

# ImpactHouse

by Grant Thornton Netherlands

**dopper.**  
the bottle is the message

## Internal report

# Impact research 2023



# Executive summary

A vibrant underwater scene featuring a coral reef. The foreground is dominated by large, flowing, pinkish-purple coral structures. The background shows a clear blue ocean with numerous small, orange-tinted fish swimming around. The overall lighting is bright and natural, suggesting a sunny day underwater.



# Introduction

In 2023, Dopper and Impact House conducted an impact study to understand the effects of its products and services better. The focus was on assessing the reduction of single-use plastic (SUP) bottles and other forms of packaged water, as a result of owning and using a Dopper bottle (and Dopper taps, the signing of the Wave pledge, and the use of Google Maps). Additionally, the study compared three countries: the Netherlands, Belgium, and France.

To gain a comprehensive understanding of the behaviors leading to these SUP-savings, the research additionally to focuses on various stages of Theory of Change of Dopper. It seeks to analyze how Dopper bottle users progress through these different stages, what actions Dopper can take to facilitate their transition to the next phase, and the significant barriers encountered.



# Methods used

## Research Objectives

- Assess the effects of Dopper's products and services in terms of reducing single-use plastic bottles and packaged water, similar to a previous study.
- Investigate variations in savings between the Netherlands, Belgium, and France.
- Analyze consumer behavior along Dopper's change journey.
- Explore the factors influencing changes in knowledge, attitudes, and behaviors that Dopper can influence.

## A. Interviews with Dopper bottle Owners

We conducted interviews with 10 Dutch Dopper bottle owners to gain in-depth insights into consumer progress along the change journey. The insights from these interviews were used as a basis for the two consumer questionnaires.

## B. Online Surveys

Dopper distributed customized surveys to Dopper bottle owners and the general public in the three countries. With these surveys we aimed to gather information on Dopper usage, plastic awareness, and water consumption habits to assess savings at each change journey stage.

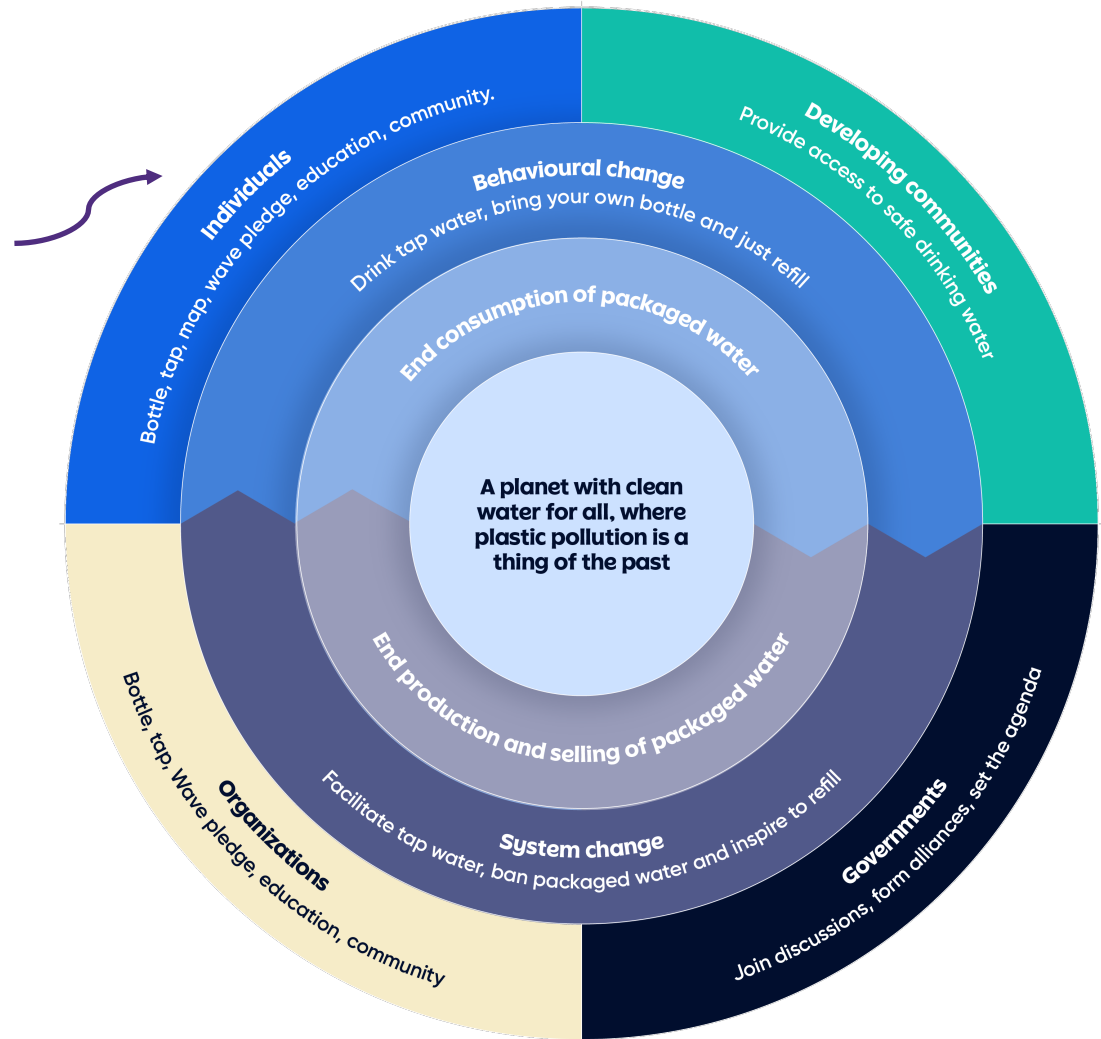
## C. Consumer Experiment

With the help of market research agency Toluna, we identified and identified respondents who do not owned a reusable water bottle in the three countries and proposed sending them Dopper bottles.

A follow-up survey assessed the impact of receiving a Dopper bottle, on knowledge, awareness and SUP consumption. The target was to have 150 respondents per country involved in the experiment.

## Theory of Change

In the design phase of the research, we helped Dopper develop a new Theory of Change (ToC). The ToC covers multiple stakeholders; the impact research focus is on the Individuals.





# Overview of conclusions

## The numbers

- Starting to use a Doppet bottle saves 104 bottles per person per year (based on experiment)
- Owning a Doppet bottle leads to significant SUP reduction, varying by country.
- 50.5% of Doppet bottle owners save large SUP bottles.
- 63% of Doppet bottle owners save small SUP bottles.
- 52% of participants who bought packaged water before owning a Doppet bottle no longer buy it.
- On average, Doppet bottle owners save 24.7% of their total SUP bottle consumption.

## What happens when someone starts using a Doppet bottle?

- Doppet introduction leads to immediate SUP reduction.
- The longer a person owns a Doppet bottle, the less SUP they use.
- Participants become more aware of plastic's global impact.
- Ownership increases willingness to combat plastic pollution.
- However, no direct link found between attitude change and SUP reduction.
- Visiting the Doppet website correlates with SUP use decrease.

## How does Doppet influence behavior change?

- Encouraging active Doppet bottle use can help new users take the first steps.
- Doppet causes significant improvements in knowledge and attitude related to plastic, pollution and protecting the oceans.
- Doppet bottle use influences perceptions of tap water taste and healthiness. These positive perceptions correlate with decreased SUP bottle use.
- Long-term zero-SUP lifestyle requires multiple Doppet bottles for various activities.



A vibrant underwater scene featuring large, colorful coral structures in shades of pink, purple, and green. Numerous small, yellowish-orange fish are swimming around the coral. The background is a clear, bright blue water surface with visible light rays.

**Conclusions in more detail**

# What are the effects of Dopper's products and services\* in terms of savings of single use plastic water bottles and packaged water?

## Key numbers:

- 50.5% of Dopper bottle owners save large SUP bottles on a weekly basis
- 63% of Dopper bottle owners save small SUP bottles on a weekly basis
- There is a large variety in the number of SUP bottles people save on a weekly basis (spread=30)
- The median number of small SUP bottles saved per week is 1.5
- The median number of large SUP bottles saved per week is 0.5
- 52% of the participants who did buy packaged water before owning a Dopper bottle, stated they did not buy any packaged water since owning a Dopper bottle.

**On a yearly basis, that is a total of 104\* SUP bottles saved per Dopper bottle owner.** On average the participants buy 421 bottles per year. Therefore, they save 24.7% of their total SUP bottle consumption.

## Conclusion:

Simply owning and trying out a Dopper bottle can significantly reduce the number of SUP, however the exact number of bottles saved varies between different populations and sub-groups. Nonetheless it is an impressive result, that in a research sample that does not fit with Dopper's usual target group and that uses lots of SUP, receiving a Dopper bottle can still lead to 24.7% in savings in the short-term.

While we can't conclude that there would not be any drop-off, we are confident that a significant part of the savings will continue after the experiment.

*\*Full calculation: The median number of saved small SUP bottles is 1.5 per week (in other words: the median difference between t0 and t1 was 1.5), and therefore 78 per year (1.5\*52). For large bottles the weekly savings was 0.5, therefore 26 per year (0.5\*52). The total number of saved bottles is 78+26=104.*



## In terms of savings figures, what are important differences between NL, BE and FR?

Based on the experiment we see – *at face value* – considerable differences between countries:

- Yearly savings in France = **182** (based on weekly saving of 2 small bottles and 1.5 big bottles) **603 – savings are 30%**
- Yearly savings in Netherlands = **52** (based on weekly saving of 1 small bottle and 0 big bottles) **243 – savings are 21%**
- Yearly saving in Belgium = **91** (based on weekly saving of 1.5 small bottles and 0.25 big bottles). **520 – savings are 18%**

Yet we question if these results will fully extrapolate to populations in these countries in general – we only found statistically significant differences between the countries when comparing large bottles or the total number of bottles. This is because there is so much variation of the number of SUP saved, within each country. In other words, the differences within each country or much larger between the countries.

In many respects, Belgium resembles the Netherlands more than France, for example in terms of attitude towards tap water and the number of SUP bottles used. However, when it comes to percentage of SUP bottles saved, Belgium resembles The Netherlands and we do not have a sound explanation for this.

A surprising result was that in France, participants indicated they saved a median of 1.5 big bottles per week, whereas in The Netherlands (0) and Belgium (0.25) this number was much smaller. This shows that a Doppie also can function as a replacement for larger SUP bottles.



## How do different types of consumers go through the change path from the ToC (from bottle to taps and/or Wave)?

- Consumers who were given a Dopper bottle show a significant **drop in their SUP use**, on the short term (approximately 3 – 4 weeks).
- After using the Dopper bottle, participants agreed more with the statements “plastic causes global problems” and “plastic is a large threat to life in the oceans”. Additionally, participants indicated that after owning a Dopper bottle they wanted to contribute more to reduce plastic pollution and felt stronger that their own actions could make a difference. This is interesting because in the experiment participants received only limited information about plastic pollution etc. (see next slide). Overall, we conclude Dopper bottle use coincides with **attitude changes**.
  - It needs to be added that before owning a Dopper bottle, many participants seemed to (slightly) agree with most statements, which is interesting given their very large consumption of SUP at that time.
  - From this we question whether, in terms of the change path, people see a direct link between their own plastic consumption and plastic pollution. If people do not make this link, then communicating about plastic pollution might not be a large driver for less plastic consumption. This is something Dopper can look into further, in order to enhance its motivating messages towards consumers.
- A decrease in SUP use couldn't be directly explained by a change in attitude. This again indicates that the attitudes that were measured are not the strongest drivers of SUP reduction.
- However, there is a strong correlation between participants who visited the Dopper **website** and their decrease in SUP use.
- The **longer a respondent owns a Dopper bottle**, the less SUP a respondent buys. 74% of the respondents who own a Dopper bottle for 5 years or more, never buy SUP bottles.
  - However, it is likely that the group who owns and uses a Dopper bottle for 5 years or more, was an ‘early adopter’ and therefore relatively far up the change path already (based on the interviews with 10 Dopper-fans).



## Interviews

The duration of owning Dopper bottles varies from 2 to 10 years.

Interviewees have an average of 5 to 7 Dopper bottles per household, usually for daily use.

Dopper's mission to reduce plastic pollution and promote tap water is appreciated.

Awareness of the "Dopper Wave" and its signature is limited, but most interviewees have endorsed Dopper's mission.

Most interviewees feel that they contribute to Dopper's mission by using reusable bottles.

Tap water is assessed positively, packaged water is only consumed abroad.

The plastic problem and ocean protection are considered important, but not always specifically linked to Dopper.

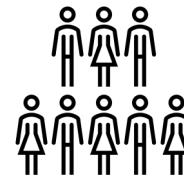
In general, interviewees are satisfied with Dopper's mission and product, although some improvements are suggested.

## Research questions

- What are the effects of Dopper's products and services in terms of **saving single-use plastic water bottles and packaged water**?
- In terms of savings figures, what are important **differences** between NL, BE and FR?
- How do different types of consumers go through the **change path** from the ToC (from bottle to tape and/or Wave)?
- What do they need to take **the next step**? How does a casual Dopper bottle user become a consistent Dopper bottle user?
- What changes in **knowledge, attitude and behavior** are influenceable for Dopper?
- What are **important differences** between NL, BE and FR in terms of knowledge attitude and behavior?



# Respondents



## Experiment

- Average age 57 years old
- No reusable drinking bottle yet
- 50-50 male-female
- 35% higher educated
- 5% an electric car
- 82.5% buy packaged water
- 10% never drink tap water
  
- *400 respondents*

## Database survey

- Average age 44 years old
- 84% Dutch
- 67% use a Dopper bottle every day
- Long users
  - 83.4% have had a Dopper bottle > 2 years
  - half of which > 5 years)
- 57% have signed the **wave**
- 62% never buy packaged water
- **Avg. 4.4 Dopper bottles, of which 3.4 are used.**
- *496 respondents*

## What are the effects of Dopper's products and services in terms of saving single-use plastic water bottles and packaged water?



### Database Survey:

- Overall, 62% of respondents never buy packaged water.
- Dutch Dopper fan buys 0.6 small plastic bottle + 0.4 large plastic bottle per week  $\approx$  "52 per year"
- Dutch Dopper fan buys 0.1 small glass/carton bottle + 0.2 large glass/carton bottle per week.

### By comparison, what about this for new users (experiment - before receiving the Dopper bottle):

- Only 18% say they never buy packaged water (in NL: 30%; in FR: 11%).
- On average, people buy 4.5 small bottles per week + 3.6 large plastic bottles per week  $\approx$  "421 per year"
- On average, people buy 0.24 small glass/cardboard bottles per week + 0.29 large glass/cardboard bottles per week.



## What are the effects of Dopper's products and services in terms of savings of single-use plastic water bottles and packaged water? (continued)



### What savings are possible through a small intervention: receiving a Dopper bottle:

- 63% of participants started buying **fewer small plastic** bottles
  - 25.5% no change (but this is not necessarily negative, including people who did not buy packaged water at t0)
- 50.5% of participants started buying **fewer large plastic** bottles
- <10% of participants decreased purchasing other forms of packaged water.

### How large is the savings to SUP?

- **Small bottles:** median = 1.5 bottle per week savings....

# Savings in detail



1,5

*Small plastic  
bottles saved  
per week (Mdn)*



- 11.5% going to buy more bottles
- 25.5% no change
- **63% will buy fewer bottles**



- 52% of the participants who still bought packaged water at t0 say they did not buy packaged water at t1 (since the Dopper)!

- 20% saved 6 bottles or more
- 20% saved between 3 and 6 bottles
- 20% saved between 3 and 0.5 bottles
- 3% saved between 0.5 and 0 bottles

## In terms of savings figures, what are important differences between NL, BE and FR?

- EXP: Of the French and Belgians, there is a higher proportion who buy less SUP than in NL.
- EXP: In the NL, a larger group showed no change because they already bought little to no packaged water at t0.
- EXP: However in absolute savings figures we do not see significant differences (due to large spread).

Never buys packaged water	NL	BE	FR	Total
Survey	66%	40%	53%	62%
Exp - t0	29,5%	13%	11%	17,5%





## How long do people use a Dopper bottle?

Intensity of Dopper bottle use, does not really depend on how long you have had a Dopper bottle - however, many things around it develop positively if you have a Dopper bottle longer (*or: individuals who have a Dopper bottle longer, differ from individuals who have a Dopper bottle shorter*) [>5y; 2-5y; about 1 year; <3 months]

### Having a Dopper bottle longer means...

- ...more convinced tap water drinker
  - If possible, I drink tap water (80 > 70 > 50 > 30%)
  - Tap water just as tasty (70 > 50 > 40 > 35%)
  - Tap water just as healthy (85 > 71 > 68 > 58%)
- ...buy less packaged water. (74 > 61 > 40 > 36% never buy packaged water).
- ...Wave signing (57 < 62 > 52 > 25%).
- ...take their Dopper bottle with them more often (60 > 45 > 40 > 35%)
- ...forget their Dopper bottle less often (13 < 20 < 21 < 25%)



## Consistency that we do and do not see

### Coherence

- Use of a Dopper bottle & consumption of packaged water (-) (*every day 32% buy vs sometimes 55% buy*).
- Perceived taste + perception health tap water & use tap water (+)
- **Perceived taste** & consumption packaged water (-) (*disagree 68% buy vs. agree 24% buy*)
- **Perception of health tap water** & consumption of packaged water (+) (*disagree 43% vs. agree 28% buy*)
- Signed Wave & consumption plastic bottle (-) (*very slight: signed 26% buy, not signed 38% buy*)

### No consistency

- Wave signing and & use of the Dopper bottle
- Use water taps\* & consumption packaged water *of those who know tap, only 1.7% use it several days a week or daily*
- Use Google Maps feature & consume packaged water

## Taste and health perception correlate with purchase packaged water.



- Taste of tap water (as good as packaged water)
  - *DBSurvey: disagree 68% buy vs. agree 24% buy*
  - *Exp: Taste score 1: 19% do not buy packaged water; Taste score 5: 88% do not sell packaged water.*
  - *Taste at t0 predicts amount of packaged water at t1*
- Perception of health of tap water
  - *DBSurvey (disagree 43% vs. agree 28% buy)*
  - *Exp: Health score 1: 21% do not buy packaged water; health score 5: 81% do not sell packaged water*
  - *Health score at t0 predicts amount of packaged water at t1*
- *Wave, Water taps and Google Maps application use no relationship (based on database survey)*



## Where did people use their Doppo bottle?

Results experiment	
At home	67%
While commuting	52%
At work	27%
While exercising	24%
Day trip	24%
In the hospitality industry	2%

*Note.* Percentages add up to more than 100% because participants could provide multiple answers.

Results database survey	
Continuously (e.g., at work/school)	87%
While travelling	61%
While exercising	38%

*Note.* For the sake of brevity, a shorter question was asked to participants of the database survey compared to the experiment. Percentages add up to more than 100% because participants could provide multiple answers.

## Where did people drink packaged water

Results experiment	
At home	80%
While commuting	63%
Day trip	52%
While exercising	37%
Travel	37%
At work	27%
In the hospitality industry	13%

*Note.* Percentages add up to more than 100% because participants could provide multiple answers.  
Question is only answered by those people indicated they consumed packaged water.

## Data base survey: duration of having a Dopper bottle

< 3mnd -- 1 year -- 2 / 5 years -- 5 years.

- I never buy packaged water: 35,7% < 39,7% < 61,0% < 73,6%.
- I buy packed water (plastic): 64,3% > 49,1% > 31,2% > 22,8%.

	Plastic < 1 lit. (per week)	Plastic < 1 lit. (per jaar)	Plastic > 1 lit. (per week)	Plastic > 1 lit. Per jaar
< 3 mnd	1,9	2,6	2,6	133,7
1 jaar	0,6	1,2	1,2	62,8
2 – 5 jaar	1,2	0,7	0,7	34,8
> 5 jaar	0,2	0,2	0,2	8,6



## Data base survey: country differences

### Country & consumption packaged water (previous analysis)

- Never buys packaged water (Netherlands 65,7% > France 51,7% > Belgium 40,0%).  $p < 0.001$
- Buys plastic bottles (Netherlands 28,6% < France 44,8% < Belgium 48,0%)
  - *Note: Not able to test for consumption of glass and cardboard packed water because of small size within categories.*

### Country & perception tap

- Taste of tap water is just as good as packed water (Netherlands 77,1% > France 66,7% > Belgium 56,7%).  $p = 0.004$
- Health of tap water is just as good as packed water (Netherlands 77,0% -- France 77,7% < Belgium 60,7%) = not significant



