



# School bus services in the «Toscana Sud» area

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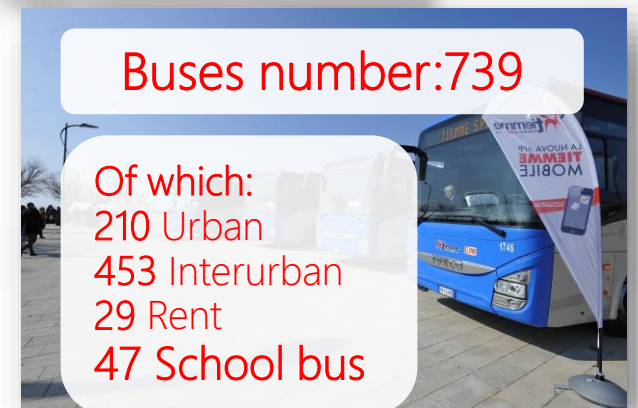
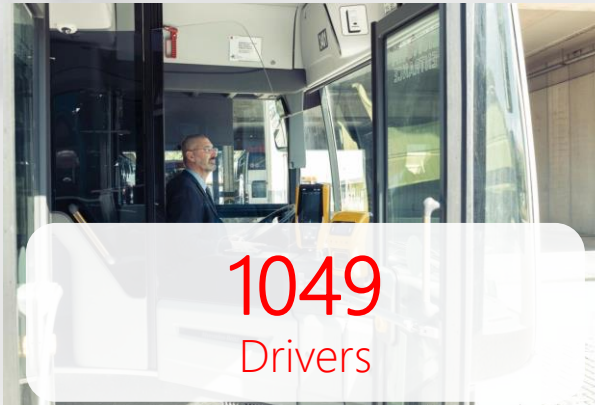


# About TIEMME

## TIEMME service areas



## TIEMME main figures



# TIEMME services

Urban & Extra-Urban Public Transport

+25 Mio kilometers per year



Tourism

1,5 Mio kilometers per year



School bus

3 Mio kilometers per year

Long distance

1 Mio kilometers per year



Shuttle bus

Several routes





# School bus services operated by TIEMME

Grosseto

13 areas / school bus services

Piombino

3 areas / school bus services

Siena

6 areas / school bus services

S. Gimignano

Arezzo

Val d' Elsa

Monterotondo  
Marittimo

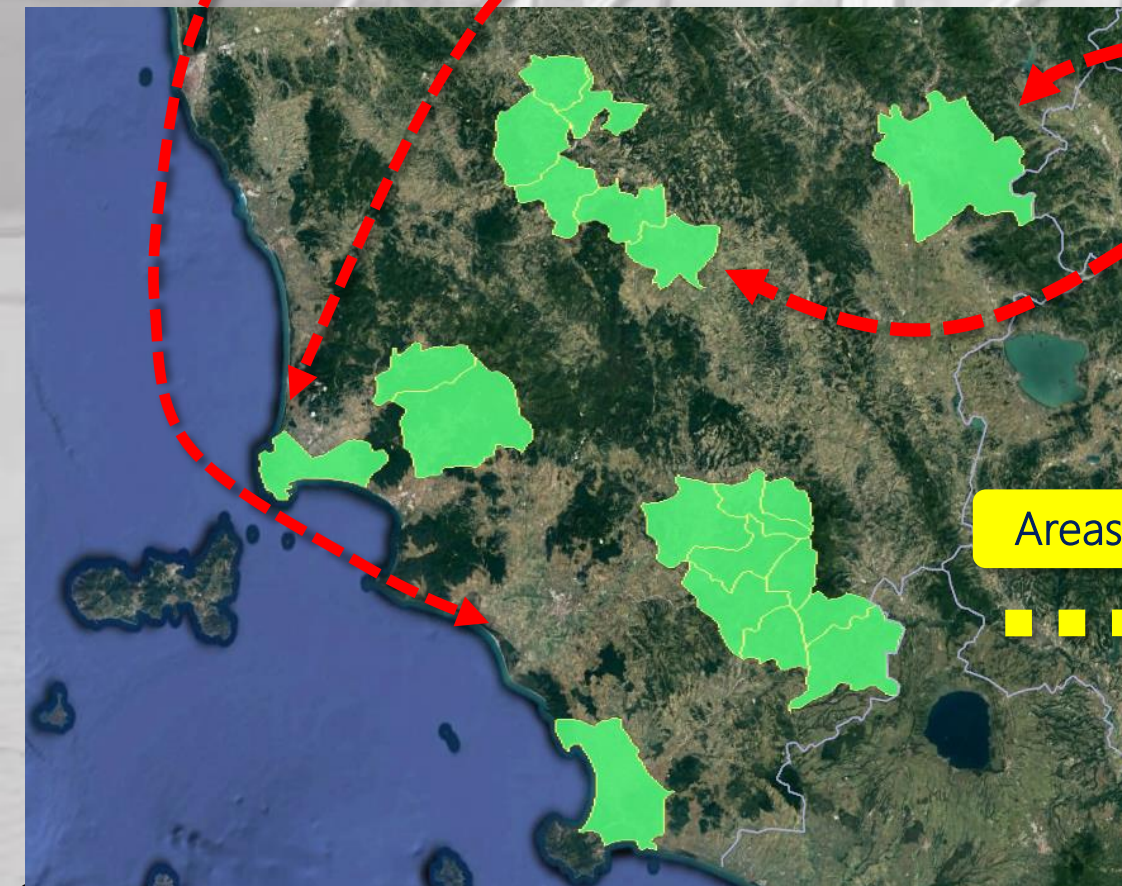
Montieri

Areas involved in SMARTA project

Piombino

Massa  
Marittima

Civitella  
Paganico



# Different school bus service schemes and contracts

S  
C  
H  
E  
M  
E

Standard School Bus service scheme

ST

«Open to other user» school bus service scheme  
Funded by Tuscany Region

OTR

«Open to other user» school bus service scheme.  
Funded by Local Authority (municipality)

OLA

C  
O  
N  
T  
R  
A  
C  
T

Tender in 2018 for 3 years

2018

Tender in 2019 for 5 years

2019

Service managed with «Contratto Ponte» since the beginning of 2019

TRC

2018

OLA

**Monterotondo Marittimo**  
Around 150 Kms/day  
In collaboration with ByBus

2018

ST

**Montieri**  
Around 225 Kms/day  
In collaboration with ByBus

**Piombino**  
Around 500 Kms/day

TRC

OTR

**Massa Marittima**  
Around 195 Kms/day  
In collaboration with ByBus

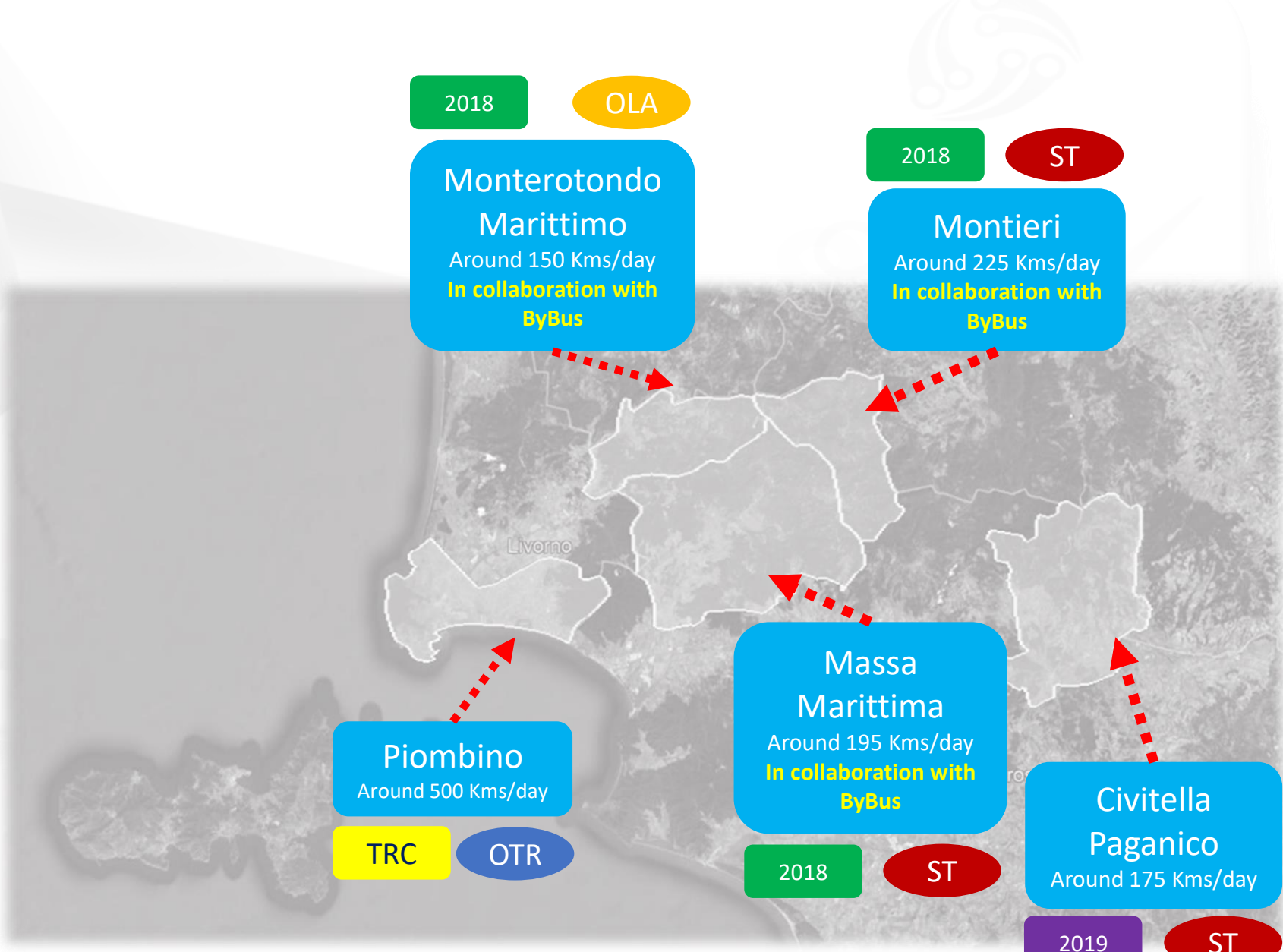
2018

ST

**Civitella Paganico**  
Around 175 Kms/day

2019

ST





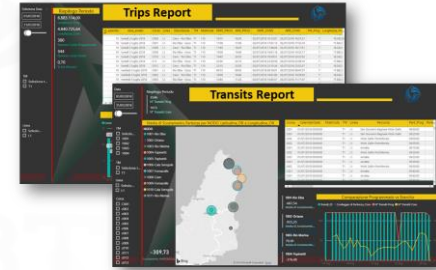
# TIEMME control bus service

TIEMME

Municipalities

Operated services compared with scheduled ones for contract compliance

Make available information about effective services



Pupils parents

Provide information about real arrival time at the bus stop and real bus position

Feedback collection through dedicated info user app



How many kms travelled by bus and quality provided

Bus monitoring at any time

Which are the most critical service conditions

TIEMME has implemented CELSO fleet monitoring and reporting system.



Celso

# TIEMME solution

Cloud infrastructure  
(as preferred solution)



GPRS/UMTS/LTE



On board APP  
on tablet

Configuration

Route planning/design

Bus service monitoring

Real Time communication

Bus occupancy rate



Main services

Central Control

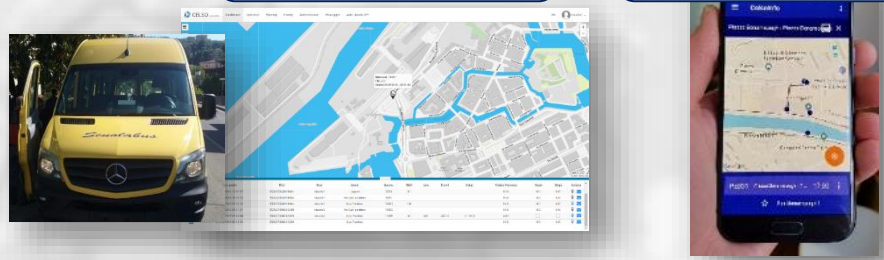
Service:

- planning
- monitoring
- management

- data mining
- reporting

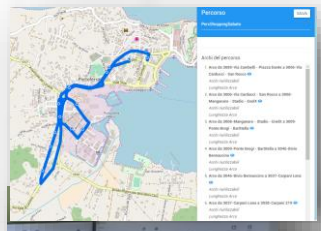
School bus monitoring

Info-user



Front end web application

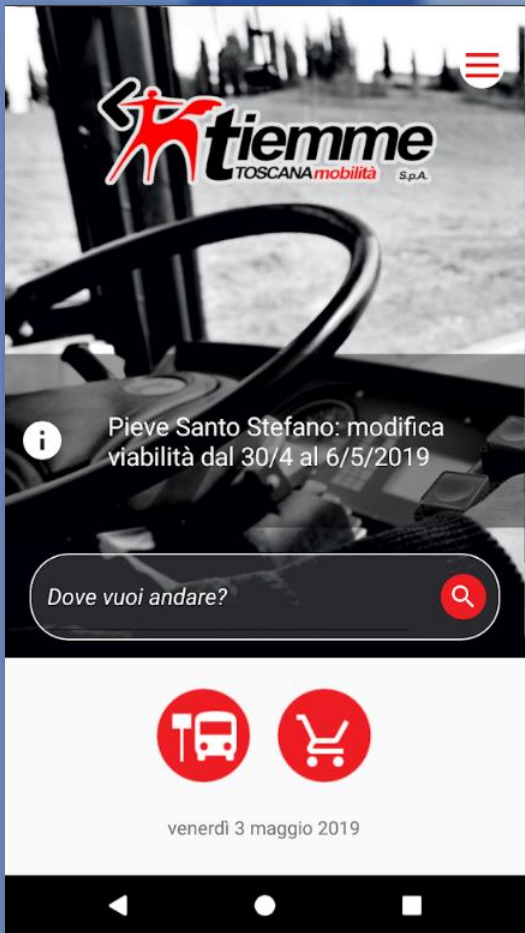
System immediately available



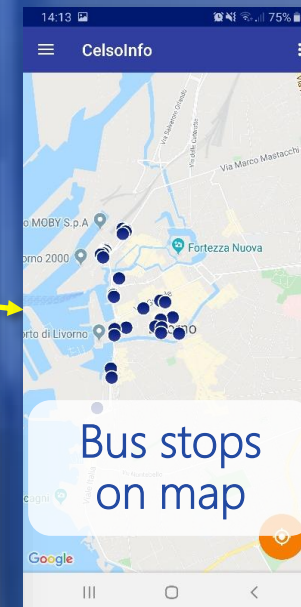
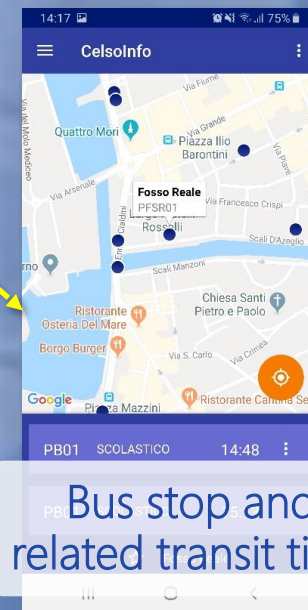
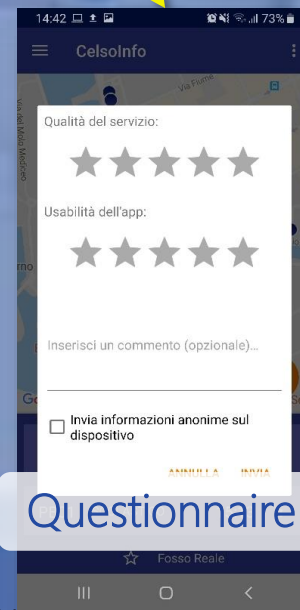
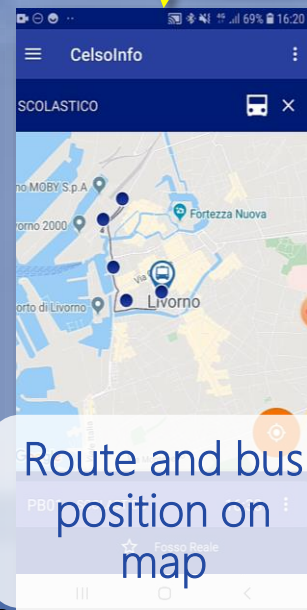
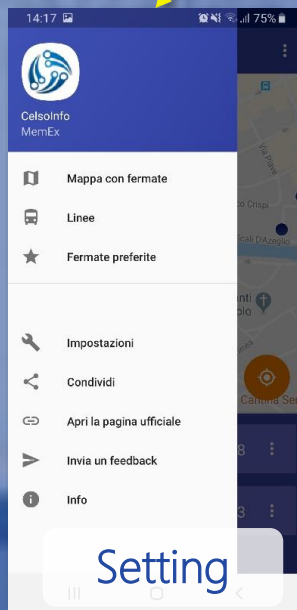
Monitoring pupils get on/get off the bus activities

TIEMME

# TIEMME APP dedicated to school bus service

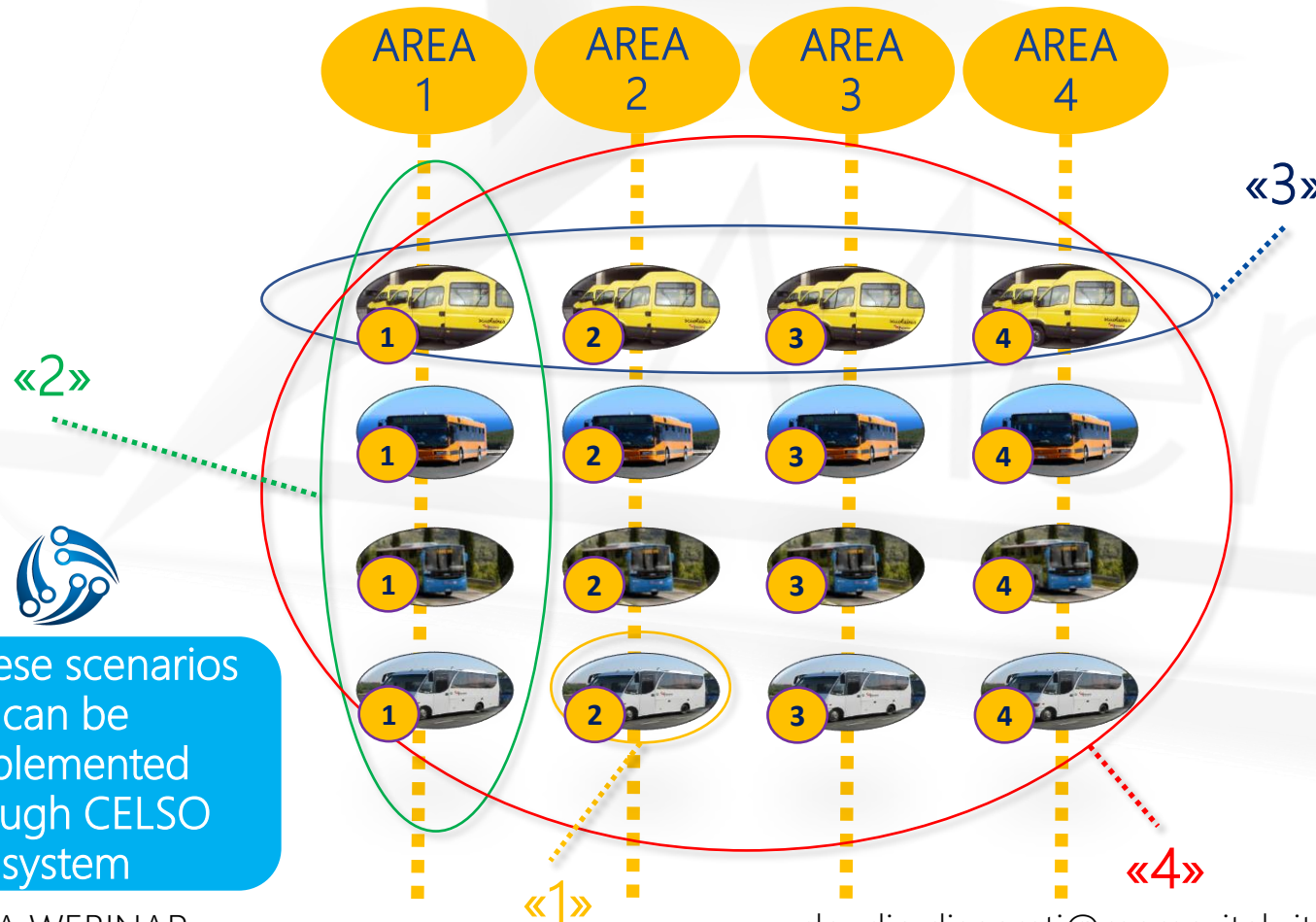
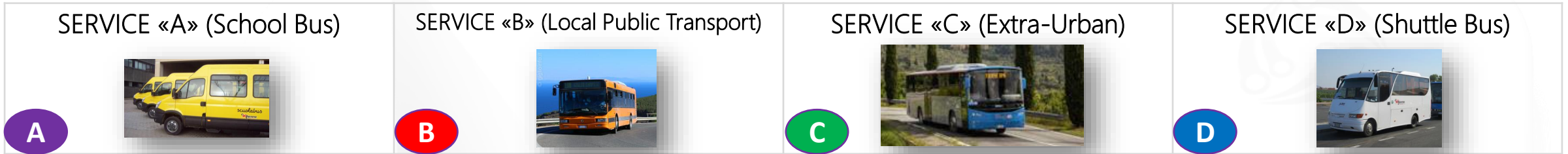


Tiemme Mobile 2.0





# More services for more areas to monitor



All these scenarios can be implemented through CELSO system

TIEMME need is to monitor and coordinate all the different area and different service schemes

- Scenario 1: one service for one area
- Scenario 2: more services for one area
- Scenario 3: one kind of service for more areas
- Scenario 4: several services for different areas

# Socio-economical indicators and mobility services

Piombino

2,8  
elderly (>65)/young (<14)



Montieri

2,2  
elderly (>65)/young (<14)



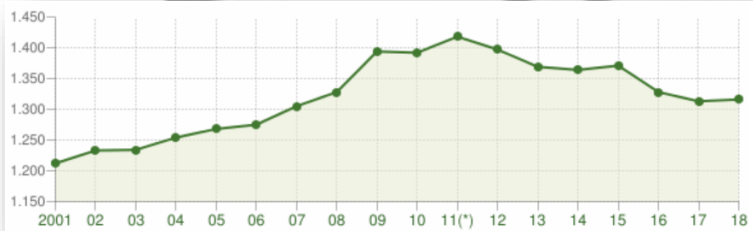
Civitella Paganico

2,2  
elderly (>65)/young (<14)



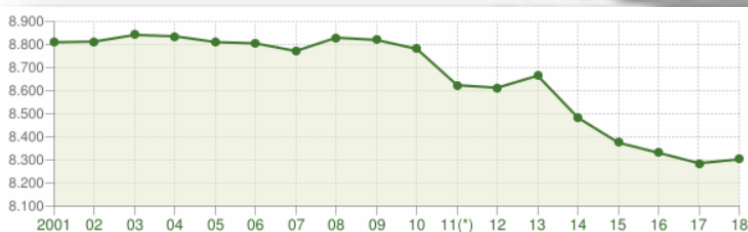
Monterotondo Marittimo

2,4  
elderly (>65) /young (<14)

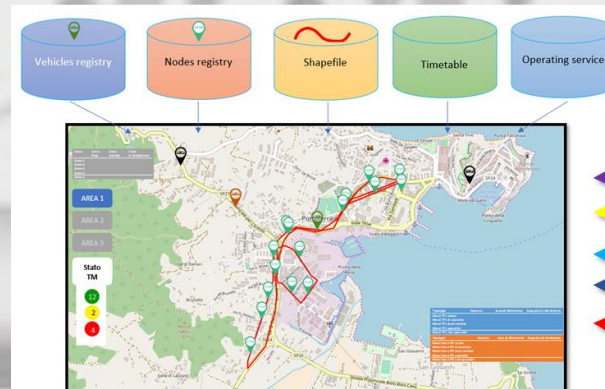


Massa Marittima

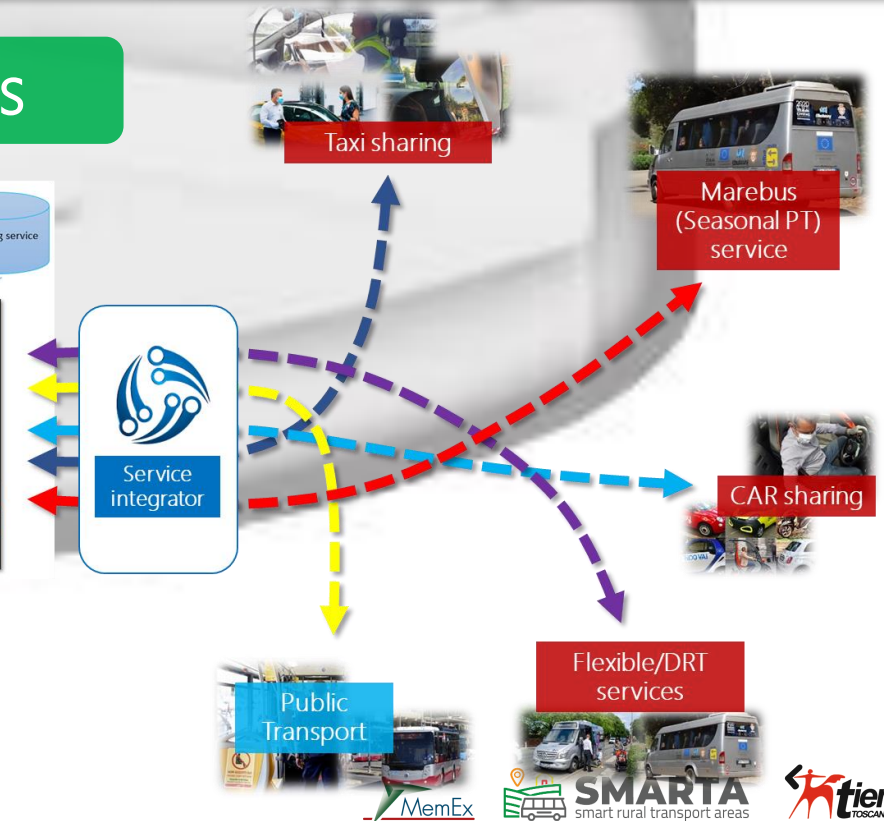
2,8  
elderly (>65)/young (<14)



## Other mobility services

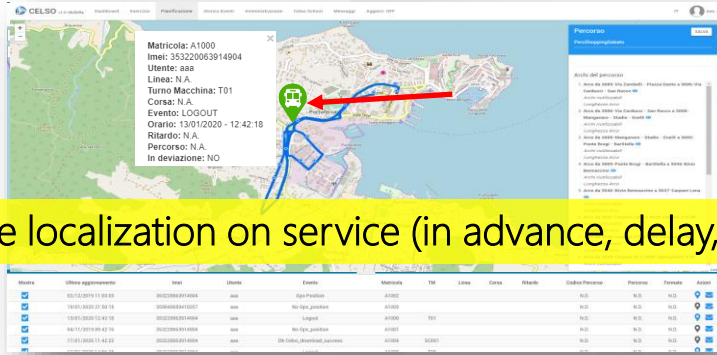


Knowledge-Dashboard for planning and coordinating mobility service

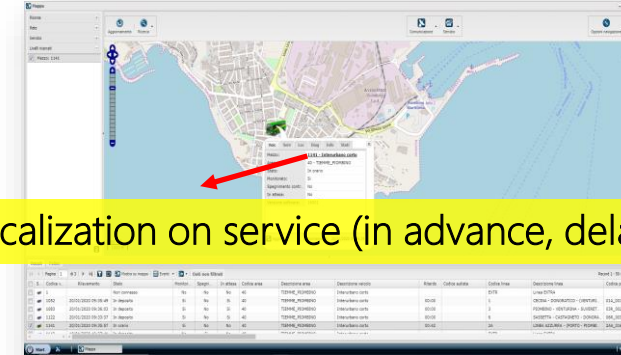


# Evaluation of fleet monitoring systems

## CELISO system



## AVM systems



## Functionalities

For Flexible services

For Standard services



Installation activities impacts



On board device (tablet) to be positioned with removal or fix support

On board device installation activities very impacting





# SMARTA Pilot site activities and outcomes

## Programming and Planning phase objectives:

- 13 lines
- 36 routes defined
- 294 trips/week defined

## TECHNICAL POINT OF VIEW:

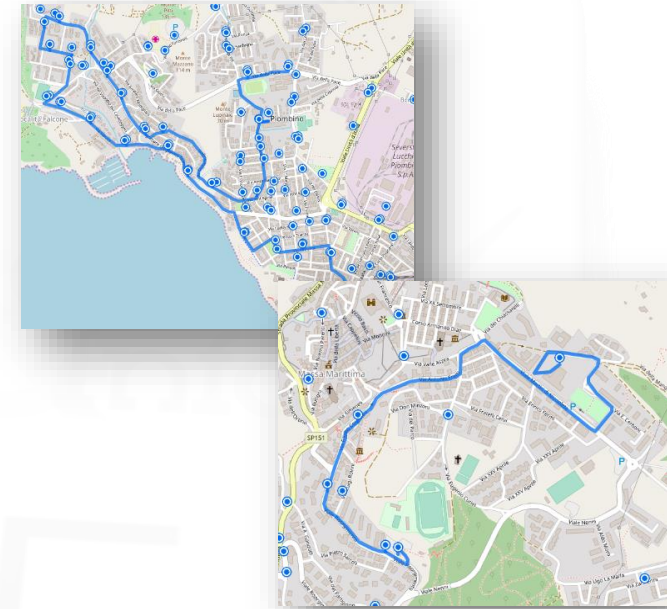
### Vehicles equipment and operators/drivers training:

- Implementation of Central control applications
- 12 tablets equipped with CELSO MOB
- training to operators and drivers

## OPERATIONAL POINT OF VIEWS:

### Main outcomes

- fleet and school bus service management and control
- provision of information to the users (pupils parents)
- possibility to monitor and control several services for all areas
- Service reporting and Business Intelligence
- Possibility for the drivers to fill the digital "on board diary"



# Thank you

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