

Fostering citizen-focused urban mobility  
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# ANDA – The ticketing system of Porto Metropolitan Area

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**Interreg  
Europe**



European Union | European Regional Development Fund

# Transport System



## Bus Lines



1 public internal operator  
70 lines  
6 municipalities  
22 million km/year

**29 private operators**  
**630 lines**  
**30 million km/year**

## Historic Tram



3 historic lines  
6 trams

## Light Metro Train



6 lines  
67 km network  
7 municipalities



## Heavy Urban Train



4 lines  
60 km range around





# One Intermodal Ticketing System – “Andante” and “Anda”



- Common Fare (Rail, Metro and Bus)
- Contactless Ticketing technology - Common sells network (≈1100 points, plus ATM (cash machine))
- All clients validate at the beginning of each trip
- Monthly revenue splitting (dynamic, according to the number of passenger.zones travelled by each passenger in each operator)
- Some complexity for non-regular clients

2018  
149 million  
passengers

2019  
Around  
175 million  
passengers  
(prevision)

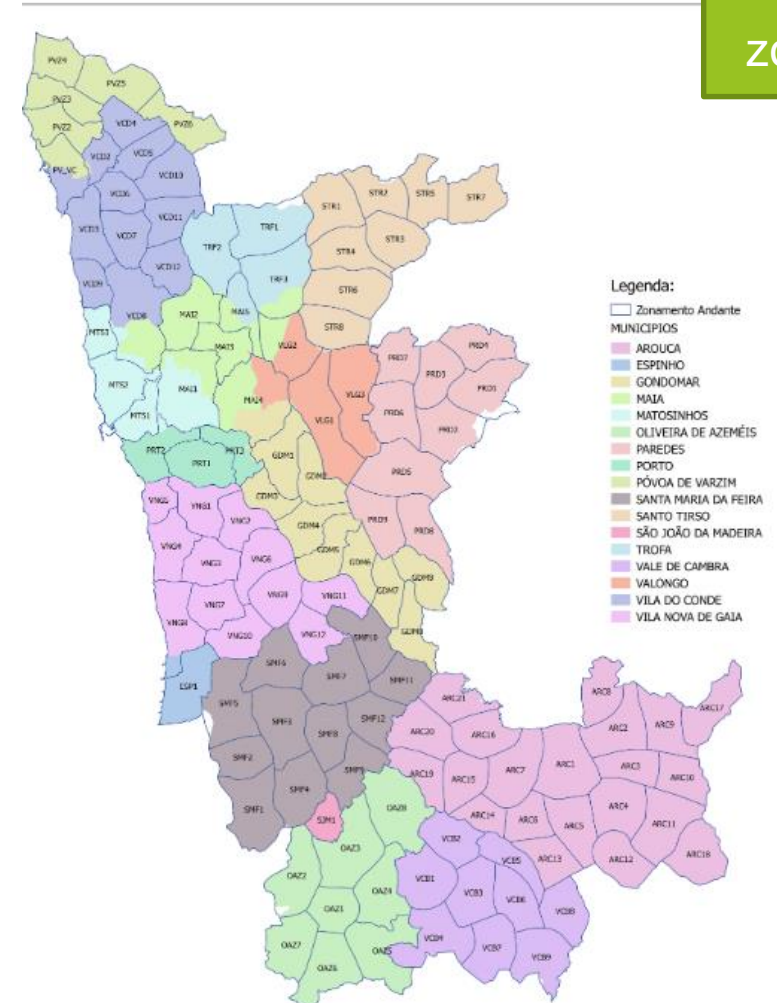


# The challenge

A considerable number of the population considered the intermodal ticketing system complex, due in particular to a complex zoning system (today, 142 zones) and a complex intermodal tariff.

**MAIN OBJECTIVE OF ANDA is to simplify the experience of using the public transport in the Metropolitan Area of Porto, particularly to those who do not use the public transport today because they do not want to overcome the "know how" barrier.**

142 zones



# APP Anda



## ✓ **Simplicity**

Client doesn't need to know anything about tariffs or zones → just need to validate in the beginning of each trip.

## ✓ **Account Based**

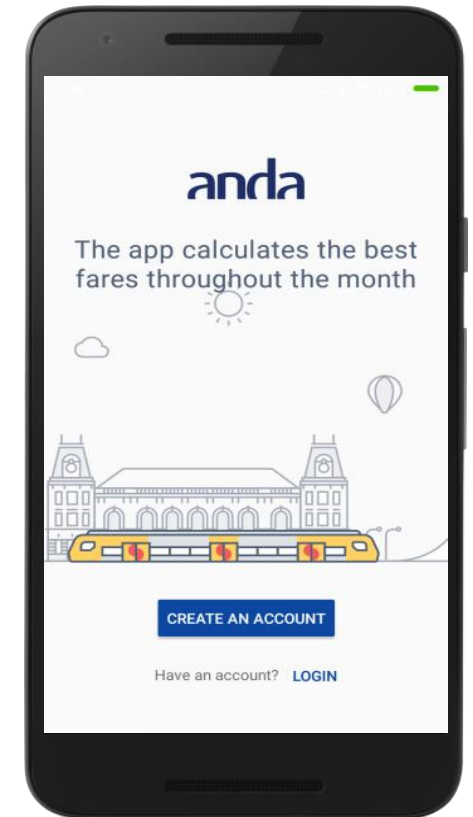
Client just subscribes a PUBLIC TRANSPORT account.

## ✓ **Post paid**

Client receives the bill at the end of the month.

## ✓ **Price optimization**

Continuous optimization of rates applied → system computes the minimum cost tariff for the trips made (month period).





# APP Anda

## Technology

- Mobile ticketing (smartphone APP for Android 5.0 or plus) → Expectation to extend to the iOS as soon as it's available
- HCE validation (Host Card Emulation)
- BLE (Bluetooth Low Energy) beacons network to track each

## Tests

- During 9 months with 100 clients

## Peer Review

- UITP (Public Transport Association) peer review



# APP Anda



## Resources needed

The overall investment associated with the design, development and installation of the ANDA system was approximately **EUR 2 million**, partially funded by the **Environmental Fund** of the Ministry of the Environment.

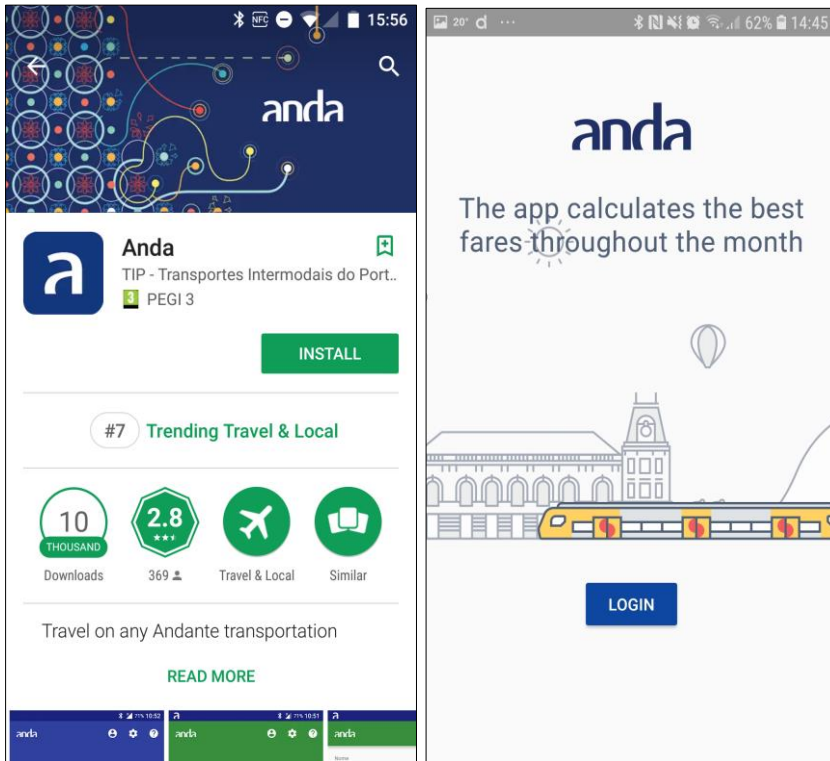
## Main stakeholders involved:

Transportes Intermodais do Porto; Porto Metropolitan Area; Transport Operators; University of Porto.

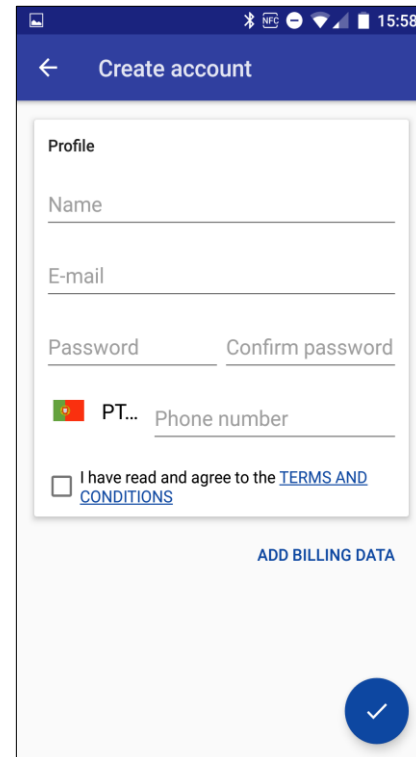


# APP Anda – How does it work?

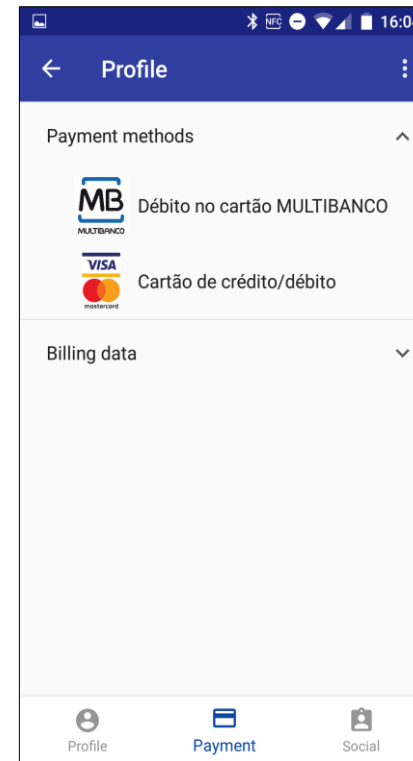
## Download the App



## Create your account



## Associate a mean of payment



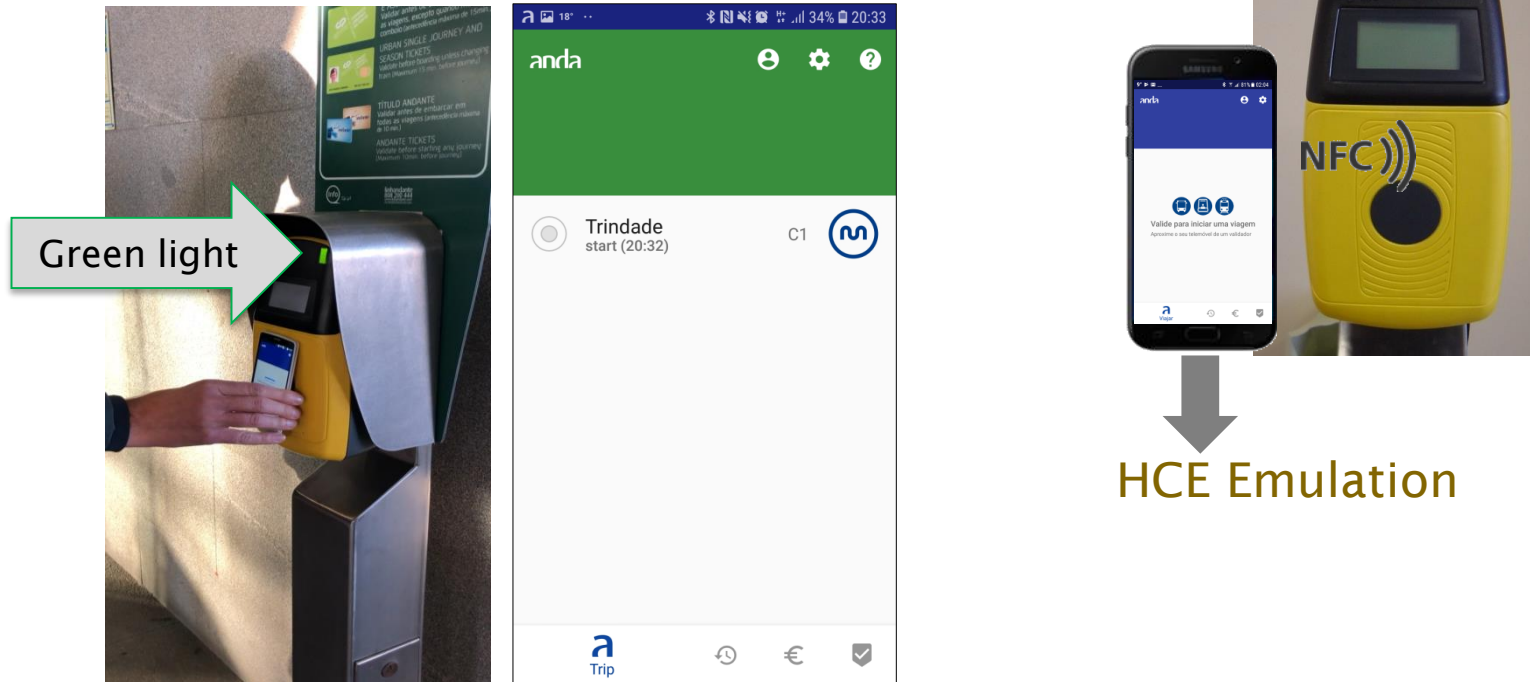
1. In an ATM  
or
2. Associating a bank card





# APP Anda – How does it work?

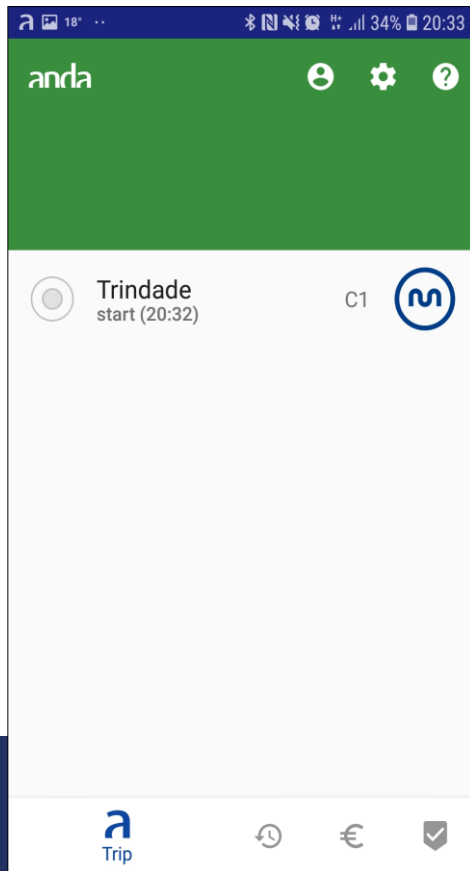
Validate to start the trip



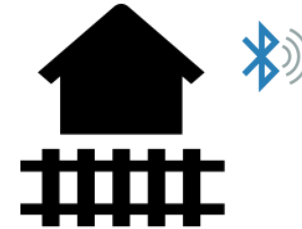
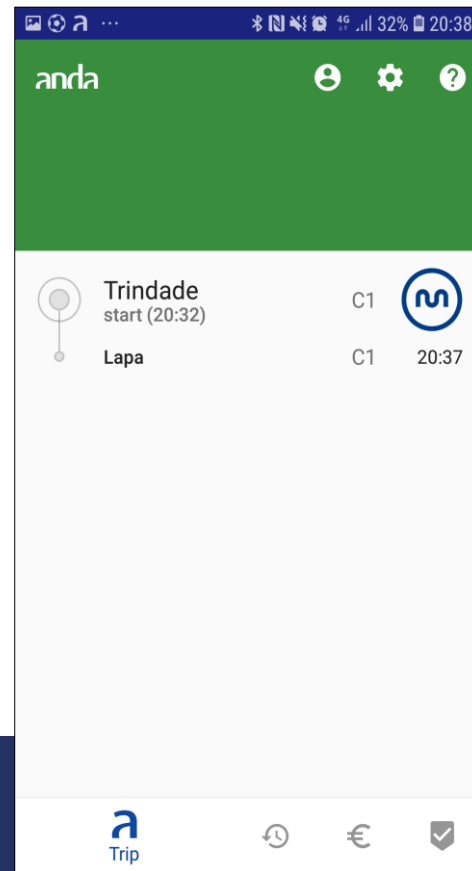


# APP Anda – How does it work?

## Trip start



## Following the Trip



Detection of the beacons placed at stations

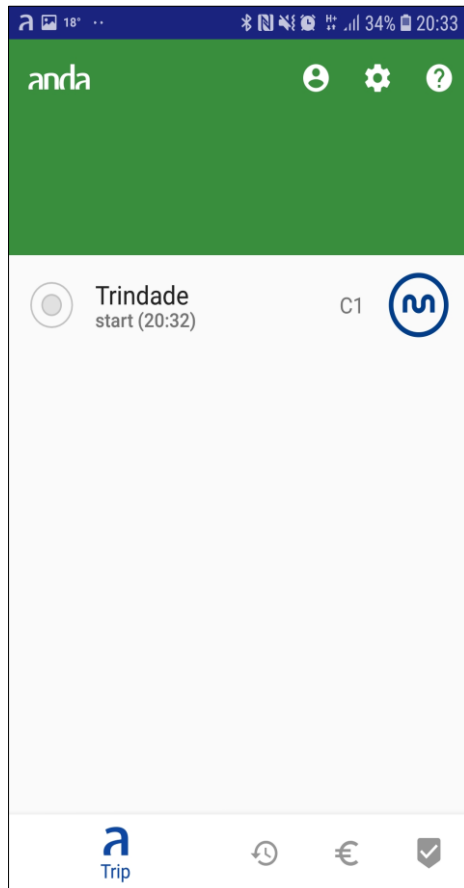


Detection of the beacons placed at buses

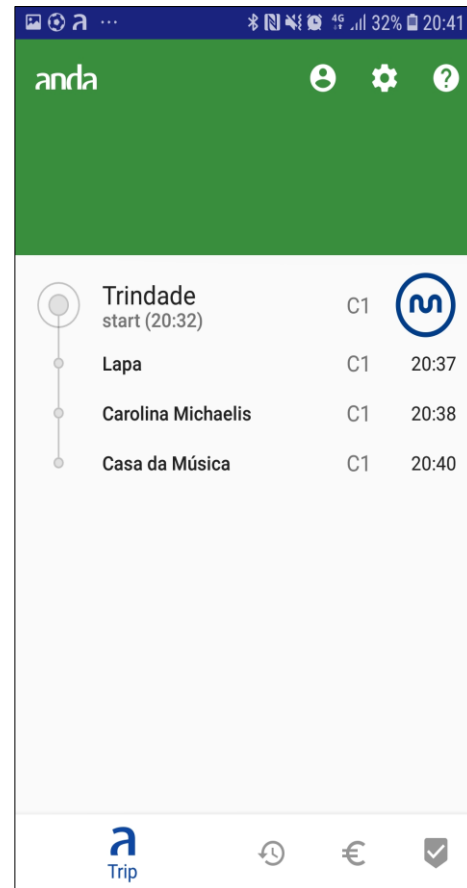


# APP Anda – How does it work?

## Trip start

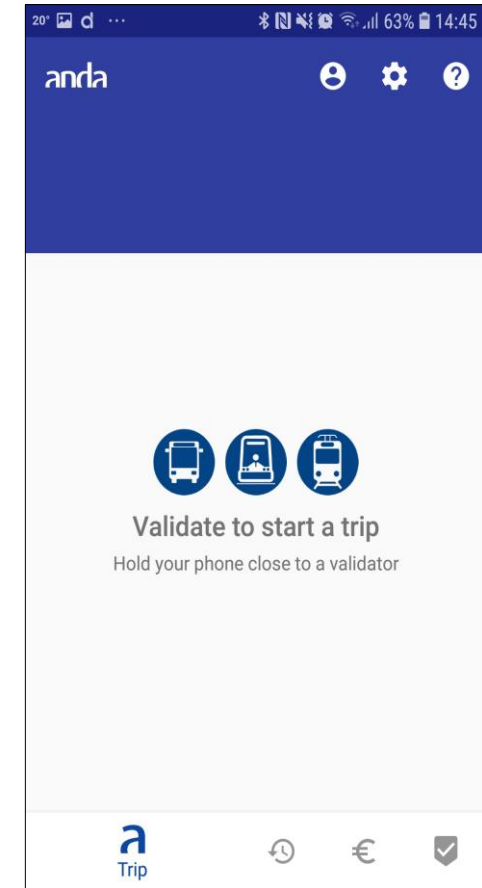


## Following the Trip



## Trip Ends

20 minutes after the end of the trip (or 3 minutes walking), the App closes the journey.

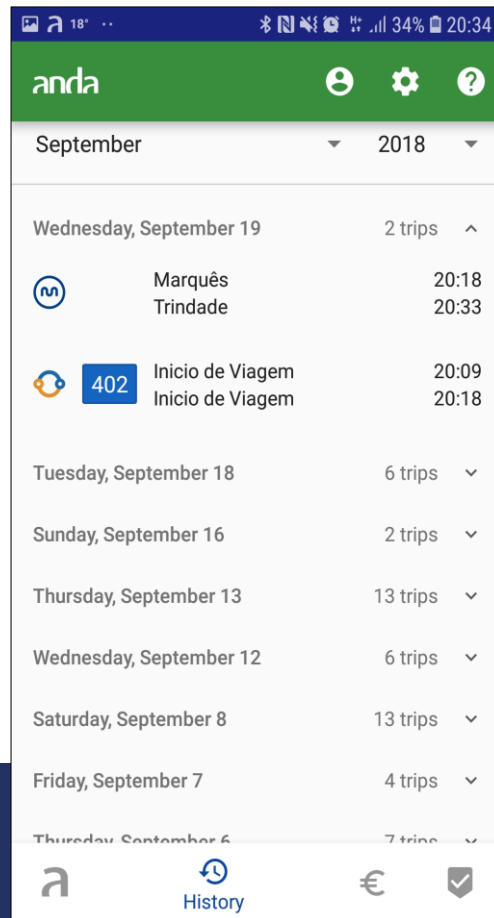




# APP Anda – How does it work?

At any time, client can consult

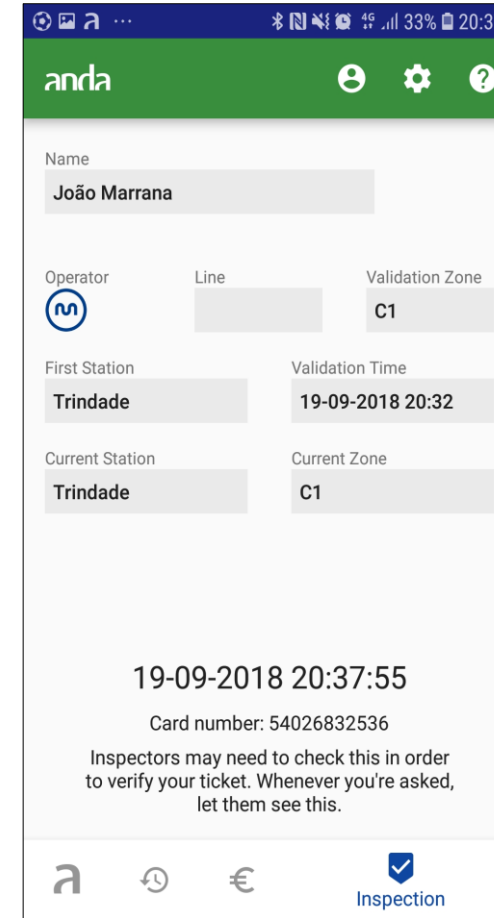
✓ Trips made



✓ Incurred cost



✓ Inspector's screen




← Inspection equipments recognize the App as a valid ticket.



# APP Anda – How does it work?

## At the end of the month

**TIP**  Fatura simplificada FS  
Nº: ANDAFS2018/99  
Data Fatura: 2018-05-24  
-simplificada- (original)

TIP- TRANSPORTES INTERMODAIS DO PORTO, A.C.E.  
Av. Fernão Magalhães, 1862, 12º  
4350-158 Porto  
Portugal  
www.linhandante.com | e-mail: tip@tip.pt  
CNC Ponto: 506240266  
NIF: 506240266

Isabel Carvalho  
Rua de Mário cal Brandão 302 3 direito  
frente 4425 077 águas santas Maia  
4425-077 MAIA

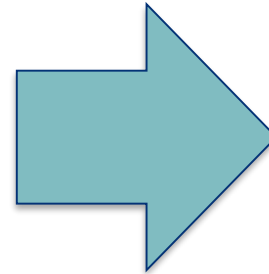
NIF-Cliente	Moeda	Condições de Pagamento
188333860	EUR	Pronto Pagamento

Descrição	Quant.	P.Uh. (c/IVA)	IVA	Valor(c/IVA)
Assinatura/Assinatura/Normal/Intermodal/A Zonas	1 un	47,10	6,0%	47,10
<b>Total (c/IVA):</b>				<b>47,10</b>

Taxas-IVA	Incidência	IVA	Valor(IVA)
IVA Reduzido	44,43	6,0%	2,67

Observações

XXXX Processado por programa certificado n.º 9999/AT (FS ANDAFS2018/99) Página 1/1  
-- Este documento não serve de fatura --

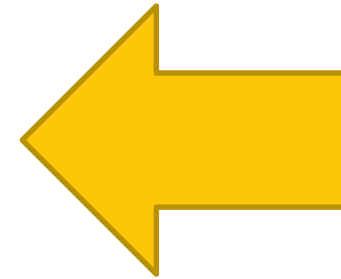


- Client receives the bill
- The credit card / bank account is debited by the optimized value of the trips made
- If the client has a specific discount, fare optimization is performed considering it



# Expectations

- **MaaS** as an essential tool:
  - Aggregate Mobility Account
  - Integration of mobility services
- Interoperability as a challenge:
  - Overcoming the lack of integration between systems
  - Cooperation between managers / authorities



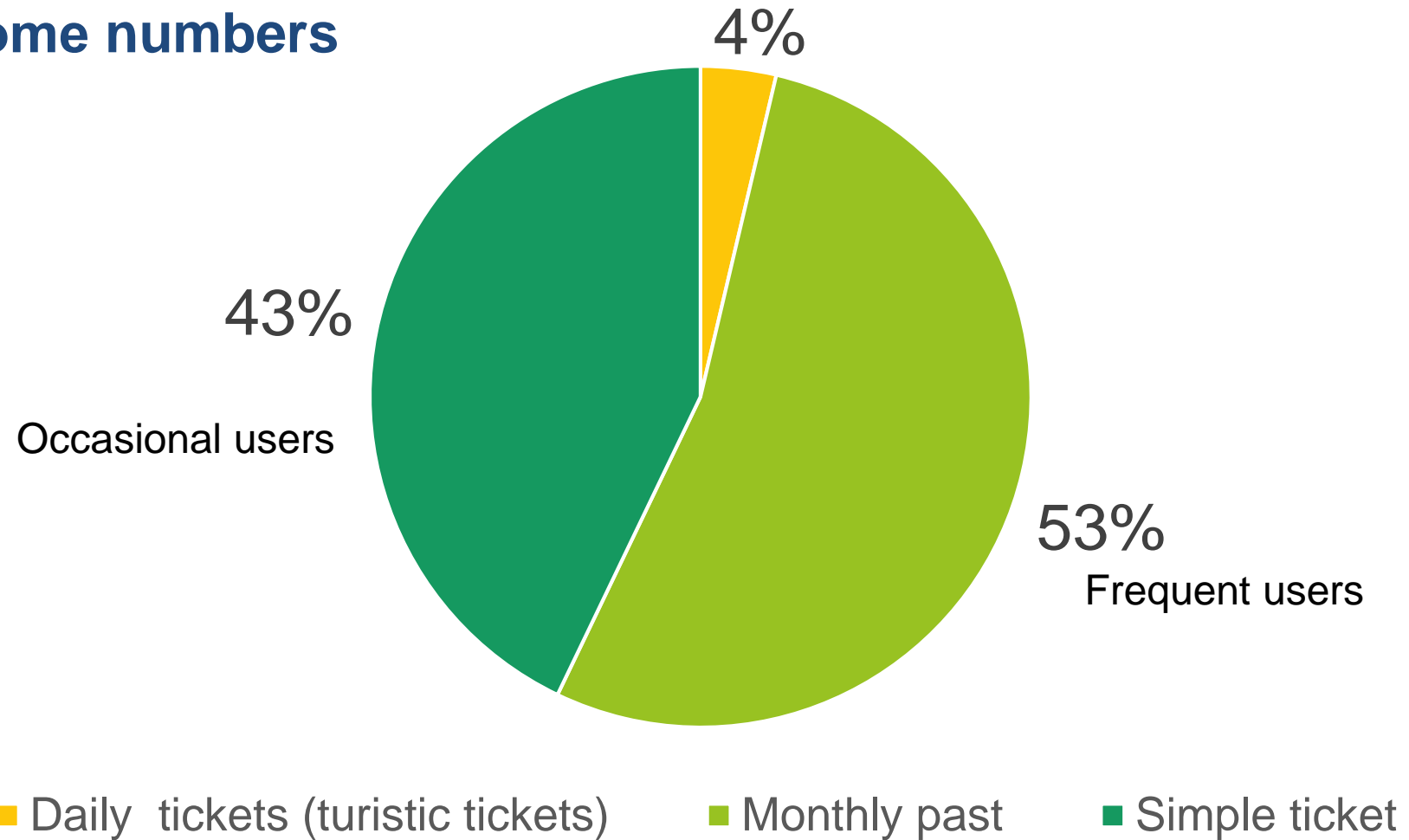
Effective alternative to private car





# ANDA... so far

## Results... some numbers





# ANDA... so far

## Some difficulties

- Not available for iOS
- Almost infinite number of smartphone brands, models and versions
- People validating, for the first time, with smartphone instead of card
- **Problems created by the payment system ...related with a guarantee payment for the debit and credit cards – some amount is captivated.**

When we launch the ANDA a significant number of people installed the APP, but they aren't using it.

Now, we are preparing a new campaign in order to increase the number of users.





# Potential for learning or transfer

The ANDA APP is a solution that really simplify the mobility:

- a single invoice at the end of the month, benefiting from the adjusted fares according to the real use;
- passengers do not need to have any knowledge concerning the tariff system;
- the possibility to join more services like car-sharing, bike sharing, park & ride, taxi.....
- the possibility to reward the users for their choices in mobility.



# Thank you!

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