



# CALL FOR CHALLENGES

ICN SUMMIT 2014

COPENHAGEN



*UP TO 2007*  
Economic Development

Growth model

*SINCE 2007 on*  
Economic Crisis

Sustainable  
management model

*Change in model*

- Town Planning was the backbone of the town's activity
- Increase municipal revenues
- Municipal efforts have focused on:
  - Provision of services
  - Laying the foundations for the growth of the city

- Stabilization of the population and of urban development. The city is nearly finished
- **Reduction in municipal revenues**
- Innovation is the new backbone of all activities
- Providing better quality services in a more efficient manner: lower costs and sustainable administration.

## About the city

*Is a Young city*

- Is a city with more than 86,000 inhabitants
- The average age is 36 years old, and 25 % of the population is bellow 18 years old.

*Is a green city*

- It has a millon square metres of green areas. There's 1 urban tree per inhabitant.
- Sant Cugat is part of Collserola Natural Park

*Is a university city*

- Sant Cugat has four campuses and more than 17,000 students

*An entrepreneurial city*

- More than 2,700 bussines providing more than 50,000 jobs, is one of the econòmic power of the Barcelona Metropolitan Area

# What has Sant Cugat achieved the last few years

Energy management  
Of public buildings  
DALKIA

- 2008 preparation of Sant Cugat Smart City Strategic Plan

- since 2007 within a ESCO company we've modernized energy production equipment of all 62 buildings. We've implemented technological devices to make them more efficient and we can monitor them (T<sup>a</sup>, H, ..)
- **we've reduced energy consumption more 32%, we've saved 1,100,000 € and 3,198 tn of CO2 have been avoided**

Street lighting  
CITELUM

- 2006 the Street Lighting Master Plan was approved
- **In 2012 more than 6 millions were invested**, we've installed sensors that allow us to monitor every lamp, some of them has a movement sensor installed. So we manage lighting as smart as possible.
- We've reduced **29,5% energy consumption**, more than 70% of lighting pollution has been reduced and 1,652 tn of CO2 have been avoided.

Intelligent watering

- A weather station measures humidity and temperature and this information is sent to a computer to regulate the amount of water needed .
- We've reduced more than **20% water consumption**

Waste collection  
VALORIZA

- With the new contract in 2011 we took the opportunity to modernize all machinery and add sensors to all containers. We've implemented a continuous improvement plan that allow us to adjust the service to the real needs and pay only for the services delivered. We can measure the quantity and the quality, so the monthly invoice is generated by us.

## About the citizens

*Highly educated*

- Income and education levels are higher than the Catalan average.
- **34% of the population is highschool degree**

*connected*

- **91% of them have an internet connection.** The overall percentatge of households with internet acces in Catalonia i 71%
- **74% of them have a smart phone with internet acces**

## Mission

- **To create a sustainable, creative and collaborative city in order to guarantee wellbeing citizens through transparency, efficiency and open governement**

So we are ready to face the challenge and the most important thing, **our citizens are ready to face it too and they deserve it.**

# About the challenge

Increase citizen participation through open data in order to improve waste collection service, reducing costs, waste generation and fitting the service to the real needs.

## • Why this challenge?

- Because **waste collection is one of the most expensive services** for the Municipality
- Because it concerns **directly to all citizens**
- Because it's **closely connected to the citizens** wellbeing
- Because **it isn't not only for Sant Cugat but also for all cities** in the world
- Because citizens and new technologies can help us to make it **smart and easy**
- Because the **environment is changing** due to global warming, greenhouse effect...
- Because we think that **citizens are our best sensor**
- Because is important to allow citizens **avaluate the service in real time**
- Because all municipalities wish to share information getting involved **citizens as policiy makers.**

## About the challenge

Increase citizen participation through open data in order to improve waste collection service, reducing costs, waste generation and fitting the service to the real needs.

• **We're concern about.....!!**

- **Acoustic and visual pollution**
- **Mobility problems.** Heavy vehicles in pedestrian area
- High percentage of impurities, **poor quality of waste collected**
- **High cost** of the service.
- **High rate** of waste generation.
- Citizens get rid of lot of things that could be **useful for other citizens**

## • How many diferent kind of waste we collect?

- Paper
- Glass
- Packages
- Organic waste
- Refuse waste
- Gardening waste from pruning and mowing
- Furniture and others

## • What are we looking for?

- By applying the latests technologies **achieve excellence, making best service, more efficient and, improve the quality of life** and ensure the best ratio between costs, quality and service citizens.
- **To move out containers from the city center.**
- To promote waste reduction and recycling.
- To provide detailed information on waste generation identifying users in order to know: **when, who** and **how many** waste citizens leave in the street.
- To Monitor the results in order to **plan the service to the real needs**
- To **reward those citizens who use the service correctly** so we'll be able to reduce them the tax.
- **citizens to evaluate the service not only three times a year but continuously**
- To provide citizens an App to share things before get rid of them, so we'll **reduce the waste generation**



• **All together will be able to solve the challenge and it'll have an impact on:**

• **CITY DEVELOPMENT**

- Helping policy makers to develop a sustainable, creative and collaborative city by efficiency and open government
- Sharing the generated data with other services and companies.

• **ENVIRONMENT**

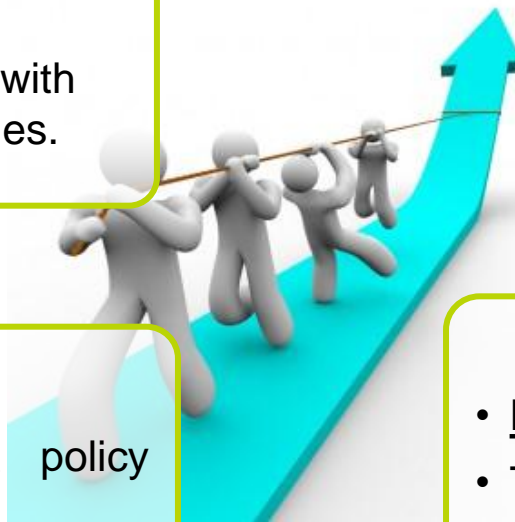
- Reducing greenhouse gasses emissions
- Reducing energy consumption
- Increasing recycling rate
- Improving air conditions

• **CITIZENS**

- Engaging citizens as a policy makers.
- Making them aware of climate change and its responsibility
- Increasing citizens wellbeing
- Evaluating the service in real time

• **ECONOMY**

- The more efficient services are the more services the municipality can deliver.
- Increasing Public-Private partnership.
- Companies look for efficient, tidy, clean and collaborative cities to settle down.



## Year 2009:

- 3 different contracts.
- High number of citizens complaints.
- Lack of flexibility, static service.
- Different collection systems in surface containers (side, rear and top)
- Different collection systems in underground containers (side, rear,top, mechanical, hydraulic)
- Lack of control of services rudimentary systems.
- Lack of cleaning services in accordance with the needs of each sector..



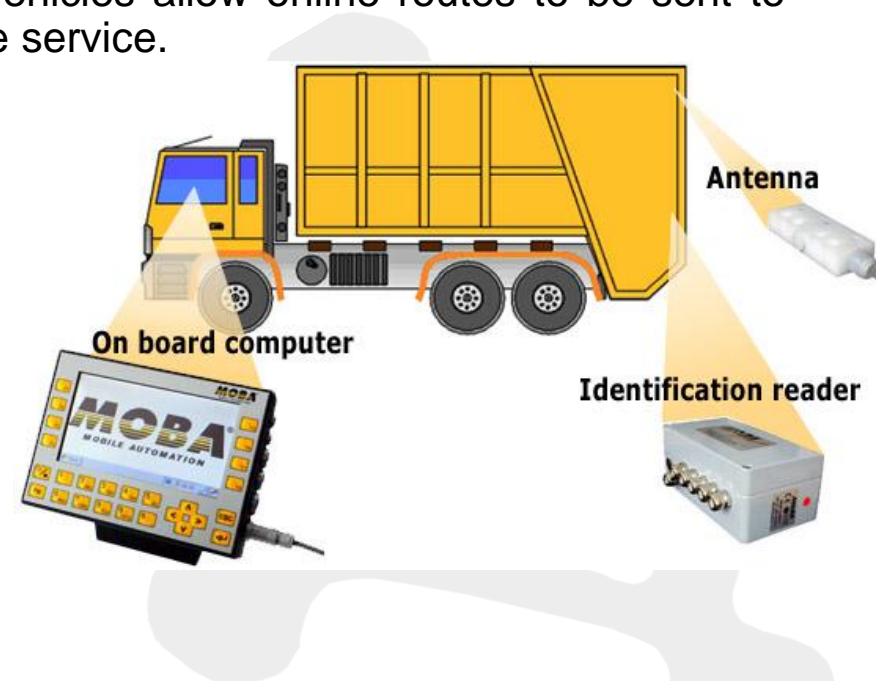
## year 2014:

- 1 contract.
- Good perception from the citizens
- Dynamic service.
- Side collection ..
- Quantitative and qualitative control
- Planning the service to the real needs.



## **FOLLOW UP AND MONITORING SYSTEMS**

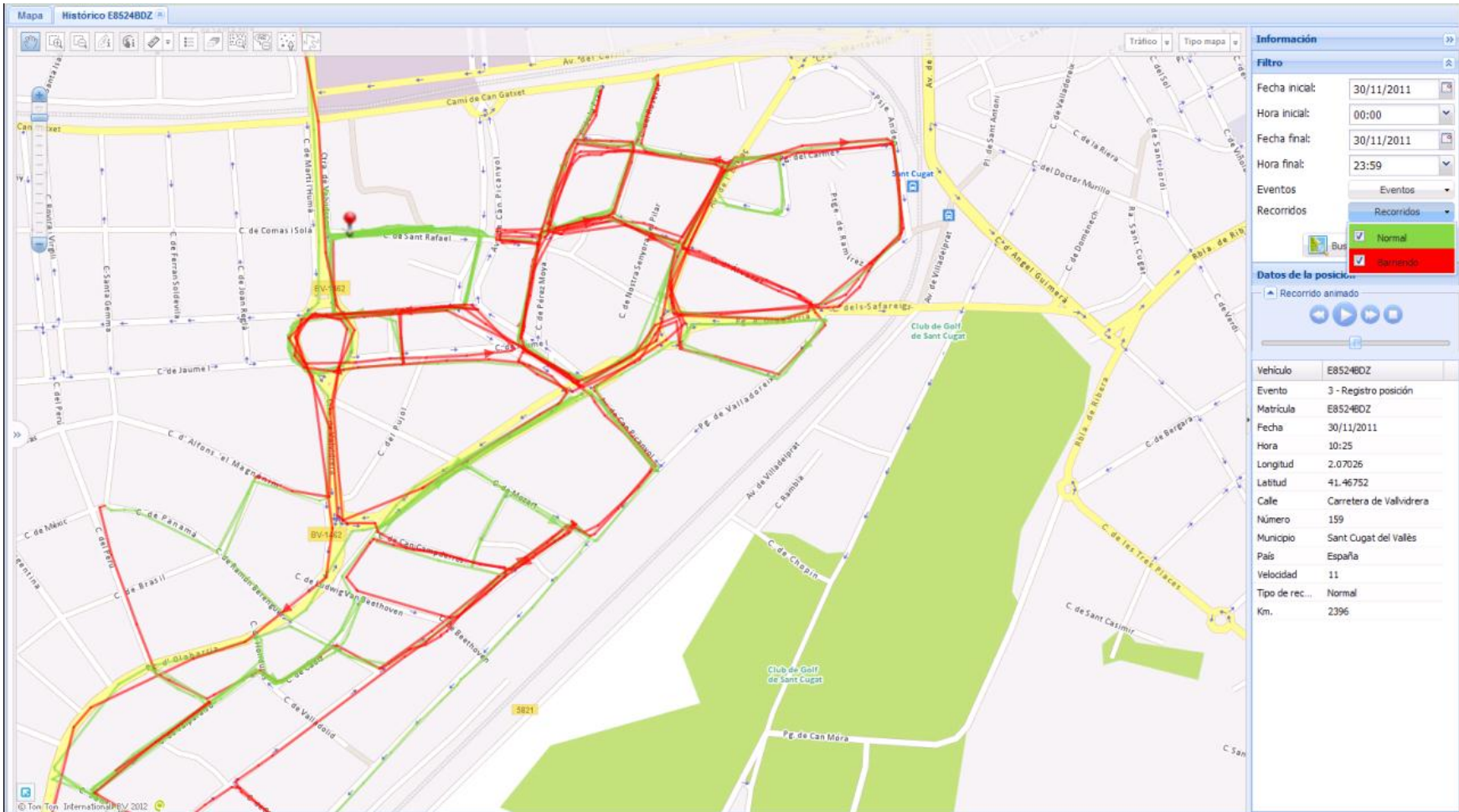
- All the equipment, both mechanised and not, is equipped with a GPS/GPRS device that gives out its location, speed and status of the work.
- All the motorised vehicles have a display screen to enter any incidents.
- All the collection vehicles, as well as locations, have an in-built RFID system to identify containers and the weight of the load..
- The computers on board the cleaning and collections vehicles allow online routes to be sent to vehicles, optimising performance and management of the service.
- the system compares the routes completed with those set up, and differentiates transfer routes from those that have already been worked on..
- Creation of reports and statistics with real and reliable data: optimisation and service adapted to the real needs of the town.



### **Obtaining real data**

### **Follow up and monitoring**

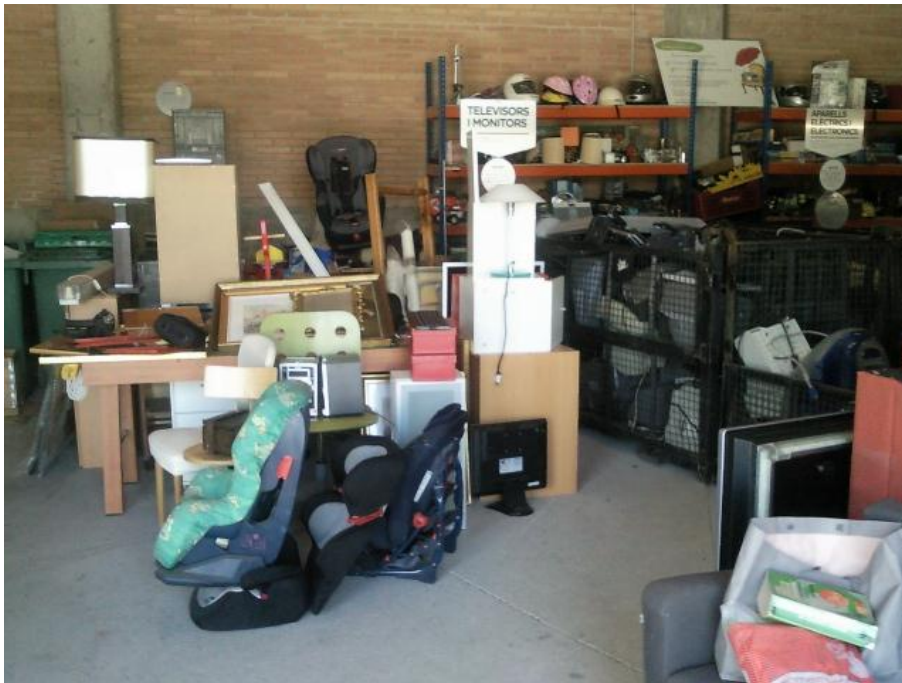
- **Comparision between the set up route and the completed route**





## GARDENING WASTE

### USEFUL THINGS



# Foreign materials in organic waste are between 15 and 25%

- it makes more expensive and unefficient the composting process

- 



## • ONE STEP FORWARD THE EXCELLENCE....

- Since 2013, follow-up and monitoring systems allow us to pay only for the services the company does correctly, so the municipality generates the monthly invoice as a result of the monitoring. Every quarter a citizen survey is done in order to know how do the citizens feel regarding all services the municipality deliver. If the result of the survey regarding waste collection is over 7 we return 5% to the company but if the result is below 7 we charge an extra 5% to the company.
- Now we want to make a step forward, and **we would like that citizens can assess the service not every quarter but constantly**, and not only a few citizens but all citizens. That will make the assessment more objective, and will involve citizens so they'll feel part of the service.
- **How can we do it?**



## • ONE STEP FORWARD THE EXCELLENCE....

- We need to move out all containers from city center, it means that:
  - We need to change the current system : **which one, door to door, ...?**
  - We need to identify users: **how can we manage it?**
  - We want to plan the routes and frequency to the real needs so, we need to know in real time **when** citizens leave the waste: **how can we do it?**
  - We want to know who makes things as they're supposed to be done: **how can we get it?**
  - We want to reward those citizens
  - We need to compare the citizens generation with the average, so we can find deviations that can help us to detect bad hàbits.



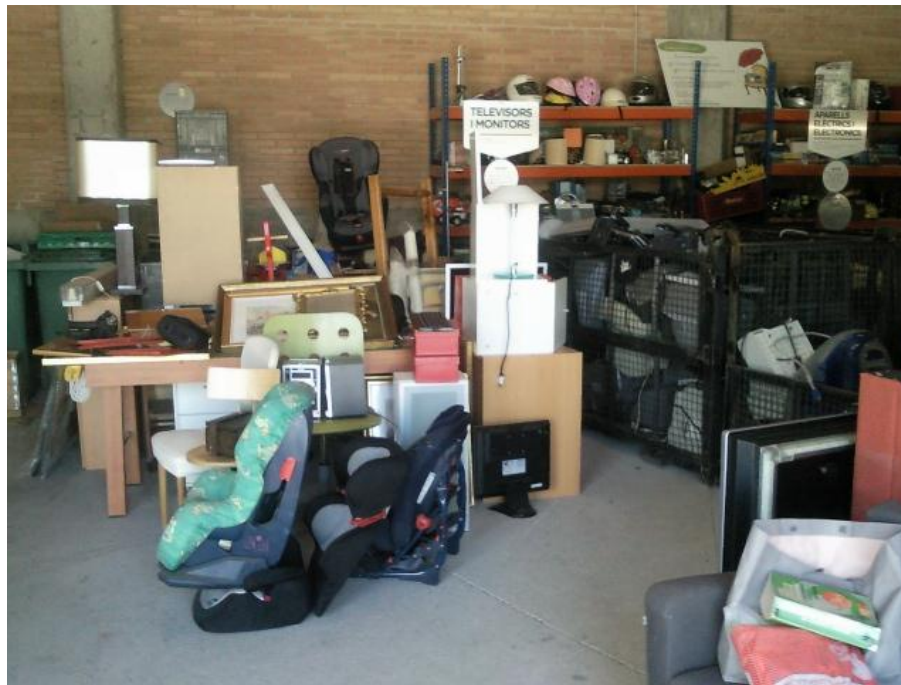


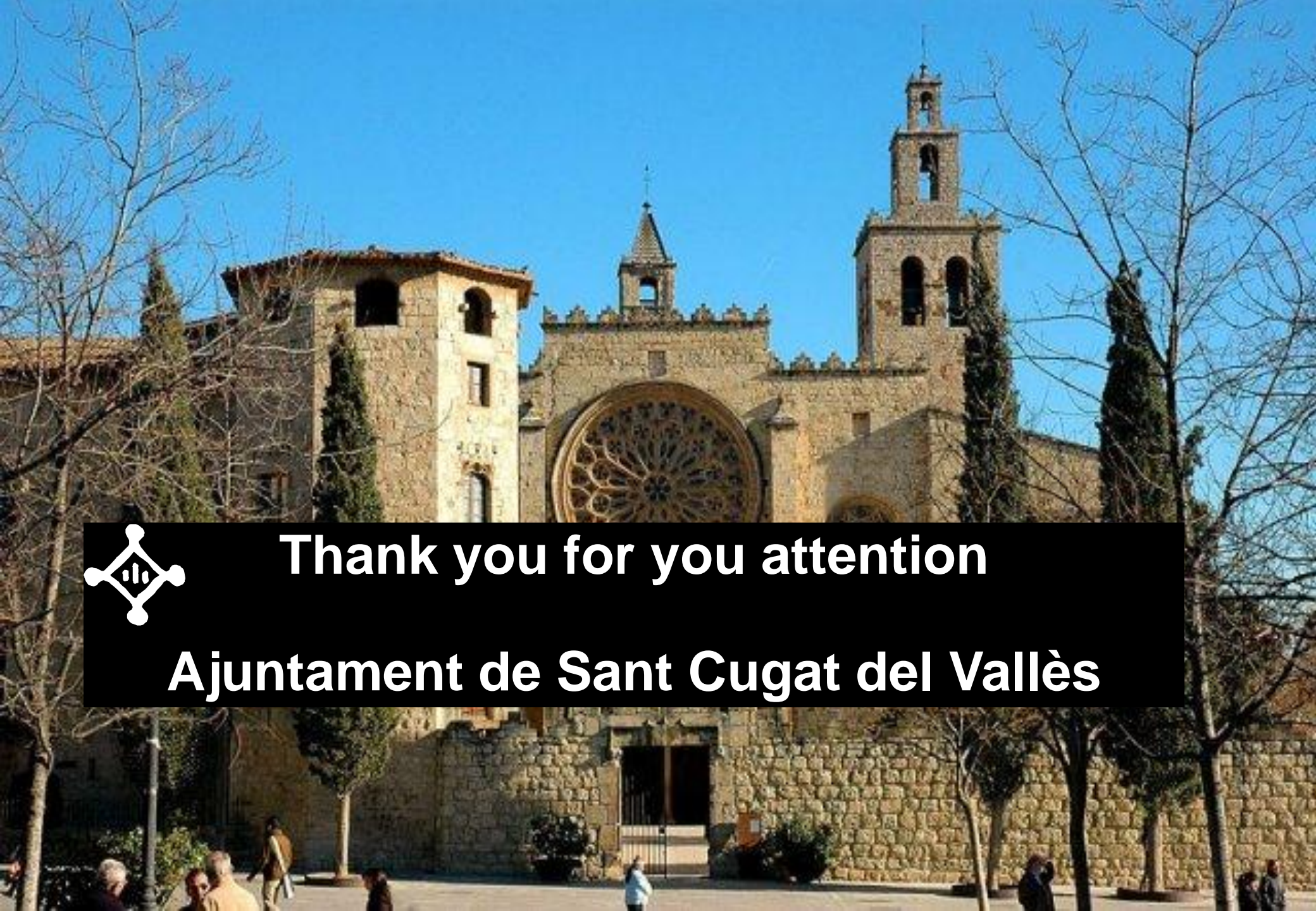
## • ONE STEP FORWARD THE EXCELLENCE....

### • We need to create a platform to allow citizens to share useful things:

- it's important to reduce the amount of furniture and other objects left by citizens in the street, so if we reduce those one useful for other citizen it would be a great goal.

**How can we manage it?**





**Thank you for you attention**

**Ajuntament de Sant Cugat del Vallès**