



TAKING
COOPERATION
FORWARD

 Brno, 14 September 2021

 On demand night service in Modena (but not only)

 aMo - Daniele Berselli

What changed with the pandemic

Looking at the Italian situation, Covid has “shaken” the world of Public Transport

The lack of technological tools was evident at various levels:

- monitoring of services;
- information to users;
- scheduling of PT services.

The pandemic can represent an opportunity because we need to equip ourselves better not only to face such tragic and hopefully unrepeatable events, but because the world is changing faster and faster for many causes and this inevitably affects also Public Transport.

About causes just think of the climate change which is not just an example as it has repercussions on PT since one way to combat climate change is to increase the use of sustainable mobility.

In Italy we are working on SUMP's that require big changes for the reasons mentioned above and the big changes must then be accompanied by tools that make their application feasible.

The world of work is more and more dynamic (smart work, change of “city timetable”) so it is necessary to ensure that the PT quickly understand changes and changes himself to be useful.



New services are needed



- **Monitoring of services:** it means to know what happens on board of buses or trains as there was capacity limitations. In Italy for some periods we had a capacity of 50% of the maximum number of persons allowed and actually we are at a limitation of 80% but with a presence at school of 100%.

We need to know which are the routes and trips where is necessary to introduce additional buses to reduce crowding

- **Information to users:** without the previous information it is impossible to inform users about the on the occupancy level of a bus that is arriving at the bus stop, even on apps or directly on displays onboard



New tools are needed

- **Scheduling of PT services:** during pandemic it was necessary to reprogram many services, and above all to understand how to intervene in situations of reduction of the variable load capacity in a short time.

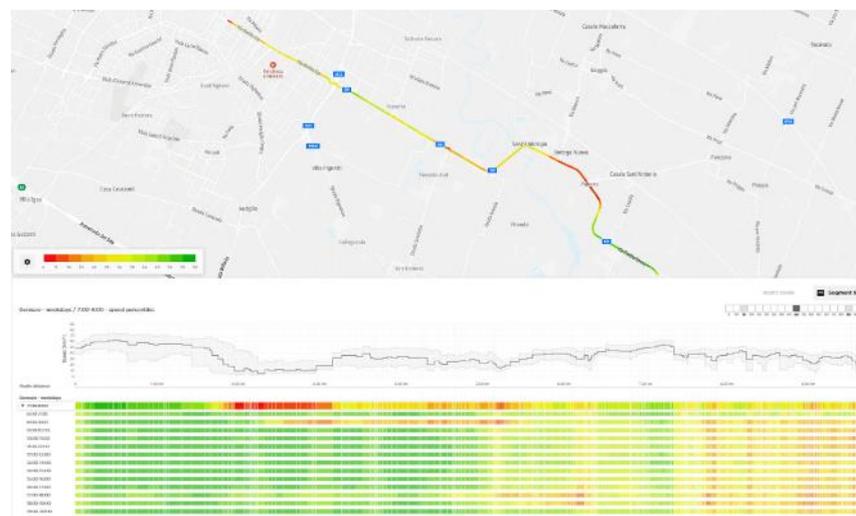
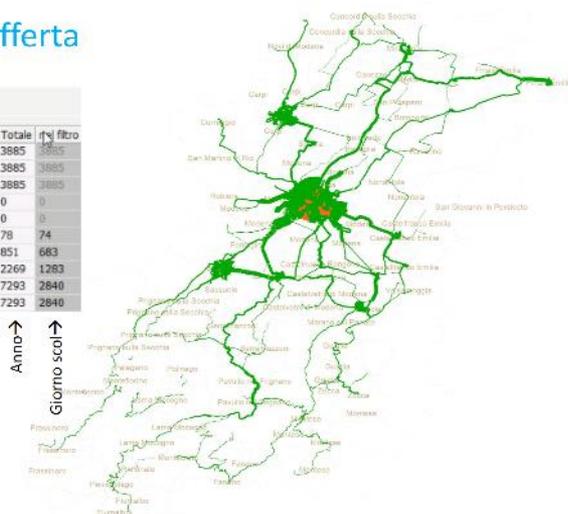
The "traditional" programming was not able to give answers in this regard and for this activity we need simulation tools that must be fed by reliable data such as matrices of origin and destination of the trips of every single PT users

We need to change the approach to PT planning based not only on experience but above all on **knowledge**; big data will be precious for this evolution

Modello di offerta

Statistiche di rete

Rete base	Rete-TPB		
Numero: 10	Filtro	Totale	di filtro
Punti di fermata	Non attivo	3885	3885
Aree di fermata	Non attivo	3885	3885
Fermate	Non attivo	3885	3885
Sezioni di percorso	Non attivo	0	0
Direttrici	Non attivo	0	0
Linee	Attivo	78	74
Percorsi di linea	Attivo	851	663
Profili orari	Attivo	2269	1283
Corse	Attivo	7293	2840
Sezioni di corsa	Attivo	7293	2840

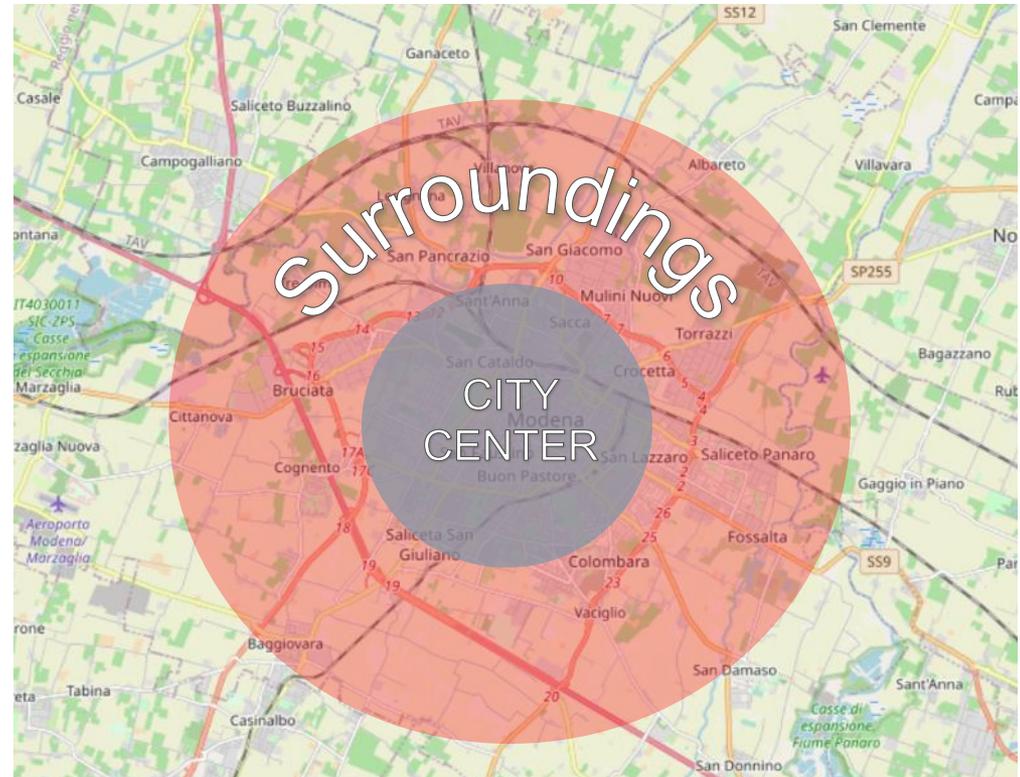


PT data modeling of Modena province

Big data (FCD) sample
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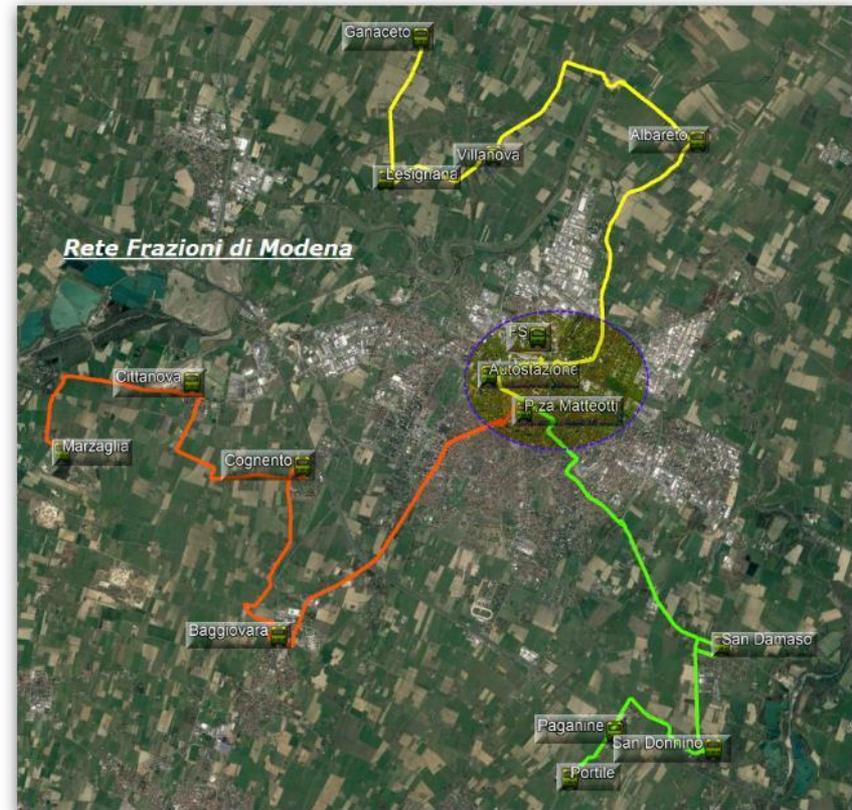
The Pilot in Modena

- In the evening in the suburban rural area around Modena there is no public transport service
- Young people living there are penalized to access the same facilities of those who live in the city
- In general, local policies want to avoid a progressive abandonment of these areas due to the difference in access to services

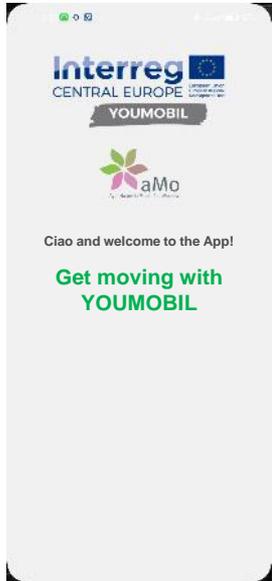


The pilot in Modena

- A new public transport service that will be introduced on Friday and Saturday evenings from 9:00 pm to 1:00 am approximately
- Three lines have been defined that will connect small villages with the city center
- Three trips are initially planned for each evening: two from the hamlets to the center and one from the center to the hamlets
- Each trip will be made only if there are reservations and the stops will be served only if there are requests; the route of the trips will therefore vary according to the stops booked
- The service will be carried out by the Modena taxi company
- Reservations and payment will only be possible via smartphone app



Smartphone app



Welcome page



Main menu with main options



Calendar with availability of trips



Choice of an interesting trip



Choice of departure and arrival stops for the trip



Summary of booked trips where changes or cancellations can be made



Backend - Lines and trips

Gestione Linee

Codice nuova linea [+ Aggiungi nuova linea](#)

LINEA NORD 21:00 [A]

Codice Linea **Codice Gruppo Linee** **Stato Linea**

Descrizione **Colore**

Andata/Ritorno **Gruppo disponibilità Taxi** **Gruppo Tariffe**

Valida Dal **Valida Al** **Giorno Effettuazione**

Date Mancata esecuzione [+ Aggiungi data](#)

Dal Al

Fermate [+ Aggiungi fermata](#)

Fermata	Tipo	Orario	
+ <input type="text" value="Ganaceto - Ganaceto"/>	<input type="text" value="Partenza"/>	<input type="text" value="21:00"/>	<input type="text" value="x"/>
+ <input type="text" value="Lesignana - Lesignana"/>	<input type="text" value="Partenza"/>	<input type="text" value="21:04"/>	<input type="text" value="x"/>
+ <input type="text" value="Villanova - Villanova"/>	<input type="text" value="Partenza"/>	<input type="text" value="21:07"/>	<input type="text" value="x"/>
+ <input type="text" value="Albareto - Albareto"/>	<input type="text" value="Partenza"/>	<input type="text" value="21:15"/>	<input type="text" value="x"/>
+ <input type="text" value="FS - FS"/>	<input type="text" value="Arrivo"/>	<input type="text" value="21:25"/>	<input type="text" value="x"/>
+ <input type="text" value="Matteotti - Matteotti"/>	<input type="text" value="Arrivo"/>	<input type="text" value="21:28"/>	<input type="text" value="x"/>
+ <input type="text" value="Autostazione - Autostazione"/>	<input type="text" value="Arrivo"/>	<input type="text" value="21:30"/>	<input type="text" value="x"/>

[Salva](#) [Elimina](#)

Backend - Taxi management

Gestione Taxi

Nuovo gruppo

+ Aggiungi un nuovo gruppo

TAXI FASCIA 21:00 [A]

Codice Gruppo

TAXI FASCIA 21:00 [A]

Ora Invio

20:30

Descrizione

Frazioni > Centro

Taxi

Nuovo taxi

+ Aggiungi un nuovo taxi

Sigla

Capienza

Tipo disp.

TAXI 21:00 (A) 1

4

▼



TAXI 21:00 (A) 2

4

▼



TAXI 21:00 (A) 3

4

▼



Aggiorna gruppo

Elimina gruppo

TAXI FASCIA 00:00 [A]

TAXI FASCIA 23:30 [R]



Gestione Tariffe

Nuova tariffa [+ Agglungi tariffa](#)

TARIFFA 00-26 [ABB] [A] € 3,00

Nome	Età Min	Età Max
<input type="text" value="TARIFFA 00-26 [ABB] [A] € 3,00"/>	<input type="text" value="0"/>	<input type="text" value="26"/>
Abbonato	Andata/Ritorno	Tariffa
<input type="text" value="Abbonato"/>	<input type="text" value="Andata"/>	<input type="text" value="3.00"/>

[Salva](#) [Elimina](#)

TARIFFA 00-26 [ABB] [R] € 2,00

TARIFFA 00-26 [NOABB] [A] € 3,50

TARIFFA 00-26 [NOABB] [R] € 2,50

TARIFFA 27-99 [ABB] [A] € 3,50

TARIFFA 27-99 [ABB] [R] € 2,50

TARIFFA 27-99 [NOABB] [A] € 4,00

TARIFFA 27-99 [NOABB] [A] € 3,00



Everything is parameterized: it is possible to change

- The number of lines
- The number of stops
- The number of trips and times
- Fares
- Number of taxis available and their capacity

The service can be extended to different areas or cities in the province of Modena

The system will be interfaced with the taxi system for the automatic management of the dispatch of reservations to taxis

It will be possible to have reports on trips made, number of people transported, km traveled, time, origin and destination of the trips, etc.



Thank you for your attention



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