

GORURAL

Generation of logistic services for rural environment
ICT SUSTAINABLE LOGISTICS

UNION EUROPEA



FONDO EUROPEO DE
DESARROLLO REGIONAL
"Una manera de hacer Europa"



INNFACTO



GOBIERNO
DE ESPAÑA

MINISTERIO
DE ECONOMÍA
Y COMPETITIVIDAD

1. INTRODUCTION

2. OBJECTIVES OF THE PROJECT

3. PROBLEMS TO RESOLVE

4. PLATFORM GISIR

5. SUSTAINABLE LOGISTICS

Project Coordinator ESTELA BLASCO (HIBERUS)

INNFACTO: This project is funded by the subprogram INNFACTO 2012, included in the "National Plan for Scientific Research, Development and Technological Innovation" and promoted by the Ministry of Economy and Competitiveness.

Type	Company	Main tasks
COORDINATOR	HIBERUS	Project leader and commercial exploitation of the results. Adapt Hiberus solutions to the platform to be developed.
Research Partner	ITA	Technical Office Leader of the project. The experience on the ICT for Logistics will be extended to rural areas to achieve a more efficient transport.
End-user partner	SARGA	Demonstrator leader for the final pilot of the project, providing their point of view in the requirements phase and in the interaction with the rest of the users.



Reference company in the ICT national sector



- **20 M€** revenue
- **More than 350** professionals
- **8** Technological subsidiaries
- **35%** investment in R + D + i with Hiberus Labs

Spain: Madrid, Valladolid, Barcelona, Bilbao, Sevilla y Zaragoza **LATAM:** Argentina, Chile, Méjico

More than 10 innovative products launched to market in the last 6 years

Quality



Generation of logistic services for rural environment

➤ **GORURAL IS**

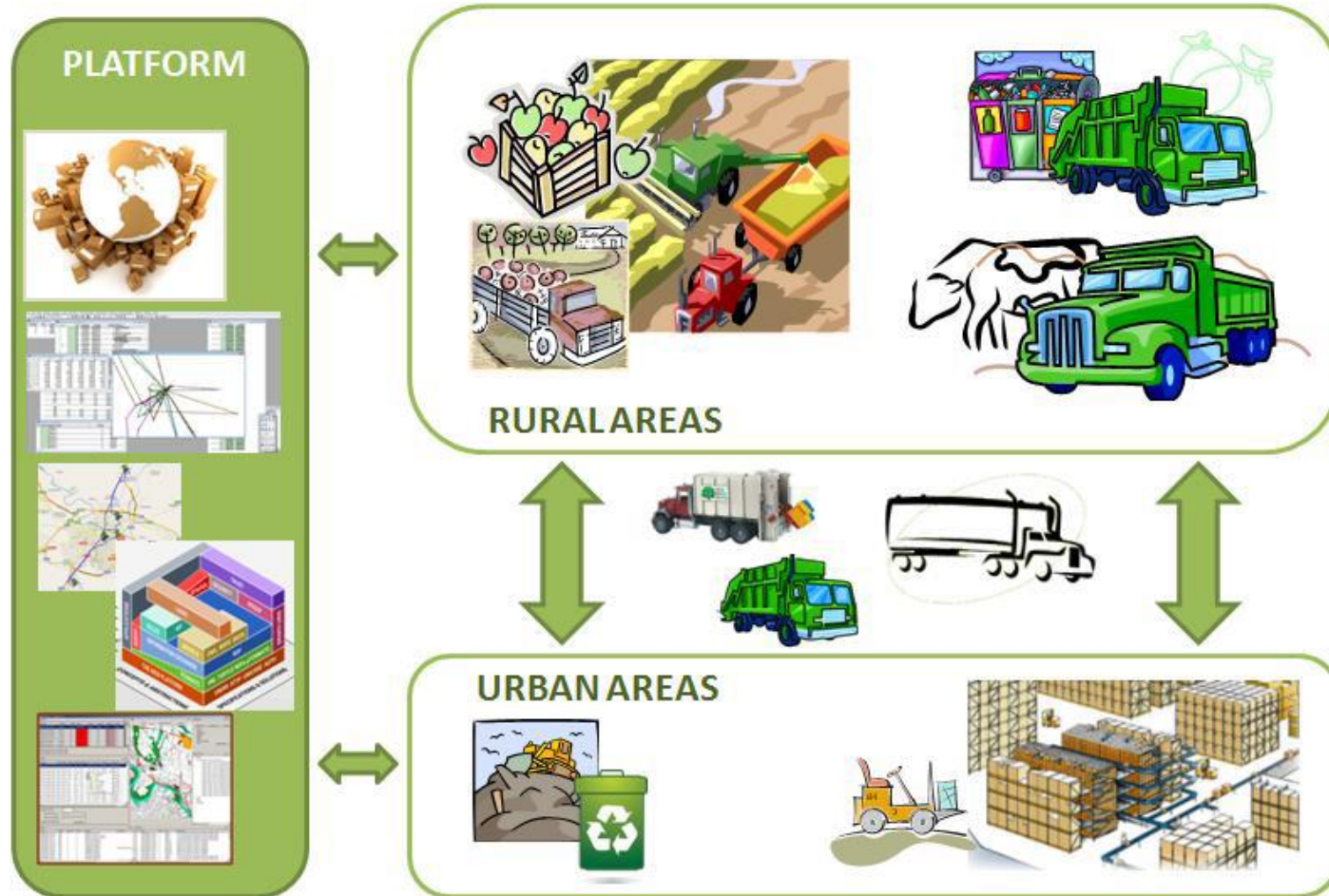
- **Platform of support for distribution and transport services on rural areas**
 - **Optimization of routes in real time**
 - **Generation of cartography in real time**
 - **Semantic Web**
- **New business models between manufacturers and clients in rural areas**
 - **Website: Aragon en tu cesta**
- **Document digitalization with JasperReport**



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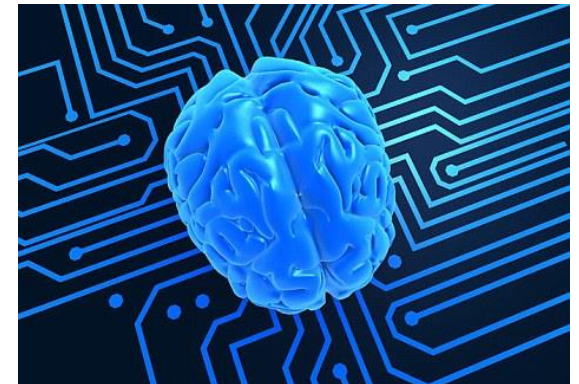
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Generation of logistic services for rural environment



Generation of logistic services for rural environment

- Create an **intelligent software platform** that support development and management of animal chain stakeholders' decisions with the aim of making more efficient and sustainable management processes of collection and transportation to or from big cities to rural areas.
- **Integrate all stakeholders related to Freight Rural Transport** with the target of making more efficient and sustainable the long-term transport and so the supply chain.
- Thanks to automatization of processes allowed by real time information made available by the ICT solutions introduced by GORURAL and complying with the new related European Regulation (EC) No.1069/2009.
- **Improvement collection process** of animal by-products not intended for human consumption, **combining movements from rural to urban areas** and **using dynamic routing solutions in real time** and with a better traceability by creating new cartography where there are not cartography maps available.



Generation of logistic services for rural environment

Example of problems or situations we actually find:

- It would be rare for a **single business** to be the consignee of the cargo of a whole truckload.
- It is the same the other way round, from the view of a **smallholder farmer**, rural freight transport takes place on the first mile. Products are collected at rural areas, transported to the homestead or storage facility and from there directly to the road side, to buying points or to local and regional markets.



To achieve these objectives and validate the service platform, we propose to **develop two great pilots or scenarios** in the regions of Aragon through its principal agent, SARGA.

1. Objectives on the collection of animals and sub-products in Aragon – GISIR

Improved collection efficiency of service with the implementation of a tracking system, by which to plan and modify the routes to be performed by collection trucks to increase the overall efficiency of the process in real time.

- Software associated with a specific hardware, that communicate data received in the incoming call center for trucks working in real time. Central system + PDAs
- Location of the truck and creation or modifications of routes to improve service collection, reducing the total costs of the process.
- **Big energy savings**, close to 10-20% of current fossil fuel consumption.



2. Evolution of the platform of Aragon in your cart (www.aragonentucesta.es)











Intelligent software platform for expanded development of the web "Aragon in your basket".

- This will improve the process of information about different marketing systems short-circuit food products (especially direct farmer-consumer sales) and the promotion of it.
- Administrator area for each manufacturer
 - To configure their own products and prices
 - To configure contact information, optional link to personal website
 - To manage orders and send the orders to the logistic operator

PRODUCTOS > **Frutas y hortalizas**

BÚSQUEDA DE PRODUCTOS **BUSCAR**

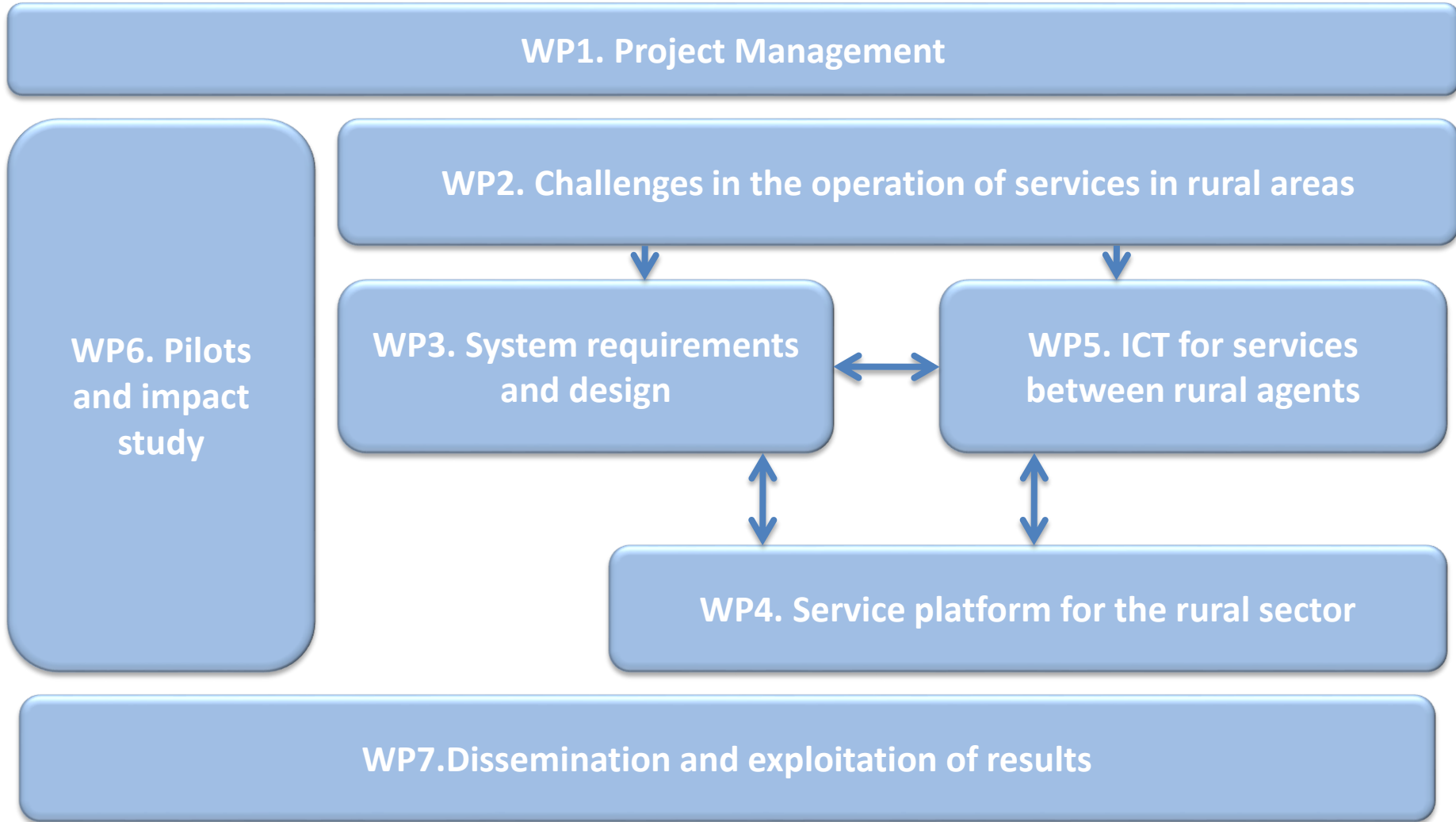
- Frutos secos y cereales
- Frutas y hortalizas**
- Ovolácteos
- Carnes y pescados
- Aceite y bebidas
- Condimentos y especias

 <p>Olivas Negrales de Sabiñán Al vacío Envasadas al vacío</p>	 <p>Cerezas de mesa Frescas y de diversas variedades</p>	 <p>Tarrina de albaricoque En alimbar ligero</p>	 <p>Tarrina de melocotón En alimbar ligero</p>	 <p>Tarrina de pera En alimbar ligero</p>
 <p>Tarrina de macedonia En néctar de uva ecológica</p>	 <p>Albaricoque Producto estrella de la empresa</p>	 <p>Melocotón Limpias y listas para comer</p>	 <p>Pera Pera de agua lista para el consumo</p>	 <p>Ciruela Ciruela Stanley</p>

2. Evolution of the platform of Aragon in your cart

- They get a point of evolution in terms of the generation of new business models between producers and customers in rural areas.
- This website will facilitate the communication between them and identify collection management, transportation and distribution of goods among agents chain.
- The web will communicate with the logistics operator to carry the orders made by customers.

The screenshot shows the Aragón entuCesta website interface. At the top, there are logos for sarga, Aragón Alimentos, and a search bar. Below the navigation menu (CIRCUITO CORTO, COMPRAR, VENDER, ACTUALIDAD, EVENTOS, CONTACTO, ZONA PRIVADA), there are two main sections: 'COMPRAR' (Buy) and 'VENDER' (Sell). The 'COMPRAR' section asks '¿Quieres acceder directamente a los productos agroalimentarios de Aragón?' and the 'VENDER' section asks '¿Quieres vender directamente tus productos al consumidor?'. Below these sections, there is a search bar for producers and a 'BUSCAR' button. The main content area features six product categories: Frutos secos y cereales, Frutas y hortalizas, Ovolácteos, Carnes y pescados, Aceite y bebidas, and Condimentos y especias. To the right, there is a calendar for October 2013.



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VALUE CHAIN in the pick-up, transport and distribution in rural areas

Notification pick-up

- The farmer notifies the service manager must inform about the death of a pet or animal products collection

Check vet. Categorization and separation

- The service provider notifies the vet for control
- The veterinarian categorizes and separates the products

Select the destination and requirements

- The service provider notifies the corresponding carriers
- This planning serves to update the map in real time.

Transport

- The carrier receives work orders and processes messages

Follow-up

- The service provider keeps track of all the orders placed.

Storage or distribution

- Animal by entering into the transformation or endpoints.

Information

- The service provider access to information, are validated and collected incidents.

Long distance transportation tends to be well serviced by high capacity modes and terminals and is prone to economies of scale. As we get closer to the customer located on rural areas, **economies of scale are increasingly difficult to apply as the size of batches tends to decrease**. Project outcome will solve the specific problem of all participants in the value chain

1. GORURAL provides a **call center** system to do the daily collection notices. Thus, the farmer can make a phone call or access the system to inform the logistic center the need for collection of a product.
2. **Fleet Management**. Management of the fleet of vehicles in a logistics center, controlling the vehicle-driver pair, taking into account factors like availability of the vehicle or driver, delivery slots, vacation, sick ...



3. **Collection management and traceability.** The system allows the operator to manage logistics outstanding collections and assign them to different vehicles in its fleet and to have constant knowledge of the state of the collection and the actual position of a vehicle in real time.
4. **Routes optimization.**
 - Customers will save a lot of time and money by reducing transport costs and time
5. **Business logistics.**
 - Companies responsible for making the product collected and left in the processing industries, they will comply with the law and will be homologated by the competent authorities obtaining a great advantage with the competitors.



6. Public authorities:

- GORURAL will ensure that the health and quality regulations for transport of animal and other products are upheld.

7. Veterinaries

- It will be easier to control the traceability of the products because it will be managed by a unique integrated system.

8. Insurance companies work with ranchers to guarantee the collection of the dead animals and derived products. GORURAL will ensure the truth of the information and make easier the management with the clients.

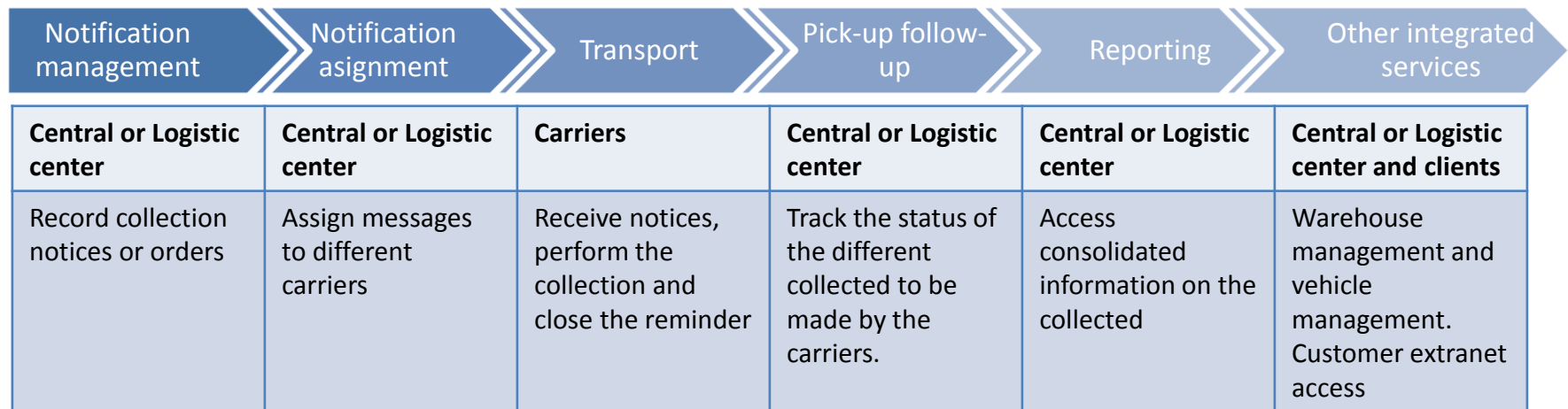


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For Route optimization + Fleet management + Business Logistics → GISIR

GISIR

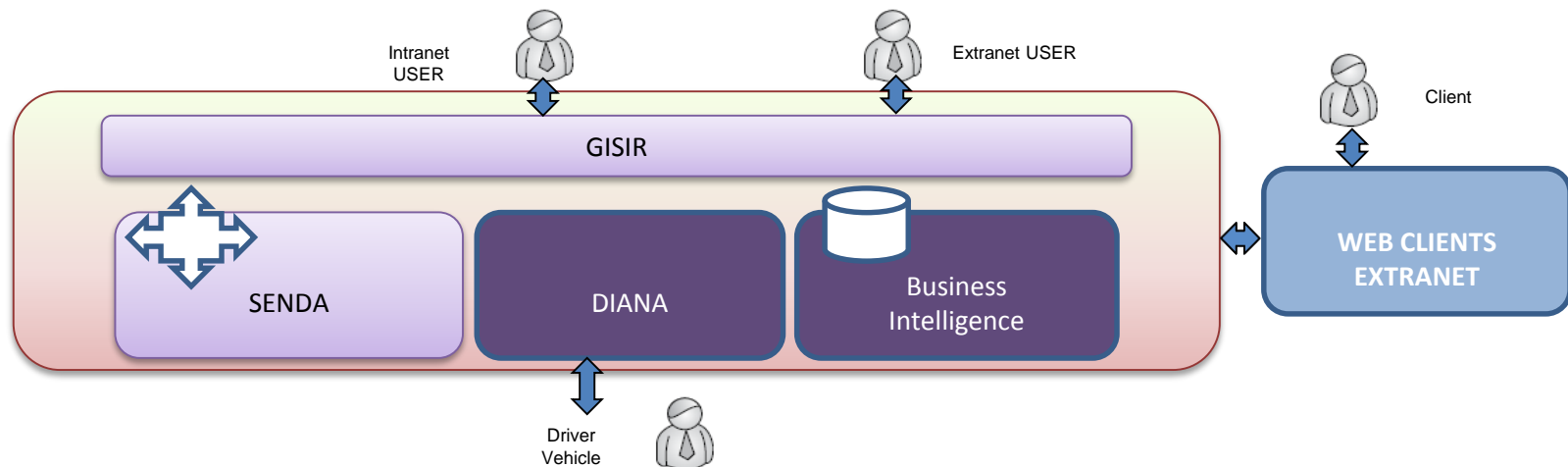
- Reverse Logistics. Fleet management and optimization of resources and time
- It's a product that develops the applications required by companies for management of reverse logistics.
- Allows to localize in real time the fleet and to exploit all the information stored in the system



GISIR + SENDA

SENDA → Advanced Dynamic Delivery System. It is a resource, time and route optimization system able to adapt in real time to any collection casuistry.

SENDA is an AVANZA project of 1.3 million euros, led by HIBERUS (former IRITEC) supported by the University of Zaragoza, Aragón Institute of Technology and Azkar. Today, it represents the most powerful and mature solution for route optimization in Spain and one of the best in Europe. It has been an investment of more than 25,000 hours of skilled technicians and engineers.



Functionalities

- Register new notifications
- Manual and automatic Route generation: assigning driver and vehicle, days, destination points
- Notification assignment: search and assignment of trackloads to drivers
- Resource and route optimization: definition of pickup zones, optimization of assignments based on track characteristics and other factors.

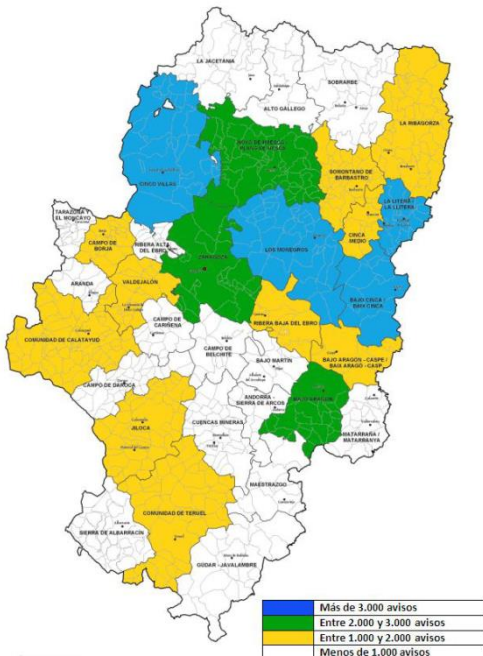
The screenshot displays the GISIR platform interface. On the left, a sidebar lists various locations and zones, including BORJA, CALATAYUD, CTR. BARCELONA, EJEJA, LECIÑENA, LUJESIA, LUNA, MONEGROS 2, PINSORO, QUINTO, RIBERA ALTA, RIBERA BAJA, and SADABA. The main area shows a map of the Ribera Alta region with a highlighted route. On the right, a table titled 'Optimización de Recursos' (Resource Optimization) provides a summary of resource allocation. The table includes columns for 'Carga sin determinar recogidas' (Undetermined load to be collected), 'Total', 'Sin asignar' (Not assigned), 'Sin zona' (No zone), and 'Sin georef.' (No georeference). Below the table, three driver profiles are listed with their respective vehicle details and collection status.

Carga sin determinar recogidas		Total	Sin asignar	Sin zona	Sin georef.
		9	8	1	0

Ordenación:	Conductor	Asc.
<ul style="list-style-type: none"> • 96 : ANDRES MAURICIO MARTINEZ (móvil: 0) • Vehículo: 1049DFN (100.0 kg) • ZARAGOZA: 2 recogidas (50 kg) 	0.53%	0.10%
<ul style="list-style-type: none"> • 100 : ANGEL ARIAS ROCA (móvil: 0000) • Vehículo: 7624FSP (9000.0 kg) • RIBERA ALTA: 1 recogidas (470 kg) 	1.29%	0.05%
<ul style="list-style-type: none"> • 73 : ANGEL CAPIZ BORBON (móvil: 696813265) • Vehículo: 1629DYM (10000.0 kg) • TODAS ZONAS: 0 recogidas (0 kg) 	0.00%	0.00%

Functionalities

- Check daily route, driver and vehicle. Detail collection point.
- Notification search
- Generation of routes in real time, including incoming orders
- Extranet for clients: consult of last pickups status, billing information, last news...
- Storage management for stock, items and suppliers associated with the company



Búsqueda de aviso

Situación: Preasignadas

Cambiar ordenación

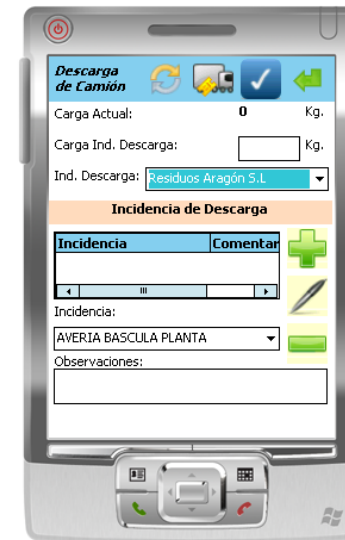
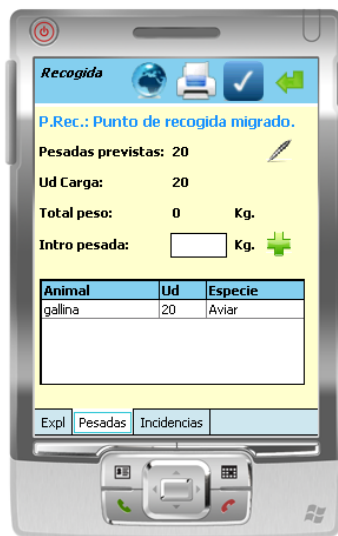
Nueva búsqueda

Avisos

<input type="checkbox"/>	Indicadores	No. Aviso	Fecha	Hora	Cod. explotación	Nombre explotación	Fecha prevista	Kg. previsto	Localidad	Ruta	Matricula	Conductor
<input type="checkbox"/>		1261061	20/01/201	10:48	089HU0000011	MAURI CASTELLS MA ANGELI	20/01/2011	50.0	CASTILLONROY	CAVERO	2690BGK	FRANCISCO JAVIER
<input type="checkbox"/>		1481059	04/02/201	12:05	015 20000005	REMACHA LOZANO S C V	04/02/2012	140.0	ALCONCHEL DE ARI	CALATAYUD	SANEAMIEN	ALBERTO ROS ROS
<input type="checkbox"/>		1480741	03/02/201	16:11	102 20000004	AGRICOLA GANADERA MAPI,	03/02/2012	50.0	FABARA	FABARA	SANEAMIEN	ANDRES MAURICIO
<input type="checkbox"/>		1481072	04/02/201	12:23	152 20000616	LATORRE MAS JOSE ANTONI	04/02/2012	40.0	MAELLA	FABARA	SANEAMIEN	ANDRES MAURICIO
<input type="checkbox"/>		1481107	04/02/201	13:09	152 20000010	CAÑARDO BRUNET MANUELA	04/02/2012	80.0	MAELLA	FABARA	SANEAMIEN	ANDRES MAURICIO
<input type="checkbox"/>		1480951	06/02/201	00:00	189 20000014	GANADOS CERVERA EJARQU	06/02/2012	1.0	NONASPE	FABARA	SANEAMIEN	ANDRES MAURICIO
<input type="checkbox"/>		1480957	04/02/201	08:27	151 20000037	VILLACAMPA SC	04/02/2012	60.0	LUNA	LUNA	SANEAMIEN	ALBERTO ROS ROS
<input type="checkbox"/>		1481088	04/02/201	12:39	082TE0000601	TARIN ADIVINACION RAUL	04/02/2012	80.0	CORBALÁN	TERUEL	SANEAMIEN	ALBERTO ROS ROS
<input type="checkbox"/>		1480962	04/02/201	08:52	216TE0000693	GARCIA ESTEBAN MARIA DEI	04/02/2012	40.0	TORTAJADA	TERUEL	SANEAMIEN	ALBERTO ROS ROS

Transportation + Notification Management + Mobility

- Manual and Automatic synchronization from fleet with central system
- Detailed embedded navigation with information for pickups and deliveries
- Termination, cancellation and incident management at the point of collection.
- Download Management and incidents. Management working party. Automatically send GPS positions from the start of the day to the end of it.



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GORURAL will provide a software platform that will improve their management processes in collection, transportation, storage and dispatch of products.

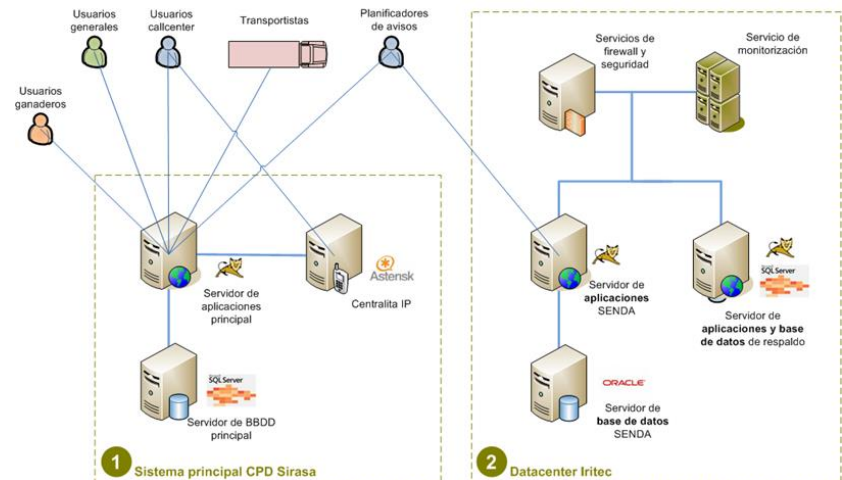
- **Onboard software.** The vehicle involve in the collection process handle it through embedded software, so each driver has through the PDA all the information in real time about the designated collection, providing information through the central system.
- **Documents digitalization.** Transport companies involved in these kinds of scenarios also demands the digitalization of documents that need to be exchanged between stakeholders due to regulation, like commercial documents, health certificates, transport vehicle documents and so on. GORURAL allows scanning and document sharing.



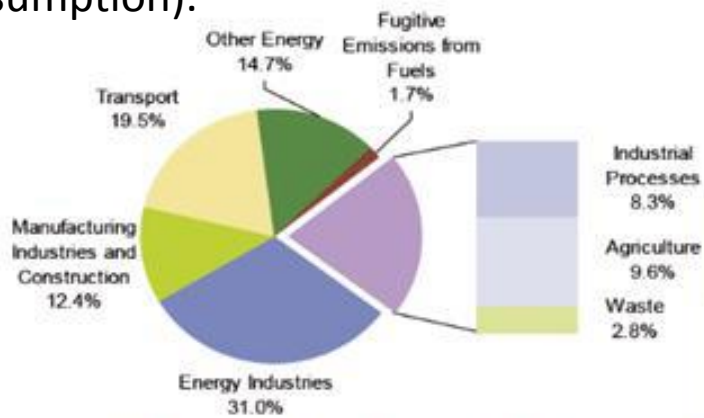
- **Reporting System.** This system enables to control the activity of a logistics center through detailed reports and dashboards. This system can be very helpful in making decisions. Logistic operator will also be able to have this information.



- **Distributed architecture.** taking into account all the technologies, devices and agents required to meet demand in rural areas, taking into account all the restrictions of it. It will be implemented by new service-oriented technologies based on semantic descriptions to collect data and simulate measures and policies.

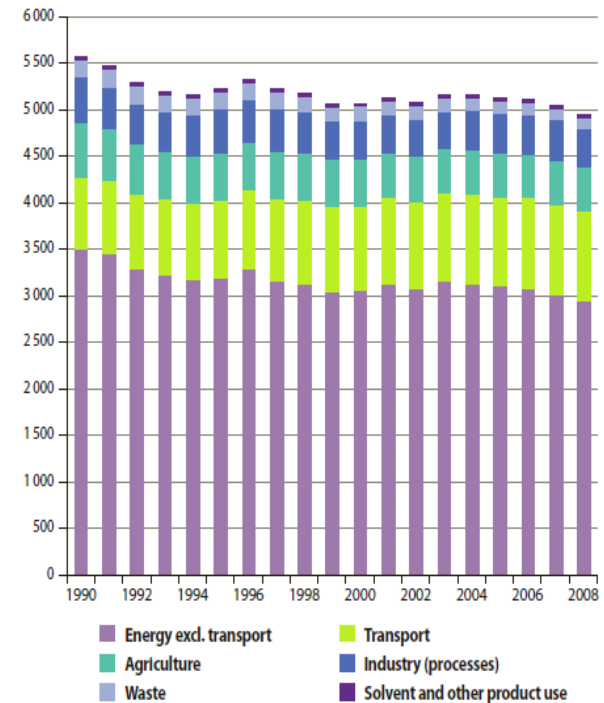


- GORURAL seeks to improve life and services in rural areas also by **reducing CO2 emissions** on one hand and **improving level of service for citizens** on the other hand in addition to other advantages such as, cost reduction in last mile logistic operators.
- Transport is the lifeblood of any economy, however transport accounts for 30% of total energy consumption and 71% of total oil consumption in the EU; with road traffic being the main consumer (60% of total oil consumption).



Source: European Environment Agency, also available at Eurostat (online data code: env_air_gge)

Left: Greenhouse gas emissions, breakdown by sector, 2008
Right: Greenhouse gas emissions, breakdown by sector (million tones of CO2 equivalent)



Source: European Environment Agency, also available at Eurostat (online data code: env_air_gge)

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