delterra

Real Change, At Scale.

CASE STUDY

HOW AN ARGENTINIAN CITY STARTED SEPARATING ITS WASTE

THANK YOU TO OUR PARTNERS

We would like to acknowledge our partners, whose support makes the impact we're driving possible. Our special thanks goes to the Municipality of Olavarría, the Alliance to End Plastic Waste and Amcor for their precious support of Delterra's Rethinking Recycling program in Olavarría.

EXECUTIVE SUMMARY

Source separation – keeping what's recyclable and compostable in people's homes separate from landfill-bound waste – is essential if we want to achieve meaningful recycling rates. As we expand access to recycling services to new communities, how do we get a critical mass of households to adopt this important habit? And can we achieve sustained results in places with limited budgets to support recycling behaviors?

In the mid-sized Argentinian city of Olavarría, Delterra's Rethinking Recycling program has produced promising results.

50% of households that receive recycling and composting service are consistently separating their recyclables correctly, and 30% are succeeding with compostables as well.

These rates are especially notable because, due to municipal budget constraints, residents do not receive recycling or composting bins from the city, and must use their own containers to keep waste separated. **The campaign that activated these source separation habits cost around $4.50 USD per household,** which we believe to be within the reach of many municipalities in the global South.

In 2023, Olavarría plans to expand service to the whole city, and using this blueprint for activating recycling habits, it expects to achieve one of the highest waste diversion rates in Latin America.

Three major learnings have emerged from Rethinking Recycling's work in Olavarría to date:

1 EXPLORE YOUR COMMUNITY FIRST (INVEST IN HUMAN-CENTERED DESIGN RESEARCH)

This initial phase of interviews, focus groups, and home visits provided invaluable insights on how best to support residents' behavior change journey – even when most research had to be done virtually, due to the pandemic.

In Olavarría, the team discovered **strong values around shared commitments between citizens and government,** as well as pride in being a modern city, which could be invoked to counteract cultural resistance to change. They also found that **most non-recyclers are open to recycling and just need support; skeptics are a minority.** This finding enabled the team to focus limited resources on supporting willing participants.

2 | DESIGN BY DOING (TEST AND LEARN)

Testing a campaign with real residents, and adjusting based on how they respond, helps to identify what truly works and to find alternatives to costly tactics.

In Olavarría, the team's first pilot aimed to maximize source separation rates among residents, and did achieve over 50% source separation, but its core strategy of open-ended, face-to-face conversations with residents was not scalable. Subsequent experiments showed that **awareness marketing can generate broad interest in recycling, enabling short face-to-face interactions to be highly effective** in activating source separation behaviors. Failures are also useful learning: for example, the team found that **digital outreach, while highly scalable, cannot substitute for face-to-face interactions**, producing lower participation rates; instead, digital elements supplement mass media and in-person outreach.

3 | DISCOVER WHEN TO DO WHAT

Timing matters, and people need different kinds of information and support at different moments.

In Olavarría, the team discovered that introducing the change in waste collection service, and the need to handle waste differently at home, was most helpful several weeks before the new recycling and composting service began. Dropping off "starter kits" prior to speaking to residents was also effective. Residents need to make significant changes, not only in how they store waste, but learning a new schedule of different pickup days. **Multiple touchpoints with small, immediately relevant pieces of information help people to make the transition to a complex new habit.**

The final blueprint for activating source separation habits in Olavarría incorporates all of these learnings, with locally resonant messaging, careful sequencing of different types of touchpoints, and supportive materials designed to boost confidence and commitment. A pilot test across 500 households confirmed that this approach produces high source separation rates (50% of households for recyclables and 30% for organics, sustained even 9 months after activation), for a low cost per household ($4.50 USD). As Olavarria rolls out recycling and composting service across the whole city, the up-front investment in exploration and design helps ensure that all residents receive the support they deserve in making recycling in their city a success.

INTRODUCTION

Greater recycling of plastic and other household materials is a critical component of the circular economy. But global recycling rates are hovering at a disappointing 16%. Lack of access to recycling services continues to be a primary barrier, as is unstable demand for recycled materials, however another significant hurdle to profitable recycling is contamination. For recycling to work economically, people consistently need to separate recyclable and organic from non-recoverable waste at the source: their homes. How do we get enough people to adopt that crucial source separation habit?

For the past two years, Delterra's Rethinking Recycling program has been working on the answer. In 2020, we set out to create a comprehensive, multi-stream household recycling and composting service in the mid-sized Argentinian city of Olavarría (GIRO, or Gestión Integral de Residuos de Olavarría / Integrated Waste Management of Olavarría). When we began working with the city, residents were accustomed to simply leaving their mixed waste on the curb every day.

RECYCLING RATES WERE LESS THAN 1%.

Today, among households with access to the new recycling and composting service, NEARLY 50% CONSISTENTLY SEPARATE THEIR RECYCLABLES AT HOME.

Even with compostable materials, a more unfamiliar category, 30% of households are successfully separating. In 2023, the city plans to expand the service to its full population of 120,000 people. If we are able to replicate the current results to the whole city, Olavarría will become a city with one of the highest recovery rates in Latin America.

In this paper – the third in our Recycling Behavior Change series – we unpack how we got to such high source separation rates in communities unaccustomed to recycling. **Our goal in Olavarría was to take residents on a behavioral journey:** specifically, from putting mixed waste out on the curb every day, to a consistent practice of correctly separating waste inside their homes, then bringing different materials to the curb on the different collection days. We didn't force people into new behaviors, which usually has the opposite effect. Instead, we provided a supportive learning environment, giving residents a chance to experience for themselves the challenges and benefits of sorting waste at home, and to reconsider their assumptions about how difficult or time-consuming recycling is.

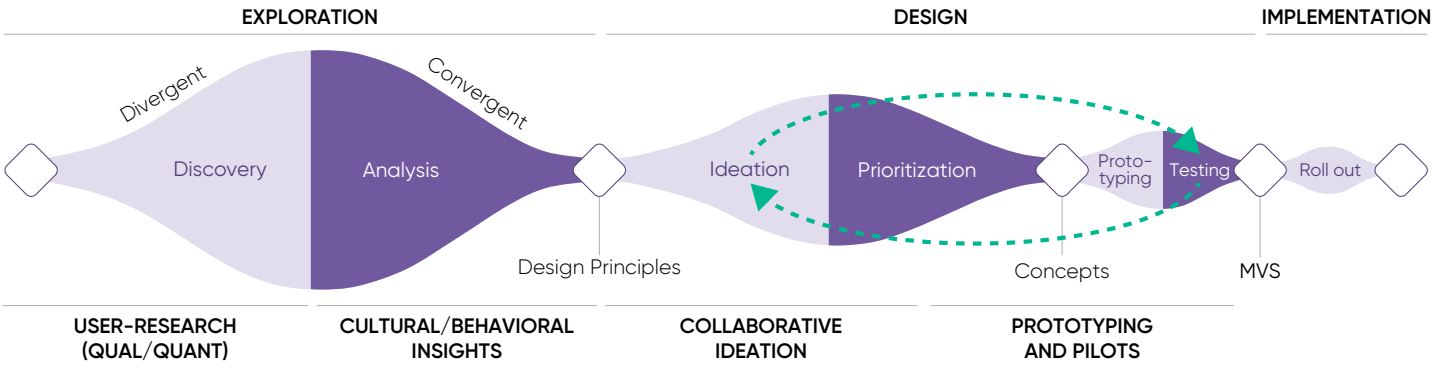
The two core principles guiding our methodology were ***human-centered design and rapid testing and learning.*** Human-centered design meant that we developed a deep, empathetic understanding of city residents' current waste experience – their needs, constraints, contexts, behaviors, and wants. These cultural and behavioral insights became the backbone of our design process. Rapid testing and learning allowed us to be highly responsive to residents' reactions and needs. We tested new ideas almost on demand, collaborating with residents to help us tweak our approach, so it would truly resonate and yield consistently high participation rates.

This paper details the **phases of our education and outreach experience in Olavarría** – what worked and what didn't, and potential lessons in how to increase the impact of interventions, tailor programs to different communities, and scale experiments to large segments of an area's population.

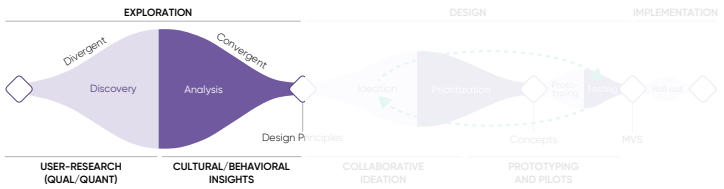
Since 2018, Delterra has launched recycling initiatives in three communities – an informal settlement of Barrio Mugica in Buenos Aires, a set of urban districts in southern Bali, and the mid-sized Argentinian city of Olavarría. In each of these projects, curbside-style recycling service was either enhanced or introduced to communities for the first time. Consisting of six dimensions of waste maturity, these programs seek to find solutions that boost recycling rates in the global South (including that of organic waste, a major contributor of methane emissions).

BEHAVIOR CHANGE APPROACH

Our behavior change methodology starts with understanding the local community, or the "Exploration" phase (in the chart below), during which we conduct user research to learn more about citizens' motivations and habits around waste management. With cultural and behavioral insights about users and their communities, we then move into the "Design" phase to create concepts of potential behavior change strategies that could resonate with the community, and to test those strategies through pilots. The "Implementation" phase involves the roll out of the proven strategies to the entire city, understanding scalability and multiplying levers from different sources.



EXPLORATION



During a three-month community research effort in Olavarría, we aimed to collect as much information as possible about residents' attitudes toward their community and themselves, as well as their views on waste management. In short, we wanted to **empathize with the people we were trying to reach.**

Because Argentina's strict lockdown lasted for nearly 12 months, this phase of our process, including focus groups and in-depth interviews, was conducted virtually, largely on video calls. Since we couldn't follow residents into their homes, we also decided to ask a handful of people to use instant messaging platforms to produce video diaries about their experience with waste throughout the day.

The analysis of this data yielded a number of valuable insights. We identified Olavarría as a clean, well-maintained, family-friendly city, with a modern infrastructure, a very industrial culture, and a small-town feel – a place where neighbors know and recognize one another. We also **learned that residents take pride in their city and want to have a stronger recycling culture.** Residents identified the practice of mixing all their waste together, instead of recycling some of it, as a pain point. Some expressed a sense of embarrassment that neighboring cities had more advanced waste sorting and recycling practices. At the same time, our research showed that Olavarría is a place with conservative values and a general resistance to bold change. **Residents said they wanted to do their part to adopt more modern practices, but also demanded that the municipal government take responsibility for centralizing the collection of recyclables.**

These and other findings led to the creation of five design principles that guided our outreach and messaging to the community:

1 | WASTE MANAGEMENT AS A CIVIC DUTY

Since residents take pride in their city, we framed the initial, introductory communications about waste separation as an important and necessary contribution to the community, focusing, for instance, on *our* waste – "In Olavarría, we give a GIRO [Spanish for twist] to our waste" and "Separated collection is a shared commitment".

2 | THE GOVERNMENT'S ROLE IN THE WASTE CRISIS

During press conferences and local media appearances, we highlighted our partnership with the City of Olavarría and focused on the role the municipality would play in repairing and centralizing the currently fragmented system of recycling drop-off points and curbside mixed-waste collections.

3 | THE TREND OF URBAN MODERNIZATION

In deference to Olavarría's conservative culture, recycling was positioned not as an environmental or green initiative, but a continuation of existing enhancements within the city, such as bicycle lanes, a new bridge, a digitally metered parking system in the downtown area, and LED lights in the park. The development of a GIRO chatbot also helped give a modern appeal to our program.

4 | THE REINFORCEMENT OF NEW HABITS

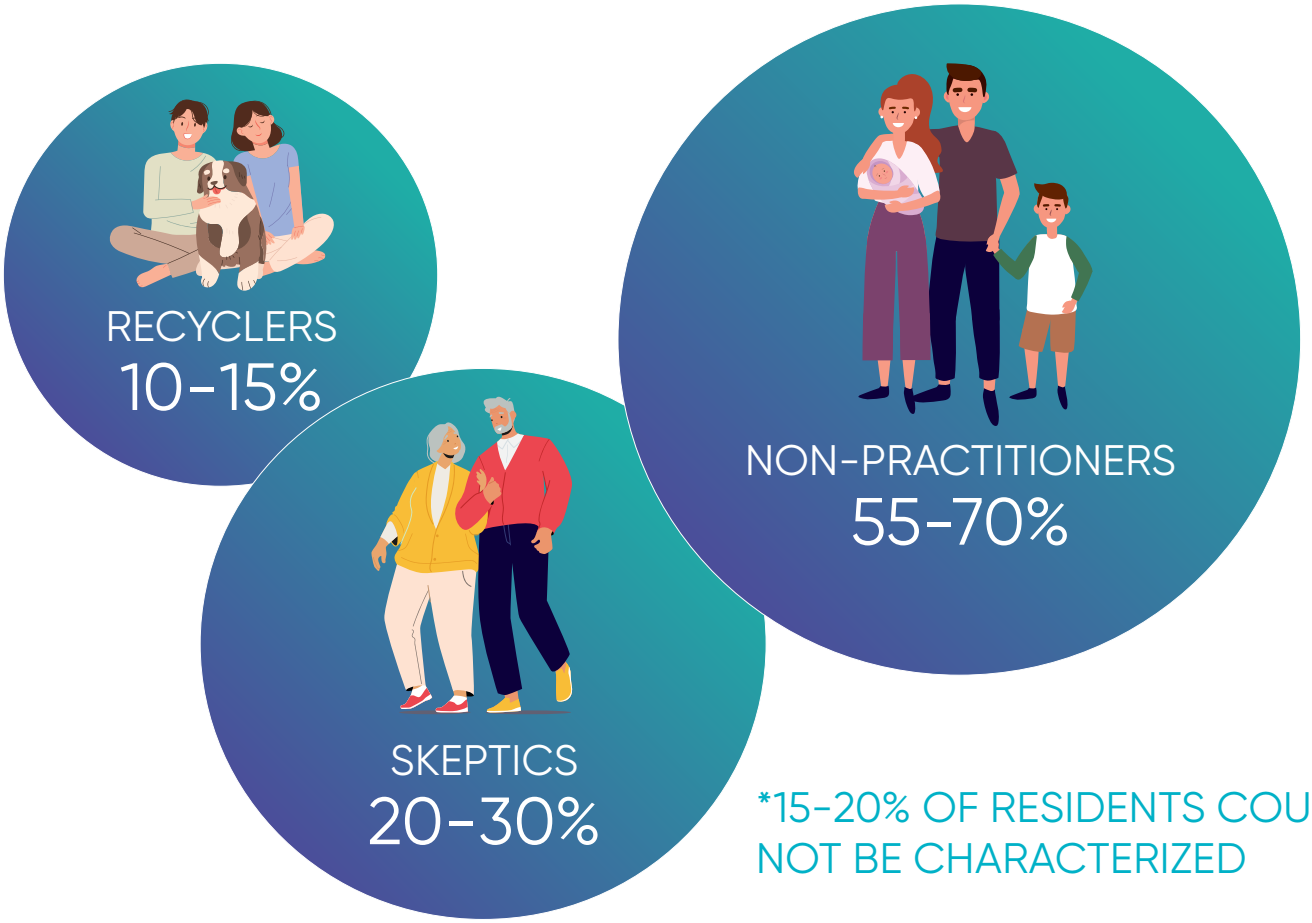
With the household separation of waste an entirely new behavior for most Olavarria residents, our behavior change initiatives sought to empower people with helpful reminders and make them feel equipped to start this new practice. Starter kits delivered to residents included stickers to put on each type of bin and a fridge magnet with information about the collection schedule and details on how to separate. We also distributed sturdy, easy-to-carry, reusable bags inside local markets, particularly to people who were trying to carry a lot of weight in flimsy plastic bags. These bags delivered a visual reminder about the program every time someone used them to go shopping and helped create a positive experience with the GIRO brand.

5 | FACE-TO-FACE INTERACTIONS

In a close-knit city with a small-town feel, being able to talk with another human was an important part of making information on recycling accessible, credible, and effective. In an increasingly digital era, it also stood out as an added value.

In our research, we identified three different waste habit personas among residents:

#% OF THE POPULATION

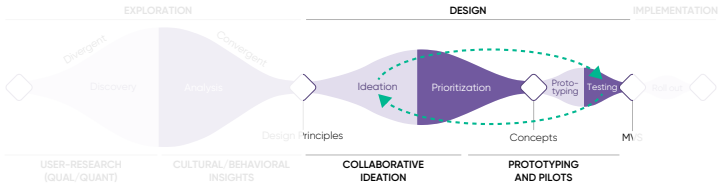


We decided to design our behavior change experience to appeal primarily to *non-practitioners* since we felt our program could have the biggest impact with this group. Although these individuals do not recycle, they said they would welcome a system that made it very easy for them to do so. We determined that *non-practitioners* were open to adopting new recycling and composting habits and just needed the support, education, and reinforcement to make it happen.

Olavarría's *recyclers*, on the other hand, had a deep knowledge of and experience with the practice. Although they said they disliked the city's current system, which required them to haul their separated items to drop-off points and offered no social support for encouraging other members of their household to separate, these residents were nonetheless committed to re-purposing their waste despite the challenges.

The behavior of *skeptics* appeared inelastic. Although these individuals support environmental causes in general, they don't see why this particular problem needs immediate attention. They also have a general distrust of government initiatives and institutions. We concluded that many skeptics would not be responsive to our initiatives.

DESIGN

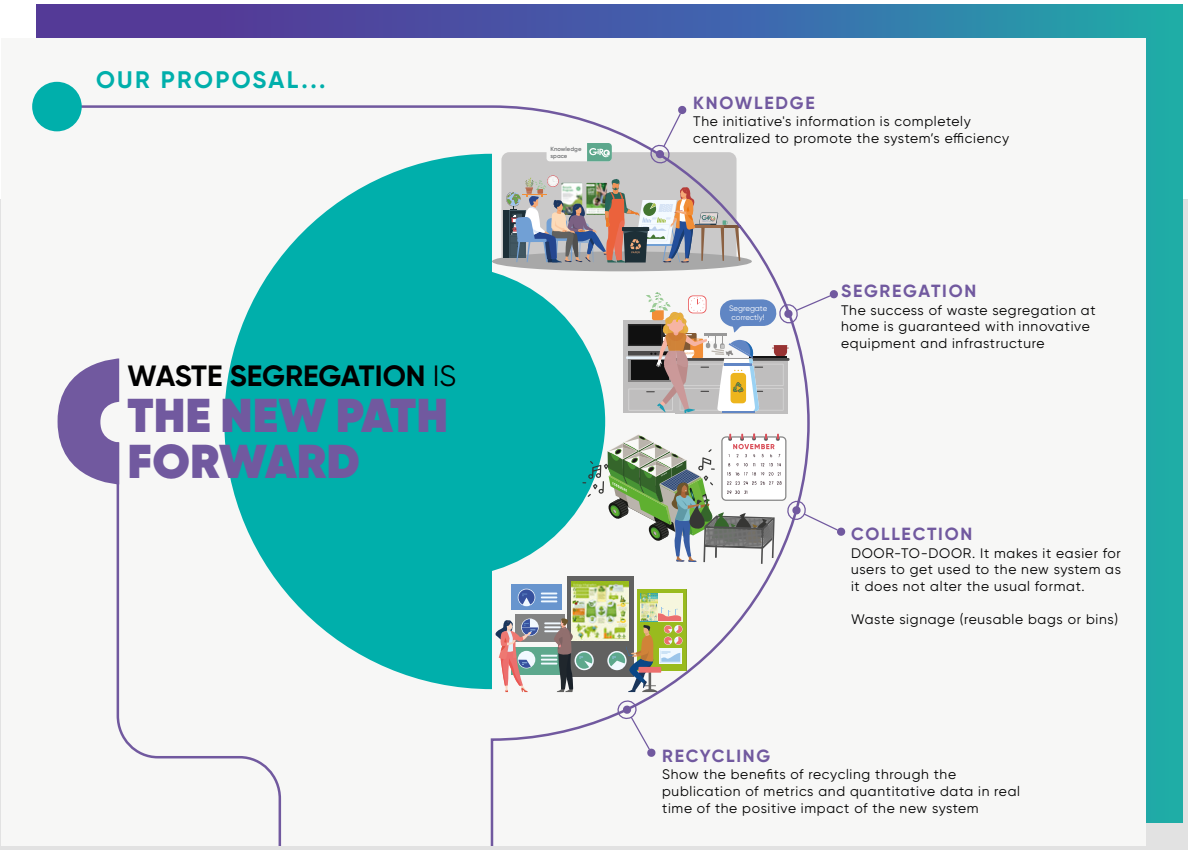


Once we understood Olavarría's culture and the attitudes of its residents toward household trash and waste management, we set out to design the behavior change experience. This included collaborative ideation around the look and feel of our outreach and education campaign. Then, in prioritization workshops, we introduced relevant constraints, such as resources, budgets, timelines, advancing only those ideas with the highest value propositions and a realistic shot at being implemented. For instance, **due to municipal budget constraints, we were unable to move forward with the often-effective approach of distributing recycling and compost bins to residents.** We worked to strike a balance between best practices from other behavior change programs and what users told us they wanted, which continued to serve as our north star.

From this, we developed several mock-ups of what a recycling system would look and feel like and showed them to residents in focus groups. These were not intended to be actual plans that would be implemented, but rather conversation starters that would stimulate discussion and help people figure out which ideas they liked and which they didn't. Each concept embraced a different mindset – one was pragmatic and impact-oriented, another outgoing and gamified, and a third was highly digital. Focus group participants (which included a mix of each type of waste habit persona) had the strongest preference for the first concept. **People liked messages about recycling as the "way of the future," which spoke to the pride residents have for their city.**

CONCEPT 1

PRAGMATIC AND IMPACT ORIENTED

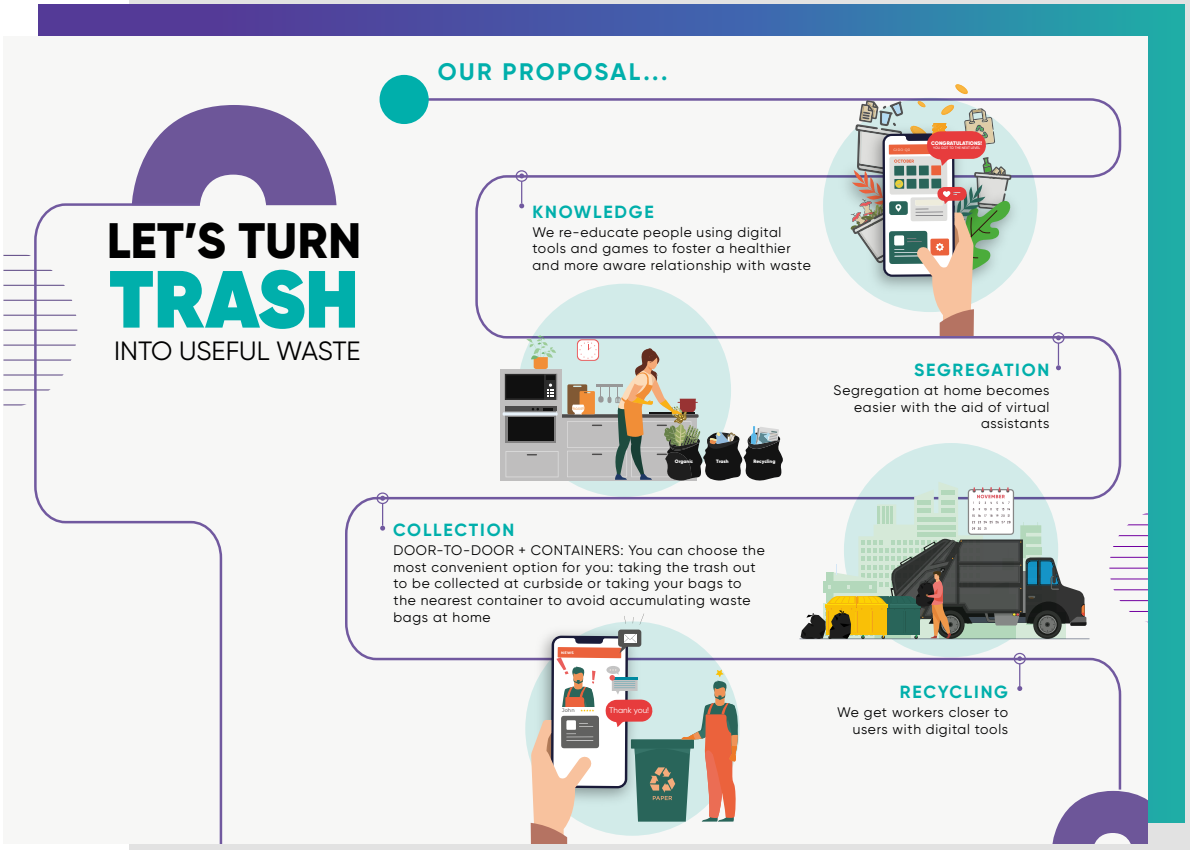


CONCEPT 2

OUTGOING AND GAMIFIED

CONCEPT 3

HIGHLY DIGITALIZED



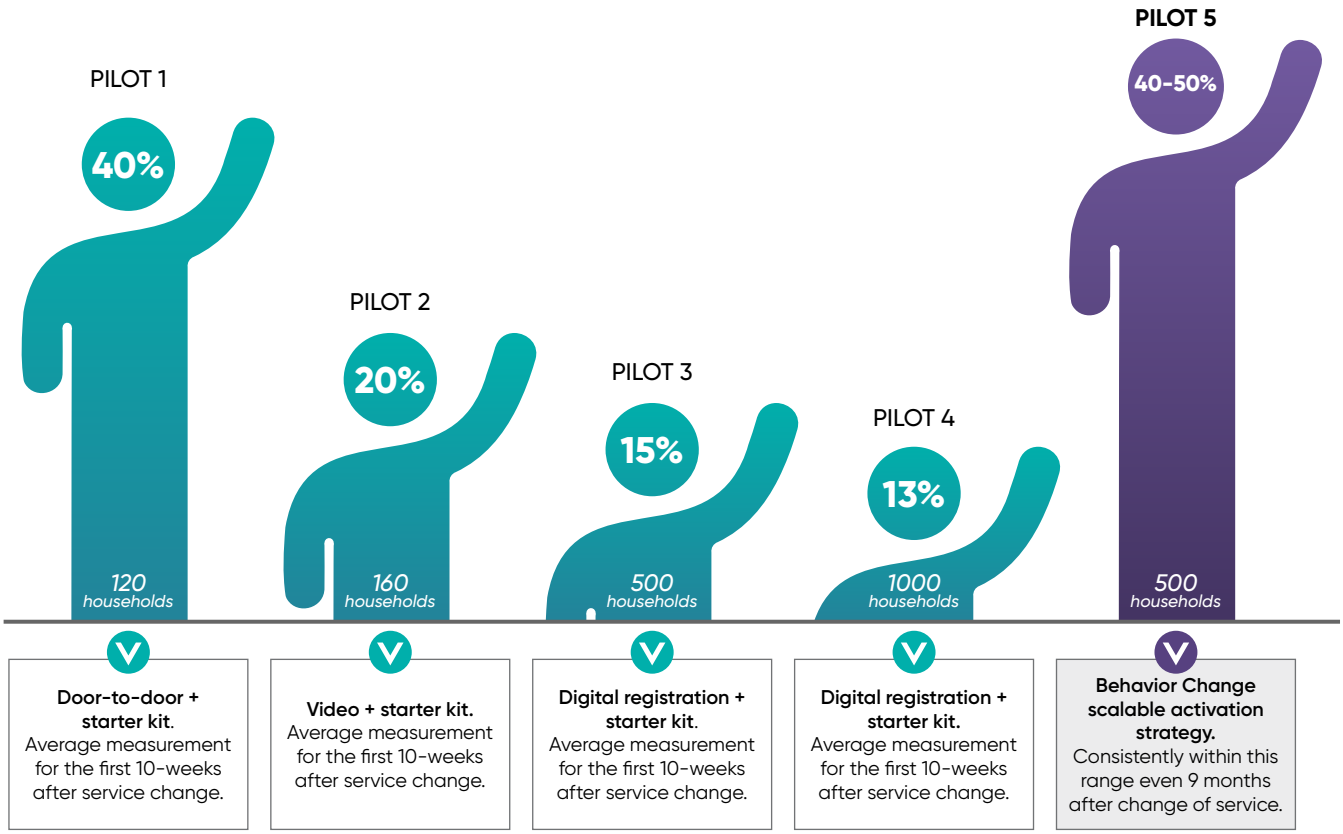
Feedback from the focus groups helped us identify each of the ideas and elements we wanted to test with residents in real life scenarios. Over the course of a year, we ran five consecutive pilots with small populations (between 120 and 1,000 households), each following a differentiated strategy and purpose.

BEHAVIOR CHANGE STRATEGY FOR PILOT 5 REACHED AND IMPROVED RESULTS FROM PILOT 1 WITH A SCALABLE APPROACH FOR THE WHOLE CITY

AVERAGE HOUSEHOLDS PARTICIPATION PER PILOT

Households which separate at source and dispose on the proper collection day over total households in the pilot zone

**Avg. Participation Rate: households separating and complying with new service over total households in the pilot from measurements taken at different stages.*



In pilot 1, we devoted considerable resources and aimed for maximum success in order to demonstrate the feasibility of GIRO to the city's residents and businesses. In this test, the entire GIRO team fanned out across the target area to knock on doors, have conversations with residents, and hand out the starter kit of materials – an element that had been successful in a prior Delterra initiative in Argentina. This kit included a flyer and a fridge magnet, the design of which we continued to test and adjust throughout the pilots. From this, we gained valuable insights about the value of face-to-face interactions. Since we were introducing people to an entirely new system, we were surprised to see that 50% of households in the first pilot correctly separated their recycling (30% for compostables) and left it out for collection on the correct day (after six months, the rate for recycling stabilized to 40%). In a tight-knit community, **face-to-face interactions with another human clearly mattered.**

This approach, however, was time consuming and resource-intensive. In pilot 2, we tried to make our introduction to residents more scalable. We created a two-minute video that was distributed through the neighborhood group in a messaging app. It featured information on the new pilot zone, the collection schedule, footage from the recycling plant, and an interview with a city official. Results were disappointing. During focus groups, residents had indicated a desire for digital solutions, but the video did not resonate. Participation rates dropped from 50% to less than 20%.

We realized that, although digital tools can play an important role, they aren't a replacement for a human touch.

Wastebasket placards

Poster in local shops

Although it became clear that bottom-up, on-the-ground outreach was a necessary component of behavior change, we learned it was not sufficient. Throughout the pilots, we noticed that people who had previously heard about the program prior to someone knocking on their door were likely to be more open to learning about and ultimately registering for the program. This exposure could have been seeing a GIRO poster inside a local shop, hearing a radio ad, or noticing a triangular placard hanging on a neighborhood wastebasket (with the message, "Sort your waste and take it out on the proper day"). These elements of a top-down "press effect" worked synergistically to enhance both bottom-up and digital efforts.

On their own, neither top-down, bottom up, nor digital channels were enough. A blend of each element delivered the greatest impact.

DISTILLED LEARNINGS FROM PILOTS: THE 'PRESS EFFECT' INCREASES AWARENESS THROUGH TOP-DOWN SOLUTIONS AND TRIGGERS COMMITMENTS TO CHANGE BEHAVIOR FROM THE BOTTOM-UP

	Behavior change goal	Components
TOP-DOWN	Reach from the top-down to increase awareness, set the conditions to 'trigger' BC and compliance with the service	• Mass media communications (TV, radio, billboards, etc.) • Social media campaigns & digital • Out-of-the-box public interventions • Community events • School program
DIGITAL	Open a direct channel with citizens for the Municipality to leverage for Program maintenance in the future	• Chatbot • Website
BOTTOM-UP	Build from the bottom-up to increase commitment. Trigger BC and reinforce compliance	• On the ground presence through change agents. Door-to-door to follow up behavior change • Each agent "owns" a territory and intervenes with a behavior change toolkit (ups tags, magnets, stickers, promoters)

In our last test, pilot 5, we developed a blueprint that really worked, which was ultimately proven by the results of the pilot. A combination of the right elements delivered at the right time was crucial.

Four weeks prior to the new collection service starting, we began setting the stage for awareness building. This included mass media and community events, such as the shop posters, giveaways of recycling and compost bins for household sorting, and GIRO stands in community parks. We also dropped off starter kits of flyers, fridge magnets, and bin stickers with residents.

One week after laying this groundwork, we tested a more scalable door-to-door strategy. Instead of open-ended conversations, each field agent was given a distinct area to cover and a three-minute script with a set of questions for residents and instructed not to spend more than the allotted time with each resident. Agents asked residents whether they had received and read the starter materials and whether they would be willing to give waste separation a try for six weeks. They also made a commitment to support residents through the process.

Four weeks after the start of the new recycling collection service, we offered that support to residents in the form of a follow-up visit. During these visits – which were only paid to households identified from the first visit as non-practitioners or skeptics willing to give it a try – field agents solicited feedback, offered support, and handed out materials, such as a separation guide, stickers for residents to customize their own waste bins and identify each stream, and reusable shopping bags.

As a result, MORE THAN NINE MONTHS LATER, WE STILL SEE RECYCLING AND COMPOSTING PARTICIPATION RATES CONSISTENTLY ABOVE 40% (~50% for recyclables and ~30% for compostables).

OUR ACTIVATION BLUEPRINT INCLUDES 8 WEEKS PER WAVE WITH RESIDENTIAL & COMMERCIAL GENERATORS

			Week -4	Week -3	Week -2	Week -1	Week 1	Week 2	Week 3	Week 4
TOP-DOWN		Mass Media Campaign	Press releases; radio segments; jingle; opinion column; social networks; radio, television and press interviews							
DIGITAL		Chatbot	Expanded information channel		Registration and referral of users in door-to-door activities		Registration and referral of users in pop-up points		Self-management and maintenance channel	
BOTTOM-UP	HOUSEHOLDS AND SMALL SHOPS		Pop-up GIRO stand in strategic points in activation area							
			Activation of local shops with posters	Delivery of starter kit in every doorstep: GIRO waste bag for cars with magnet	Activation visits Characterization of households Tips to start separating Referral to chatbot as an information channel Placement of waste basket interventions		Compostable bins giveaways through local shops and chatbot First-person stories of successful separation to generate buy-in and content		Problem-solving visits with toolkit: • Reusable bags (prize) • Stickers (organization) • Chatbot (information) • Special needs (equipment)	
							Monitoring		Monitoring with feedback	
	BIG GENERATORS	MULTIHOUSE -HOLD BUILDINGS AND BUSINESSES	Formal notification of change of service with invitation to join a compulsory virtual course	Virtual course to explain GIRO and how to separate and dispose of waste for employees and doormen & janitors)	Activation with scheduled appointment at the end of the mandatory virtual course Delivery of starter kit and special equipment if necessary Collection route guidance		Problem-solving visit and equipment monitoring Assistance in organization in the shop / residential building Survey of non-participating shops			
							Monitoring and control			
		SCHOOLS	Notification	Virtual activation (school staff)	Visit to the school Workshops with teachers and students		Problem-solving visits Monitoring			

RESULTS AND TRANSITION TO IMPLEMENTATION

During our design phases, we were asking residents to make significant changes to their waste management habits. In addition to separating their household waste, residents had to adjust to new collections schedules. Prior to the start of GIRO, households in Olavarria had their mixed waste collected by the city between three and six times per week. During the pilots, collection switched to twice a week for mixed waste and once a week each for recyclables and compostables. At the end of our pilot phase, residents' ability to keep track of this new schedule and willingness to adjust their behavior were encouraging. Our eight-week activation blueprint (pilot 5) achieved **participation rates of nearly 50% for recyclables and nearly 30% for compostables.** And crucially, although these rates are similar to what we saw in the first pilot, the per household cost of achieving these results in pilot 5 was significantly lower – by 50%.

RESIDENTS' REFLECTIONS

"I'm thrilled, I love GIRO. In participation I think I've got a 10 because I put everything perfectly and I get upset when I see my neighbors who don't comply."

- Noemí, resident

"We organized ourselves as GIRO suggested in the organization guide. The recyclables one is the biggest and the compostables bin is very small as everything gets compacted. The mixed waste we put it in our patio. Now that we are used to the dynamics it is really easy."

- Ignacia & Eduaro, residents

"I was excited when I received an envelope with the program magnet and flyer at home. Personally, I reduced a lot the amount of trash that I throw out on the street. I believe in a sustainable city - what for us is a learning, for our children will be usual."

- Claudia Badagnani, resident of pilot 5

"Recycling is good for so many things... for a cleaner city, for the people who don't have a job. Recycling also serves to work, it is another source of work."

- Jesús Bosso, a worker in the GIRO sorting plant

"As a sports club, we are excited to strengthen and collaborate with the change of habits in our city. I consider the role of the sports clubs in this change as key - we also carry a social role in the city and we must work together for the well-being of all the residents of Olavarría."

- Leandro Lanceta, from local sport club El Fortín

Having proven that our activation blueprint is effective for creating recycling behavior change in a small population, we have now begun the process of preparing to roll out our initiatives to the entire city in the first half of 2023. Every two months, we will activate an additional wave of 10,000-15,000 households.

To prepare for this, we are building additional processing capacity to sort the much larger volume of recyclable and compostable materials that will be collected, procuring the required quantities of supporting materials, defining number of resources required for activation based on number of blocks & households per activation wave and field team productivity, and setting up and training the field team.

CONCLUSION AND RECOMMENDATIONS

When designing recycling programs, cities often focus heavily on operations and logistics. Although these two components are critical, they do not address the beliefs, expectations, and needs of the residents who will ultimately have to participate in the program for it to be successful. Delterra's Rethinking Recycling project in Olavarría provides a new roadmap for how recycling can be introduced to communities in the Global South. To create solutions that will open people's hearts and minds – and kitchens – to the habit of recycling, we utilized the same standardized methodology that consumer brands use to design products. We dove deeply into who our users really are and did iterative testing and experimentation to make sure their needs, wants, and perspectives remained at the center of our design and implementation process. This approach allows each community's distinct context and character to be reflected in its recycling program.

Our recommendation to municipalities embarking on behavior change journey consists of three key elements:

1. Invest in user research (Exploration phase) to really understand what residents need to be successful
2. Use a mix of mass media, individual face-to-face outreach, and relevant digital and physical supporting materials when introducing people to new recycling and compost programs
3. Build awareness and understanding *before* service changes go into effect, then follow up to support habit-building

With a thoughtful multi-pronged approach the creation of new recycling habits is possible and participation rates can reach levels high enough to support new investments in recycling infrastructure.

CONTRIBUTORS

We are grateful to the many individuals who contributed to this publication. They include people who worked on the program roll out, capturing key lessons, writing the paper; and reviewed drafts of the writing and helped clarify the key findings.

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