



INTERNATIONAL UNION
OF RAILWAYS

T-MOBILITAT

IV CRTS Training

-Barcelona, 5-7 June 2019-

ÒSCAR PLAYÀ

T-mobilitat Director

Autoritat del Transport Metropolità

Public Transport challenges:

- Ticketing Technology system obsolescence
- Information and data generated management
- Evolution of the tariff model

Challenges

Technology

- ❖ Obsolete Magnetic technology
- ❖ High maintenance costs
- ❖ Weak security
- ❖ Information losses
- ❖ Impossibility to evolve the pricing model

Management System

- ❖ Mobility Information
- ❖ Operation (Operators)
- ❖ Mobility Users

Pricing Model

- ❖ Difficulty to expand system
- ❖ Functional limitations
- ❖ Purchase and usage fraud by certain collectives

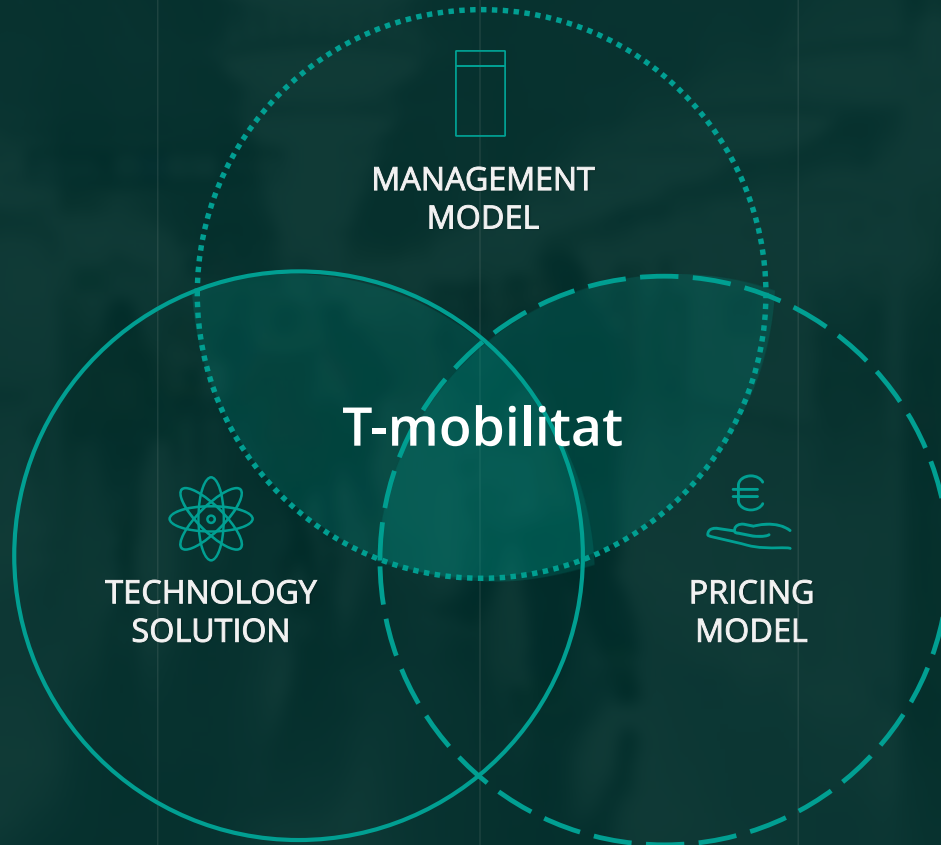
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Project to improve Catalunya Mobility Citizens

Intelligent Ticketing Management System

Integrated Mobility Information Management

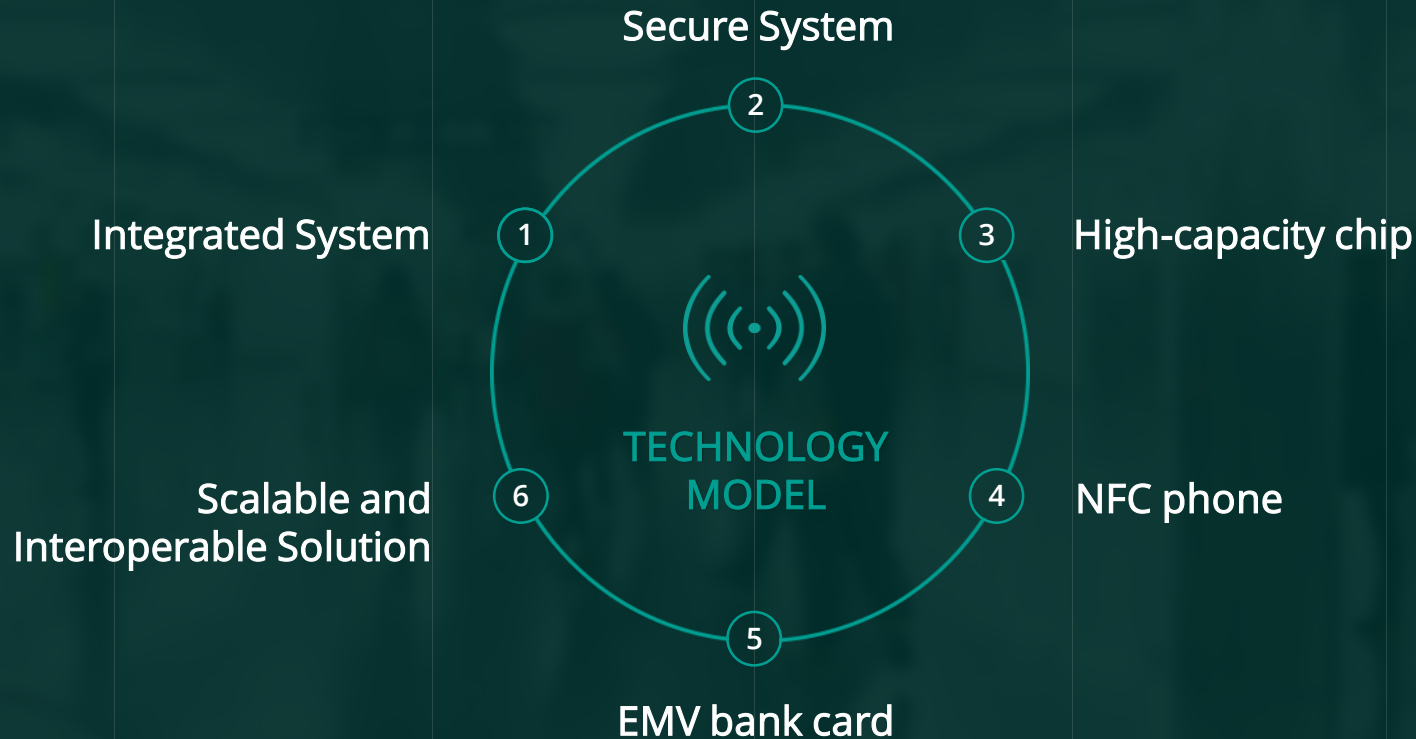
T-mobilitat Solution



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Solution:
Technology Model

Technological ticketing model's bases



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Solution:
Management Model

T-mobilitat Management Model

T-mobilitat Management Model is based on:

Mobility Management



The solution becomes a mobility management and transport planning support tool

Technology Maintenance and Operation



The new solution improves the ticketing technology's maintenance and operation tasks, and reduces the impact on the transport services' operation

Customer Service



Implementation of a new customer service model, supported by two new Customer Service Centers and operator service points

On-line Mobility Information



Transport information model supported by two new interconnected Transport Information Centers

Mobility Management



The use of **new management tools**, supported by passengers' **mobility traceability** provides the system with the following advantages:

- ❖ **Better user-mobility information, which allows adjusting mobility offer to real demand**
 - ✓ *Increase the most used transport services, with the associated rise in client satisfaction*
 - ✓ *Adjust services with over-supply, with the associated cost-reduction*
- ❖ **Increased client satisfaction regarding public transportation services, due to substantial improvements to its ticketing system**
- ❖ **Gives the transportation system a tool allowing it to implement changes with ease**
 - ✓ *Tariff system changes*
 - ✓ *Integration of new mobility services*

Technology Maintenance and Operations



The implementation of a more robust solution and monitoring tools provides the following advantages:

❖ Reduction user-incidence solving tasks

- ✓ *Less impact regarding transport services*
- ✓ *Service quality improvement*

❖ Improvement in the control on technological equipment

- ✓ *Permanent equipment monitoring*
- ✓ *Preventive maintenance*
- ✓ *Data analysis allowing predictive maintenance model*

❖ Reduction in operation and maintenance tasks

- ✓ *Implementation of field element remote management tools*
- ✓ *Operation tasks reduction*
- ✓ *Replacement of electro-mechanic for electronic components*
- ✓ *Removal of components that are worn-off or subject to constant strain and fatigue*

Users Oriented Services



New management tools and new relationship channels (web and app)

❖ **Multi-point** – service through a network of points, consisting of:

- ✓ *Transport operators' Service Offices*
- ✓ *The Catalonia Customer Service Center*
- ✓ *The Metropolitan Customer Service Center*

❖ **Multi-channel** – service is offered through different channels

- ✓ *Face-to-face*
- ✓ *Over-the-phone*
- ✓ *Digital*

❖ **Quality**

- ✓ *More comfortable: auto-service through digital and over-the-phone channels*
- ✓ *More reliable: Less incidences*
- ✓ *More guarantees: Title recovery*
- ✓ *Homogeneous: all service points will offer service based on the same criteria and rules, with standardized service processes*

These services have to comply with user expectations and improve their experience as public transportation clients

Mobility Information



The implementation of **new management tools** (disturbance tools, route engine) and **new communication channels** (web and app) will allow the introduction of an information model for the public transportation user:

❖ Global

- ✓ *Integrates all the information of all the different transport modes*
- ✓ *Covers the entire territory and reaches all citizens*
- ✓ *Incorporates static and dynamic information in real-time*

❖ **Multi-channel** – transport information will be offered to the user through different channels, managed by the operators and both the Catalonia and Metropolitan Information Management Centers:

- ✓ *Web*
- ✓ *App*

Information services have to be useful for:

- *Users, so that they can take optimal mobility decisions at any moment*
- *Transport operators, so that they can easily know the general state of the network, and the disturbances that may affect*

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Solution:
Tariff Model

Pricing Model

ROLE MANAGEMENT SYSTEM BASED
ON INTERNATIONAL NORMS



Tariff Model



PRICING SYSTEM REMAINS
UNALTERED IN PHASE ONE



SOLUTION READY TO ADAPT
TO NEW PRICING MODELS

Current Tariff Model Early Phase

During the first phase of the project's implementation, all titles remain in place:

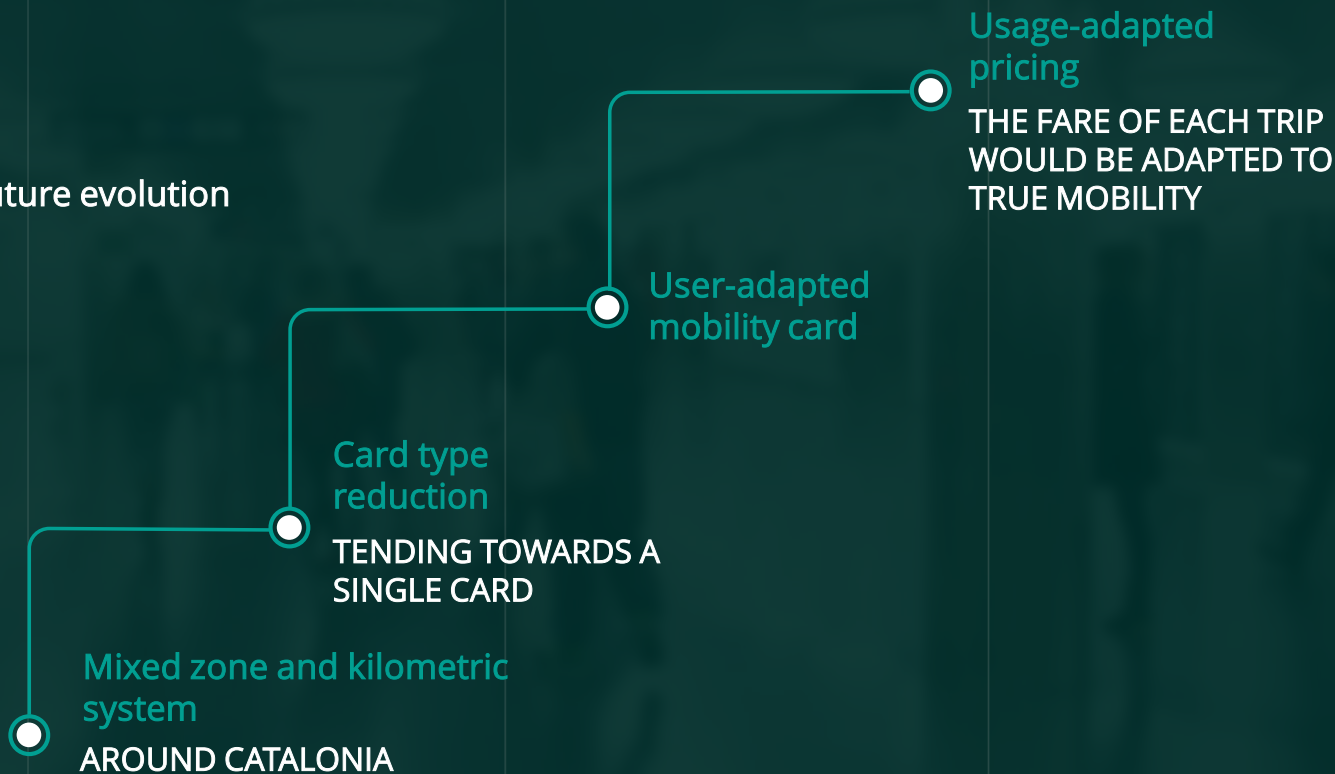
- ❖ 84 Integrated titles
- ❖ 100 Social titles (local Administrations)
- ❖ 150 Own titles (transport Operators)

But it does incorporate:

- ❖ **Exit-validation** for all transport services on more than one zone, both for bus and train
 - ✓ *Reduction in zone-crossing fraud*
- ❖ **Identification of all users with a right to subsidized tickets** (in a centralized database)
 - ✓ *Reduction in improper purchase and use fraud*
- ❖ **A new management system** that allows for a more agile way of incorporating new transport titles and changes in the transport networks

Ready to Adapt to New Tariff Models

The solution will allow future evolution of the tariff model.



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- ✓ T-mobilitat will be the key platform to develop the concept of the Catalan MaaS (Mobility as a Service)
- ✓ T-mobilitat will offer an application that will give users access to integrated existing mobility services with a tariff model, mobility planning and information services
- ✓ It should motivate citizens to increase the use of public transport systems and leave private vehicle

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The Project in Numbers

Deployment Project



T-mobilitat is a project led by the Catalan Administrations

Technology Change Contact-less solution and new management model

Catalunya Mobility System

TARRAGONA, LLEIDA and GIRONA

Territory:

636 municipalities

1,9 M inhabitants

Rail Network:

90 stations (2 operators)

Bus Network:

1.375 vehicles

Operation

42 operators



BARCELONA :

Territory:

346 municipalities

5,7 M inhabitants

Rail Network:

412 stations

810 km

Bus Network:

760 bus lines

16.190 km

Transport tickets:

84 integrated (multi-operators)

100 socials

150 operators

Operation:

75 operators

>1.000 M users/year

1.250 M€ annual cost

Supply Scope: Field Elements

75 transport companies

15.000 professionals

Train operators:

- ❖ *Equipment in **2.700** access control points*
- ❖ ***1.450** vending machines (purchase & top-up)*
- ❖ *Machines in **40** trams*
- ❖ *Equipment in **180** ticket offices*
- ❖ ***200** autonomous validation points*

Bus operators:

- ❖ *Equipment in **3.00** buses*
- ❖ ***3.100** driver consoles*
- ❖ ***5.500** validators*
- ❖ ***3.200** information terminals*

14.000 User-Interaction Terminals (UIT)

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**Gràcies!
Thanks!**