



MobiWallet



# Santander Pilot Overview

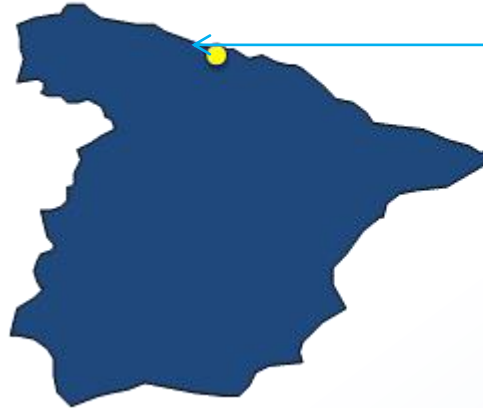
**December 2015**



# Spanish Pilot Overview



**Where:** City of Santander



**Partners:**



indra



AYUNTAMIENTO  
DE SANTANDER



UNIVERSIDAD  
DE CANTABRIA



**Modes involved:**



**Key Technologies:** NFC integrated with Smartphones, QR codes



# Specific Objectives & Challenges



➤ Use NFC enabled Smartphones and Stickers as electronic wallets and tickets to exploit the **synergies between contactless payment** systems and **Smartphone** technologies.

➤ **Unique, integrated and interoperable** mean of payment and validation.

➤ Foster the deployment of **Interoperable Fare Management** systems focused on offering **seamless intermodal mobility**

➤ Offer **added value services**: online purchasing, virtual wallet, profile/account information, special considerations for **disabled users** etc.

BUT ...

➤ Capable of **co-existing** with current solutions

➤ Not affecting **current operation**: none/minimum hardware and software modification in operator's side.



# Baseline & impact on approach



Uses NFC *MIFARE Classic 1K*

- ✓ MobiWallet solution based on this technology to assure compatibility
- ✓ MobiWallet solution adapted to its CARD MAP



- Traditional business. Allows only cash and credit card
- A paper ticket is needed to allow traveller to go on board

- ✓ MobiWallet solution based on Smartphone+NFC stickers linked to a unique user ID
- ✓ Equipment provided to incorporate NFC for the payment and ticket purchase



- Don't use mobile technologies in their services today
- Development of equipment is not possible/affordable

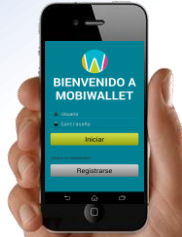
- ✓ MobiWallet proposes a solution to incorporate QR codes in the payment
- ✓ Operators just need their smartphone



# Interoperability Solutions: Key Elements implemented



Medium



MobiWallet APP



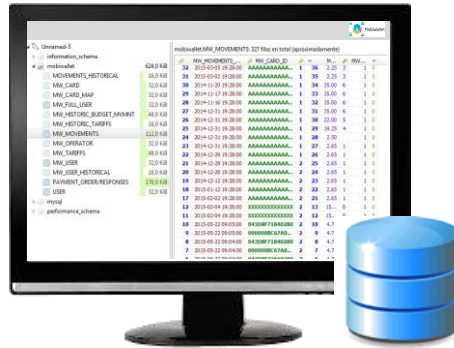
NFC Sticker  
MIFARE  
CLASSIC 1K



Allow users to....

- Register/Log in
- Manage and recharge their MobiWallet virtual account
- Acquire and validate travel entitlements & access the transport system
- Access additional services

Platform



Information centre:  
WebServices+DataBase



**Core of the Platform:** Stores user's data and transactions. Provides basic operations to users and operators to access and manage this information

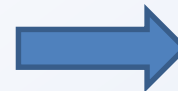
Gateway



Clearing House



Virtual Point of Sale



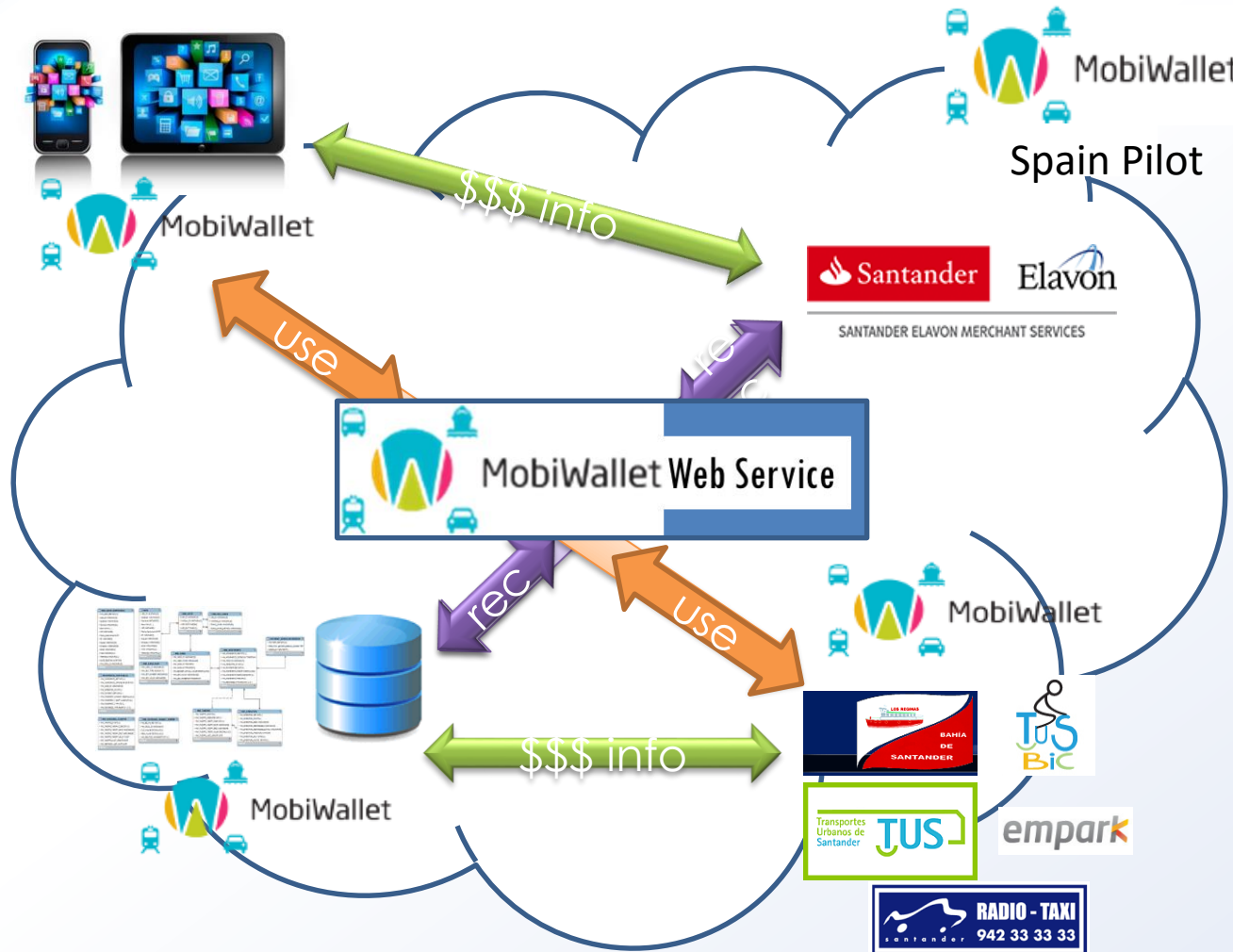
**Payment gateway and clearing system** to manage user's credit and payments as well as all the transfers to the different operators according to the use of their services.



# Interoperability Solutions: architecture



MobiWallet





# Services



MobiWallet



## Core Services (Fare management and validation)

Top-up & clearing

Validation

Equipment

Fare Calculation

Interfaces

Focus here for the moment

## Additional Services

Future adaptations for disabled users

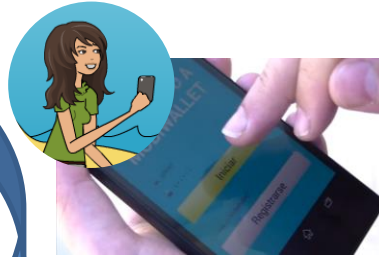
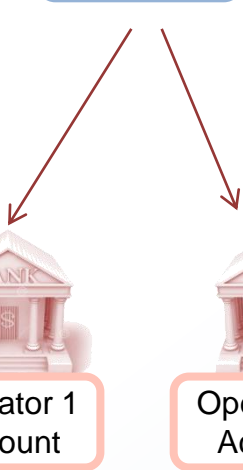
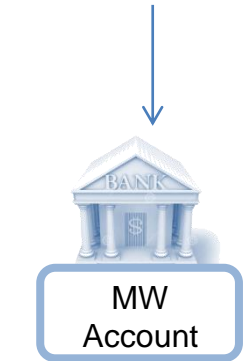
## Integration with existing Services/APP

For the moment, no other external APPs will be integrated in the system



# Top-up & clearing

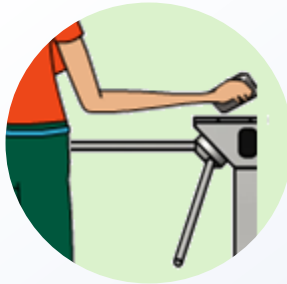
# Core Services



User tops up the virtual wallet through the **Smartphone**



Virtual Point of Sale implemented – Payment by **Credit Card**



Use transport mode: bono or postpayment



Clearing: Transfers to Operators **weekly**

32	2015-03-05	19:28:00	AAAAAAAAAA	1	36	2.25	3	1	0
31	2015-03-02	19:28:00	AAAAAAAAAA	1	35	2.25	3	1	0
30	2014-11-20	19:28:00	AAAAAAAAAA	1	34	35.00	6	1	0
29	2014-11-17	19:28:00	AAAAAAAAAA	1	33	35.00	6	1	0
28	2014-11-16	19:28:00	AAAAAAAAAA	1	32	35.00	6	1	0
27	2014-12-31	19:28:00	AAAAAAAAAA	1	31	35.00	6	1	0
26	2014-12-31	19:28:00	AAAAAAAAAA	1	30	22.00	5	1	0
25	2014-12-31	19:28:00	AAAAAAAAAA	1	29	19.25	4	1	0
24	2014-11-17	19:28:00	AAAAAAAAAA	1	28	2.50	1	1	0
23	2014-11-17	19:28:00	AAAAAAAAAA	1	27	2.65	1	1	0



User's virtual account updated



# Validation

# Core Services



Deployment of solutions based on the core elements developed but **adapted to the specific requirements of each mode**, in order to co-exist with current solutions: different approaches to validation / payment:



Select type/number of tickets and pay with virtual wallet



NFC-writes on sticker's card map



NFC - reads sticker's card map, validates ticket



Taxi driver/ parking operator



Generate QR code with payment details



User



Reads QR's information and validates payment





**Equipment**

# Core Services



**NFC Sticker**

**Existing equipment**



TUS validators (all bus lines)

**New equipment**



Equipment for Ferry



Totems to top-up in smartphones that are not NFC compatibles

**APPS for operators**





## Fare Calculation

# Core Services



MobiWallet



System adapted to each mode, maintaining current operation and fare calculation:

- Bus: allows to travel with a type of ticket issued for the pilot, called BonoPiloto, and with the cost of a conventional ticket
- Ferry: allows to purchase any type of ticket among the existing
- Taxi&Parking: post-pay, according to the current fares.

Transactions of each users are registered, making easier to apply multimodal fares

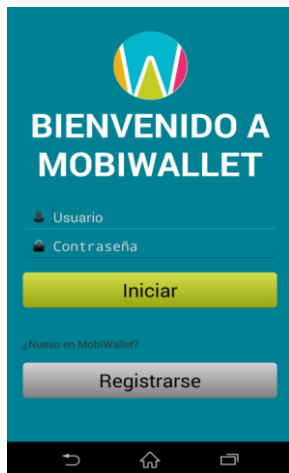


## User Interfaces

# Core Services



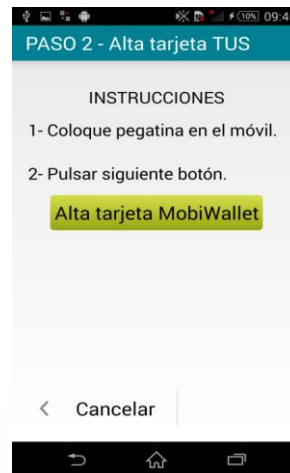
☐ Traveller Interface: unique mobile APP for the traveller



Register /  
Log-in



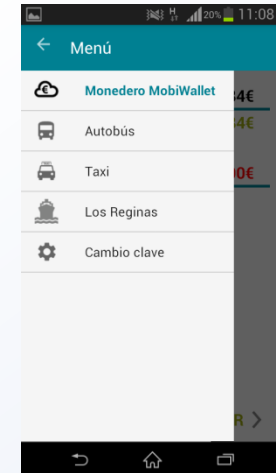
Introduce  
personal  
information



Link sticker ID  
with user



Top-up wallet /  
consult available  
credit



Select Mode /  
action

☐ Incremental approach, adaptations are made in the APP as new modes get involved in the pilot



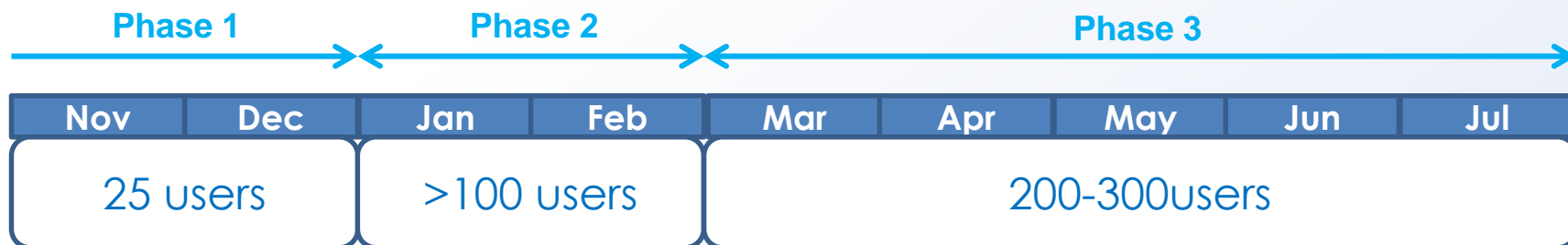
# Users recruitment



- First users: contacted **personally**
- Next users: send an email to the user support address / through the Web page / download APP
- **Promotion/dissemination** through Press Notes in newspapers/online, Posters, social media, Videos etc
- Offer **incentives** to participants: discounts and raffles



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# Forthcoming actions



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- Finish integration of taxis and parking and put them in operation
- Install totem for non-compatible phones
- Include adaptations for disabled people
- Continue users recruitment , dissemination and trails
- Evaluate performance and results
- Interoperability with the other european pilots



# Stay tuned!



[www.mobiwallet-project.eu](http://www.mobiwallet-project.eu)



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