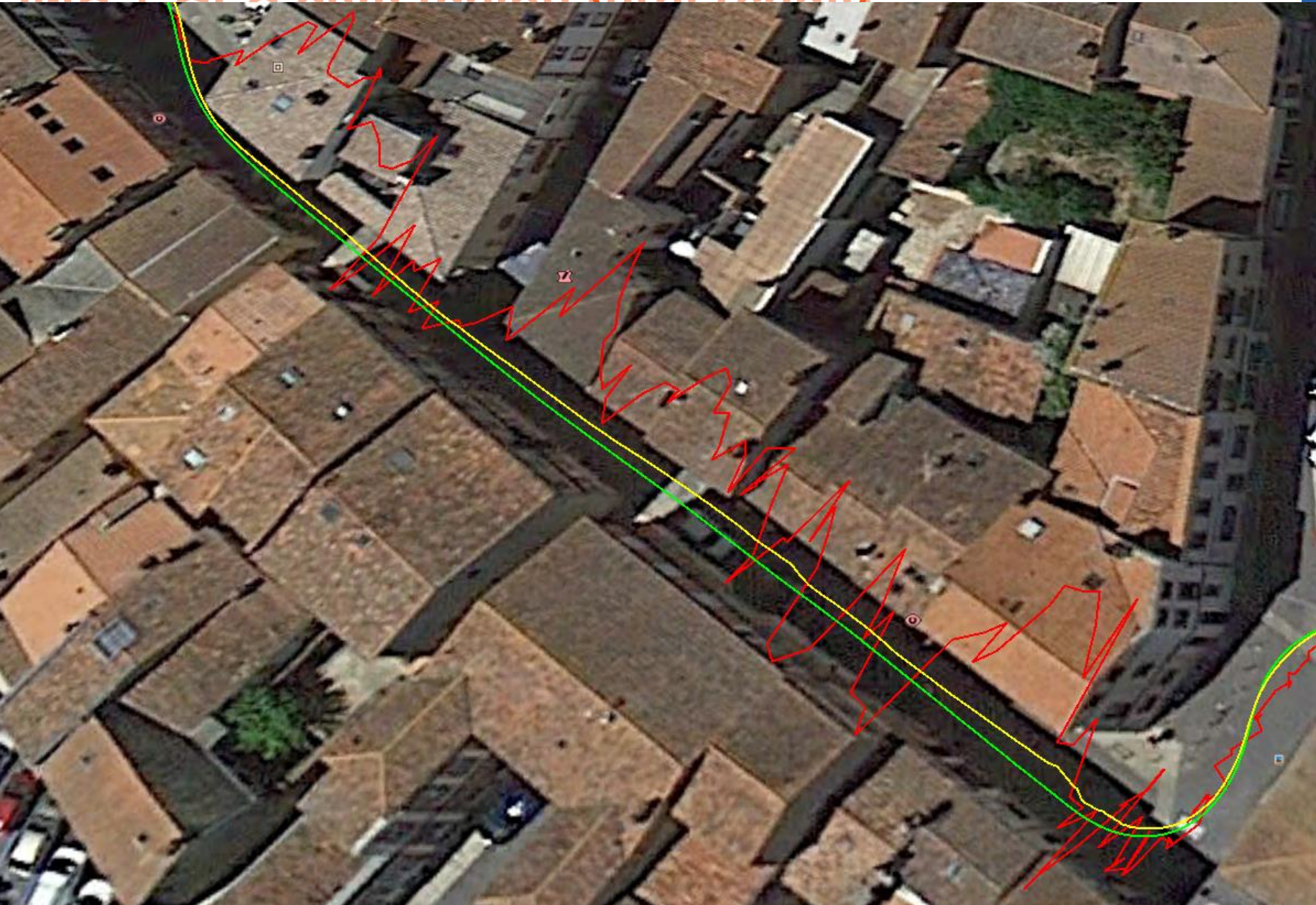
GPS trajectory





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IMU + GPS data fusion (first result)



NEEDS

- Accuracy : map, steering
- Black box : Record, visualisation, traceability
- Autonomous systems
- Business intelligence
- **[express yourself]...**

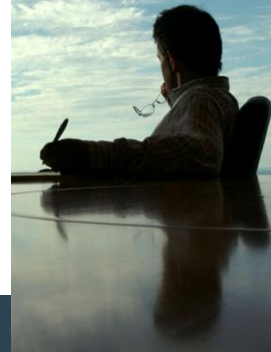


QUESTION

How to ensure accuracy with reliability and availability in agriculture area/applications?

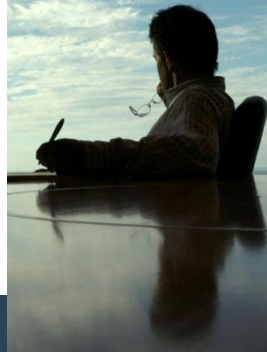
Data fusion compliance

- Centimeter accuracy : DGPS, RTK, PPP
- Robustness & Reliability-integrity
 - multi-constellation, Multi-freq., multi-sensors



THANK YOU

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Merci

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