RETHINK WASTE

RETHINKING MUNICIPAL TARIFF SYSTEMS
TO IMPROVE URBAN WASTE GOVERNANCE

Sant Just Desvern case study

Focus group workshop, Sant Just Desvern

1st December 2021

Ajuntament de Sant Just Desvern

SANT JUST DESVERN

Naturalment Collserola

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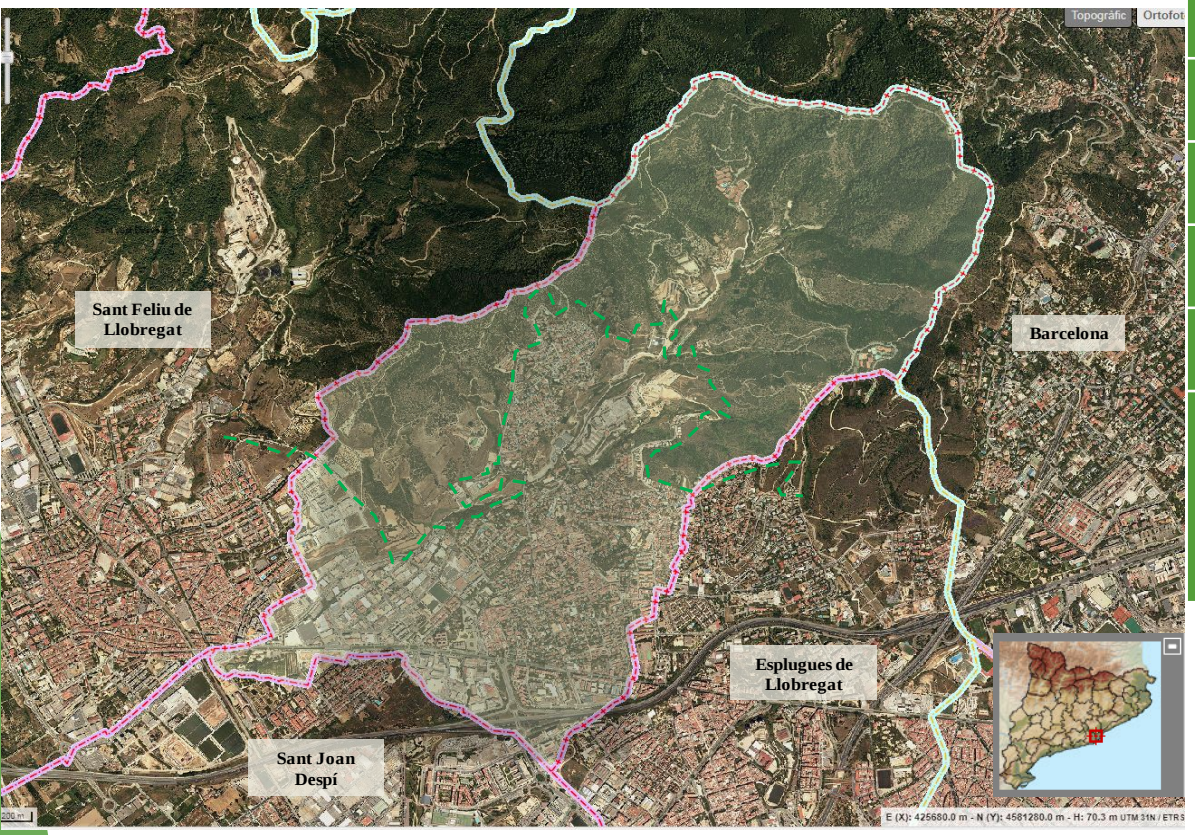
RETHINK WASTE

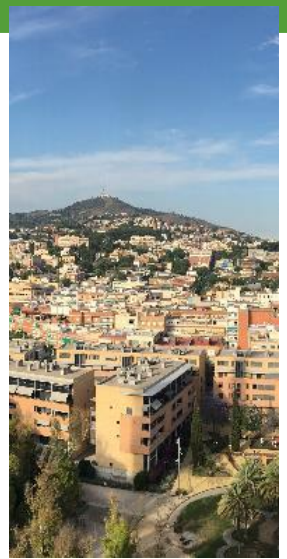
Life

The municipality of Sant Just Desvern in a nutshell

GENERAL DATA (2019)



Population (inhabitants)	18,670
Surface (Km²)	7.81
Altitude (above sea level)	122
Density (inhabitants/Km²)	2,390.5
Households (number)	8,013
Commercial activity	482
Urbanistic features (predominant urban fabric)	Town houses with garden and vertical developments



Current waste collection system and waste generation

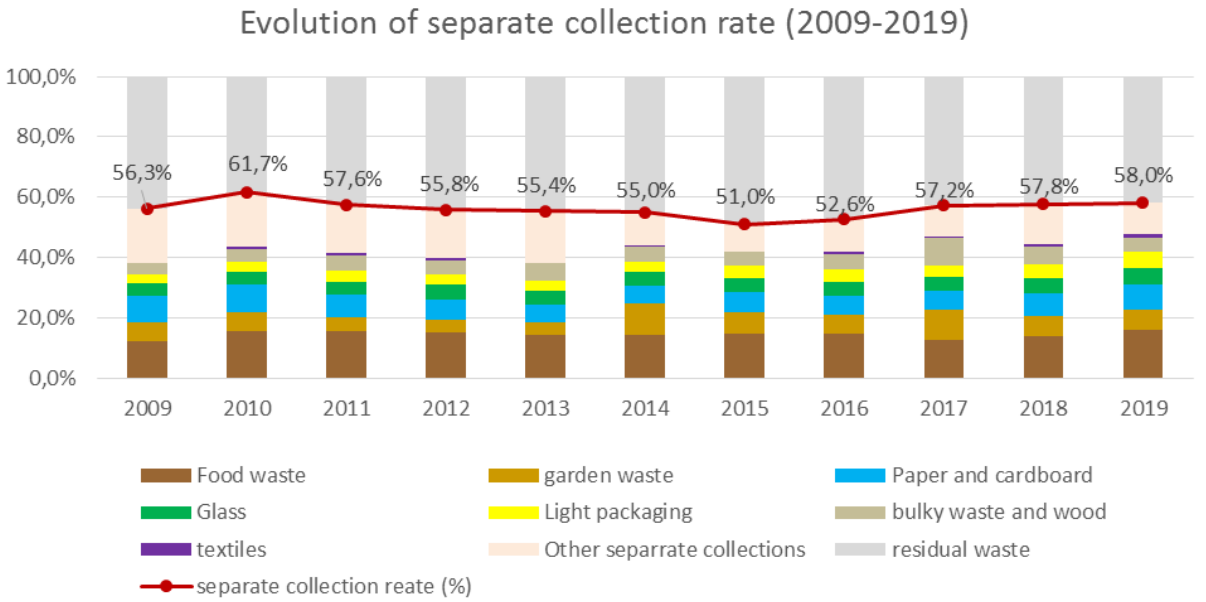
STATUS QUO OF WASTE COLLECTION (2019)

- **Complete islands of street containers** with the main 5 fractions. **Locked smart containers for food waste and residual waste** fractions since March 2021.

- Rear load containers for side load containers:

- Evolution of separate collection (last 10 years) →

Waste generation (total, Kg)	8,875,270
Waste production per capita (kg/inhabitants/year)	498.47
Quantity of unsorted waste per capita (Kg)	209.20
Separate collection rate (%)	58.03
Waste tariff	No
PAYT system	No

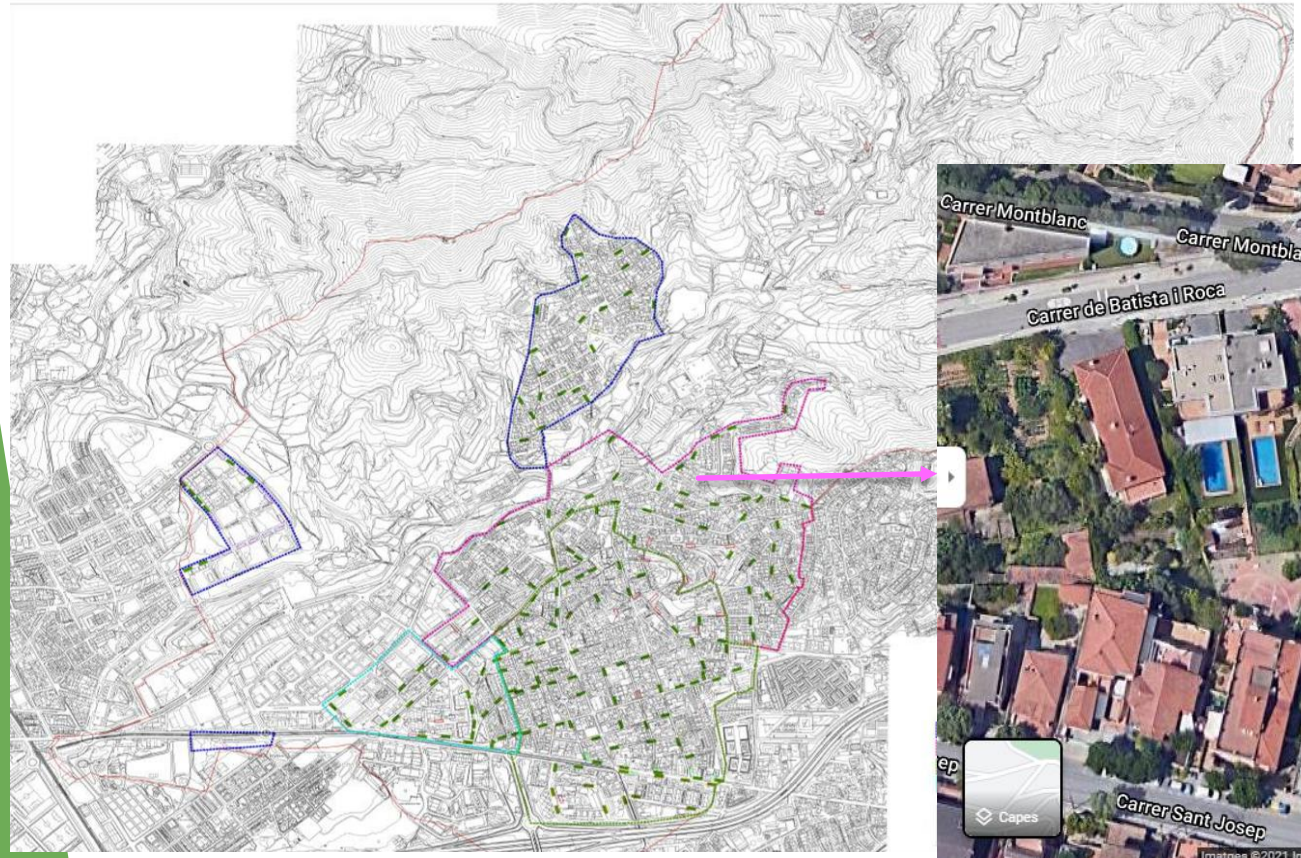


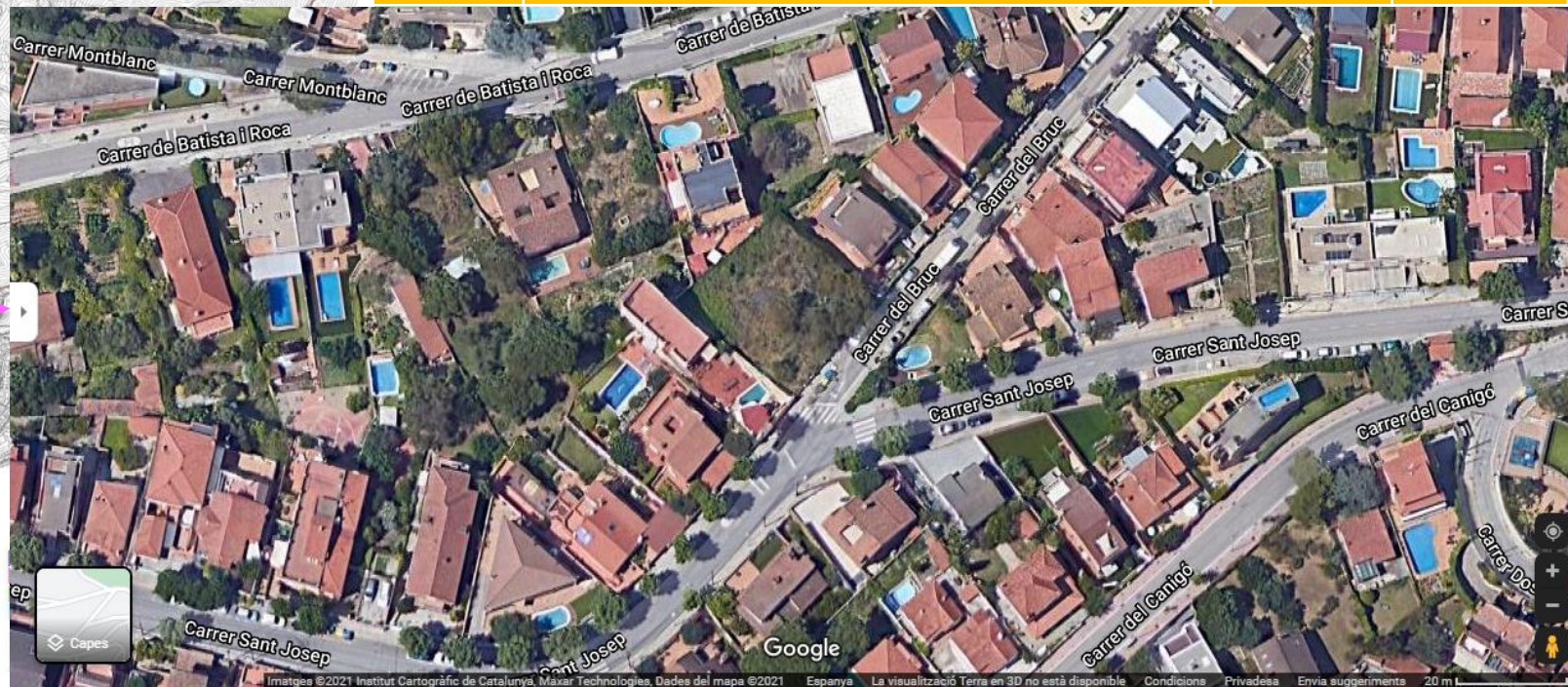
The pilot scheme implemented

PILOT AREA

- Entire municipality: starting with La Miranda – Canigó
- **Time frame and phases:** one intensive phase per each zone of implementation w. a duration of 3 months + smooth phase until the end

Zone	Description	Num. of households	Population
Zone 1	Mas Lluí (new development in plurifamiliar vertical buildings equipped with community zones with swimming pool):	1.343	2.984
	La Plana-Bellsoleig (urbanization of single houses with garden), Torreblanca (the zone closed to the south-west industrial area: commercial area with supermarkets, …)	646 202	1.435 449
	Sub Total zone 1:	2.191	4.868
Zone 2	La Miranda, Can Candeler, Can Sagrera, Canigó (mainly detached houses with garden; low density)	1.062	2.360



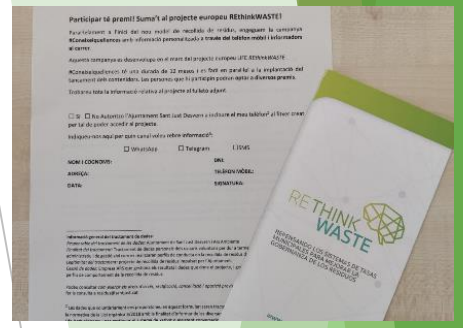


The pilot scheme implemented

IMPLEMENTED MODEL: change of the collection system + KAYT strategy **#coneixelquellences**

(no tax and PAYT at this moment)

- **First engagement letter:** sent to 1000 households (~2,200 inhabitants) for the first zone La Miranda - Canigó. Collect the e-card and separate collection kit + volunteer enrollment to #coneixelquellences (mobile phone + id code). Agree on data protection issues.
  - Letter with GDPR delivered on 17-26 February 2021
  - Information points (face-to-face): February and March 2021 (Can Ginestar: 19Feb-12Mar and Escola Canigó: 8-19 March)
  - Street educators: 8 March – 9 April 2021
- **Engagement of local shops in the rewarding system:** sign agreements with the town council to accept purchase vouchers.
- **Messaging system:** first message 26th April 2021, intensive phase until 30 July 2021 (2 messages per week: a challenge and info about personal behavior and other info of interest). **Eco-coaches** dedicated to the platform and street or DtD meetings.
- **Assignment of eco-points and vouchers:** to access **zone draws** and **final draw**



The pilot scheme implemented

#CONEIX ELQUE LLENCES

- **Assignment of eco-points and vouchers → ✓ How you earn eco-points?**

interacting with the chatbot and making a good use of separate collection containers

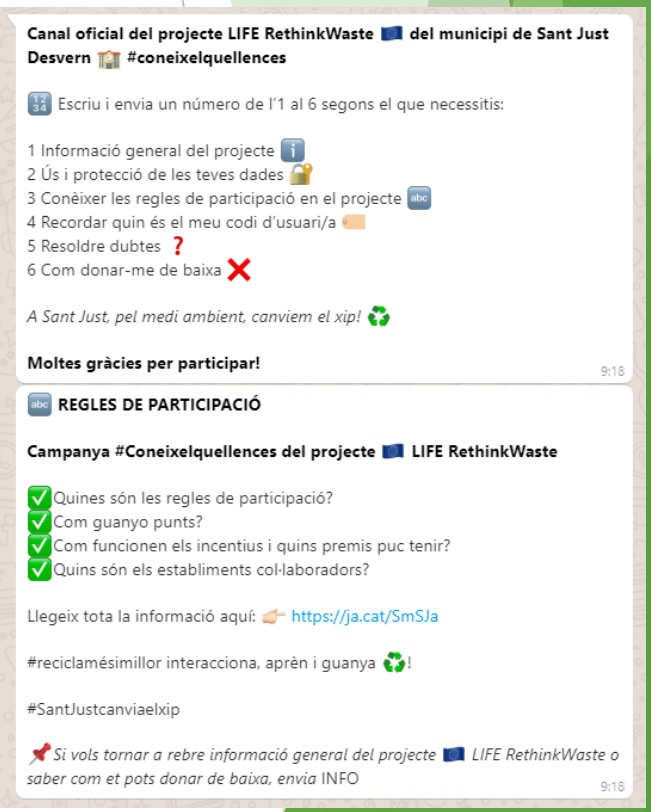
- ✓ Sign up for the campaign (15 points)
- ✓ Receive info messages on your own use of food and residual waste containers (5 points)
- ✓ Open the food waste container up to a maximum of 3 times a week (10 points)
- ✓ Participate in specific meetings of the campaign or receive a visit from an educator to resolve doubts and improve your separate collection (max 1 per month) (15 points)
- ✓ Send questions: you can send "questions" whenever you want, but you will get points for it a maximum of once a week (5 points)
- ✓ Reply OK to a message that poses challenges on waste management (5 points)
- ✓ Participate in the challenge posed (10 points)
- ✓ Composting at home (20 points)

The other interactions will NOT give you points.

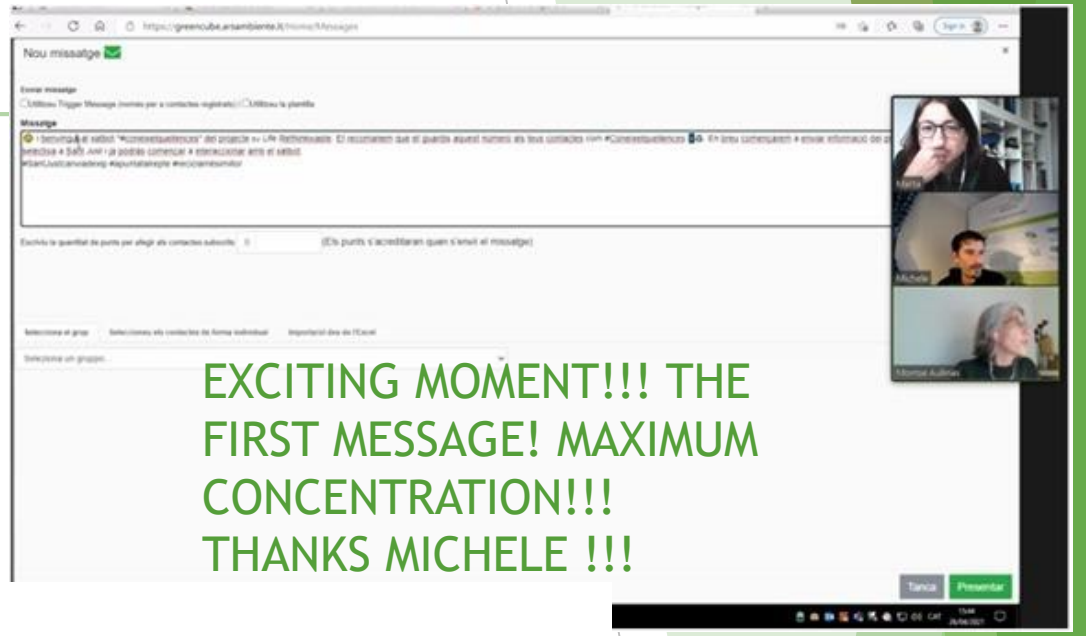
👉 https://ja.cat/SmSJa

DRAWING OF 43 purchase vouchers at La Miranda – Canigó (28.10.2021):

- ❑ 450-550 points: 30 vouchers of 25€
- ❑ 551-650 points: + 13 vouchers of 50€
- ❑ >651 points: +1 voucher of 100€



Medi Ambient
Residus
Campanya
#Coneixelquellences
santjustresidus • Follow
santjustresidus Comença la campanya #coneixelquellences del projecte @lifeprogramme @rethinkwasteorg
El dilluns, 26 d'abril comença la campanya #coneixelquellences, un xat a través del telèfon mòbil que permet obtenir informació personalitzada sobre la recollida selectiva al municipi i resoldre tots dubtes sobre reciclatge i ús del servei.
L'objectiu d'aquest nou canal de comunicació és millorar el coneixement sobre la gestió pròpia dels residus i, d'aquesta manera, millorar els índexs de #recollidaselectiva al municipi.
Liked by nucanestea and 6 others
Bon dia ! EL REPTE DE LA SETMANA. Saps quins són els plàstics d'un sol ús dels quals s'ha prohibit la venda? Escriu la paraula FOTO i t'enviarem una fotografia amb alguns d'aquests objectes, a veure si els identifiques! #SantJustcanviadexip #apuntatalrepte #reciclamésimillor Si vols tornar a rebre informació general del projecte LIFE RethinkWaste, envia INFO El teu codi d'usuari és dmx7h5
Si vols tornar a rebre la informació general del projecte LIFE RethinkWaste envia INFO
15:29
gots de paper
canyetes de bambú/ metàl·liques
coberts de plàstic
canyetes de plàstic
Sabries dir quins d'aquests objectes ja no es poden comprar a cap botiga? Escriu la paraula RESPOSTA un espai i tot seguit la teva opció o opcions. Ho repassarem i t'informarem del resultat. Moltes gràcies per participar!
15:37
OK compost
TÜV AUSTRIA
INDUSTRIAL
Bosses compostables
Bosses NO compostables
En aquesta fotografia pots observar la diferència entre les bosses compostables i les de plàstic en un contenidor del barri de La Miranda - Canigó. Recorda utilitzar les compostables! Per més informació escriu la paraula COMPOSTABLE.
17:58


Nou missatge
EXCITING MOMENT!!! THE FIRST MESSAGE! MAXIMUM CONCENTRATION!!!
THANKS MICHELE !!!

Medi Ambient
Residus
RETHINK WASTE
Vius a La Miranda - Canigó?
EL 28/10 ES FA EL
SORTEIG
DELS VALS DE COMPRA
Per valor de 25€, 50€ i 100€ a bescanviar al comerç local
MOLTA SORT A TOTHOM QUE HA PARTICIPAT!
#SantJustcanviaelxip
#Coneixelquellences
Segons les dades recollides
nidor de Resta i 0 el
ertures del contenidor
mitjana dels habitatges
1,95. Enhorabona !
de residus domiciliaris s'ha
020. Entre totes i tots, hem
Moltes gràcies per la teva
teu barri i saber què indiquen
ari és dmx7h5
el projecte LIFE
15:51

RESULTS OF KAYT STRATEGY IMPLEMENTED – Users engagement

- Families involved (La Miranda – Canigó): 1,000 families = 2,200 citizens approx.
- Number of users subscribed to the platform: 278 (12,6% of users in the 1st pilot zone)
  - WhatsApp: 210 (75.5%)
  - Telegram: 18 (6.5%)
  - SMS: 50 (18%)
- New subscriptions after launching first message: 8
- Unsubscriptions: -52 (18%) (44 – 15.8% after first month)
- Number of commercial activities engaged: 13
- Additional tools used after initial engagement:
  - Main launch tool was information points (face-to-face) (engagement letter, export to the platform)
  - Eco-coaches on the streets
  - Social media posts (several reminders) and web post (dedicated tag to #coneixelquellences), el Butlletí…
  - Testimonial video

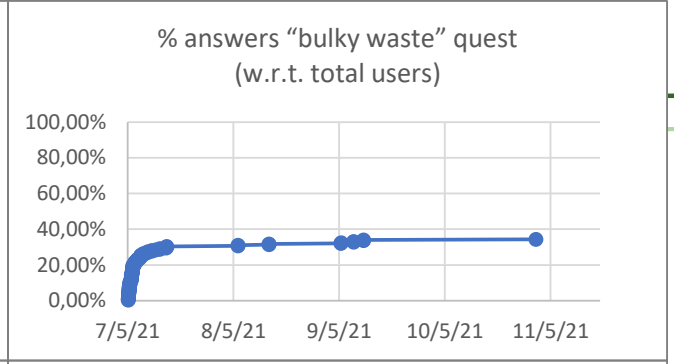
RESULTS OF KAYT STRATEGY IMPLEMENTED – Users interaction

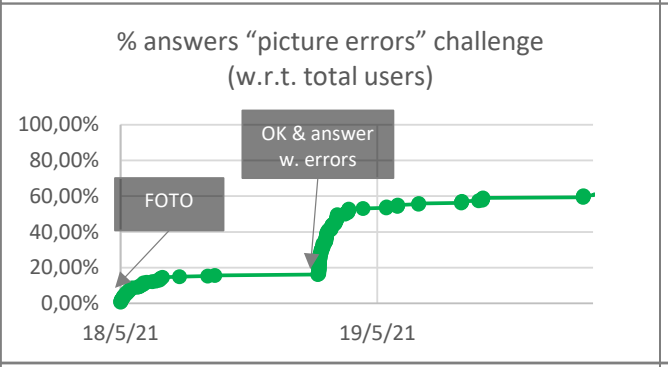
- 40 campaigns sent from the begin (26/04/21) to mid-term (31/10/21)
  - 20 general campaigns (waste challenges through questionnaires, pictures, …)
  - 20 individual campaigns (individual uses of locked containers + info of interest)
- Users interacting in 48 h: ~20%
  - After the first month reduction of participation from ~40% to 20% (the average maintained)
  - Interactions also after launching campaigns that not necessarily required and interaction
- Users answering correctly to short questionnaires: 70% (SD±27%)
  - In general very good response to all quests (specifics products or materials)
  - The worst for quest related to compostable bags
- Total messages sent by the platform (26/04 – 31/10/2021): 13,775
- Total messages sent by users (26/04 – 31/10/2021): 1,143

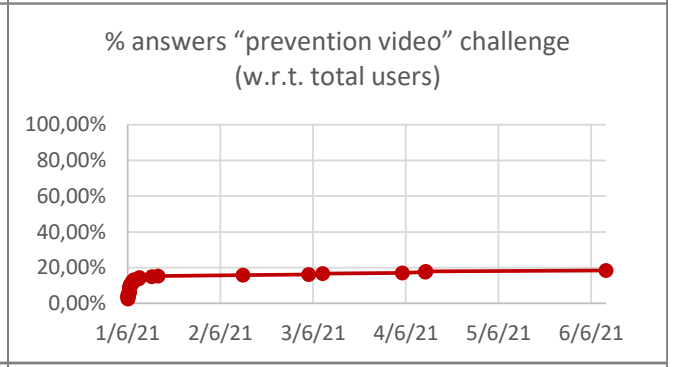
RETHINK WASTE

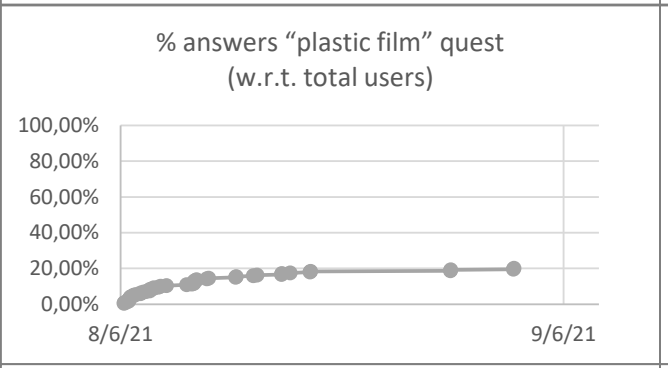
Life

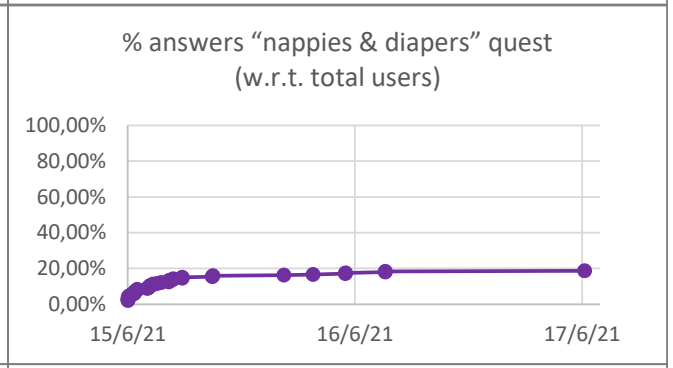
- Users interaction

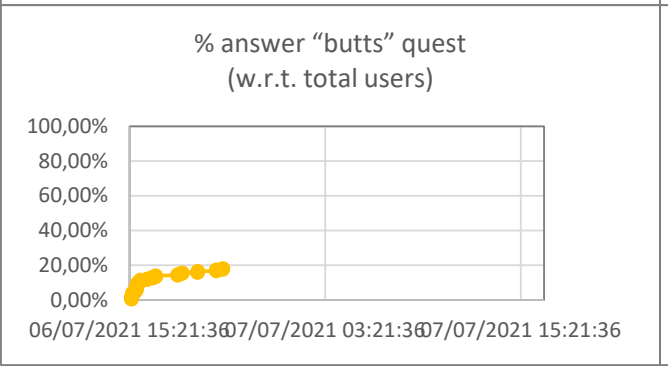


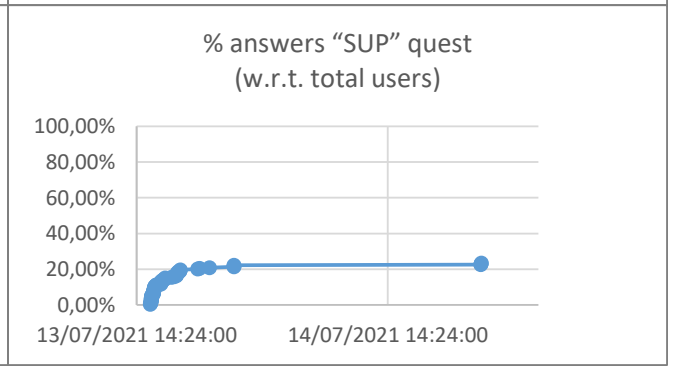


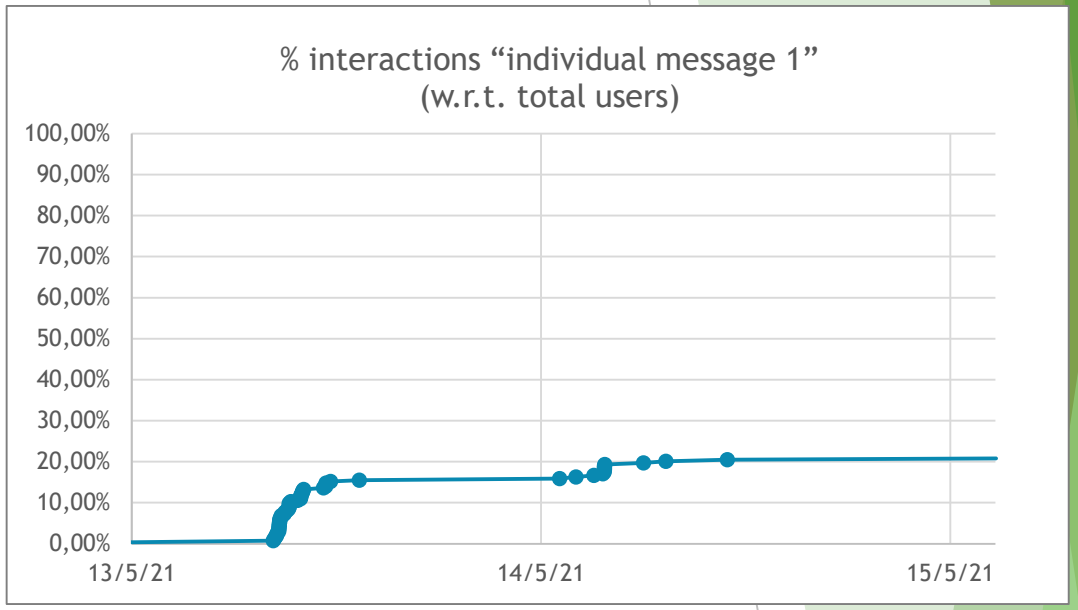


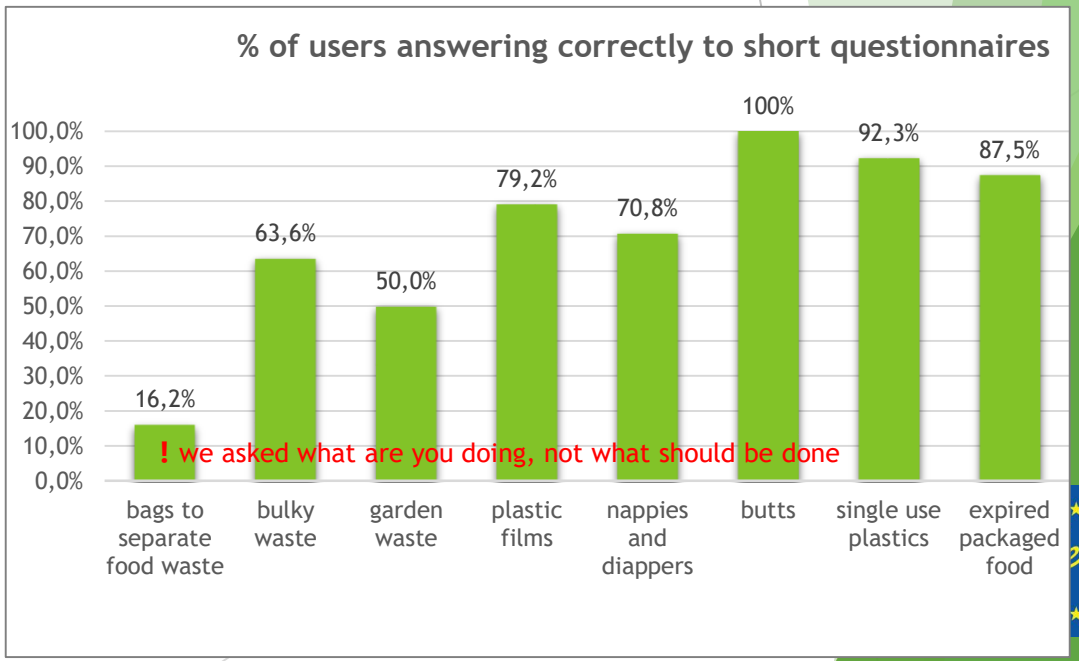












RESULTS OF KAYT STRATEGY IMPLEMENTED – separate waste collection

▶ SEPARATE WASTE COLLECTION AND PAYT DATA

		before the intervention (Jan-Oct 2019)	Mid-term results (Jan-Oct 2021)
QUANTITATIVE	**Total waste generation (in the whole city and in the pilot area, if possible to estimate) (Tn)**	5,581.31 Residual waste: 3,108.06	5,864.7 (+4,8%) 2,546.4 (-22,1%)
	Waste generation per capita (Kg/inhab/year)	498.47 Unsorted waste: 208,9	493,46 (2020, -5,01) 136.4
	Rate of separate collection (average of the municipality) (%)	58.03%	**67.1%** (1st semester 21)
QUALITATIVE	**Quality of separate collection in the pilot area (% of impurities) (visual inspections >> next slide)**	% impurities average 2019 whole municipality: Food (organic): 9.7% Light packaging: 21.6% Paper and cardboard: 9.4%	Average (%impurities) 2021 whole municipality: Food (organic): 14.6% (+4.9) Light packaging: 24.6% (+3) Paper and cardboard: 22.7% (+13.3)
	Composition of residual waste in the pilot area	27.10.19 (⚠ small sample: 39.8Kg) whole municipality BIOWASTE: 57.53% P&C: 6.17% GLASS: 11.81% LIGHT PACK.: 11.31% RESIDUAL: 8.54% OTHER: 4.64%	27.10.21, 16.11.21 and 26.11.21 La Miranda-Canigó: BIOWASTE: 45.28% P&C: 6.23% GLASS: 4.16% LIGHT PACK.: 12.50% TEXTILE: 5.45% RESIDUAL: 7.06% OTHER: 19.32%

RESULTS OF KAYT STRATEGY IMPLEMENTED – separate waste collection

Level of filling	RESIDUAL	%	BIOW	%	LIGHT PACK.	%	PAPER	%
0%	43	21,50	58	29,15	17	8,54	9	4,50
<25%	118	59,00	124	62,31	84	42,21	71	35,50
25-50%	27	13,50	8	4,02	60	30,15	69	34,50
50-75%	10	5,00	4	2,01	26	13,07	27	13,50
>75%	2	1,00	5	2,51	12	6,03	24	12,00

Impurities	RESIDUAL	%	BIOW	%	LIGHT PACK.	%	PAPER	%
YES	76	48,41	28	20,14	37	20,33	150	78,95
NO	81	51,59	111	79,86	145	79,67	40	21,05

Main impurities	residual	biowaste	Light pack.	paper	glass	Garden waste	textile	Construction materials
Residual Waste		23	52	34	7	16		
Biowaste	2		23	13	2			
Light Packaging	3	5		23		1	7	2
Paper and cardboard	1	4	148*		1	2	16	1

**includes plastic bags*

Compost. bags	FORM	%
<25%	68	52,31
25-50%	21	16,15
50-75%	11	8,46
>75%	30	23,08

Bulky waste	N° batteries	%
YES	41	20,60
NO	158	79,40

Littering (number of bags outside)	N° batteries	%
0	153	76,5
1	28	14
2	10	5
3	3	1,5
4	3	1,5
5	0	0
6	1	0,5
7	0	0
8	1	0,5
9	1	0,5

- low level of filling (specially biowaste containers)
- level of impurities
  - ⚠ residual and paper bins
- main impurities
  - ⚠ residual
  - ⚠ plastic bags in paper bins
- low-medium use of compostable bags
- 👆 76.5% of batteries without littering

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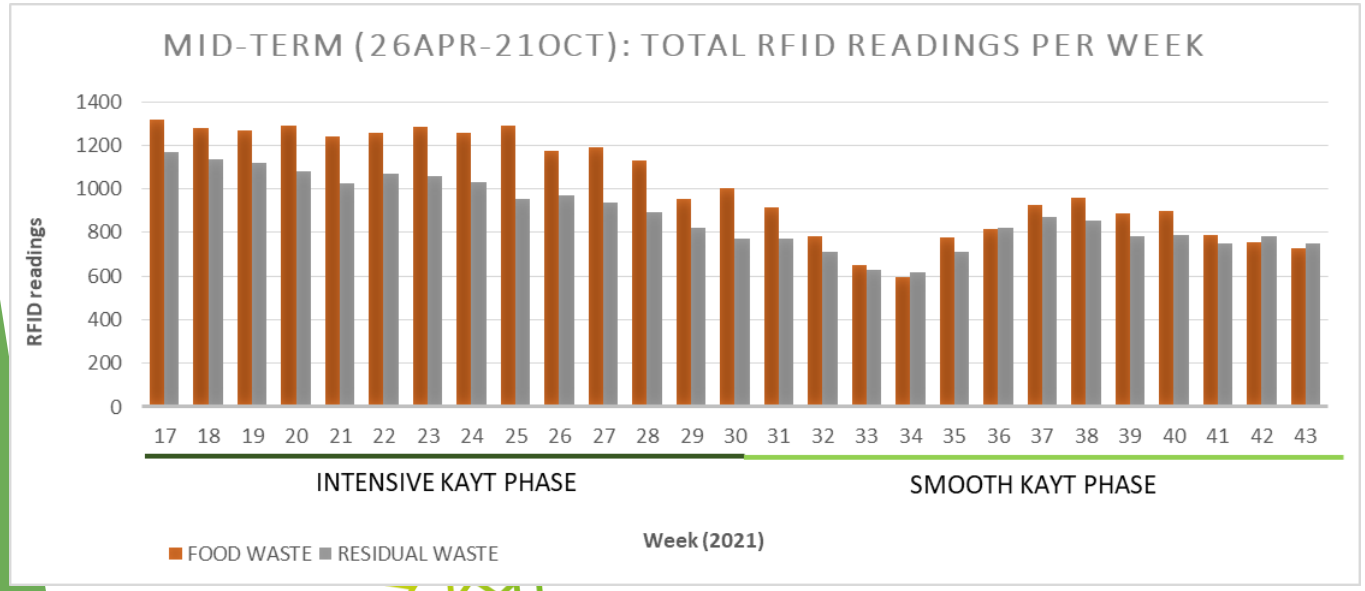
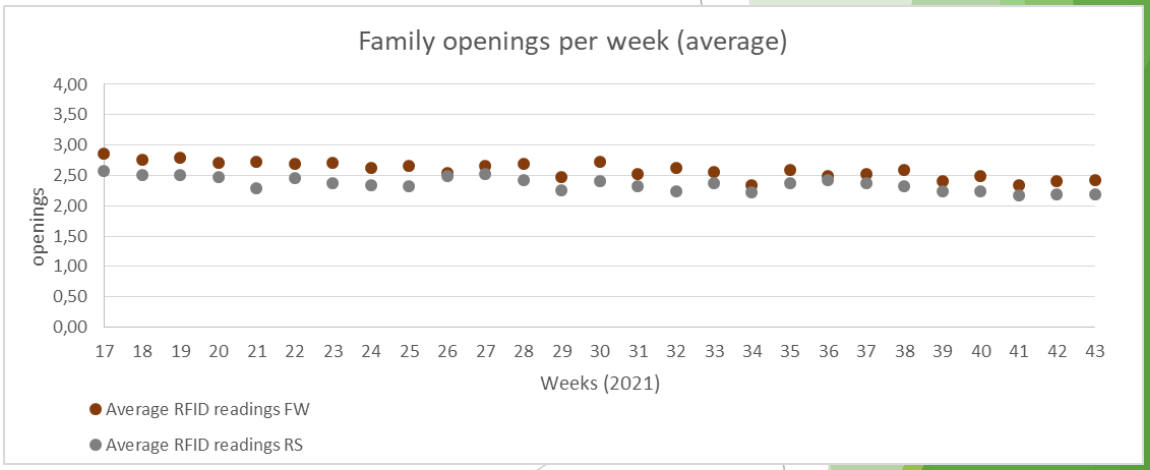
RESULTS OF KAYT STRATEGY IMPLEMENTED – separate waste collection

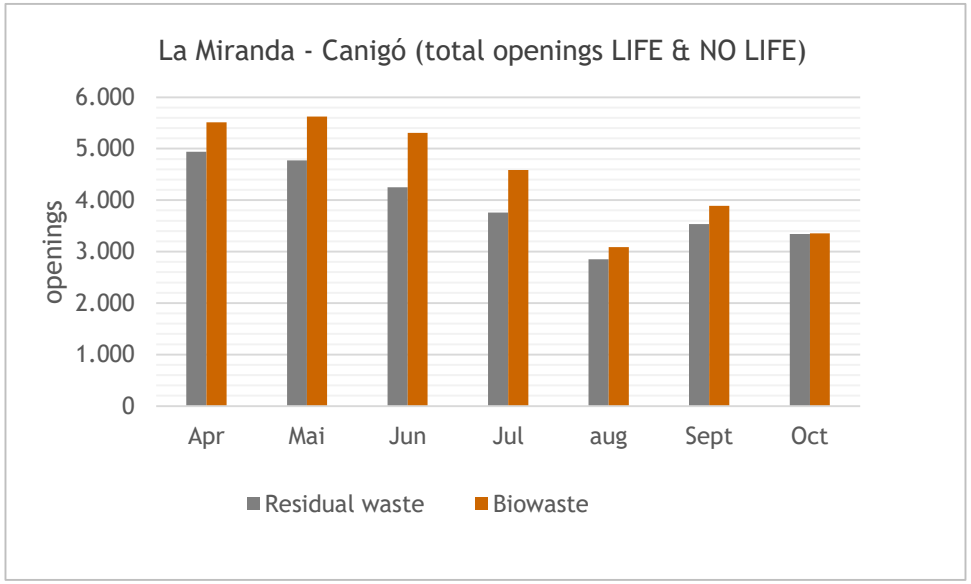
- SEPARATE WASTE COLLECTION AND PAYT DATA

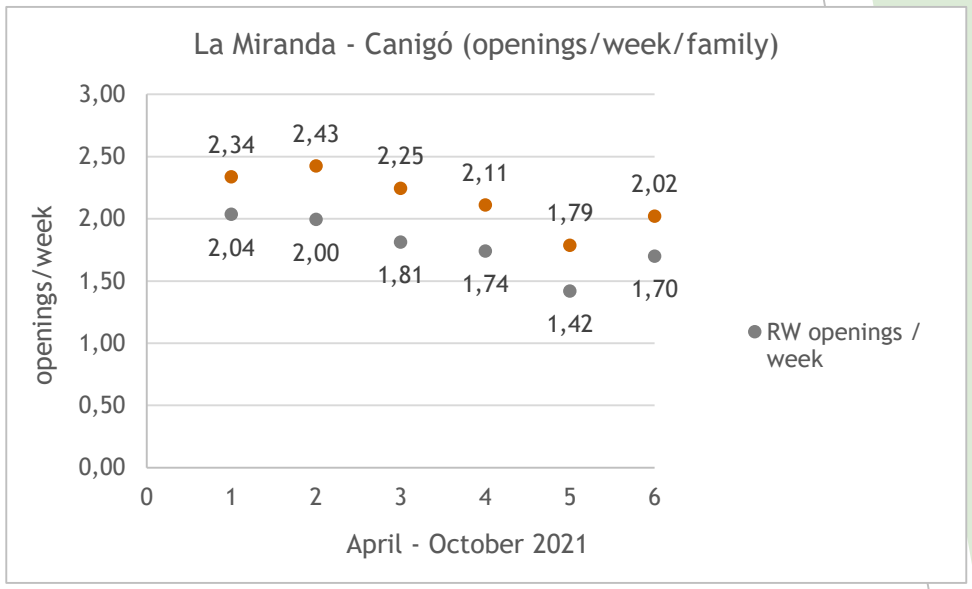
		LIFE	NO LIFE
RFID	**Number of RFID reading of residual waste compared to the same period of the past year: users participating, and users not participating → LIFE vs NO LIFE**	FW: 2.45 openings/week/family RW: 2.22 openings /week/family LIFE < NO LIFE for both fractions	FW: 2.68 openings/week/family RW: 2.44 openings/week family
PAYT	**Evaluate the difference between the variable part of the tax paid (or to be paid in the future) between "best recyclers" and "bad recyclers" before and after KAYT (use 25° and 75° quartile)**		





RESULTS OF KAYT STRATEGY IMPLEMENTED – separate waste collection





- Residual waste openings < organic waste openings (always)
- Tendency to decrease the use of locked containers (both LIFE and NO LIFE)
- Users that never use the ecards: varies with time and fraction →
  - 81 never used the ecard (19 are registered to LIFE)

	Nombre usuaris			
Període	Dues fraccions	Només resta	Només FORM	Total
01/04/21-30/04/21	541	66	48	655
01/05/21-31/05/21	520	78	60	658
01/06/21- 30/06/21	523	63	68	654
01/07/21-31/07/21	447	93	96	636
01/08/21-31/08/21	356	146	76	578
01/09/21-30/09/21	392	129	89	610
01/10/21-31/10/2021	363	164	73	600

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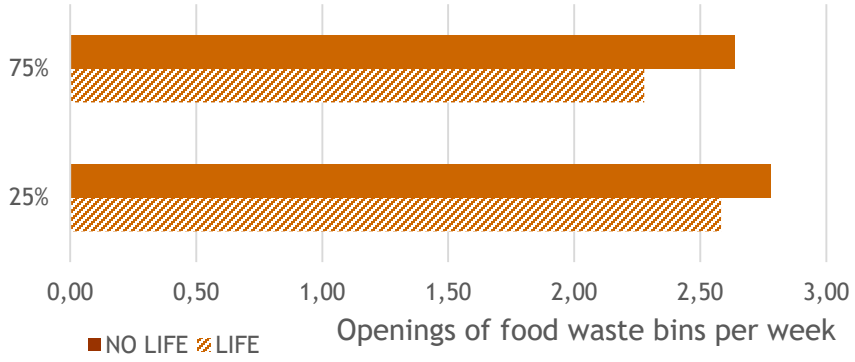
Number of families with ecard at 31/10/2021: 794

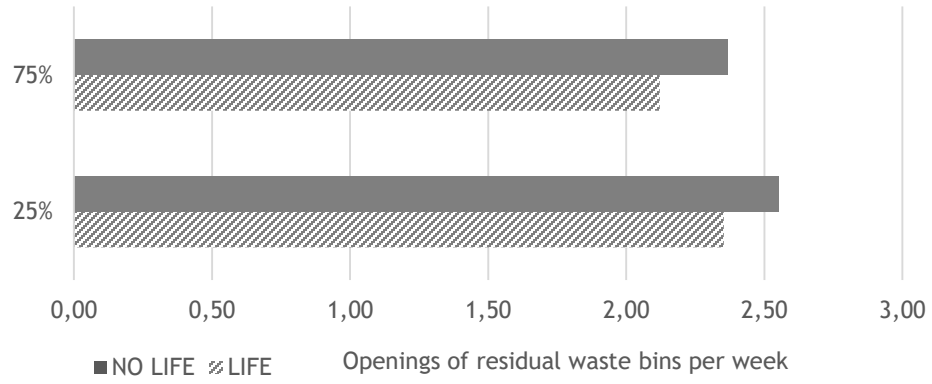
RESULTS OF KAYT STRATEGY IMPLEMENTED – separate waste collection

- SEPARATE WASTE COLLECTION AND PAYT DATA

		LIFE	NO LIFE
RFID	**Number of RFID reading of residual waste compared to the same period of the past year: users participating, and users not participating → LIFE vs NO LIFE**	FW: 2.45 openings/week/family RS: 2.22 openings /week/family LIFE < NO LIFE for both fractions	FW: 2.68 openings/week/family RS: 2.44 openings/week family
PAYT	**Evaluate the difference between the variable part of the tax paid (or to be paid in the future) between "best recyclers" and "bad recyclers" before and after KAYT (use 25° and 75° quartile)**	Food waste: variability (Life vs No Life) of -14% Residual w.: variability (Life vs No Life) of -19%	



Quartile	NO LIFE	LIFE
25%	2,58	2,28
75%	2,78	2,64
Delta 75°/25° percentile	178%	164%
Variability reduction (KAYT vs no KAYT)		-14%



Quartile	NO LIFE	LIFE
25%	2,35	2,12
75%	2,55	2,37
Delta 75°/25° percentile	155%	137%
Variability reduction (KAYT vs no KAYT)		-19%

SWOT ANALYSIS

STRENGHTS	WEAKNESSES
• New collection model with **user identification** (anonymity) • New collection system door-to-door for commercial activities → **co-responsibility of economic activities** • **Incorporation of ICT tools** that provide information to improve the control and monitoring of the service • **RFID technology used** → availability of precise data. • Possibility to send **personalized messages** and give individual **positive feedbacks**. • Useful tool to **inform about news** related to municipal waste management and sustainability. • The messages that worked best are those that include images (organic bins, single use plastics): the system can be used to talk about quality of waste, news, uncivil actions, etc.	• **No real restriction** of residual waste • **No direct quality control** of collected waste • **Potential decrease of waste quality** (increase of impurities) • Potential increase of bags delivered out of containers (specially at the beginning) • **Potential decrease of participation** • Subscription method to participate to zone draw • The system does not enable to know if users have read or not the message • **Low participation** in general • **No PAYT or waste disposal tax** that encourages those to do well or penalizes those who do it wrong.
OPPORTUNITIES	**THREATS**
• **Citizens feel monitored** and improve their habits accordingly. • **Give individual feedbacks**, personalize message for users of a certain container, etc. (although not been tested yet). • **Increase good habits and critical sense** (educators, chat) • Possibility to apply a **fairer tax system** • **Users can report** incidents, system malfunction, loss of ecards, etc. • Assessment of effectiveness of KAYT campaign through statistical analysis (potential for improvement)	• **Resistance to change** (new collection model) • **Resistance to control and monitoring** and to giving personal data for waste management purposes • Difficulties in **data treatment and analysis** • Transformation into a channel of complaints • COVID restrictions (it is a fact that limited the engagement of citizens and also modified their habits) • Risk of citizens disengagement after the contest • Risk of citizens disengagement after some time

NEXT STEPS FOR THE PILOT

- Continue with implementation: next zones of the municipality
  - Initial idea: replicate strategy. Proper modifications according to workshop results? Important issues to solve – data protection report, database (census) update, etc.
  - Consider possible calendar limitations: platform availability? When the final results discussion and presentation?
    - 🗓 February begin of next implementations → will be possible to extend KAYT to the whole municipality as initially planned?
  - Improve draws. Direct participation of those engaged;
  - should we rethink incentives?
  - should we rethink awarding system?
- Type of messages: should we send exactly the same campaigns?
- Test targeted messages to specific 'groups' to improve quality (with data assessment)
- Improve data analysis (for designing and implementing a future PAYT)

2nd env day
press day
2 testimonial videos
Normative transition
Final survey
…

RETHINK WASTE

MAIN CONCLUSIONS AND LESSONTS LEARNT

- Distribution of ecards and KAYT engagement:
  - Face-to-face distribution
  - High level of subscriptions to KAYT from the beginning
- Participation
  - Low participation in general (difficult to know exact causes)
  - More and clear information about awards, incentives and whole campaign from the beginning and during all campaigns
- Messages
  - More success of those campaigns involving images. Content matters.
  - Avoid “two step” campaigns if possible
  - 2 messages per week was well valued during intensive phase. Maybe less campaigns but more impactful (specially follow-up phase?). How to achieve this?
  - SMS limitations and cost for the user depending on the particular contract

RETHINK WASTE

Life

RETHINK WASTE

RETHINKING MUNICIPAL TARIFF SYSTEMS
TO IMPROVE URBAN WASTE GOVERNANCE

Thank you!

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Naturalment Collserola