Rural Mobility Ecosystem

Universidad de Navarra

Design of an autonomous, shared and sustainable ecosystem for rural environments.

1

© **Jean Laurent**. Murcie-715. Charrette chargée de tinajas ou cuves en terre (d'après nature). 1870. Museo Universidad de Navarra.

ORIGIN

People are changing the way they move, coming up with new solutions that feature a more responsible, accessible, smart and sustainable mobility. The key question to answer is why people move, so then we can ask ourselves how we move and with whom we move.

2

RESEARCH

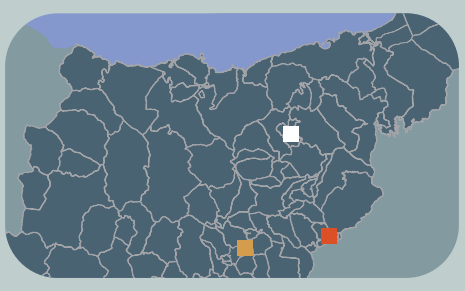
In Spain, 80% of the population lives in urban areas, meaning a depopulation of the rural areas. Rural areas do not have many mobility alternatives such as cities since public transport service is very scarce and they do not connect towns.

The dependence on a private vehicle is then growing but some villagers are excluded, such as minors, elderly or people with special abilities, or simply those who cannot afford its cost. So they depend on family or friends for their trips to work or leisure.

TAKE AWAYS

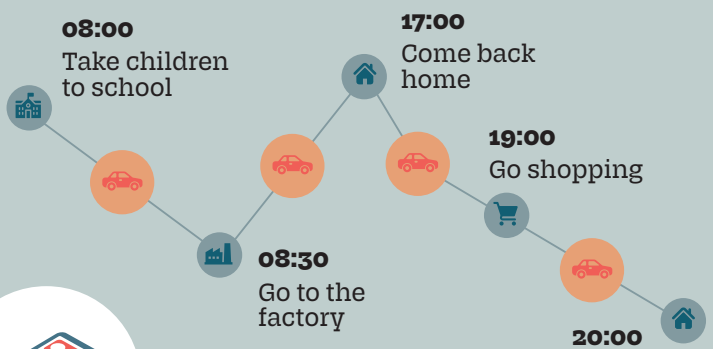
- Lack of public transportation and isolation
- Depopulation and aging of the population
- Very time-consuming trips in day-to-day life
- Strong dependence on vehicles in day-to-day life

RURAL AREAS ANALYZED



- **Orexa**
  127 inhabitants. 5.85 km²
- **Baliarrain**
  153 inhabitants. 2.73 km²
- **Aduna**
  472 inhabitants. 6.96 km²

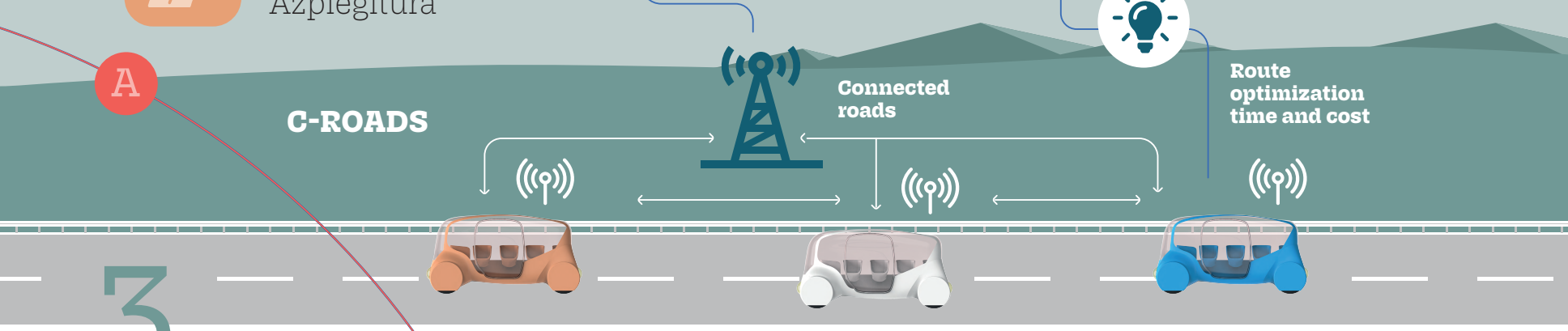
DAY IN LIFE



A

Infrastructure
Infraestructura
Azpiegitura

C-ROADS



3

ECOSYSTEM

What mobility solutions can be offered for villagers that are so different from citizens? How will they move in a few decades?

Several key elements working in synergy are identified for rural mobility:

Accessibility.
Inclusive vehicle designed also for people with reduced mobility and with dedicated areas for the transport of both people and goods.

Infrastructure.
To safely connect different rural environments through an in-vehicle and off-vehicle guidance system.

Service.
With a digital management system through an app and / or web platform through which users access the service and where they can plan the journey or book the deposit and / or collection of parcels.

Shared.
To environmentally optimize the movement of a population much less dense and more geographically dispersed.

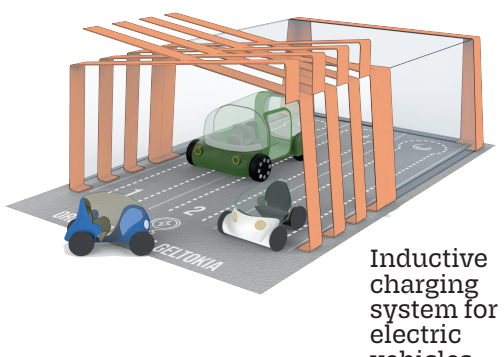
Energy and sustainability.
With an energy system in both vehicles and infrastructure with sufficient autonomy for rural environments but that is environmentally sustainable and circular. For example, by means of a quick battery exchange platform and its subsequent reuse as renewable energy accumulators in rural environments.

B

Energy system
Sistema de energía
Energia Sistema

Renewable energies:

- **Solar energy**
- **Hydrogen energy**
- **Wind energy**



Inductive charging system for electric vehicles

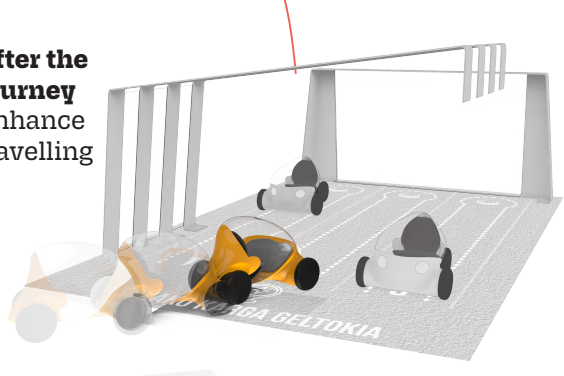
C

Service
Servicio
Zerbitzua

During the journey
Connecting people

Before the journey
Sharing journeys

After the journey
Enhance travelling



D

Vehicle
Vehículo
Ibilgaiua

- User centered
- Sustainability through shared systems
- Easy to use
- Modularity
- Adaptability

4

SUSTAINABILITY

Solutions for rural mobility should master current trends regarding the protection of the environment since we do not inherit the Earth from our ancestors but we borrow it for our children. All elements of the ecosystem should be follow the R verbs: REDUCE the amount of materials and their environmental impacts, REUSE those elements of the ecosystem in alternative purposes (Ex. exhausted batteries from the vehicle for street lights or traffic signs) and finally RECYCLE to manufacture new products.

In society

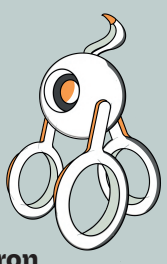
The recovery of rural areas will offer economic and social opportunities that will move to a society that will be more inclusive, sustainable and concern about the environment. The opportunity now is to dream all together the future of rural towns by building a shared and a dynamic vision at all levels: demographic, social, cultural, environmental and democratic.

In companies
Ecomagnet

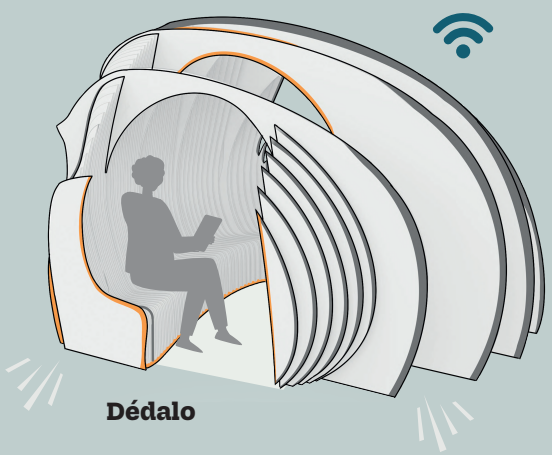
Raw material: Recovery, Separation and Sorting of Sintered NdFeB Magnets

Manufacture of NdFeB magnet powder from discarded magnets

Reintroduction of the product to the market: Manufacture of new magnets



Birdron tXori-ua



Dédalo

System service:

More info:

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