



THE MOBILITY INTEGRATED FARE SYSTEM IN EMILIA-ROMAGNA REGION: “MI MUOVO”

CiViTAS
Cleaner and better transport in cities



CIVITAS MIMOSA STUDY TOUR

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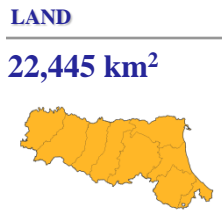
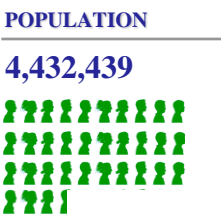
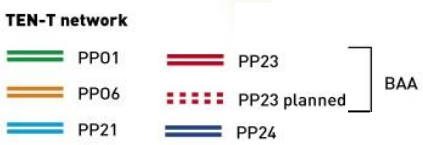
*Urban Mobility and Public Transport Department
DG Infrastructural networks, Logistics and Mobility Systems*



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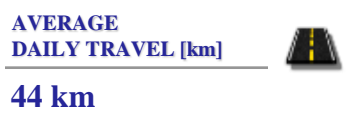
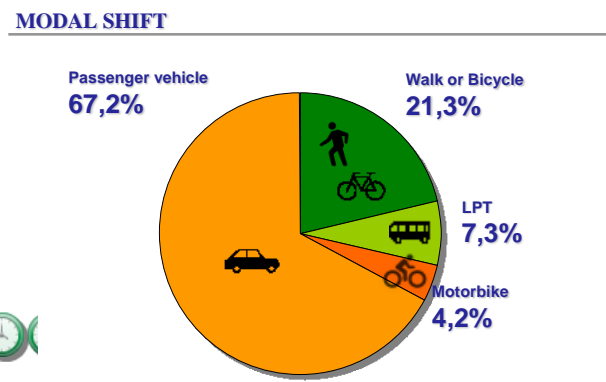
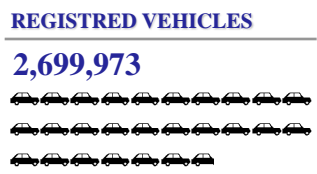
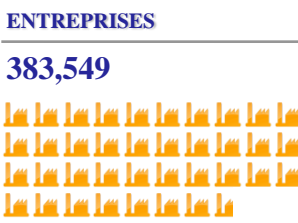
Bologna



CAPITAL CITY: BOLOGNA

PROVINCES: 9

MUNICIPALITIES: 348

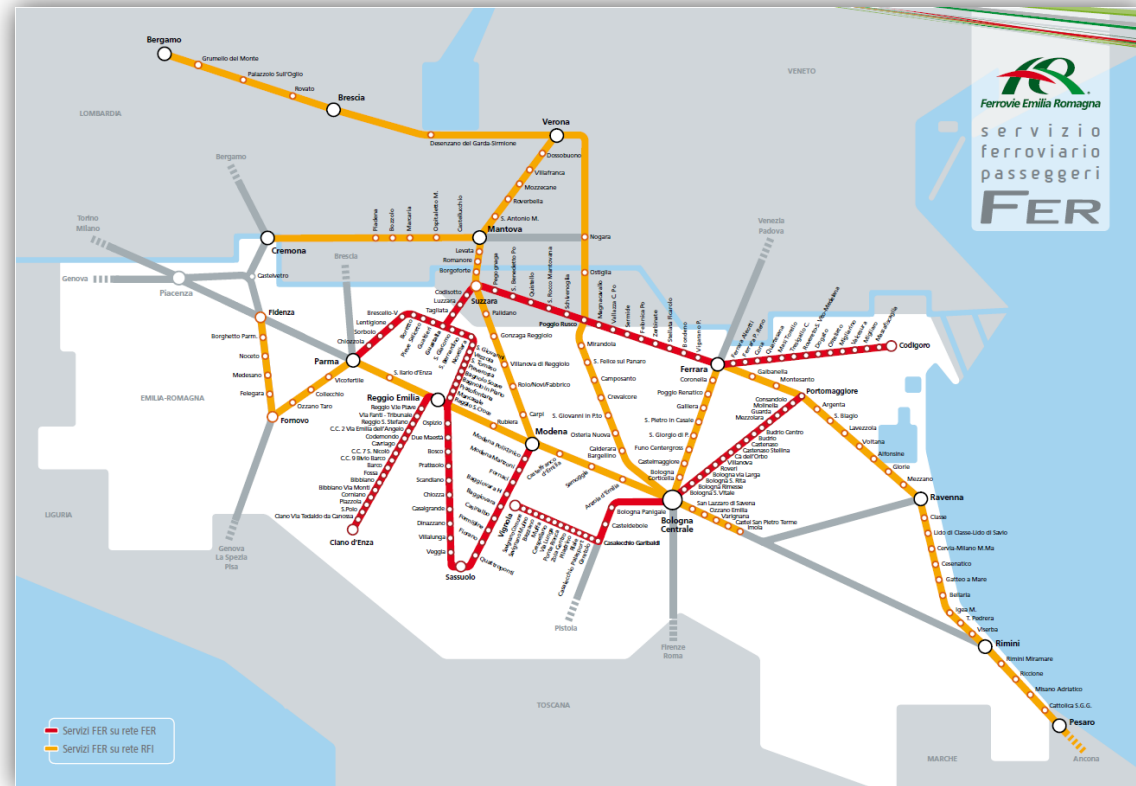


The regional Mobility and Transport Councillorship is competent for:

- ❖ Planning of the infrastructural network and of the road, railway, port, water, air, inter-port, and bus communication systems
- ❖ Planning of regional and local mobility systems
- ❖ Freight and people mobility services
- ❖ Improvement of the urban mobility
- ❖ Regional Observatory for Road Safety and Education



- Increase of passengers on extraurban trips thanks to the RAILWAY SYSTEM
- Higher commercial speeds
- Service regularity
- Discourage the use of private vehicles.
- Services rationalization to better integrate railway system
- Renewal of LPT fleets:
 - Trains
 - Buses



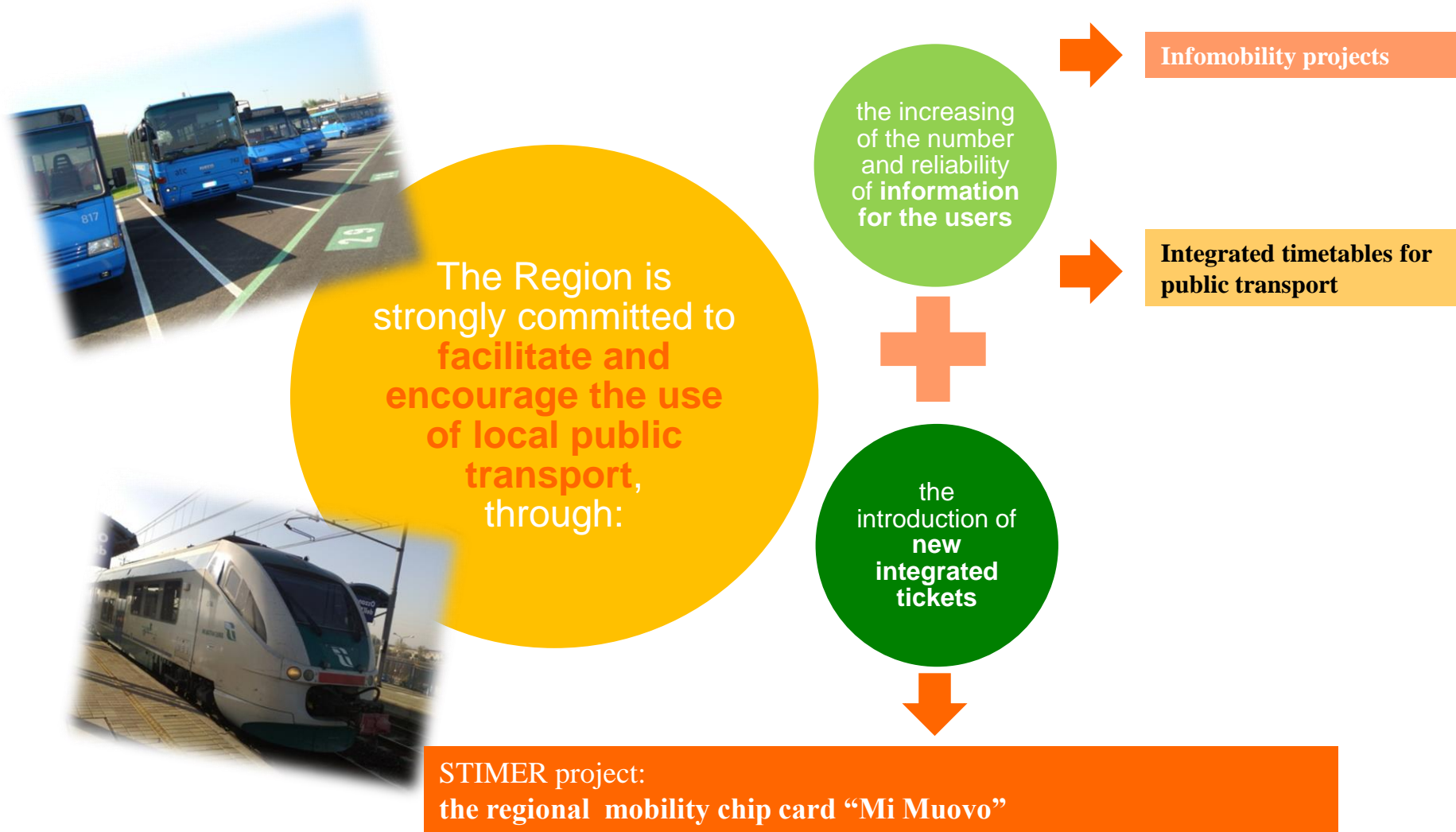
265 FER railway station

Regional Railway network

Developing other transport system: taxi-bus, carpooling, car sharing, bike sharing and similar;

- ❖ Promoting use of public transport
- ❖ **Adoption of urban mobility local plans and coordination with the planning instruments (PUT / PUM > PSC / POC)**
- ❖ **Mi Nuovo:** the new regional fare system, allows to use a "single card" for different transport modes





Investments for modal integration development, service quantity increase and quality improvement

Integration of the services

The GIM Project
Creation of a public information system (bus route control, information at bus stops, etc...)

Infomobility

Project for the railway regional service ICT on board systems on trains and in the railway stations

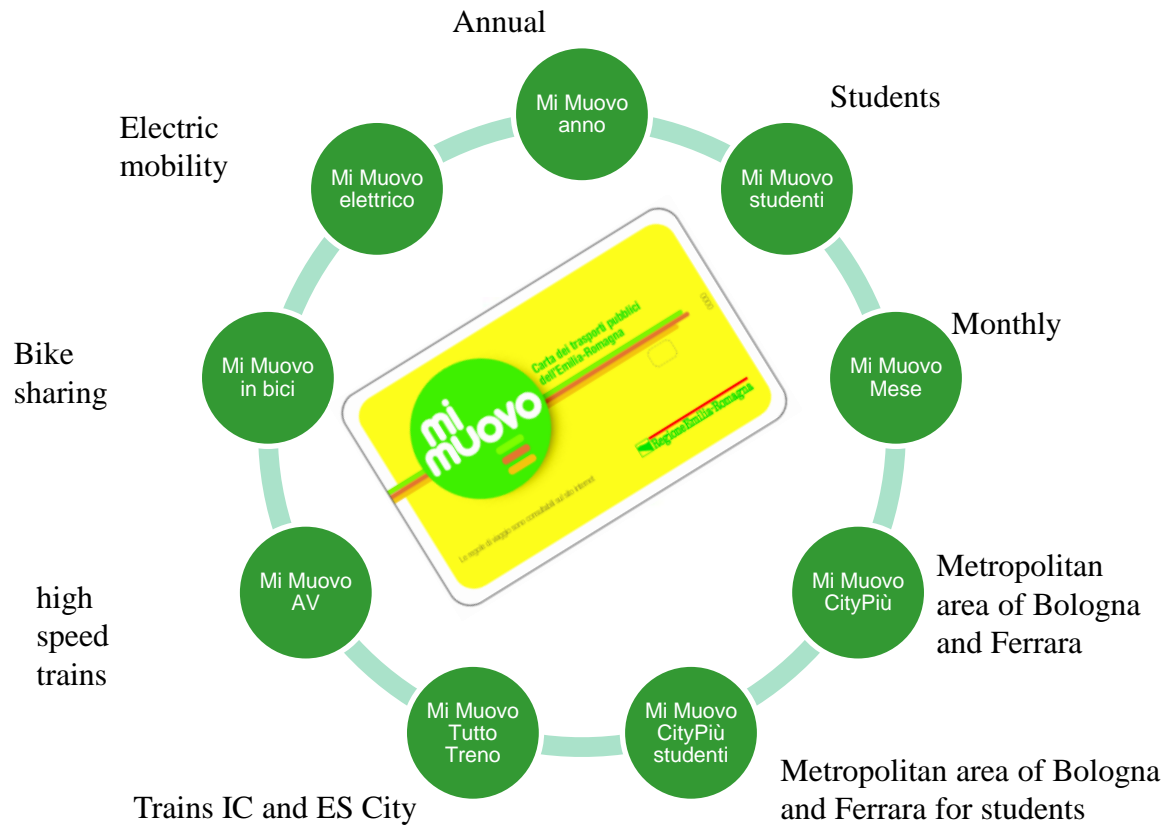
Fare integration



Travel Planner/Google Transit
the LPT integrated timetable

www.mobilita.eu

The image is a screenshot of a web-based travel planner interface. At the top, there are icons for car, bus, and walking. Below these, there are two input fields for origin and destination. The origin is 'Viale Aldo Moro, 30, Bologna, BO' and the destination is 'via alberto dalla chiesa, Rimini'. Below the input fields, there is a suggestion: 'Forse cercavi una località diversa: via alberto dalla chiesa, Rimini'. There is a button 'Trova indicazioni stradali'. Below this, there is a section 'Percorsi suggeriti' with a table of suggested routes. The table has columns for departure time, route description, and duration. The routes are: 12:12 - 14:21 (2 ore 9 min), 12:16 - 14:21 (2 ore 5 min), 13:12 - 15:21 (2 ore 9 min), and 14:12 - 16:21 (2 ore 9 min). Each route is represented by a sequence of icons: a person, a bus, a train, and a person.



Mi Muovo in ...

- “tutto treno”: integrated fares among **regional rail and local bus**
- “ES” and “AV”: integrated fares among **regional and national rail**
- “Studente”: annual card for **preferential users** (students)
- “Anno”: annual card for **all users**
- “Mese”: monthly card for **all users**
- “Insieme”: annual facilitated card for **disabled and older people** (income thresholds)
- “City più”: **metropolitan area of** - Bologna and Ferrara for **all users**
- “City più studenti”: **metropolitan area** for **preferential users**

Regional multiple ticket for urban rides -> 2014

For more informations about all the tickets “Mi Muovo”: <http://mobilita.regione.emilia-romagna.it/mi-muovo-1/i-titoli-di-viaggio-integrati>

- ❖ **Regional scale**

- ❖ Change over from a kilometer fare to a **zone system**

- ❖ **Undifferentiated transport mean use**

- ❖ **Contact-less card** valid as encompassing mobility card (i.e. more subscriptions on one card, up to five different subscriptions)

- ❖ One regional **railway train-bus fare based on zone system**



- ❖ facilitate **users accessibility** and **promotion of the Public Transport** ;
- ❖ guarantee **flexibility and efficiency of the Public Transport for the users** also thanks to a ticket price more coherent with the service actually used;
- ❖ increase **Public Transport appeal** for users;
- ❖ promote the **Public Transport demand**.



The Emilia-Romagna integrated fare and ticketing system provides also the opportunity to:

- ❖ **Gather the traffic data** required for the planning of the public transport services (e.g. the users movements tracking through the contactless system);
- ❖ **effective control of the quality of the service:** through the integration with the GIM system, a real time monitoring of the different modes of transport and parameters (e.g. commercial speed, the number of passengers, etc.) is guaranteed.



Within the STIMER project, the Emilia-Romagna Region has promoted **the introduction of several integrated travel tickets**, which allow the access to different transport and mobility services (from bus and train to bike sharing, car sharing and the electric recharge for e-vehicles) with a regional all encompassing mobility chip card.

More than 275.000 tickets Mi Muovo
2.500 Trains IC and ES City



Tickets sold in 2012:

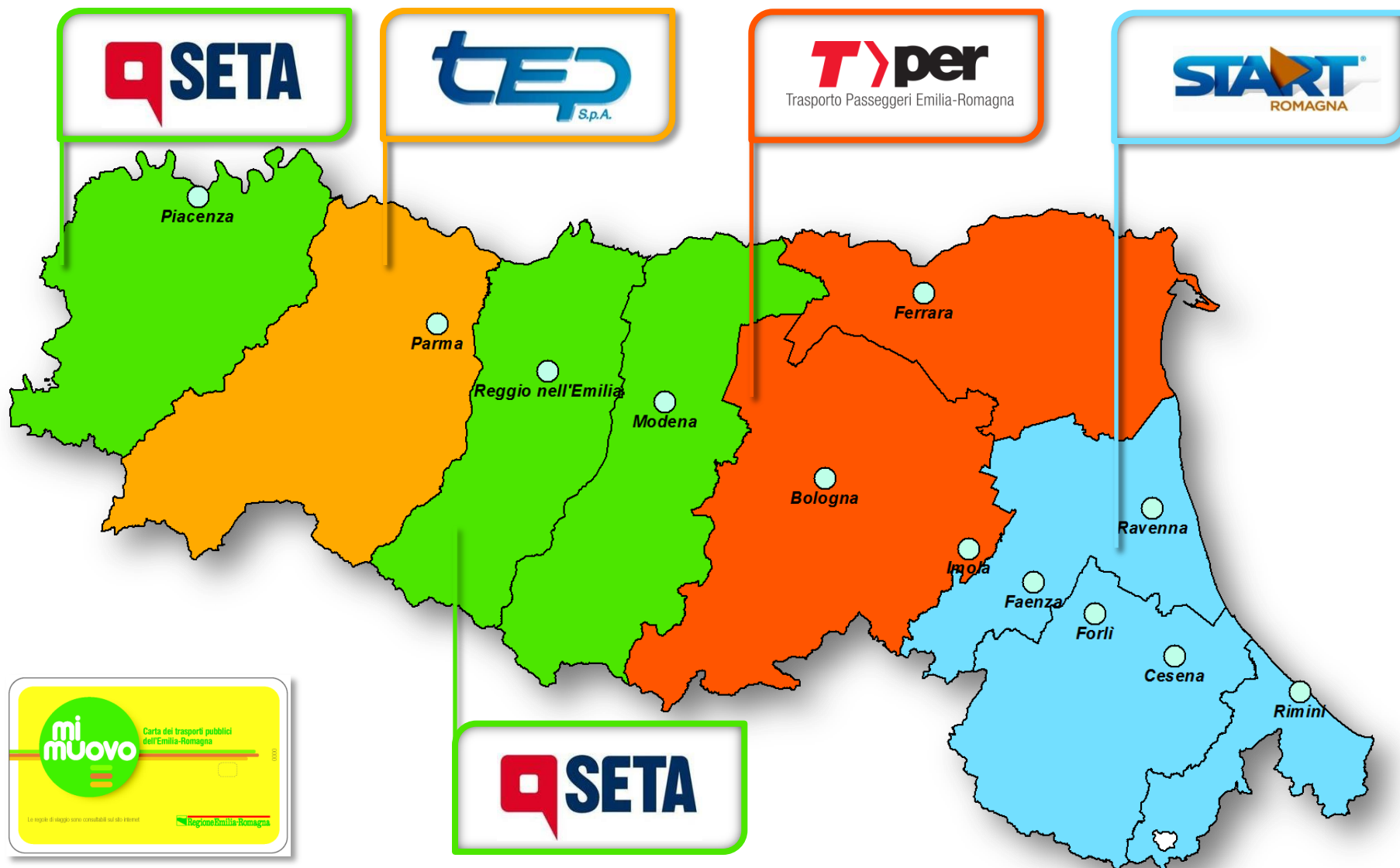
- n. **1.246** Mi Muovo
- n. **2.328** Mi Muovo for students
- n. **5.405** annual rail season tickets
- n. **3.530** annual rail season tickets for students
- n. **62** Mi Muovo Metropolitan area of Bologna and Ferrara for students
- n. **24.772** Mi Muovo Monthly

Trends on the month of September 2008-2013

September	2008*	2009*	2010*	2011	2012	2013
Total subscriptions	768	1024	1028	2.492	3.843	4.826
TREND Year by year	First year	+33%	+0,39%	+142%	+54%	+26%

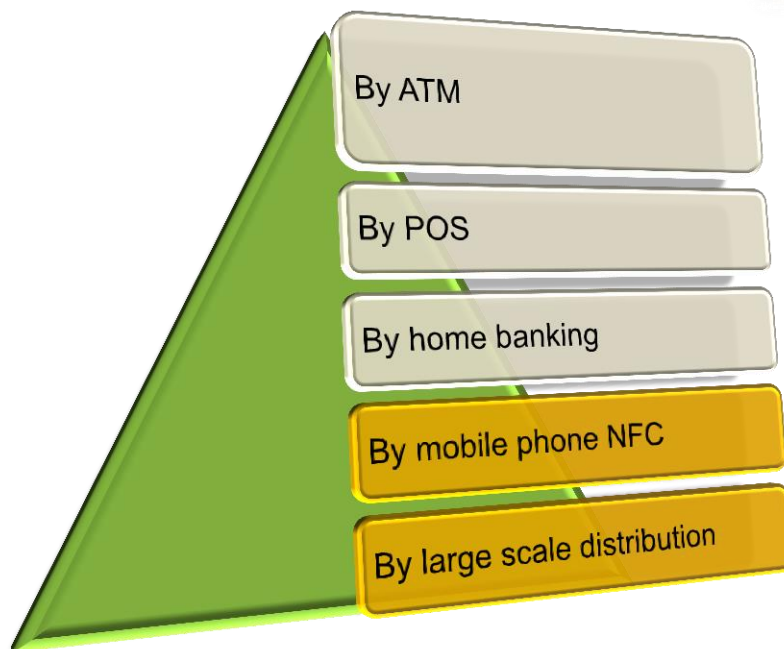
* Only yearly subscriptions

“Mi Muovo”: WHERE IS ACTIVATED?

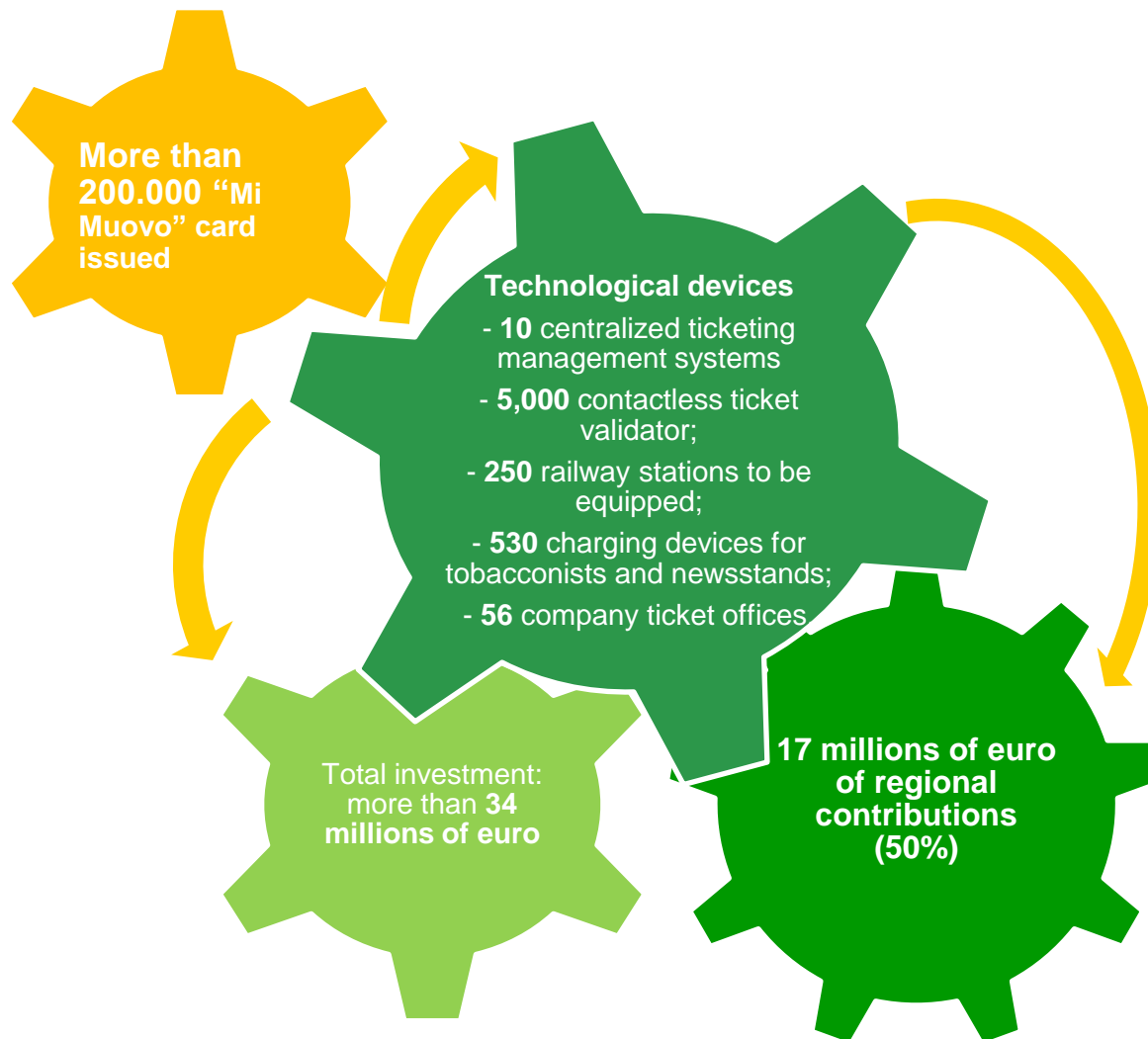


“Mi Nuovo” already allows to recharge season tickets chip cards through:

- bank ATMs and home banking
- soon this service will be offered also by supermarket chains and internet and mobile phone companies.



} Soon available





2002

17 Million € (34 Million € of estimated total cost)
0,4 Million € (for clearing system and start up)



2011

1,8 Million € (yearly contribution to operating costs)



2011 - 2014

> 4,0 Million € (8 Million € of costs + Google partnership for Infomobility projects)



2011 - 2012

2 Million €



2011 - 2012

0,65 Million € (2 Million € private investments)

The electronic ticketing system is based on:

- The partitioning of the regional area in specific **Fare Zones**
- the use of a **specific formula** to calculate the exact fare
- **NET COST system**
- **Clearing platform** <- soon available



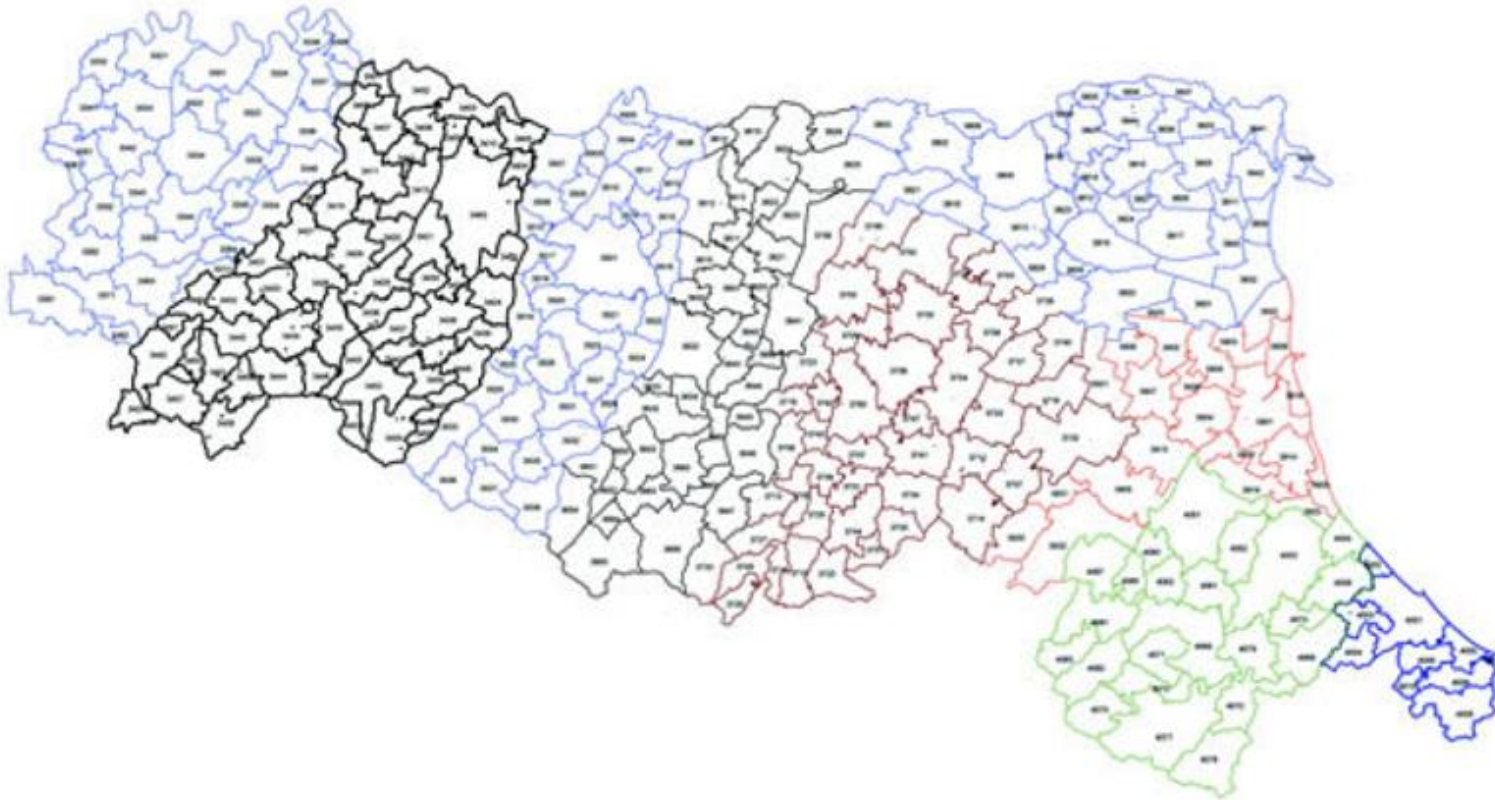
The **Zones Fare system** foresees an high integration between the different LPT modes and a movement (from the origin to the destination point) enabled through a single travel ticket, where the travel price is not depending neither on the type of transportation used nor on the number of transfers from one mean of transport to another.



The Regional Network is partitioned into more than 420 fares zones

Each macro sector of the Regional LPT has been split into fares zones with an average width of 8 km which correspond to the **kilometric batch**. Normally these batchs corresponds with the municipal borders.

Each stop is linked to a specific Zone. Each Zone contains a definite number of stops.



Neutral Zones:
Do not entail an additional fare

Technical Zones :
Correspond to the urban areas of the 13 regional cities where a specific urban service is deployed

FARE = (destination, number of zone crossed)

FARE = A_i
 + $B_N * N$ **if** $\left\{ \begin{array}{l} N < 3-4 \text{ zones} \rightarrow \text{like formula} \\ \text{Fare} \\ N > 3-4 \text{ zones} \rightarrow \text{Specific Fare (long distance trips)} \end{array} \right.$

$A_{interurban}$	=	Access charge for use the LPT (long distance)
B_N	=	Price for crossing a border area
N	=	Number of zones crossed
$B_N N = f(N)$	=	Depends on the number of zones crossed and the type of contract

During the transition period (i.e. until the full deployment of the new Zone Fare system) the subscriptions are based on a **lump sum** calculation.

Smart card “Mi Nuovo”

The smart cards “Mi Nuovo” can be:

- Calypso cards CD21(the majority)
- Tango cards CT4002B



Calypso cards CD21

The Calypso cards CD21 belong to a smart cards family with dual interface (RF and contact) fully in line with the current international standards:

- RF interface ISO/IEC 14443 type B
- Contact interface ISO/IEC 7816

The CD21 cards are based on the microchip ST19W02 by ST Microelectronics

Ticket machines

The new Ticket system is based on different types of tickets:

- on plastic badge with microchip
- on paper ticket with magnetic band
- a simple paper ticket

The **microchip tickets** can gather several types of «contracts» (up to 4 contracts), e.g.:

- personal «forfait / fixed price» subscriptions (monthly, yearly)
- personal «variable price» subscriptions (monthly, yearly) with credit decreasing depending on specific use
- tickets for single rides (single / titoli di corsa semplice (mono o pluricorsa)



EXAMPLE OF TRANSFER USING MULTIPLE OPERATORS (FOR USERS WITH SUBSCRIPTIONS)

Example: A person living in Reggio Emilia and working in Bologna (commuting) will use:



- **the bus:** home – Reggio Emilia railway station
- **The train :** Reggio Emilia railway station – Bologna railway station
- **the bus :** Bologna railway station – work place

Without the Mi Muovo card three different subscription would be needed!!!

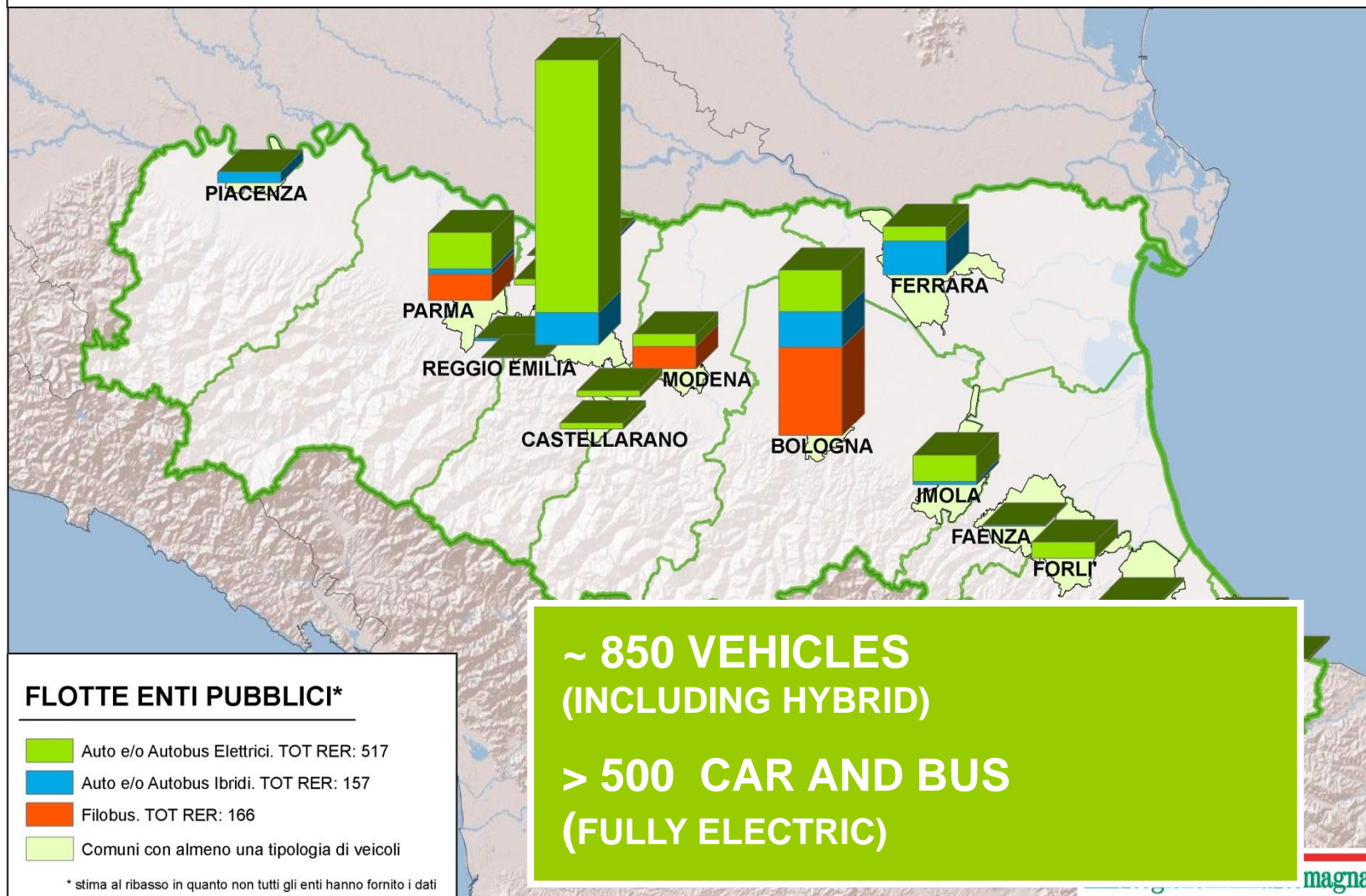
With Mi muovo:

- Subscriptions are loaded on the same card (easy to use)
- Discount on the monthly (- 30%) and yearly subscription (- 40%). Further discount for students of -8% both for the bus and the train
- More information for the operators based on O/D matrix
- Single recharge for the different subscriptions using different means (i.e. ATM, POS, web, etc...)
- Increased accessibility / flexibility of the offered services
- The users will have to validate their tickets each time they board a new transport mean (not in force yet)

REGIONAL STRATEGY FOR ELECTRIC MOBILITY

FLEET OF ELECTRIC VEHICLES IN PUBLIC ADMINISTRATION

MOBILITA' ELETTRICA ENTI PUBBLICI IN EMILIA ROMAGNA - 2010



Agreements with energy providers



Regional infrastructure

Interoperability

(between the municipalities and the different energy provider)

Rules

Harmonization

(LTZ access and parking pricing)

Economic incentives for the private purchase of electric vehicles

11 Agreements with municipalities

~ 130 Public recharging stations

100% Renewable energy

Mi Muovo Smart card for mobility services in the whole region

Focus e Monitoring at regional level



La mobilità sostenibile dell'Emilia-Romagna



Pilot-projects, energy providers and public charging points



ENERGY PROVIDERS AND PILOT-PROJECTS

Started



Waiting to start



PUBLIC CHARGING POINTS NETWORK

Already available



100% renewable energy

LTZ HARMONIZATION

Activated



Waiting for subscription



CITIES > 50.000 INHABITANTS

- > 300.000 INHABITANTS
- UNTIL 200.000 INHABITANTS
- UNTIL 150.000 INHABITANTS

OTHER SYMBOLS

- HIGHWAY
- ROAD NETWORK
- REGIONAL BORDER
- PROVINCES
- WATERWAYS

Thanks to this agreement, electric vehicles can today:

- _ circulate within the regional LTZs without time restrictions (h24);
- _ free parking;
- _ unification of all electronic control databases managed by the partner towns



Signatory of the agreement



COMUNE DI BOLOGNA



Comune di Cesena



COMUNE DI REGGIO NELL'EMILIA



Comune di Ferrara



Comune di Forlì



Comune di Piacenza



Comune di Formigine



Comune di Parma



Città di Imola



Comune di Ravenna



Comune di Modena

LESSON LEARNT, CUSTOMER SATISFACTION AND DIFFICULTIES ENCOURED

Lessons learnt from the practice

The initial project (STIMER) has presented **remarkable implementation** difficulties arising from the technology evolution system (magnetic vs. contact-less) on the one side, and on other side from the impacts on the company setting.

To the initial project gradual **changes and adjustments** were introduced to allow the launch of "MI MUOVO".

Flexibility, coordination and strong synergies with all involved actors were the strength factors for the implementation of such a complex project.

Customer satisfaction:

Surveys on quality services submitted by RER have shown the overall appreciation of MI MUOVO is very positive. 92,1% of the respondents were satisfied with the quality service.

The average evaluation (from 0 to 10) is 7,43 in relationship both to BUS and Train services.

Difficulties encountered

Definition of "clearing" rules for the revenues allocation among the LPT Companies due to the possibility for the users to take both Buses and Trains

Interoperability of different technological systems in relation with their possible extension to further services (e.g. Mi MUOVO by electric vehicles, Mi Muovo by bike, etc ...)



THANKS FOR YOUR ATTENTION !

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