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SMARTCITY : TELEFONICA'S EXPERIENCE

BY&FORCITIZENS
European Conference on Smart, Sustainable and Resilient Cities

Telefónica is one of the leading telecommunications operators in the world with a presence in 17 countries and 350 million accesses

350
Million Accesses

Latin America : 232,6 Mill. accesses

Europe: 116,2 Mill. accesses

Notes: Central America includes Guatemala, Panama, El Salvador, Nicaragua and Costa Rica.
Source: Annual Report Telefónica January-December 2016

Telefónica in figures: A differential and diversified profile

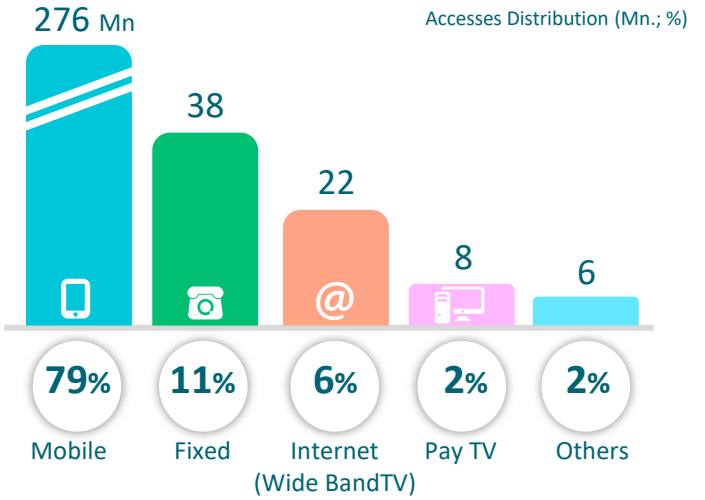
€100.903Mn
Value of the Company(1)

€52.036Mn
Income

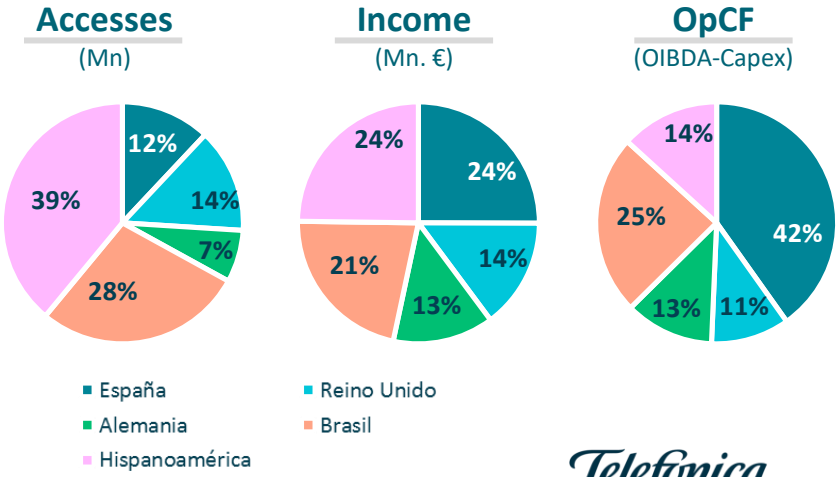
€15.118Mn
OIBDA

132.120
Employees

Commercial Diversification

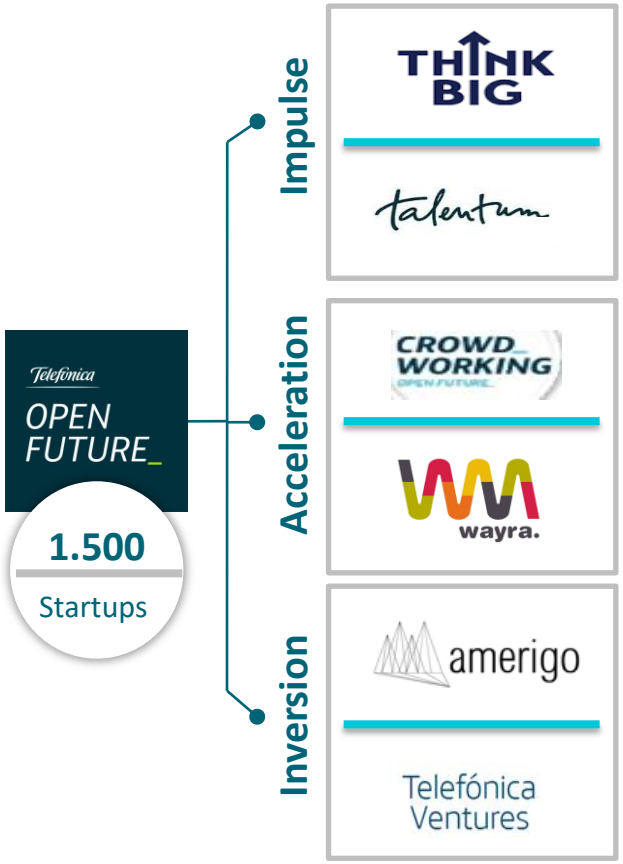


Geographical Diversification



(1) Company Value = Stock Exchange (€52.308 Mn) a 27/04/2017 + Debt (€48.595 Mn) December 2016.
Source: Annual Report Telefónica January-December 2016

Beyond telecommunications: Telefónica, a company committed to innovative entrepreneurship



Fuente: Telefónica Open Future (2017)

FI-WARE = advanced OpenStack-based Cloud + rich library of Generic Enablers

FI-WARE
Open APIs for Open Minds

Driven by implementation

Sustainability ensured

An open standard platform is required for sustainability of solutions

- Avoid vendor lock-in:
  - Southbound to sensors
  - Northbound to applications (open data and APIs)
  - Portability among platform providers
  - Interoperability of solutions enabled by the platform

- Larger community of developers
  - True innovation
  - Better prices

- Not any standard is enough
  - Modularity
  - Allow different business models
  - Integration with standard open data platform
  - Non-intrusive (co-existence with existing systems)

THINKING CITIES PLATFORM

Smart Mobility	Smart Environment	Smart Economy	Smart Governance	Smart Living	Smart People

Benefits of our Platform

1. **We have accompanied citizens during this transformation**

   We know better than anyone does how people use technology. We know what they expect and desire. We now offer this knowledge to the City Council to respond to citizen's needs.

2. **Unlike others, out platform is integrated and open**

   Provides integrated services management to adequate services to citizens and generate new sources of revenue. Only an open platform can give the city flexible and complete management control providing access to local providers. It is flexible and enables efficient solutions to small, medium or large cities.

   Open platforms are the key to Smart Cities acceleration and can help build efficient ecosystems.

3. **Best in class in each area**

   We have the best partners in each service management area.

4. **We know better than anybody does how to bring entrepreneurship to Smart City projects**

   We have the world's largest start-up accelerator. Open Future is present in over 20 countries with 35 thousand projects launched. In addition, we work with universities in the development and implementation of these projects.

5. **We have a complete and comprehensive catalogue**

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Ayuntamiento
de Ávila
Del Rey · De los Leales · De los Caballeros

Ayuntamiento de Ávila

Del **Rey** · De los **Leales** · De los **Caballeros**

Customer profile

City council of a Spanish City that has been declared World Heritage by UNESCO where some National Heritage Monuments are located.

Challenge

The customer wants to control of the "health status" of cultural and historical monument of the city in order to facilitate decisions on maintenance and preservation.

Telefónica solution overview

E2E Solution: end-to-end solution that help with the monitoring and maintenance of heritage assets.

Monitoring: different types of sensors installed that will monitor and control relevant environmental aspects such as temperature, humidity, light and xylophages detectors in selected areas of the monument.

Key elements for the customer

Improve conservation

Preventive maintenance, avoiding irreversible damage situations and maintenance aggressive actions.

Increase security

Enhance security, including protection against theft, fires, floods, etc. especially in remote sites/monuments which are more vulnerable

Business benefits

Qualitative improvement

Qualitative improvement in the conservation of heritage analysing real-time information and taking action immediately introducing corrective measures automatically or manually when necessary.

Reduce costs

Better investment on restoration and maintenance works and efficient management of resources

Telefónica

AJUNTAMENT DE VALENCIA

AJUNTAMENT DE VALENCIA

Customer profile

City Council of the third most populated City in Spain with over 800k inhabitants. Service centered economic activity.

Challenge

The capital of the Valencia region wanted to bring together all of its services, allowing for the management of public resources through a single connectivity platform and enhancing areas such as transport, energy, efficiency and environmental services.

Thus becoming the first Spanish city to centralise all of its municipal information through a smart city technological solution.

Key elements for the customer

Analysis

The customer wanted to analyse the situation of the city areas

Indicators

City indicators: define global and strategic indicators that allow comparisons with other cities

Service Indicators: operational indicators, specific for each service, that allow the evaluation of municipal services.

Business benefits

Flexibility

Flexible platform easily adapted to changes, interoperable and FI-WARE compliant.

Indicators integration

Integration of both services and city indicators addressing the requirements specified in the City´s Strategic plan.

Advanced solution

Ability to manage various services while processing and integrating significant volumes of heterogeneous data.

Telefónica solution overview

City dashboard with relevant city & services indicators.

A Smart City platform that can be connected to vertical solutions platform's, and calculate services indicators.

Cloud based, escalable and resilient.

Interoperable and able to access and integrate heterogeneous data.

Based on **Open source technologies**

High **data processing** capabilities and various channels to distribute data.

FIWARE compliant: convergence with the Future of Internet.

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Junta de Castilla y León

Telefónica

Territorio Rural Inteligente

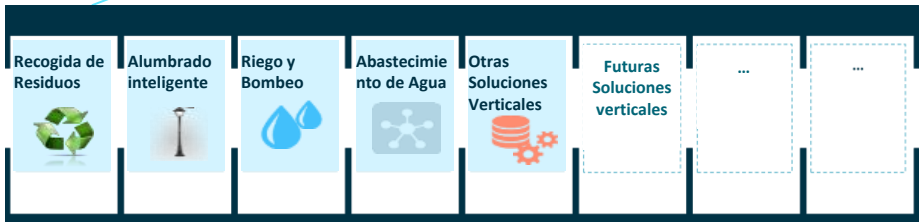
Smart Rural Territory

Junta de Castilla y León

De un territorio rural eficiente a uno inteligente

Amplio **portfolio de soluciones IoT,** tanto propias como de partners**,** ofreciendo un completo **ecosistema vertical**

Facilitador para la mejora de los servicios del territorio, incrementando los **ahorros operacionales**, la **calidad del servicio** y la **calidad de vida de los ciudadanos**



Puesta en marcha de **pilotos de servicios inteligentes** sobre la Plataforma incluidos en el proyecto para demostrar el concepto

Plataforma horizontal basada en el estándar abierto FIWARE, que permite la **integración de los datos del territorio** (sensores y sistemas) a través de una **capa de acceso** común, y la **representación de los indicadores clave de servicio**, basados en **su visualización avanzada** y **las capacidades analíticas**

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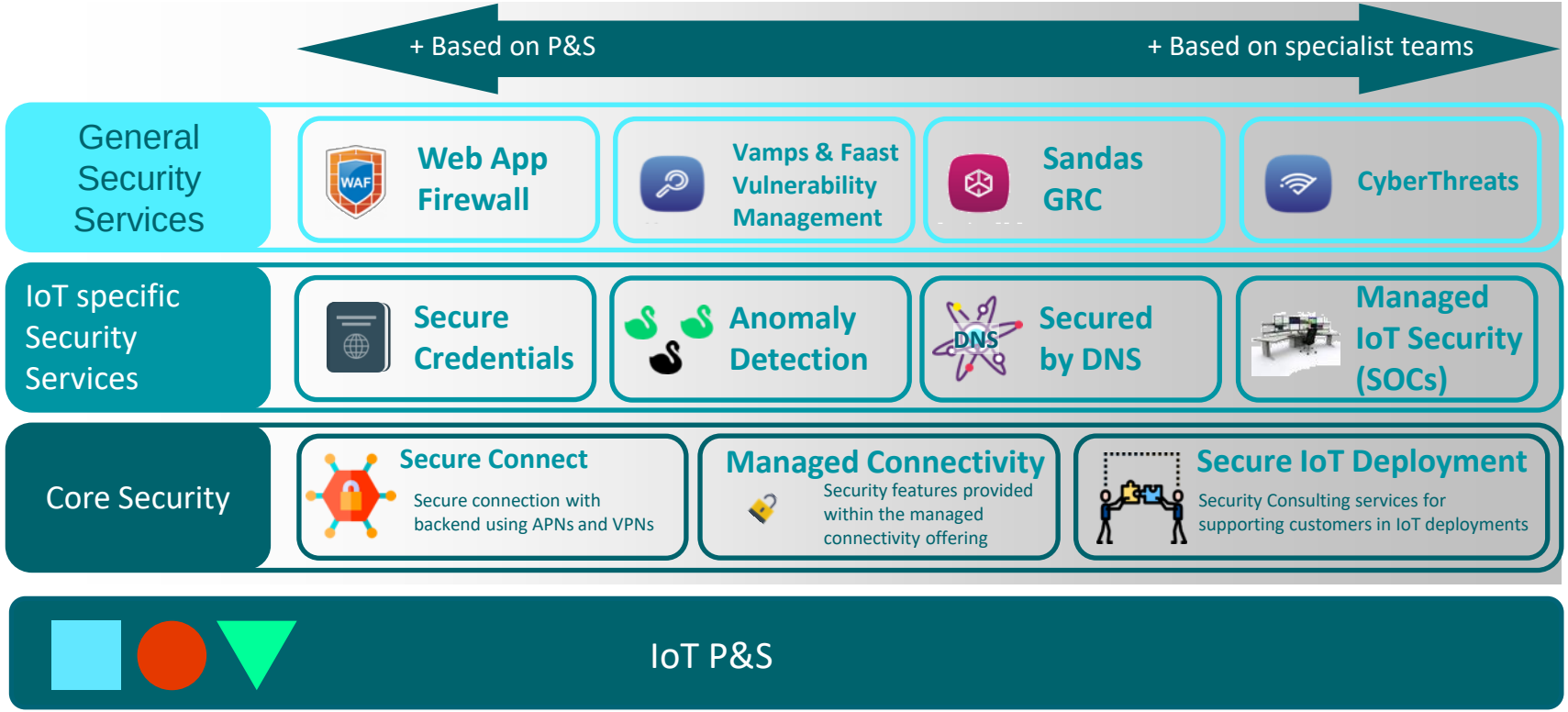
Cibersecurity



From Big Data to Artificial Intelligence:

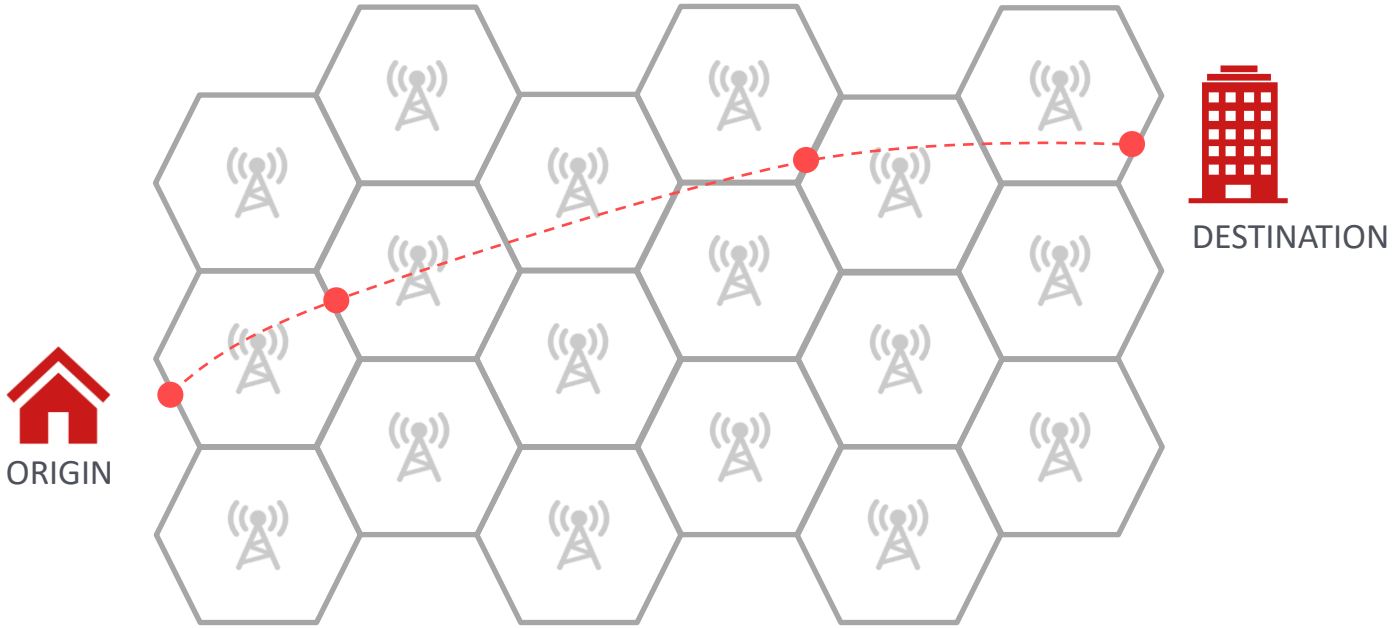
the next digital disruption

Telefónica Investigación y Desarrollo

Telefónica
15.09.2018

Case 1

Big Data for **transport** improvement


ORIGIN
DESTINATION

AGGREGATION

ANONYMIZATION

FREQUENCY OF THE TRIP

TRAVELER'S DEMOGRAPH

MORE USED ROUTES

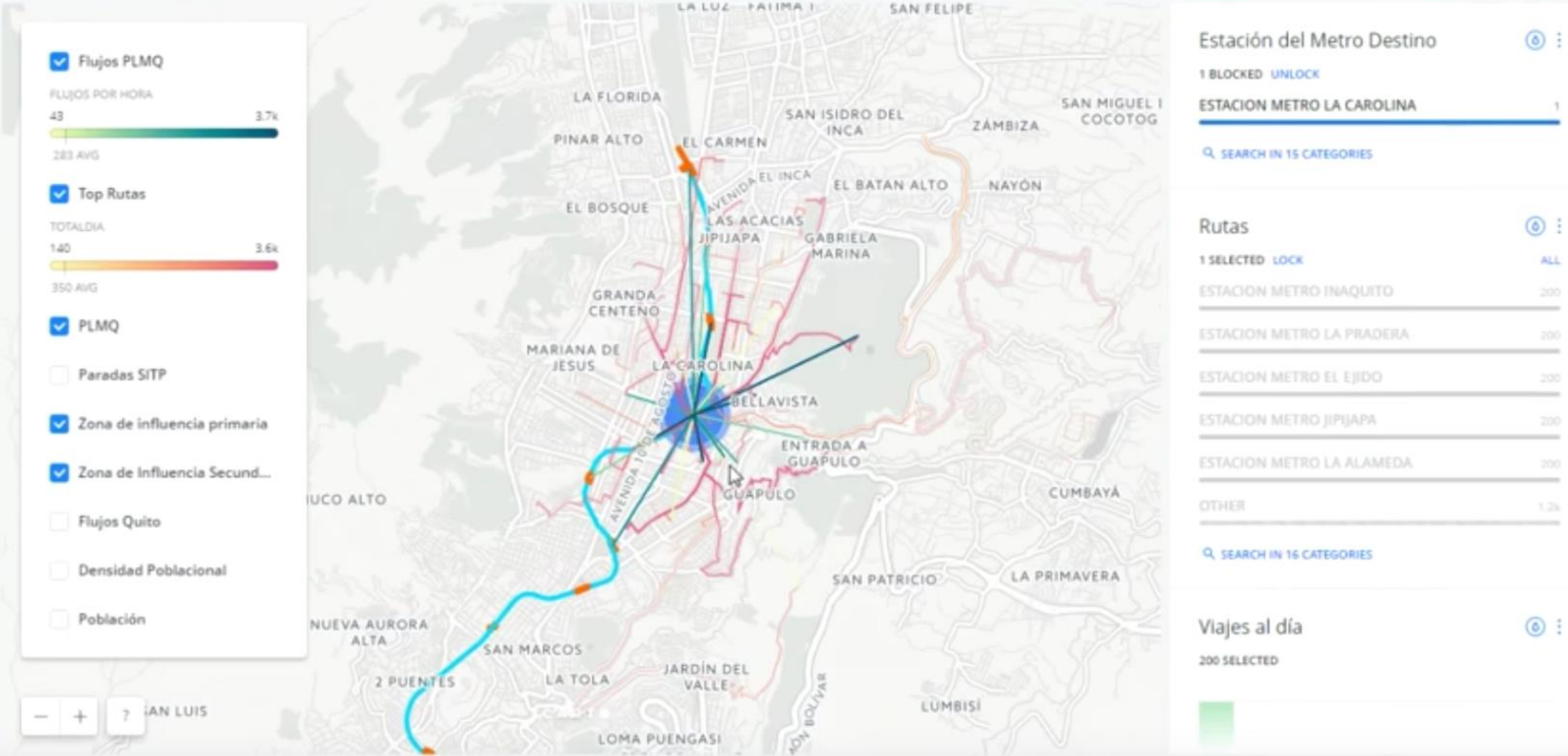
PURPOSE OF THE TRIP

TRANSPORT MODE

Planning the intra and inter-day service offer

Impact on adjacent routes: increase or decrease

Planning decongestion routes



LUCA TRANSIT: Data from Quito

We work with the AATE on estimating the demand for urban mobility in Lima and Callao

Telefónica
Elegimos todo

AATE: Autoridad Autónoma del Tren Eléctrico

Case 2

Big Data for **tourism** improvement

In 2015, an innovation project analyzed the behavior of tourists

A particular case that was explored was to collect and cross-reference data from two different companies: Telefónica Móviles España and BBVA, going beyond their own data

Tourists visiting Barcelona and Madrid…

50 % of visits of 3 nationalities: French, Italian and British

2,2 days of average stay, 20% more if the tourist arrives on a working day

161 € of average spending per card, accumulated by each of the visitors

300 € of average expenditure on accommodation during the entire stay

Mobility Data

Spending Data

This project was transferred to our product unit

Demographic Segmentation

Analysis by gender, age, purchasing power and web behavior

Locations

Main tourist areas visited

Origin

Analysis of tourists based on their origin, both for national and international

Duration of the stays

Average duration of stay, overnight stays

Visitor Volume

Differentiating between tourists and residents

Behavior patterns

Main points of interest, places visited ...

Tourism

LUCA Tourism: Stimulating Peru's tourism sector

We work with PromPerú to achieve its mission to position the image of Peru, promoting its image as a tourist and commercial destination, with the added value of contributing to the sustainable and decentralized development of the country. All this is achieved by means of obtaining information of greater precision than through traditional methods thanks to the data of mobile networks

Telefónica
Elegimos todo

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THANK YOU FOR YOUR ATTENTION!

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