RETHINK WASTE

RETHINKING MUNICIPAL TARIFF SYSTEMS
TO IMPROVE URBAN WASTE GOVERNANCE

Bassano del Grappa case study

Focus group workshop, Sant Just Desvern

1st December 2021

ETRA
Futuro sostenibile

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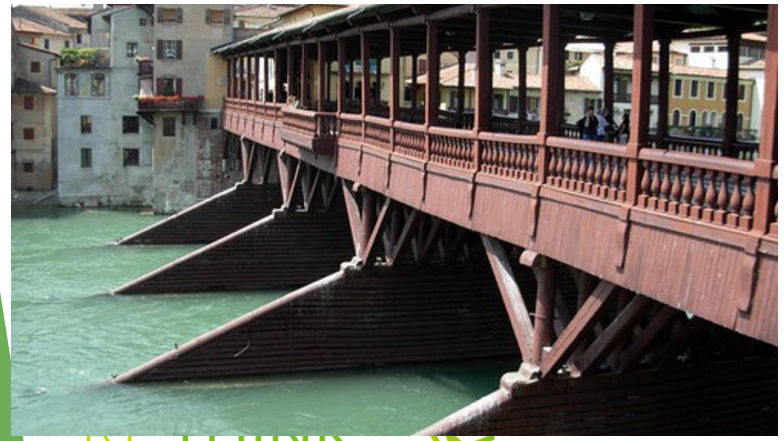
Life

The municipality of Bassano del Grappa in a nutshell

Population (inhabitants)	43.412
Surface (Km2)	47
Altitude (above sea level)	129 (min 84, max 1276)
Density (inhabitants/Km2)	924
Households (number)	19.017
Commercial activity	3.140
Urbanistic features (predominant urban fabric)	Detached or semi-detached houses

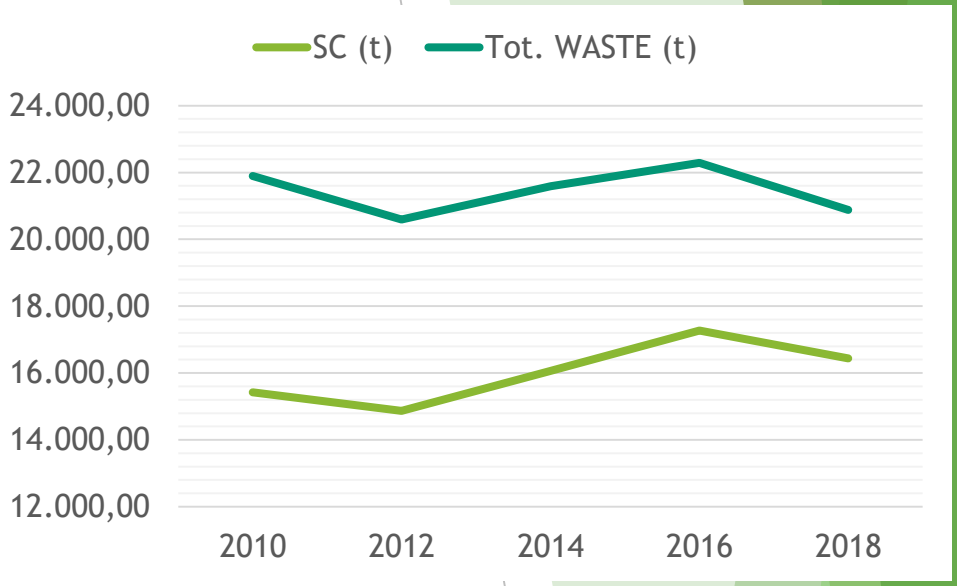
GENERAL DATA (2019)

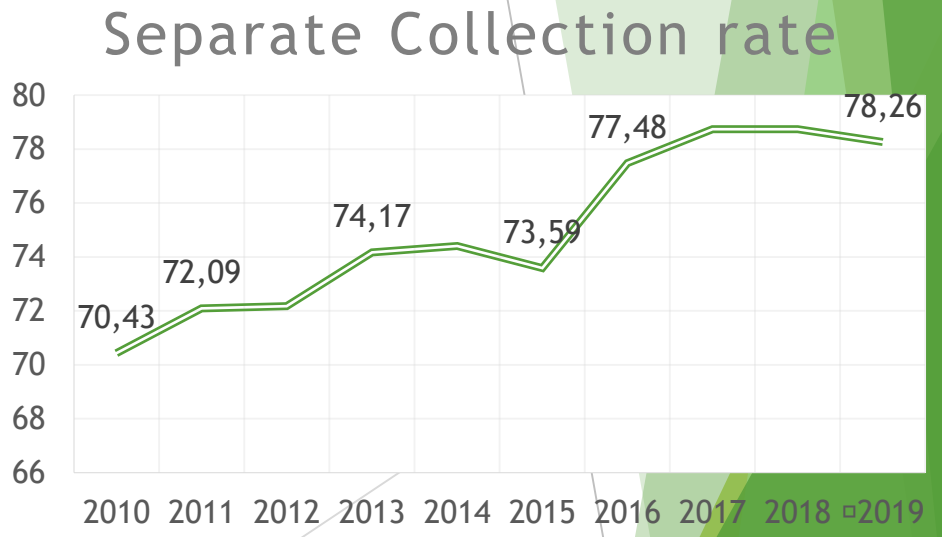


Current waste collection system and waste generation

- ✓ Door-to-door present on almost the whole territory, since 2008 includes all recyclable fractions
  - In some cases (6% of total users) press underground containers
  - Scattered hilly areas: kerbside collection
  - On request, door-to-door service is also available for garden waste.
- ✓ Eco recycling centre facility present
- ✓ PAYT since 2017

Waste generation (total, Kg)	21.797
Waste production per capita (kg/inhabitants/year)	498.47
Quantity of unsorted waste per capita (Kg)	110,8
Separate collection rate (%)	78,26
PAYT system	YES

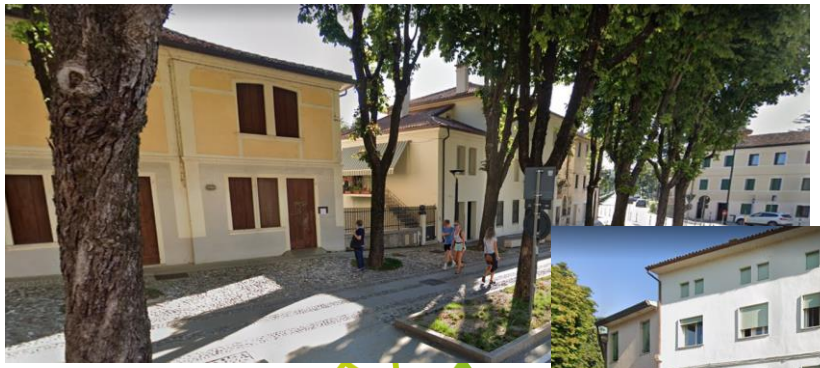




The pilot area

- D area
- **Time frame and phases:** 12 months
  - 6 months only general messages
  - 6 months personalized messages

AREA	HOUSEHOLDS		FIRMS		TOTAL USERS		INHABITANTS	
A	2442	13%	1234	39%	3676	17%	5575	13%
B	5580	29%	559	18%	6139	28%	12740	29%
C	5114	27%	577	18%	5691	26%	11679	27%
D	**4939**	**26%**	645	21%	5584	25%	**11278**	**26%**
COLLINA	36	0%	4	0%	40	0%	83	0,2%
PRESSCONTAINER	906	5%	121	4%	1027	5%	2069	5%
TOTAL	19017	100%	3140	100%	22157	100%	43424	100%



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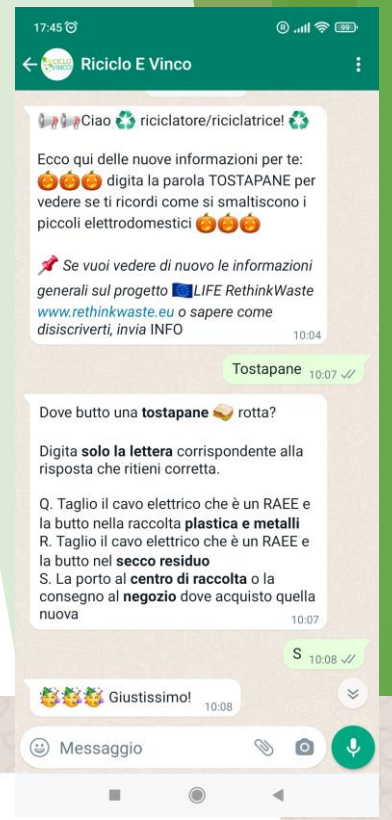
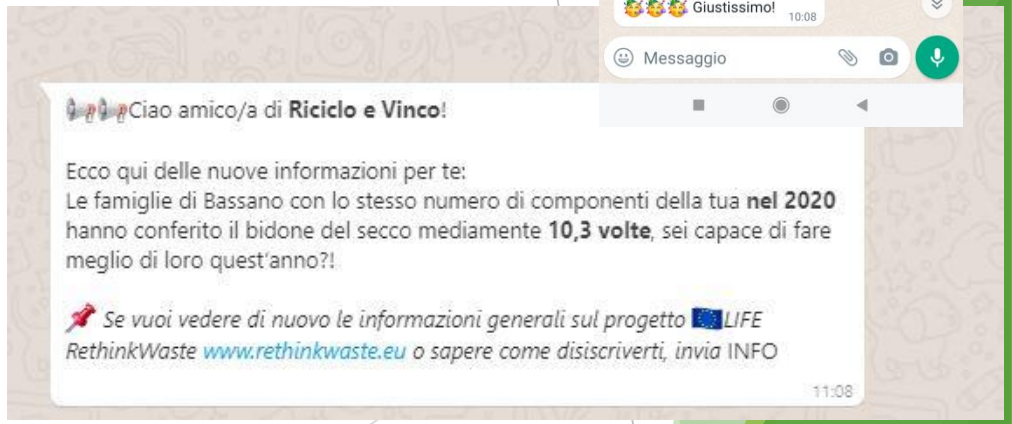
The KAYT approach

- Contest **«Riciclo e Vinco!»,** raffle 60 vouchers worth 100€ each among most active participants
- Users registered received two type of messages on their smartphone through Whatsapp or Telegram:

- **General messages** with little quiz or info about the correct differentiation of waste,
- **Personalized messages (from June to September)** with info about their performance in term of waste delivered compared with the performance of the previous year, or to the average performance of families with the same size. Prompting to improve their behavior even more.





Launch of the KAYT campaign

- Area D: 5,000 users / 11,300 inhabitants
- Final prize of 60 voucher €100 each
- Distribution of unaddressed leaflet 5-10/12/2020 (official start of the pilot)
- Instruction on ETRA's web site
- Press conference: 11/12/2020
- News on the Municipality Newsletter, delivered to all users of Bassano
- News on ETRA's newspaper
- Registration deadline: 31/01/2021
- **Very low participation**: only 34 registered at the end of the year!!!

Reinforcement actions :

- New **deadline** 31st **March**
- News on ETRA's newspaper – January
- Involvement of local schools: presentation of the project, distribution of the 1.000 leaflet to students
- Distribution of leaflet within the annual calendar sent in February
- N.2 emails to pilot area's users registered at digital services (February and March)
- Broadcasting of promotional videos on local TV: on air 42 times between 11st-21st March

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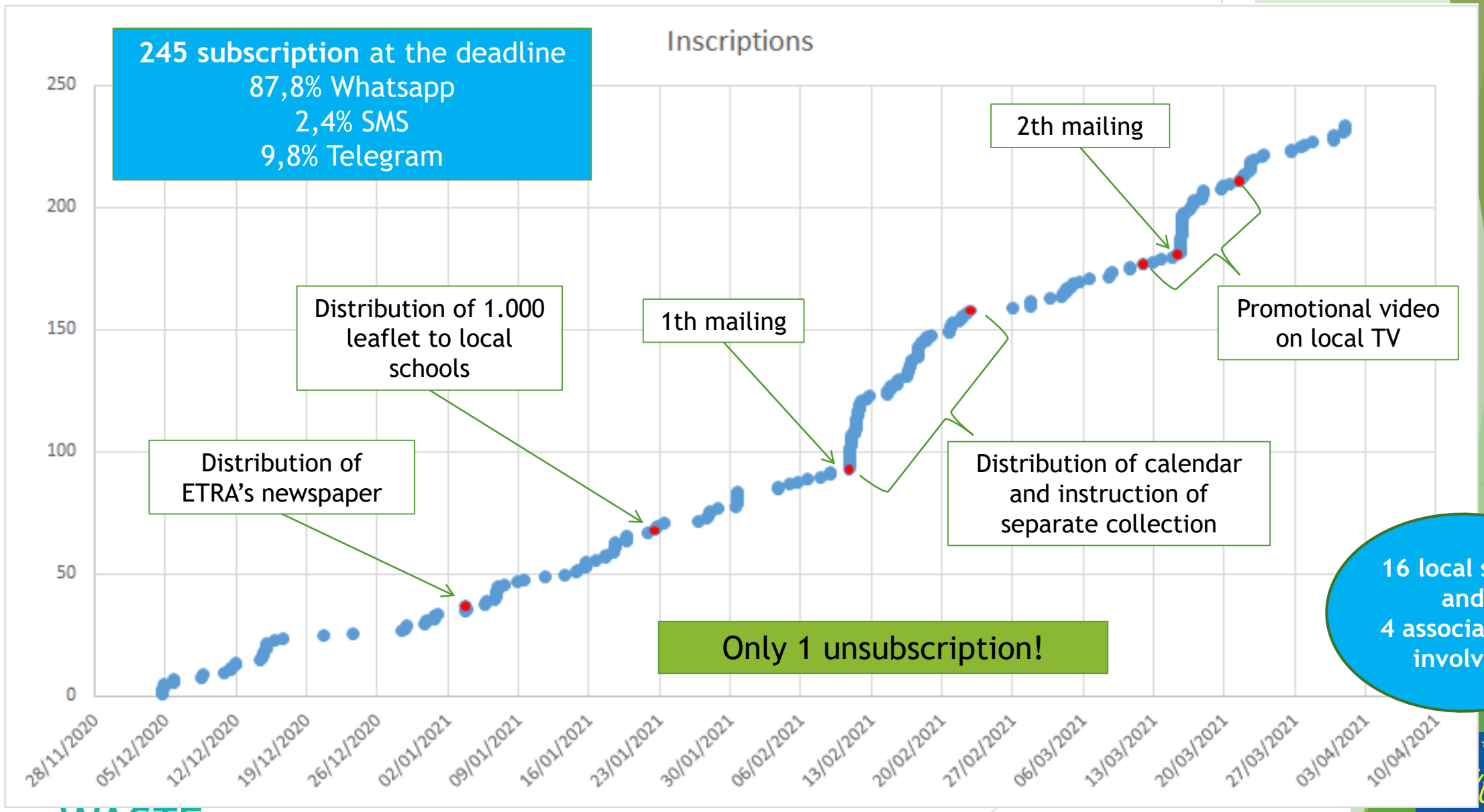
Life

KAYT campaign – Reinforcement phase



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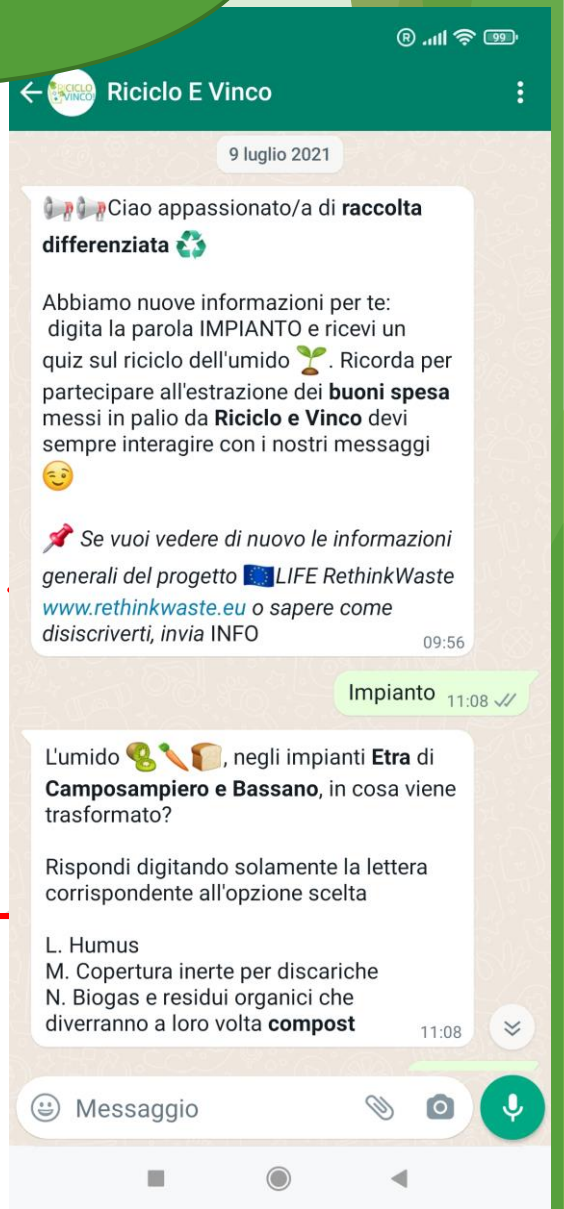
KAYT campaign – Messages statistics

- 58 messages sent from the begin to 30.06, including:
  - 57 general campaigns (questionnaires, information and curiosity)
  - 1 personalized campaigns
- Users answering the keyword in 48 hours: 81.8% on average
- Users giving the correct answer to the questionnaire: 76,4%
  - lower percentages in response to general questions
  - higher percentages in response to specific question on waste collection

«I tuoi conferimenti di secco dello scorso mese sono stati 2
Le letture della città per le famiglie con 4 componenti sono state stata 2599»



PERSONALIZED MESSAGES ABOUT USERS' BEHAVIOUR - RESIDUAL WASTE BINS

- Comparisons with past year performance
- Number of bins delivered so far
- Economical impact of bins delivered on tariff…

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Readaptation of the communication

The ETRA communication strategy for user engagement in the pilot of Bassano has two remarks to consider:

- The first is that unfortunately covid restrictions limited the possibility to perform a **communication in person** that would have been **more effective**.
- The second is that, during the **first 6 months** of pilot, interacting messages with users have been **only generic**.

After that period general messages have been alternated with individual messages.

The content of personalised messages has been defined in cooperation with the University of Verona, Dept. of Economics - Behavioral Economics.

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PRELIMINARY RESULTS OF KAYT STRATEGY IMPLEMENTED

No comparison is still possible between 2020 and 2021.

The data available refers only to six months and the forecast of deliveries for 2021 returns a not reliable value.

PRELIMINARY RESULTS OF KAYT STRATEGY IMPLEMENTED

- SEPARATE WASTE COLLECTION AND PAYT DATA

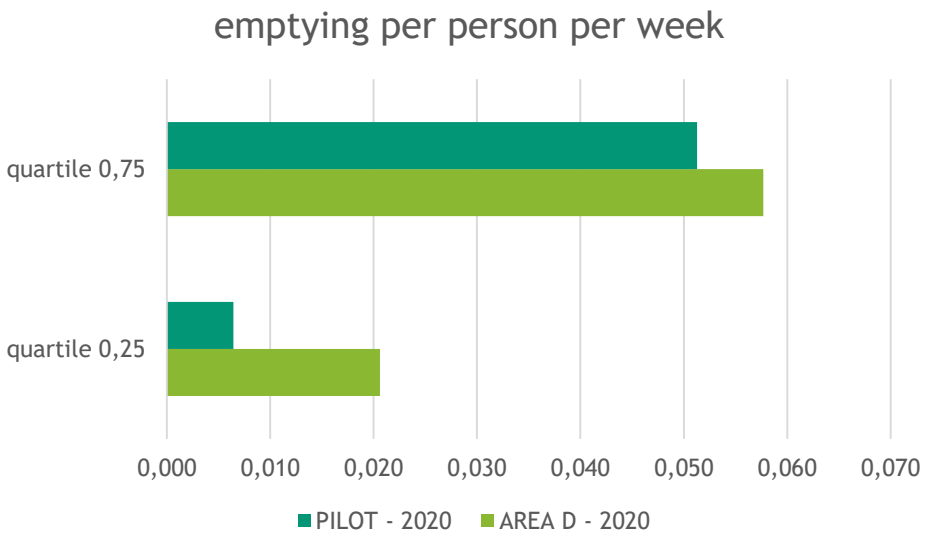
		2020
QUANTITATIVE	Total waste generation (in the whole city and in the pilot area, if possible to estimate) (Tn) NB weight of one 120L bin = 8,76 kg (assuming a value of 73 kg for m3 as stated by Etra regulation)	Area D users: Total reading 2020: 20.524 >> 179,79 ton Users participating: Total reading 2020: 1.146 >> 10,038 ton
	Rate of separate collection (average of the municipality) (%)	Average of all 2020: 78,5%
QUALITATIVE	Quality of separate collection in the pilot area (% of impurities)	Unsorted waste: 0.1-0.6% Paper: 0.5-1.8% Plastic and metal: 3.2-7.8% Organic: 0.1-0.5%

A set of 9 analysis:
3x unsorted waste,
2x paper,
2x plastic and metal,
2x organic
For area C (not participating)
and D (pilot area)

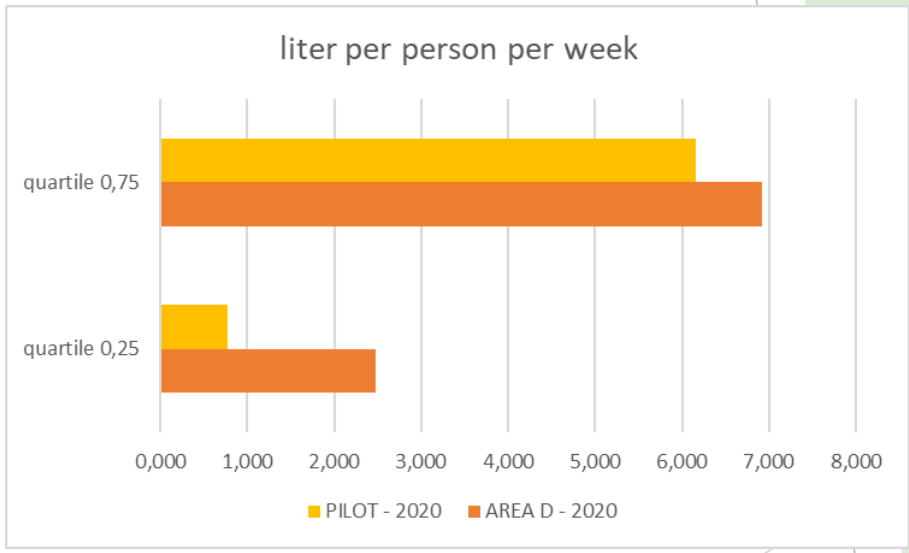
RFID reading

The original indicator proposed is bag per person per week, nevertheless we find that it is a poorly comparable measure among pilots with different collection systems.
Indeed, the size of the bag and the frequency of collection have a relevant influence in frequency of delivery.
The case of Bassano for example offer the collection every two week and uses 120 lt bin.

- We propose to switch the indicator **in liter per person per week**.



emptying per person per week	AREA D - 2020	PILOT - 2020
quartile 0,25	0,021	0,006
quartile 0,75	0,058	0,051
delta 0,25-0,75	0,037	0,045
AVG PER PERSON PER WEEK	0,054	0,038

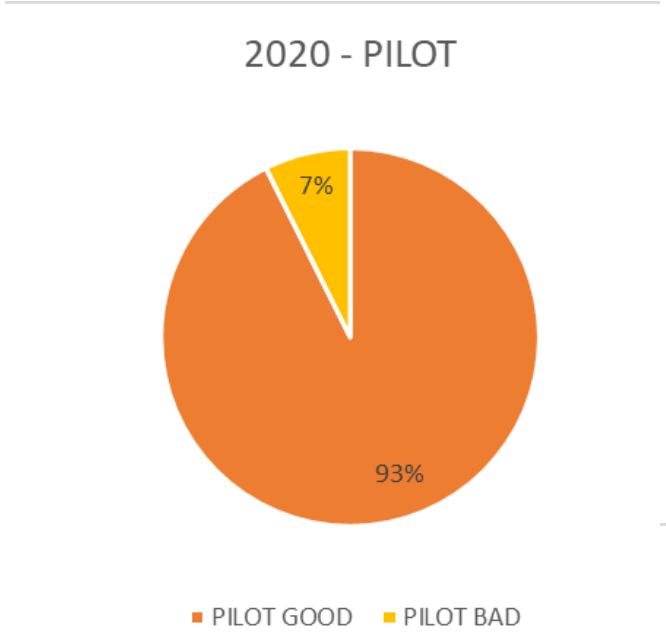


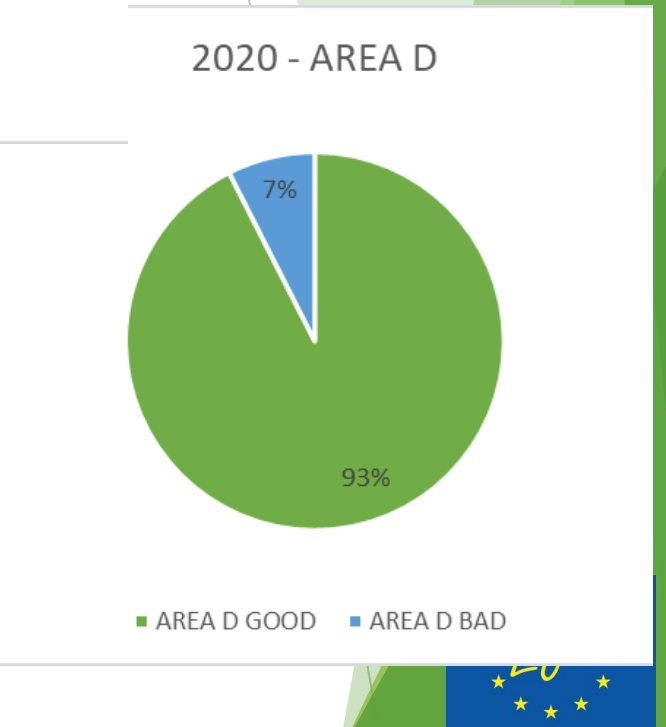
liter per person per week	AREA D - 2020	PILOT - 2020
quartile 0,25	2,473	0,769
quartile 0,75	6,923	6,154
delta 0,25-0,75	4,451	5,385
AVG PER PERSON PER WEEK	6,435	4,597

% of waste-bill spread between the virtuous citizens & underperforming citizens

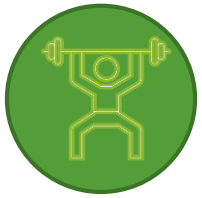
The percentage of good and bad users is the same in the ywo sample, notwithstanding in the pilot the bad users seem to have worste performance with more expensive waste tariff.

		2020
PILOT	GOOD	93%
	BAD	7%
	average per bad user	89,32 €
AREA D	GOOD	93%
	BAD	7%
	average per bad user	37,14 €





SWOT analysis

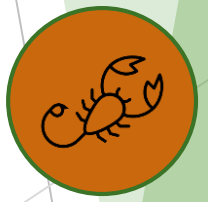


- Good response of citizens and shops after the users engagement campaign
- RFID technology used
  - availability of precise data
  - personalized messages

- Lack of eco volunteers to motivate citizens

- Improvement of service through big data analysis
- Assessment of effectiveness of KAYT campaign through statistical analysis

- Covid restrictions limited the engagement of citizens
- Risk of citizens disengagement after the contest



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MAIN CONCLUSIONS

- The **impact** of the actions implemented is not yet possible to be assessed because
  - No comparison is still possible between 2020 and 2021.
  - The data available refers only to six months and the forecast of deliveries for 2021 returns a not reliable value.
- Moreover, it must be considered that during the first **six months** of KAYT almost exclusively **general messages** were sent to users. It will be interesting to compare results with the next period when also personalized messages were sent to each user participating.

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Next steps

- Final term technical assessment
- Delivery of “Riciclo e vinco!” vouchers
- Survey of Social Impact Assessment
- ENV_day 29th JAN 2022
- Big Data analysis
- Normative transition

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Thank you!